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Industrial development

ASIA and the FAR EAST

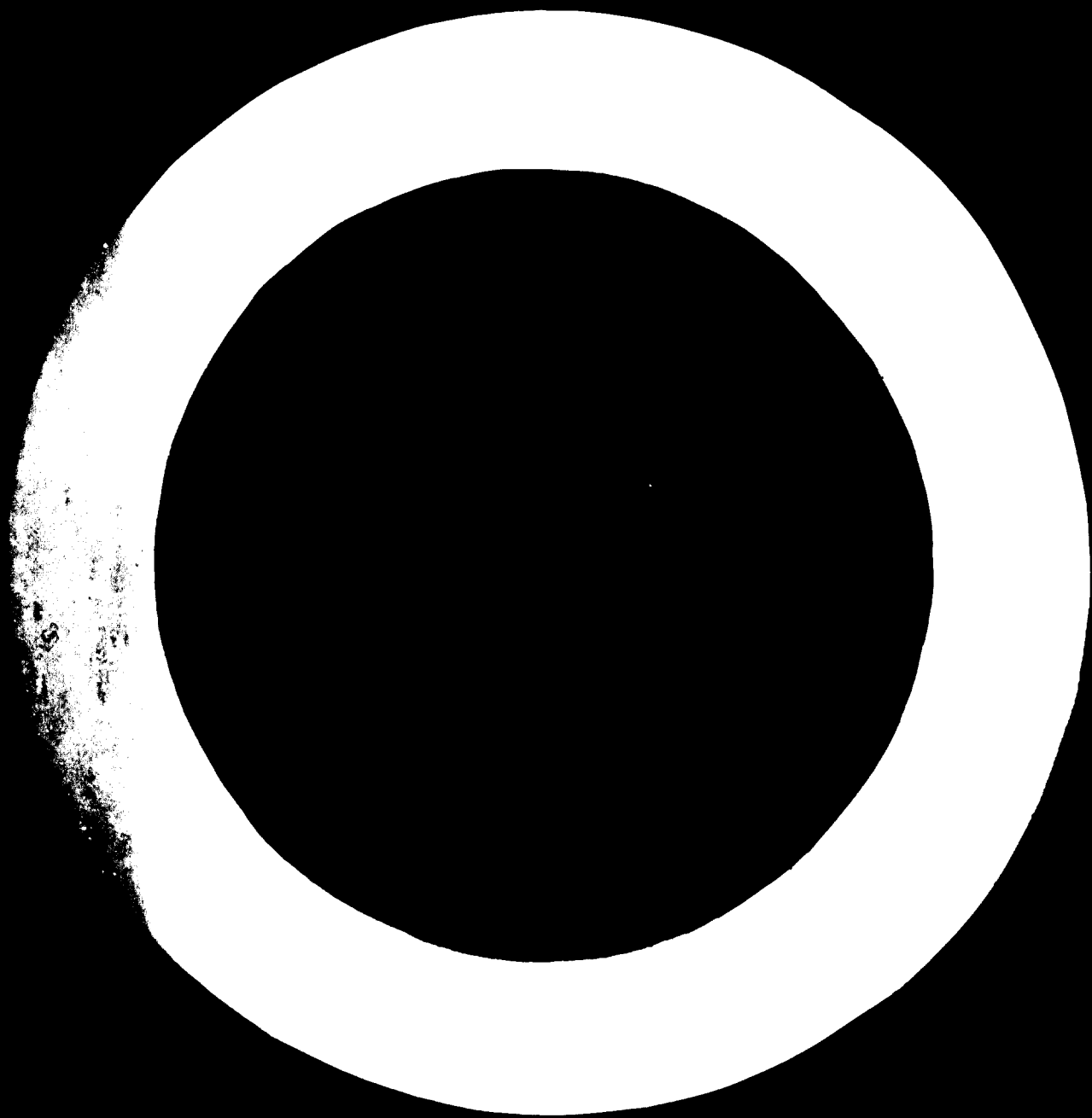
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VOLUME III • Laos • Malaysia • Nepal • Singapore
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Bangkok, Thailand

INDUSTRIAL DEVELOPMENTS IN ASIA AND THE FAR EAST

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Nepal, New Zealand, Pakistan
Philippines, Singapore, Thailand
Republic of Viet-Nam

Selected documents presented to the Asian
Conference on Industrialization
Manila, 6-20 December 1965



UNITED NATIONS
New York, 1966

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PREFACE

This publication contains the principal documents constituting the Supplement entitled *Industrial Developments in Asia and the Far East* pertaining to the Asian Conference on Industrialization¹ which was held at Manila, Philippines, from 6 to 20 December 1965, under the sponsorship of the Economic Commission for Asia and the Far East (ECAFE) with the co-operation of the United Nations Centre for Industrial Development.

The publication consists of four volumes:

Volume I contains background documentation.

Volume II and III contain twenty-one country studies prepared by the countries of the region and the secretariat.

Volume IV contains sectoral studies on the development of thirteen key industries in the ECAFE region.

In the case of translations and in some instances where the English of the original papers appeared to need clarification, some paraphrasing has been found necessary; explanatory footnotes have been added where deemed necessary or helpful to the maintenance of consistency in technical terminology.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of the frontiers of any country or territory.

¹ Originally known as the ECAFE Regional Symposium on Industrialization. However, in view of the importance of industrialization to the developing countries of Asia and the Far East, the Economic Commission for Asia and the Far East at its twenty-first session in 1965, felt that the proposed symposium should be raised to the level of a conference, thus making it feasible for the governments to send high level officials who were concerned with both the policy and technical aspects of industrial development in their countries. The Commission, therefore, decided to change the name of the Symposium to the Asian Conference on Industrialization.



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TABLE OF CONTENTS

Volume III

COUNTRY STUDIES

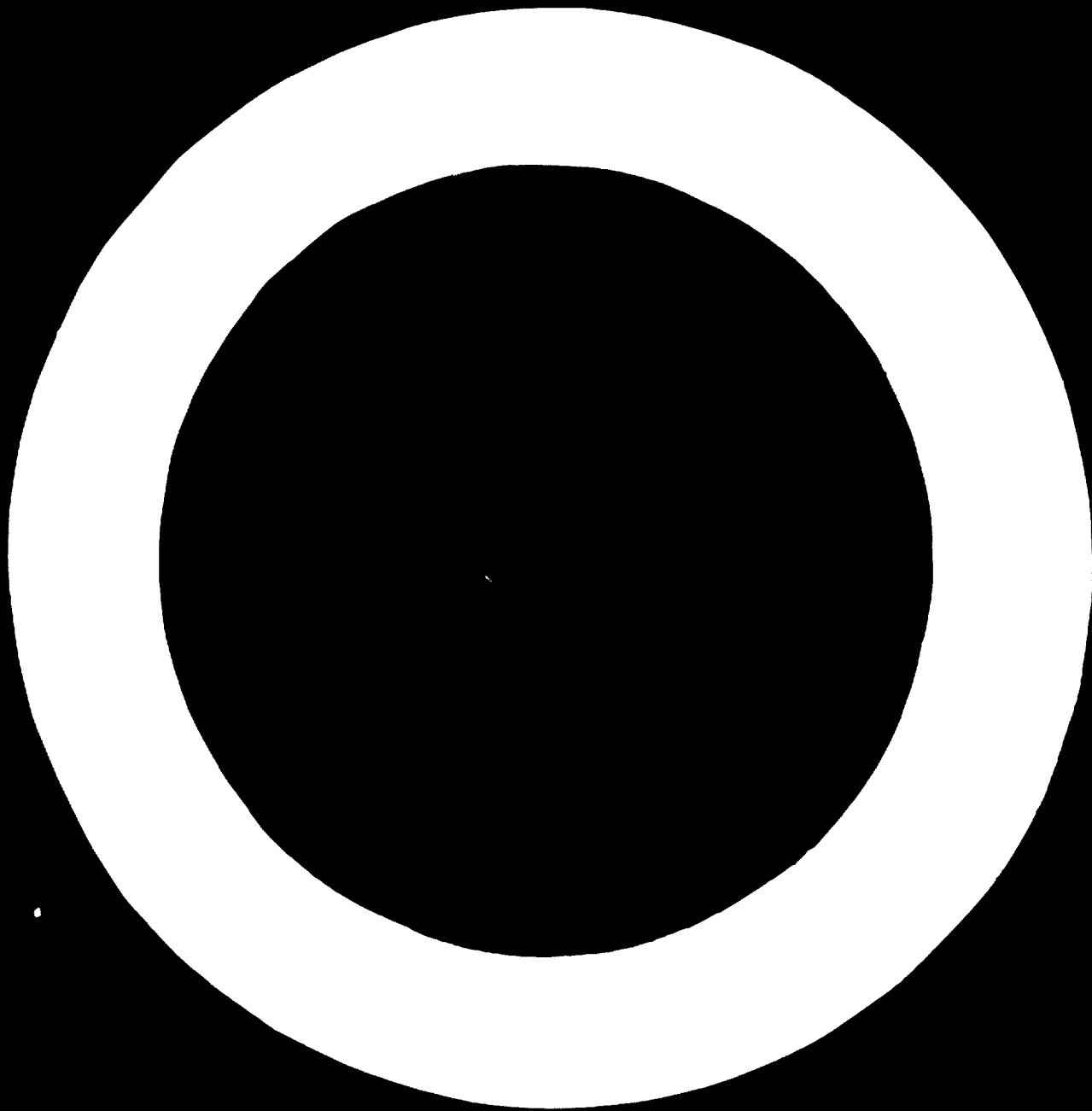
	Page
A Country Study on Laos D03922	
Chapters: I. Planning and programming for industrialization	1
II. Industrial potential	2
III. Industrial policy	5
IV. Market analysis and surveys	10
V. Mobilization of capital for industrial development	11
VI. Institutional arrangements for industrial promotion	12
VII. Technical training: manpower development	13
VIII. Development of major industries	14
IX. Export of manufactured goods and semi-manufactures	15
X. Measures for accelerating industrialization, diversifying manufacturing, and promoting exports of manufactured goods	15
XI. Industrialization problems	16
A Country Study on Malaysia 3923	
Chapters: I. Planning and programming for industrialization	17
II. Industrial potential	19
III. Industrial policy	22
IV. Market analysis and surveys	27
V. Mobilization of capital for industrial development	27
VI. Institutional arrangements for industrial promotion	33
VII. Technical training: manpower development	34
VIII. Development of major industries	35
IX. Export of manufactured goods and semi-manufactures	41
X. Measures for accelerating industrialization, diversifying manufacturing, and promoting exports of manufactured products	44
XI. Industrialization and the economic future of Malaysia	45
A Country Study on Nepal 3924	
Chapters: I. Planning and programming for industrialization	49
II. Industrial potential	51
III. Industrial policy	54
IV. Market analysis and surveys	61
V. Mobilization of capital for industrial development	61
VI. Institutional arrangements for industrial promotion	66
VII. Technical training: manpower development	68
VIII. Development of major industries	71
IX. Export of manufactured goods and semi-manufactures	73
X. Measures for accelerating industrialization, diversifying manufacturing and promoting exports of manufactured goods	76
XI. Suggestions for international co-operation	78

	D O 3925	A Country Study on New Zealand	
Chapters:	I.	Planning and programming for industrialization	79
	II.	Economic potential	81
	III.	Industrial policy	89
	IV.	Market analysis and surveys	93
	V.	Mobilization of capital for industrial development	93
	VI.	Institutional arrangements for industrial promotion	96
	VII.	Technical training: manpower development	98
	VIII.	Development of major industries	99
	IX.	Export of manufactured goods and semi-manufactures	106
	X.	Measures for accelerating industrialization, diversifying manufacturing and promoting exports of manufactured products	109
	3926	A Country Study on Pakistan	
Chapters:	I.	Planning and programming for industrialization	111
	II.	Industrial potential	120
	III.	Industrial policy	129
	IV.	Market analysis and surveys	138
	V.	Mobilization of capital for industrial development	140
	VI.	Institutional arrangements for industrial promotion	152
	VII.	Technical training: manpower development	177
	VIII.	Development of major industries	180
	IX.	Export of manufactured goods and semi-manufactures	195
	X.	Measures for accelerating industrialization, diversifying manufacturing, and promoting exports of manufactured products	201
	3927	A Country Study on the Philippines	
Chapters:	I.	Planning and programming for industrialization	207
	II.	Industrial potential	209
	III.	Industrial policy	210
	IV.	Market analysis and surveys	211
	V.	Mobilization of capital for industrial development	215
	VI.	Institutional arrangements for industrial promotion	222
	VII.	Technical training: manpower development	222
	VIII.	Development of major industries	226
	IX.	Export of manufactured goods and semi-manufactures	227
	X.	Measures for accelerating industrialization, diversifying manufacturing, and promoting exports of manufactured products	230
	3928	A Country Study on Singapore	
Chapters:	I.	Planning and programming for industrialization	249
	II.	Industrial policy	249
	III.	Industrial potential	251
	IV.	Mobilization of capital for industrial investment	253
	V.	Technical training and manpower development	254
	VI.	Development of major industries	255
	3929	A Country Study on Thailand	
Chapters:	I.	Planning and programming for industrialization	257
	II.	Industrial potential	258
	III.	Industrial policy	262

	Page
IV. Market analysis and surveys	285
V. Mobilization of capital for industrial development	286
VI. Institutional arrangements for industrial promotion	303
VII. Technical training: manpower development	315
VIII. Development of major industries	321
IX. Export of manufactured goods and semi-manufactures	327
X. Measures for accelerating industrialization, diversifying manufacturing and promoting exports of manufactured goods	333

A Country Study on the Republic of Viet-Nam *DO3930*

Chapters:	I. Planning and programming for industrialization	343
	II. Industrial potential	344
	III. Industrial policy	346
	IV. Market analysis and surveys	352
	V. Mobilization of capital for industrial development	352
	VI. Institutional arrangements for industrial promotion	355
	VII. Technical training: manpower development	357
	VIII. Development of major industries	358
	IX. Export of manufactured goods and semi-manufactures	372
	X. Measures for accelerating industrialization, diversifying manufacturing, and promoting exports of manufactured products	375



A COUNTRY STUDY ON LAOS

INTRODUCTION

The preparation of this country study was made possible through the co-operation of the Commissariat au Plan (plan office), Electricité du Laos (the national power authority), the Departments of Public Works, Navigation, Civil Aviation, Vocational Instruction, the National Bank, the Crédit National (national loan bank), Statistics, Taxation and External Finance, and also through the help of experts attached to the economic and financial departments and the heads of certain industrial concerns who were good enough to provide us with some necessary documents and some very useful information.

To the directors of all those departments and to the experts and industrialists concerned, we wish to express our sincerest thanks.

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning

The first economic and social development plan for Laos was drawn up in 1952 and approved by the National Assembly on 8 May 1953, but the conditions of unrest and political difficulties in the succeeding years prevented the plan from being put into effect.

In recent years, therefore, work has been based entirely on annual programmes drawn up for the main sectors of government activity.

The above-mentioned plan was taken up again, revised and promulgated by Royal Ordinance on 19 March 1959 as the kingdom's five-year plan, to be implemented over the period 1 July 1959 to 30 June 1964. However, owing to budgetary limitations and lack of external assistance, the revised plan has only been partially implemented in such basic sectors as agriculture, education and public health. To rectify this state of affairs the Ministry of Planning and Co-operation has worked out a biennial plan (1966-67) which envisages development of small- and medium-scale enterprises producing cement, plywood, and sugar and providing slaughter-house and river transport services. Unlike the five-year plan, which was based mainly on foreign aid, this biennial plan has been conceived within the limitations of the country's financial capabilities.

b. Machinery for planning

In Laos, the Commissariat au Plan is the depart-

ment concerned with planning. It is made up of the following branches:

The Bureau of Economic and Technical Studies,
The Bureau of Foreign Aid.

The Commissariat au Plan is also assisted by a standing executive committee for the plan, which includes representatives from all the government departments concerned with the plan programmes, and a commission of mines and industry. These bodies are both presided over by the head of the Commissariat au Plan.

The Commissariat au Plan plays the role of national co-ordinator. It works in close collaboration with all the departments responsible for promoting the economic and social development of the country.

When the action programmes have been studied by the departments concerned, they are submitted for consideration either by the standing executive committee (for programmes whose implementation will involve one department in particular) or by the Commission of Mines and Industry (for new industrial enterprises whether or not applying for the special advantages provided for in the regulations).

When the standing committee has made its comments, the Commissariat au Plan prepares a motivated report on each item for approval by the Senior Plan Committee of the Government.

II. INDUSTRIAL POTENTIAL

a. Industrial feasibility surveys

Industrial feasibility surveys have been made in some detail for certain industries and for certain regions of the country, and the position is summarized below.

1. Building materials

(a) *Binding materials.* The reserves of raw materials for the manufacture of lime, cement and plaster may be regarded as inexhaustible, in view of the size of the known deposits. These industries are, however, dependent on sources of fuel. It is therefore intended to use firewood for lime and charcoal for cement until such time as prospecting reveals sufficient coal to supply these industries.

(b) *Clay products.* The deposits of clay are sufficiently large so that, once the feasibility of using coal has been established, it will be possible to install a modern factory for the production of the following items:

solid, wire-cut bricks,
 large hollow bricks,
 hollow bricks and hollow gauged bricks of various sizes,
 all corresponding special products,
 tiles.

A factory of this nature will have to satisfy the needs of the building industry in the country and provide for some exports to neighbouring territories.

(c) *Cement-based materials.* Studies have been made with a view to modernizing the factories producing through-bonders, pipes of various sizes and cement slabs. At the moment, these factories use only ball presses, which produce goods of mediocre quality.

2. *Agricultural and food industries*

The production of certain consumer goods appears necessary in view of the local demand and the existence of all or part of the raw material or the possibility of developing production. Cotton ginning, spinning, and weaving come into this category. The country's present requirements are estimated at 2,500 tons of cotton yarn and 200,000 100-metre pieces of cotton fabric. These figures will increase with the growth in purchasing power of the population.

Other production units in this category are:

- a brewery, to cover domestic requirements and provide some for export to neighbouring territories;
- a pineapple juice and preserved fruit plant;
- oil works (groundnut, sunflower, cottonseed).

3. *Forest-based Industries*

Peeling of veneers. The abundance of suitable tree species for the peeling of veneers and the size of the international market are factors which would favour the setting up of such an industry, based largely on exports but at the same time meeting the increasing needs of the domestic market (furniture, structural work, packing cases, and so on).

Paper. The establishment of a paper industry comes into consideration in view of the abundance and high quality (bamboo) of the raw material available in the forests of Laos and the steady growth in the world demand for paper and pulp, and is favoured by the availability of electric power and the presence of coal.

b. *Resources survey*

The preparation of a resources survey has been approached in the same way as industrial feasibility surveys. The work has not yet been carried to completion because of the inadequate means and the lack of country-wide security. The resources may be divided into groups according to type, and these groups are discussed below.

1. *Mineral resources*

(a) *Fuel.* The search for possible sources of energy is a task of the greatest urgency, initially in

terms of prospecting and subsequently in terms of harnessing the resources found.

With regard to coal, the promising indications noted in the regions of north Vientiane and north Saravane suggest that exploration work should be concentrated on these two basins, especially since there is reason to hope that mining might be started there within one to two years.

The indications of petroleum still have to be verified and analysed but, according to preliminary studies, the geology of the sedimentary basins is favourable.

(b) *Ores.* Ores provide the most likely means of obtaining rapidly a source of national revenue. Explorations for tin, lead, copper, gold, molybdenum and silver ores, in decreasing order of importance, should therefore be carried out, taking the known occurrences into account.

(c) *Non-metallic minerals.* The resources of non-metallic minerals are capable of satisfying local needs, both for direct use and for various processing industries. The minerals in question are salt, phosphates, gypsum, limestone, clays, kaolin and mica.

(d) *Iron ores.* A surface exploration of the Xiengkhouange area (north-east) made in 1959/60 revealed two large deposits of iron ore, which were confirmed by aeromagnetic surveying. Less important deposits have also been discovered at numerous other points.

2. *Agricultural resources*

Being an essentially agricultural country, Laos has great potentialities in agriculture. With the situation as it is at present, however, the Laotian economy is still one of subsistence, in spite of the fact that the population is 90 per cent rural. Apart from some exports of coffee and a little cotton, the products of agriculture are consumed locally.

In the first place, the cultivation of crops for export is not a profitable activity, because of the archaic implements used and the high cost of labour. If food industries were to be introduced, the peasants would no doubt be encouraged to intensify their production. A typical example is provided by tobacco, which was not cultivated so widely before the installation of cigarette factories as it is now.

Cultivation of the following crops could easily be taken up over vast stretches of very fertile land (by rivers or on high ground), to supply the food industry or manufacturing industries:

- sugar-cane
- oilseeds (groundnuts, sunflower)
- pineapples
- root crops (cassava, sweet potato)
- soya, cowpeas (green, black)
- warm-climate and temperate-climate vegetables
- cotton
- jute
- roselle (kenaf)

This section on agricultural resources should include livestock products, the most important of which, bovine and buffalo skins, provide the raw material for the tanning industry. Up until now, these skins have just been given a brief arsenic treatment prior to export. Slaughterhouse by-products also form a useful source of raw material for another processing industry.

3. Forest resources

It is estimated that about 60 per cent of the country (230,000 km²) is covered by forests. These forests vary in nature from wooden savanna of no great economic potential to dense forest. It may be said that 25 per cent of the total area offers some economic potential.

The following figures for average annual production of wood give an idea of the importance of forest resources in Laos:

lumber	72,500 m ³
firewood	80,000 m ³
wood charcoal	30,000 m ³
rough timber	130,000 m ³

4. Water resources

The studies and survey work carried out by the experts of the Japanese mission in 1961 on all the main tributaries of the Mekong showed that, of the four riparian countries (Cambodia, Laos, Thailand and Viet-Nam), Laos possessed tributaries with the highest energy potential, as is shown in table 1.

TABLE 1. HYDRO-ELECTRIC POWER POTENTIAL IN MEKONG RIPARIAN COUNTRIES

Country	Number of Mekong tributaries considered	Potential total installed capacity (kW)	Potential annual production (10 ⁶ kWh)	Percentage of total
Cambodia	15	970,000	5,728	12.0
Laos	12	5,300,000	32,680	69.5
Thailand	10	370,000	2,112	4.5
Viet-Nam	2	1,000,000	6,550	14.0
Total		7,640,000	47,070	100.0

Table 2 shows the distribution of the twelve Mekong tributaries in Laos and the power potential by regions.

TABLE 2. DISTRIBUTION OF HYDRO-ELECTRIC POWER POTENTIAL BY REGIONS

Region	River	Potential installed capacity (kW)	Potential annual production (10 ⁶ kWh)
Luang Prabang	Nam Tha	1,500,000	9,820
	Nam Ou		
	Nam Seuang		
	Nam Khan		
Vientiane	Nam Ngum	900,000	6,800
	Nam Sane		
	Nam Nhiep		
Thakhek-Savannakhet	Nam Theun Nam Se Bangfay	2,100,000	11,950

Paksé	Se Bang Hieng Se Done Se Kong	800,000	4,110
Total		5,300,000	32,680

5. Human resources

The population of Laos is estimated at 2,400,000 inhabitants. The people are engaged mainly in agriculture, apart from those in government or military service. Almost 90 per cent of the population lives on a subsistence economy, trading being very limited and generally taking the form of barter exchanges.

There is no unemployment in Laos, and it will remain so as long as a large proportion of the active work force remains mobilized. When conditions return to normal in the country this work force will constitute a very important reserve for the economic sectors, especially for industry and handicrafts.

c. Infrastructure

1. Transport

In this section, we shall deal only briefly with communication routes, one of the principal factors of transport, since accurate information on transport means and tonnages is not available.

(a) Land transportation

In relation to its size, Laos has a very poorly developed road system. The main artery linking the chief provincial centres with the capital is Highway 13, which follows the Mekong from the Cambodian border to the royal city of Luang Prabang. It has a length of about 1,600 km, half of which is usable all the year round. The work in progress is being actively pursued to finish a stretch of 100 kilometres and thus provide an all-weather link between the south of the country (Paksé, Savannakhet, Thakhek) and Vientiane.

The authorities concerned have drawn up plans to integrate this important road artery of Laos into the Asian Highway project by extending it from Luang Prabang to the Burmese border, a distance of 370 kilometres.

Other main highways already link the chief provincial centres of Laos with neighbouring countries, crossing Laos in an east-west direction. Highway 7 (279 kilometres) links Phoukhone (263 kilometres from Vientiane) with Vinh in North Viet-Nam. Highway 8 (178 kilometres) runs from Thakhek to Tan Ap, also in North Viet-Nam. Highway 9 (240 kilometres) links Savannakhet with Dong Ha in South Viet-Nam, and Highway 10 (40 kilometres) links Paksé with Ubol in Thailand.

Generally speaking, these roads are motorable almost all the year round, but as a result of the conditions of insecurity, Highways 7, 8 and 9 are used only within the zones controlled by the Central Government.

In addition to these highways, there are a number of roads known as National Routes which serve to link up the provinces. Most of these roads are

actually bridle-paths usable only by jeeps in the dry season, and only a very limited length has been graded or surfaced.

A vast future programme has been drawn up by the bridges and highways department to expand the entire road network by 50 per cent in order to satisfy the needs of the ever-growing volume of traffic.

(b) River transportation

The principal waterway in Laos is the Mekong, which also serves largely as the natural boundary between Laos and Thailand. The Mekong covers a distance of over 1,000 kilometres in Laotian territory and it is this great river which provides communication between the main provinces of the north and the south (Houei Sai, Sayaboury, Luang Prabang, Khammouane, Savannakhet, Paksé, Champassak and Sithandone).

As a result of falls and rapids, however, the river is not navigable over its entire length in Laos nor at all times of the year. The river is thus broken into a number of navigable reaches which lie between the following points:

- 1) Khone — Khemmarat
- 2) Savannakhet — Vientiane
- 3) Vientiane — Luang Prabang
- 4) Luang Prabang — Houei Sai

The first reach is navigable throughout the year by launches of fairly high tonnage (70 to 100 tons).

Reaches 2 and 3 are navigable only during the high-water period (July to October) by launches of the same tonnage as above. Navigation on the last reach is limited to motor *pirogues*¹ of 30 to 40 tons, and the same is true for the second reach during the low-water season (November to June).

Within the framework of the Mekong Project, hydrographic survey work on a scale of 1:20,000 has been completed from Luang Prabang to Paksé. Detailed surveying on a large scale is in progress on the rapids sections (Keng Kabao), with a view to improving them.

(c) Air transportation

Laos has about ten average-sized airfields capable of receiving aircraft of the DC-3 type. The fields are located at the main provincial centres in the kingdom, including Luang Prabang, Thakhek, Paksé, and Saravane.

Vientiane airport deserves special mention. A great deal of improvement work has been carried out there in recent years and facilities have been installed with a view to making it into an international airport in the near future.

Regular twice-weekly flights are already in operation between Vientiane and the neighbouring capitals of Bangkok and Phnom Penh, and also Hong Kong. For the moment, however, the airport can handle aircraft only of the DC-6 type because of the inadequacy of certain technical installations.

¹ *Pirogue*: a shallow narrow and open boat.

In Laos, air transportation is a luxury but also a common one both for passengers and for freight, in spite of the high fares. The reason for this, as we have seen above, is that the country's network of roads and waterways is very poorly developed, and movement over long distances is open to the risks of insecurity and delay.

Following the last monetary reform introduced by the Government, the Civil Aviation Authority was confronted with the awkward problem of finding a solution to the difficulties being faced by the airlines. The problem was, on the one hand, to expand the air network and the transport fleet and, on the other hand, to allow for the five-fold increase in charges with which the air transport companies had to cope. In spite of everything, the *modus vivendi* arrived at by the Government and the companies meant increasing the old rates by a factor of three, which is an enormous increase. In practice, this adjustment in rates, although limited, resulted in a considerable drop in air traffic.

2. Electric power

Laos, a country whose population is 90 per cent rural, has one city, the capital, Vientiane, with 120,000 inhabitants, four towns with 15,000 to 30,000 inhabitants (Luang Prabang, Thakhek, Savannakhet and Paksé), and about ten smaller towns with 2,000 to 5,000 inhabitants.

As the rural economy is largely one of subsistence, rural electrification can not be envisaged at the present time. In the next decade, electric power development will be concentrated on the towns and the developing urban centres.

(a) Present situation

The present situation in all the urban centres, including Vientiane and the four main provincial towns, is characterized by the inadequacy of the means of production and distribution.

The production facilities consist of an assortment of diesel generating sets of varying origin and capacity, installed in accordance with the possibilities and as the opportunities arose.

In all cases, and at Vientiane in particular, there is a need for a general overhauling of production facilities, since a large number of different low- and medium-power generating sets cannot in general be coupled together, and the supply is insufficient for requirements. The distribution systems are also of insufficient extent and capacity.

(b) Programme envisaged

The programme which has been drawn up includes:

- (i) The adoption of a uniform three-phase distribution current of 50 cycles and 220/380 volts.
- (ii) The adoption of a primary voltage of 15,000 volts.
- (iii) The installation 220/380 V low-tension distribution systems with a distribution capacity

calculated on the basis of double the power requirement expected in 1974, thus allowing for normal development over a ten-year period.

- (iv) The raising of the installed capacity in each town, either by rearranging the existing sets so as to obtain homogeneous production facilities in each power station or by providing new equipment.

(e) *Studies of implementation and financing*

The draft plan for low- and medium-tension distribution systems in the provinces has already been prepared. The final studies, the implementation and the financing are being studied in collaboration with the Government of the Federal Republic of Germany. The studies on installing distribution systems in Vientiane have also been completed, and work has started. Certain pieces of equipment ordered from France are on the way.

As far as production capacity is concerned, the provincial centres will have the following installed capacities by 1970:

Luang Prabang:	1,730 kVA, of which 1,080 kVA will come from the Nam Dong dam (present capacity 640 kVA),
Thakhek:	860 kVA (present capacity 340 kVA),
Savannakhet:	2,750 kVA (present capacity 660 kVA),
Paksé:	3,685 kVA, of which 2,280 kVA will come from the Selabam dam (present capacity 560 kVA),
Saravane:	80 kVA (present capacity 30 kVA).

As for the city of Vientiane, the present capacity is 4,000 kVA, the capacity to be installed is 8,000 kVA, and the final capacity will thus be 12,000 kVA.

The production capacity at other new centres will be as follows:

Sayaboury	: 110 kVA
Kengkok	: 210 kVA
Khong Sedone	: 90 kVA
Passac	: 80 kVA
Paksong	: 110 kVA
Khong	: 80 kVA

III. INDUSTRIAL POLICY

a. Investment laws and regulations

1. Basic legislation and measures taken to attract capital

In Laos, measures are taken to attract capital and encourage investment in accordance with the country's economic and social development plan. These measures are governed by Ordinance-Law No. 134 of 23 May 1958 and subsequent presidential orders.

The main features of this Ordinance-Law are described in the following paragraphs.

Article 1. With effect from 1 November 1957, and for a period of ten years, the industrial and commercial profits acquired in the Kingdom of Laos by enterprises subject to the system of taxation on real profit shall qualify for exemption either from the income tax on physical persons or from the tax on company profits, as the case may be.

Article 3. The exemption mentioned in article 1 shall be granted subject to the condition that the project in question has been submitted for prior consideration by the government department responsible for preparing the economic and social development plan of Laos.

Article 4. The final decision to grant the exemption mentioned in article 1 shall be taken only if the project envisaged is carried out within a maximum time limit of two years starting from the end of the business year during which the profits in question were declared. Otherwise, the profits which had been exempted shall be added for taxation purposes to the profits of the business year during which the two-year time limit mentioned above expired.

Article 5. Companies formed in Laos within a period of two years after 1 November 1957 shall benefit from the following tax exemptions, provided that the sole purpose of such companies is to set up and operate a clearly defined agricultural, industrial or mining enterprise, in accordance with the economic and social development plan of Laos:

reduction of the registration fee to 0.25 per cent when the instruments describing the constitution of the company are registered.

waiving of the transfer duty applicable to immovable property included in the formation of the company's capital.

Article 6. With effect from 1 November 1957, and for a period of ten years, exemption from customs duties may be granted to imports of certain agricultural, industrial or mining equipment needed for the execution of projects which are clearly defined and in accordance with the economic and social development plan of Laos.

Article 7. Within the first three months of each financial year, the Controller of Direct Taxation of the district concerned, the Inspector of Registration of the district concerned, and an expert appointed by the Minister of Finance on the recommendation of the department responsible for drafting the plan, acting together, shall check the documents and actual operations of the investments made by all persons benefiting from the exemptions provided for in this Ordinance-Law.

2. Other pertinent laws and regulations

(a) Control of capital issue

There are no laws on this subject.

(b) *Import of capital goods, location of industrial enterprises and licensing of factory establishments*

These three subjects are covered by Presidential Order no. 226/PC of the 31 July 1959, the main features of which are described in the following paragraphs.

Article 2. A Commission of Mines and Industry shall be set up in the Commissariat au Plan.

Article 3. This Commission shall have the following functions:

to comment from the technical and economic points of view on all applications for permission to install industries and for mining rights;

To study the concessions to be granted and the obligations to be imposed on industrial and mining concerns within the framework of the kingdom's economic and social development plan;

to study the legal nature of the concerns mentioned above and, if they include some government participation, to draw up their articles of incorporation, the conditions governing possible concessions in the use of public utilities, and all other documents in which the interests of the State are involved;

to organize the control and supervision of the establishment and operation of enterprises set up in accordance with the economic and social development plan and enjoying the corresponding advantages;

to undertake all studies of a technical and economic nature passed to it by the Commissariat au Plan, within the framework of the economic and social development plan;

to submit any suggested decisions arising from such studies for approval by the Government and possible promulgation.

Article 5. The Commission shall be composed of the following members:

The Plan Commissioner

A representative of the Minister for Economic Affairs

The Director of the Department of Mines or his representative

The Director of Public Works

The Director of Town Planning

The Director of the Department of Handicrafts and Industry

The Director of the Agriculture, Livestock and Forestry Departments, when the industries to be considered directly involve these departments

The administrative head of the area concerned (province or municipality).

A representative of the national Chamber of Commerce

One or more experts from government departments or from outside bodies, nominated by the Plan Commissioner according to the subjects to be discussed

(c) *Control of raw materials*

There are no laws on this subject.

(d) *Power supply and transportation*

Until 1959, the electric power authority in Laos was the Regie Nationale d'Electricité (National Electricity Authority). A company called Electricité du Laos was then established by Royal Ordinance No. 38 of 26 January 1959, the main features of which are described in the following paragraphs.

Article 1. A limited company with government and private capital shall be established, having the following functions:

- 1) the installation, expansion and development of power production facilities in Laos;
- 2) the installation, expansion and development of high-, medium- and low-tension distribution networks, both urban and rural;
- 3) the sale of high-, medium-, and low-tension electric power;
- 4) all transactions involving securities and property connected with the above-mentioned functions;
- 5) the formation in various parts of the Kingdom of subsidiary limited companies governed by this Ordinance, the presidential orders authorizing them, and the prevailing laws.

Article 3. The initial capital of the company shall be fixed at ten million kips, divided into shares of ten thousand kips each. The shares shall be of three types, designated A, B and C.

Category A shares, of which there shall initially be five hundred, making a total of five million kips, shall be open for purchase only by the State or the Crédit National, and shall be transferable between corporate bodies. They shall be paid up only in cash.

Category B shares, of which there shall initially be five hundred, making a total of five million kips, shall be open for purchase only by the Crédit National or by private individuals. They shall be transferable between the Crédit National and private individuals, and shall be paid up only in cash.

Category C shares shall be open for purchase only by the State. They shall be subscribed and paid up either in cash or in kind, and in the latter case the total amount shall be determined after expert appraisal and submitted for verification by the General Assembly.

Article 4. The company shall be governed by the prevailing laws on limited companies and by the present Ordinance.

Article 6. The company shall be managed by a board of directors having the following composition: two members representing the State and nominated by order of the Ministry of Planning;

each member shall have one vote in the board's deliberations;

one member representing the Credit National Lao and nominated from among the members of that body's board of directors by the latter; three elected private shareholders.

The three elected members of the board of directors shall hold office for a period of three years and shall be replaced at the rate of one a year.

Article 10. The articles of the company and of its subsidiaries shall be approved by presidential order.

Article 11. The company and its subsidiaries may, on the decision of the General Assembly approved by the Cabinet, contract any domestic or foreign loans with or without the guarantee of the State, and make any purchases of equipment on credit with or without entering into credit insurance contracts guaranteed or not guaranteed by the State.

Article 12. The company shall be placed under the permanent control of the Ministers for Finance and Planning for all administrative, technical and financial matters. Double entry accounts shall be kept, in accordance with commercial and industrial practice.

Article 13. The rights and obligations of the Régie Nationale d'Electricité shall be transferred to Electricité du Laos with effect from the date of establishment of the latter company.

(e) *Import of technical know-how*

No specific provisions have been made.

(f) *Company law administration*

There are as yet no Laotian laws governing companies. By virtue of the 1951 Franco-Laotian agreement, however, all the French laws in force up until 1953, the year in which power was transferred to Laos after Independence, are applicable throughout the kingdom until such time as the Government has prepared and introduced similar legislation. In matters relating to mercantile law in general, therefore, and company law in particular, the procedures of the French commercial code are applied. Limited companies are governed by the Act of 4 July 1867 and private companies by the Act of 7 March 1925.

b. Conditions governing public and private investment

1. General investment conditions

There are no laws specifying the fields of investment open to different types of investor, since a system of complete freedom is adopted in regard to capital investment in Laos. Also, there are no formal investment services.

2. Procedure to be followed by an entrepreneur in establishing a new industry

In Laos, there are no laws which distinguish between local and foreign entrepreneurs establishing new industries.

In launching a new industrial enterprise, an entrepreneur must carry out the following formalities, which are described in Ministerial Order No. 98 of 25 August 1964 abolished and replaced by Royal Decree No. 53 of 28 February, 1966:

- (a) the entrepreneur is interviewed by the local authorities of the Khoueng (province) or prefecture in which he resides;
- (b) preliminary enquiries are made by the Khoueng authorities (*commodo et incommodo* enquiry) and by the Commission of Public Health, Public Safety and Town Planning;
- (c) the documents are forwarded to the Ministry of Economic Affairs and studied by the Industry and Handicrafts Department from the technical, economic and social points of view.
- (d) the documents are forwarded to the Commissariat au Plan (Commission of Mines and Industry) for consideration within the context of the country's economic and social plan (with a view to granting the concessions provided for in article 2 of Presidential Order No. 52/PC of 26 February 1960).

The Order is issued by the Ministry of National Economy authorizing the establishment and operation of industrial enterprises.

c. Customs duties and taxes

1. Customs duties on raw materials and components

Preferential treatment is given to industrial enterprises by charging only minimal customs duties (5 to 10 per cent) on raw materials and components.

2. Taxes affecting industry

The tax on industrial profits is regulated by Act No. 40 of 17 March 1949, which is known as the Income Tax Code of the Kingdom. The main features of the Code are described below.

d. Income tax

1. Persons liable to the tax

Article 47. A tax on incomes shall be established for the benefit of the national budget of Laos.

Article 48. Subject to the provisions contained in article 95, income tax shall be payable on 1 January every year by all individuals whatever their sex, nationality and status having their usual residence in Laos or having an industrial, commercial, non-commercial, agricultural or landed property business in Laos, or exercising there a profession which does not make the individual liable at the same time to a similar tax on the same factors in another country of the French Union.

II. The category of persons having a business in Laos shall be deemed to include not only independent operators but also the following:—

- 1) members of general partnerships and active partners in sleeping partnerships;
- 2) members of non-commercial companies which, according to their articles, have the nature of associations of persons;
- 3) members of co-ownerships, companies and *de facto* associations.

III. Persons who have their usual residence in France and who are therefore liable to income tax in Metropolitan France on their income from all sources shall not be subject to Laotian income tax on the income from any business they may possess in Laos.

Article 49.

1) Each family head shall be liable to taxation both on his own personal income and on that of his spouse or spouses and of other members of the family living with him.

2. *Persons exempted from the tax*

Article 50. The following persons shall be exempted from the tax:

1) Persons whose taxable income does not exceed Kp 12,000 with the addition, if necessary, of the amounts allowed for marital status and dependents indicated in articles 57 and 74.

2) Foreign ambassadors, diplomatic agents, consuls and consular officials, but only to the extent that the countries which they represent grant similar concessions to French diplomatic and consular officials.

3. *Taxable income*

Article 52. The tax shall be levied on the total amount of each taxpayer's net annual income from all sources.

However, the taxable income of persons not having Laos as their usual place of residence shall be restricted to the income derived from their business operations in Laos. Moreover, no tax shall be levied in such cases if the usual place of residence of the persons concerned is in France.

The net income shall be determined taking into account the property and capital owned by the taxpayer, the work he does, the salaries, wages, allowances, emoluments, pensions, life annuities and benefits in kind that he receives, and the profits from all lucrative operations in which he engages, making deductions for the following items when they do not enter into his account and are not deducted in assessing the scheduled income:

- 1) interest on loans and debts chargeable to the taxpayer and effectively paid;
- 2) interest on *rentes* paid by the taxpayer on an obligatory free basis;
- 3) all direct taxes and related charges paid by the taxpayer in the preceding year, with the

exception of taxes already deducted in assessing schedule taxes and increases imposed as a result of mistakes and inaccuracies in declarations. If increases in the amount of tax deductible are subsequently announced, their amount is calculated on the income of the year during which the taxpayer was advised of the new ordinance;

- 4) for European taxpayers who are not government officials, the cost of the return fare for home leave in France for them and their families after the colonial tour of duty, in accordance with the regulations governing administrative personnel in Laos;
- 5) payments made to the servicemen's pension fund in accordance with the Act of the 4 August 1923 and the Act of the 30 December 1928, article 127;
- 6) pensions granted to old workers;
- 7) retentions and payments made to pension funds within a limit of 6 per cent of the total gross income and not exceeding Kp 2,000;
- 8) operating losses incurred by industrial, commercial, non-commercial, agricultural and landed property businesses during the year preceding the year of taxation, when the persons concerned are not liable to the profits tax because of the insufficiency of their licence principal or their land taxes.

If a business is transferred or discontinued, the loss sustained in the financial year of liquidation shall be deductible, taking into account, if necessary, of any losses in the previous five years which might have been charged to the schedule income.

Article 53. The following items shall be excluded from tax liability:

- 1) interest on treasury bonds and National Defence Bonds maturing within a maximum period of three years;
- 2) interest on 4 per cent perpetual *rentes* issued in 1925;
- 3) prizes, including those of the National Lottery or the Indochina lottery, as well as the money paid out on premium bonds and other bonds issued with the authorization of the Minister of Finance;
- 4) pensions, allowances and allocations exempted from the schedule tax by virtue of article 30;
- 5) one-year Indochina treasury bonds (1941).

Article 54. The net income corresponding to the various sources of income listed in article 61 shall be determined each year according to their respective yields in the previous year.

It shall consist of the difference between the gross proceeds obtained, including profits and benefits in kind enjoyed by the taxpayer, and the expenditure incurred in acquiring and retaining the income, with the exception of the following items:

- 1) the personal expenditure of the taxpayer and his family;
- 2) the interest on the capital put in by the entrepreneurs unless this capital comes from loans;
- 3) reserves of all kinds, excluding those covered by paragraphs a, b and c of article 6-2;
- 4) amortization funds over the above the level of normal local practice;
- 5) expenses already deducted in determining the net income of the various categories specified in article 61.

IV. The profits derived from occupations in industry, commerce, mining, farming and landed property business as well as those derived from non-commercial occupations shall be determined under the same conditions and by the same methods as for the schedule tax on industrial, commercial, non-commercial, agricultural and land profits, even if the taxpayers are not subject to that tax.

However, income tax shall not be imposed upon the increase in value resulting from the transfer of assets either during or at the end of operations, with the exception of increases achieved by limited companies, partnerships limited by shares, and private companies, which are included in the various distributions made by those companies to their shareholders.

Decreases in value resulting from the transfer of assets either during or at the end of operations shall in no case be deducted from the taxable income.

4. Calculation of the tax

Article 59. The amount of the income tax shall be calculated by applying the following scale to the net taxable income determined as above.

Net taxable income (Kp)	Rate of tax (%)
Fraction of income from:	
0 to 10,000	1
10,001 to 20,000	2
20,001 to 30,000	3
30,001 to 40,000	4
40,001 to 50,000	5
50,001 to 60,000	6
60,001 to 70,000	7
70,001 to 80,000	8
80,001 to 90,000	10
90,001 to 100,000	12
100,001 to 125,000	14
125,001 to 150,000	16
150,001 to 200,000	18
200,001 to 250,000	20
250,001 to 300,000	22
Over 300,000	25

^a After deduction of the items specified in article 74 and the income exempted under article 50.

In calculating the tax, all fractions of income smaller than Kp 100 shall be ignored.

Article 60. The amount of the tax shall be increased by 20 per cent for any taxpayer who is over 30 years of age on 1 January of the tax year and

who is a bachelor or widower or is divorced, and has no children.

The same amount shall be increased by 10 per cent for any taxpayer who is over 30 years of age, has been married for more than two years on 1 January of the tax year and who has no children.

e. Provisions common to schedule taxes and income tax

Deductions relating to the taxpayer's marital status and dependents.

Article 74. Married taxpayers shall be entitled to a deduction of up to Kp 4,000 on their annual profits or income, whatever their nationality.

V. In addition, every taxpayer, whatever his nationality, shall be entitled to the following deductions on his annual profits or income for persons dependent on him under the terms of paragraph 6 of this article:

For each child dependent Kp 2,000

For each relative in the ascending line Kp 1,200

The tax on sales, known here as the turnover tax, is described in Act No. 36 of 9 February 1949. The main features of this Act are indicated below.

f. Taxable businesses and places of taxation

Article 2. The turnover tax shall apply to business covered by the schedule of industrial and commercial profits and carried out by the taxpayers in the territory of the Kingdom of Laos, as well as business even of an occasional nature having the character of commercial transactions.

Article 3. Joint stock companies and limited companies which are always assessable under the schedule of industrial and commercial profits (ICP) because of their form, whatever their aims, shall not be subject to the turnover tax when the operations they carry out fall into an occupational category subject to a schedule other than that of the ICP.

Article 4. The turnover tax shall also apply to the following:

- 1) deliveries of goods made by co-operatives or common purchasing organizations established by industrialists, merchants or private individuals;
- 2) operations carried out by industrial and commercial concerns run or conceded by public organizations.

Article 5. A business shall be liable to the tax:

- 1) at the location of each establishment, if the business is carried out by a person having one or more establishments;
- 2) at the home or place of residence of the person's representative alluded to in Article 17, if the person engaged in the business has no establishment in Laos.

Article 6. Types of business other than sales shall be subject to turnover tax at the place where the transaction is made or the service rendered, whatever the situation of the objects or assets being transacted.

Rate of the tax

Article 13. The rate of the turnover tax shall be 2 per cent.

*General provisions**Obligations of persons liable to the tax*

Article 16. Every person liable to the tax must;

- 1) Submit a declaration within fifteen days of the commencement of his operations to the office appointed by the Government in the district in which his establishment is located, stating:
 - his full name and home address and, if a company is involved, the name of the company;
 - the nature of the business or industry in which he is engaged, together with the location of the sales premises.

Persons who give up their business or transfer it to others and persons who acquire a business must make a declaration of the same at the office concerned.

- 2) If he does not keep regular accounts (in French and Laotian), he must make daily entries in French or Laotian, without blanks or erasures, in a book whose pages have been numbered and paragraphed by the official responsible for assessing the tax.

Article 17. Any firm established outside Laos and engaging in business in Laos must arrange to have a representative accredited by the Government, a person domiciled in the Kingdom and having the function of completing the formalities required of persons liable to the turnover tax and of making payments on behalf of the firm.

Article 18. If the person liable to the tax has several establishments, he must make separate special declarations describing the business carried out by each of them.

System of agreed sums

Article 20. In consideration of the payment of an agreed annual sum, persons whose main business consists of selling merchandise, whether produce or articles, or providing accommodation when annual receipts do not exceed Kp 40,000, shall, at their request, be exempted from the obligations contained in paragraphs 2, 3, and 19 of article 16.

The amount of such sums serving as a basis for the tax shall be determined by the Government in agreement with the person liable to the tax according to the estimated size of the taxable business.

The sum fixed for a period of one year (January-December) shall continue to apply from year to year unless and until notice of termination is given by the liable person or the Government within the first two months of the following year.

It may also be terminated at any time by the Government if an obvious change in the nature of the business or the movement of transactions is made.

The sum shall only cover those operations for which it was determined, and shall be payable at the end of each quarter.

*Penalties and disputes**Part 1. General penalties*

Article 23. Any incomplete or false declaration and, in general, any infringement of the provisions of this Act shall be punished by a fine of 100 to 500 kips plus an amount equal to double the amount of tax evaded or compromised.

If the offence is repeated within a period of two years, the fine shall be doubled.

When good faith is kept, the liable person may come to an agreement with the Minister of Finance for the penalties to be reduced.

*Part 2. Arbitrary assessment**Article 22 addendum*

- 1) The detailed results of the inventories and the entries prescribed in this article form the component parts of a debit and credit account which may be made up at any time by the agents and officials responsible for control and application of the turnover tax.

- 2) These agents may call for the presentation of all quantities of valuable materials subject to the provisions of this Act in the possession of the liable person at the time of their intervention, and may carry out such checks on description and weight as they may deem useful together with any investigations into the trading accounts of the concern. They shall have free access to the business premises and annexed buildings.

IV. MARKET ANALYSIS AND SURVEYS

Brief surveys have been made for some products and articles, but they relate only to the local market since Laos is not yet in a position to develop export-oriented industries producing manufactured or semi-manufactured goods. The products and articles in question are cement, vegetable oils, salt and pineapple juice.

1. Cement

Laos has become a large consumer of cement in recent years. The cement is used in the construction industry, the needs of which have been growing at an increasing pace, as the import figures in table 3 show.

TABLE 3. IMPORTS OF CEMENT, QUANTITY AND VALUE, 1959-1963

Year	Quantity (tons)	Value (Kips)
1959	14,000	35,635,365
1960	12,280	35,788,000
1961	11,776	34,285,000
1962	34,811	86,943,000
1963	31,322	89,652,000

The imported cement comes mostly from Thailand and is subject to an *ad valorem* duty of 20 per cent, plus 5 per cent turnover tax.

2. Edible vegetable oils

It can be seen from table 4 that the market for vegetable oils in Laos is fairly large and that it would be worthwhile developing the cultivation of oilseeds and the industrial production of oils.

TABLE 4. IMPORTS OF VEGETABLE OILS, QUANTITY AND VALUE 1959-1963

Year	Quantity (kg)	Value (Kips)
1959	40,287	1,187,703
1960	71,416	2,968,418
1961	69,842	2,764,400
1962	73,169	3,174,000
1963 (9 months)	55,482	7,648,200

Vegetable oils are consumed largely by Europeans (groundnut oil and olive oil), who buy them in the commissaries and co-operatives, and by wealthy local people.

The majority of the Laotian, Chinese and Vietnamese population uses pig fat and lard. According to the surveys carried out by the General Statistics Office for the establishment of a standard budget, it is estimated that the monthly consumption by a household of six persons amounts to 3.388 kg of pig fat valued at Kp 430 and 2.027 kg of lard valued at Kp 405. Assuming that the urban population is 500,000, there is thus a sizable market that could be captured by vegetable oils, provided the price is right.

3. Salt

Laos imports salt from Thailand and has done so for many years. The price is comparatively high, however, and a considerable outflow of foreign exchange is involved. Table 5 shows the quantity and value of imports from 1959 to 1964, the figures being obtained from customs statistics.

TABLE 5. IMPORTS OF SALT, QUANTITY AND VALUE, 1959-1964

Year	Quantity (tons)	Value (kips)
1959	686	1,580,000
1960	2,270	6,400,000
1961	1,363	4,147,000
1962	1,525	4,644,000
1963	980	4,680,000
1964 (6 months)	324	3,310,000

According to information provided by the General Statistics Office, a family of six persons is estimated to consume 1.160 kg of salt a month. If a figure of 2 million is taken as the potential number of consumers of Ban Keun salt (Ban Keun being in Vientiane province), then the theoretical annual consumption of salt comes to 4,650 tons. The task is to bring production (about 4,000 tons) up to the possible consumption level or to find export markets.

4. Pineapple juice

The possible monthly consumption of pineapple juice in Laos is estimated at 6,000 cases of 24 bottles

each containing 25 centilitres, i.e. a total of 36,000 litres. This figure is based on the sales of 'Green Spot', which are about double that amount. Consumption could rise steadily if prices were competitive and the quality and presentation suited to the tastes of consumers.

To be salable on the local market, the pineapple juice should be presented in small bottle of the type used for 'Pam Pam', having a capacity of 5 to 6 ounces or 15 to 17 centilitres, and should be sold at a price not greater than 25 to 30 kips at the manufacturer-retailer stage and 40 to 50 kips in low-priced restaurants.

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. Rate of capital investment in industry

In Laos, there is one public lending institution, the Cr dit National. There is no similar private institution.

The Credit National borrows from the French Bank for Economic and Technical Co-operation (Caisse de Co-op ration Economique et Technique Fran aise) at the rate of 2.5 per cent and makes loans to Laotian industrial and agricultural enterprises at rates varying from 3 to 5 per cent according to the bilateral agreements.

This body will become the Laotian Bank of Development.

b. Mobilization of private capital

The only measures that have been taken to encourage local private investment are those mentioned in chapter III concerning exemption from customs duty for imports of equipment and exemption from turnover tax for a given period for newly installed industries.

As far as foreign capital is concerned, the only arrangement that has been made is the investment guarantee agreement concluded between the Governments of the United States of America and the Kingdom of Laos. This agreement was reached on 29 December 1964, and it is still too early to tell what its effects will be.

c. Measures for servicing external public debts

It has not been necessary to take any measures in this respect, since all of the foreign capital received by Laos is in the form of bilateral or multilateral aid.

d. Remittance of profits, dividends and foreign capital

As there is freedom of investment for foreign capital, the remittance of profits, dividends and foreign capital at parallel rates is unrestricted.

e. Areas of industrial activity open to foreign investors

There are no restrictions in this respect (see chapter III. B. 1).

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

In the private sector in Laos, there are as yet no institutional arrangements for industrial promotion. The banks all perform commercial operations only. In the public sector, there is a body called the Crédit National Lao, as was mentioned in chapter V A. A description of this body and its method of operation is contained in the articles quoted below.

Article 2. A public institution called the Crédit National Lao shall be established.

The aim of the Crédit National Lao shall be to promote the economic and social development of Laos:

- 1) by mobilizing capital and savings;
- 2) by participating financially in companies or organizations that are capable of contributing to the country's economic and social development;
- 3) by providing medium- or long term development loans:
 - a) to industrial, agricultural or commercial concerns and to semi-public companies set up under the country's economic and social development plan,
 - b) to co-operatives, mutual organizations for rural development, and similar groupings,
 - c) to persons practising a profession or trade, in order to help them obtain or improve their equipment;
- 4) by providing short-term loans
 - a) to co-operatives, mutual organizations for rural development, and similar groupings,
 - b) to enterprises whose operations involve the processing or treatment of agricultural products,
 - c) to construction and transport undertakings;
- 5) by providing loans designed to facilitate the construction or improvement of housing and the installation of families.

Article 3. The institution shall be incorporated and shall have financial autonomy. Its head office shall be situated in Vientiane. It shall have the possibility of opening branches or sub-offices and having correspondents in all towns in Laos.

Article 5. The capital of the Crédit National Lao shall be 120 million kips. Of this amount, 90 million kips shall be contributed by the State and the remainder shall be sought from national organizations or public bodies entitled to participate financially in this way. The capital may be increased from time to time.

Article 6. The Crédit National Lao shall be authorized to obtain loans in the country either from autonomous bodies and properly constituted reserve banks and provident funds or from the general public and financial institutions. To that end, the Crédit National may issue bonds or debentures bearing in-

terest and maturing in not less than five years; it may also have at its disposal advances made from the various extra-budgetary accounts of the National Treasury.

Article 7. The Crédit National shall be empowered to seek loans abroad or from international agencies with the prior approval of the Government, and to accept subsidies from foreign or international aid sources.

Article 8. In addition to dealing with its own resources and the resources obtained by borrowing, the Crédit National Lao may be authorized to administer sums allocated to credit operations from foreign aid or other sources. These operations shall be recorded in special accounts.

Article 9. The funds mentioned in article 7 and 8 above shall be administered in accordance with special procedures fixed in agreement with the lending or aid-giving organizations.

Article 10. The Crédit National shall not accept grants and bequests unless they are free of charges.

Article 11. In order to meet its financial needs, the Crédit National Lao shall have the possibility of mobilizing its debts through the National Bank of Laos, under conditions fixed by the charter of the Bank.

Article 12. The Crédit National Lao shall be governed by a board of directors having the following composition:

the Minister for Finance or a person appointed by him	Chairman
one representative of the Minister for Finance	Member
two representatives of the Minister for Economic Affairs, one being an agricultural expert and the other an industrial expert	Members
two representatives of the Minister for Planning	Members
two representatives of the national organizations or public bodies supplying capital as provided in article 5	Members
three representatives of economic and social interests	Members

Article 13. The representatives of the various Ministers shall be appointed, removed or replaced by decision of these Ministers. For one director's post, such decisions may include one appointee and one or two alternates.

The representatives of the national organizations and public bodies participating financially shall be appointed by the organization or body making the largest contribution.

The representatives of economic and social interests shall be appointed by Presidential order based upon proposals made by the national Chamber of Commerce and shall of necessity include:

one representative of industry,
one representative of trade,
one representative of agriculture and stock-
farming.

The representatives of economic and social interests shall be appointed for the duration of their term of office as members of the Chamber of Commerce.

Article 14. The post of Director shall be an honorary one but the chairman and members of the board shall be reimbursed for their travel expenses.

Article 17. The board of directors shall be given the widest possible power to act on behalf of the Crédit National and to authorize any actions likely to further its aims. In particular, it shall have the following powers, which shall be declaratory and not limitary except in so far as the present articles specifically restrict their conditions or range:

it shall appoint the general manager, fix the amount of his remuneration, and decide upon the amount of such additional payments as may be granted to him;

acting upon the proposal of the general manager, it shall fix the remuneration of staff members and the amount of such additional payments as may be granted to them;

it shall make all purchases, sales and rentals of property, arrange all borrowings and authorize all legal compromises, acceptances, withdrawals and replevins before or after payment; it shall institute and follow through all legal proceedings in any court either as plaintiff or as defendant; it shall arrange all purchases and transfers of securities; acting upon the proposal of the general manager, it shall decide upon the loans to be granted and it shall be permitted to delegate this power only under the conditions and for the mandators specified in the rules of procedure.

Subject to the provisions contained in the preceding sub-paragraph, the board may delegate its authority.

Article 18. The administration of the Crédit National shall be conducted under the direction of a general manager appointed by the board of directors by a two-thirds majority.

The appointment may be revoked by decision of the same majority. The functions of the general manager shall be incompatible with the holding of political office. The general manager shall not engage in any trade and shall not have an interest in any commercial, agricultural or industrial enterprise.

He shall represent the Crédit National Lao in dealings with third parties. He shall appoint and dismiss staff members and shall make suggestions to the Board as appropriate on the subject of their remuneration. He may delegate all or some of his authority.

Article 19. All actions and operations of the Crédit National Lao decided upon by the board of directors, as well as withdrawals of funds or securities, drafts on bankers, debtors or trustees, and the drawing,

endorsement, acceptance or negotiation of bills of exchange must, to be binding on the Crédit National Lao, be signed by the general manager or a person having powers of signature.

Article 20. Any agreement between the Crédit National and its general manager reached either directly or indirectly shall be invalid unless it has been authorized beforehand by the board of directors.

The same shall apply to agreements made between the Crédit National Lao and any enterprise having one of the directors of the Crédit National Lao as proprietor, partner, managing director or manager.

Article 21. The Crédit National Lao shall be subject to the jurisdiction of ordinary law.

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT

a. Manpower surveys

Up to the present, no manpower surveys have been carried out because of the lack of a specialized organization. It might be thought that such activities would fall to the Laotian Statistics Office, but as sufficient resources have not been available, the Office has been unable to start work in this field.

b. Future needs for trained personnel

In the absence of detailed studies of the manpower situation, it is not possible to forecast the future needs for trained personnel.

c. Training programmes

In Laos, there are at present three technical colleges training skilled operatives, foremen and instructors. With regard to the training of managers and engineers, young people who have attained the required level of general education are sent abroad for training, to France and Canada in particular.

The three technical colleges are Vientiane Technical College, Savannakhet Technical College and the Lao-German Technical College at Vientiane.

In the first two of these establishments, the instruction given covers the following subjects:

- diesel motor mechanics,
- general engineering,
- electricity and electronics,
- building,
- woodwork,
- metalwork and plumbing,
- forging and welding,
- tracing.

There are five categories of training course, the main characteristics of which are as follows:

1) A rapid course of the 6 V 2 type for the Elementary Vocational Proficiency Certificate. This course consists of one year's study and one year's practical instruction for skilled masons, electricians, motor mechanics, plumbers, and the like.

2) A course of the 6 V 3 type for the Vocational Proficiency Certificate. This course consists of two years of study and one year of practical instruction for radio repair men, refrigerator mechanics, electric coil winders, driver-mechanics, joiner., and the like.

3) A course of the 6 V 4 type for the Vocational Education Certificate. This course consists of three years' study and one year of practical instruction for general maintenance electricians.

4) A course of the 10 V 3 type for the Technical Instructor's Diploma. This course consists of two years' study and one year of practical instruction for technical instructors.

5) A course of the 10 V 4 type for the Technical Education Instructor's diploma. This course consists of three years' study and one year of practical instruction for technical education instructors.

At the Lao-German Technical College, the syllabus is made up of the following five sections:

motor mechanics,
general mechanics,
electricity,
forging,
welding.

The period of study is three years. In the first year, the students follow a common course of study, and in the last two years they specialize in their chosen field.

d. Success achieved in mobilizing manpower resources

As a result of the low level of industrial development in Laos, entrepreneurs have no difficulty in recruiting skilled operatives and foremen. Skilled operatives are, in fact, easily obtainable locally.

Managers and engineers are in very short supply, however, if they cannot be found locally they are recruited from Thailand or Taiwan.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

a. Existing industries

It is true to say that, in Laos, there are no industries on the scale of those in developed countries. The existing enterprises that are regarded as industries in Laos are only comparable with small-scale factories or even handicrafts in other countries.

The principal existing 'industries' are the following:

cigarette factories,
match factory,
soft drink plants,
rubber sandal factory,
sawmills.

These industrial establishments have all been installed since 1956, the year in which Laos first received commercial economic aid from the United States.

1. Cigarettes

There are three cigarette factories in Laos, and data on the largest of them is given below.

Production capacity:

Present — 6,000 cases of 1,000 packets per year

Past — 5,000 cases of 1,000 packets per year

Actual production:

Present — 4,000 cases of 1,000 packets per year

Past — 3,500 cases of 1,000 packets per year

Reason for discrepancy between installed capacity and actual production: limited domestic market.

Investment on equipment:

In local currency — Kp 120 million

In foreign currency — US\$50,000

Total fixed capital investment: Kp 200 million

Number of persons employed: 60 to 85

Value added: Kp 250 million

Value of imports substituted: US\$200,000 per year

Targets of expansion planned: none, because of the lack of an export market.

2. Matches

Data on the one match factory in Laos are as follows.

Production capacity: 3,000 cases of 7,200 boxes each containing 50 matches, per year

Actual production: 2,000 cases of 7,200 boxes each containing 50 matches, per year

Reason for discrepancy between installed capacity and actual production: competition from imported matches.

Investment on equipment:

In local currency — Kp 10 million

In foreign currency — US \$15,000

Total fixed capital investment: Kp 15 million

Number of persons employed: 20 to 30

Value added: Kp 5 million

Value of imports substituted: US\$100,000 per year

Targets of expansion planned: none, because of the severe competition from imported matches.

3. Soft drinks

The manufacture of 'Green Spot' is the largest and most up-to-date soft drinks industry in Laos. There are three plants, two of which are of minor importance. Production started at Savannakhet in 1957.

Production capacity: 500 crates of 24 bottles per eight-hour day

Actual production: 800 crates of 24 bottles per eight-hour day.

Reason for discrepancy between installed capacity and actual production: satisfaction of hot season demand.

Investment on equipment:

In local currency — Kp 25 million

In foreign currency — US\$100,000

Total fixed capital investment: Kp 25 million

Number of persons employed: 40

Value added: Kp 10 million per year

Value of imports substituted: US\$300,000

Targets of expansion planned: a second plant will be installed at Vientiane during 1966.

4. Rubber sandals

One¹ factory for the production of rubber sandals was established in 1961.

Production capacity: 2,000 pairs per day

Actual production: 1,000 pairs per day

Reason for discrepancy between installed capacity and actual production: competition from imported products.

Investment on equipment:

In local currency Kp 5 million

In foreign currency US\$5,000

Total fixed capital investment: Kp 7 million

Number of persons employed: 30

Value added: Kp 10 million

Value of imports substituted: US\$125,000

Targets of expansion planned: a canvas shoe factory is to be set up during the second half of 1965, with an estimated national investment of about Kp 5 million.

5. Sawmills

The sawmill industry is the largest existing industry in Laos. In all, there are 32 sawmills distributed over nine of the twelve provinces in the Kingdom. Vientiane alone has seven. Most of the sawmills have been established since 1957.

Production capacity: 30m³ of wood per day

Actual production: 18 to 20 m³ of wood per day

Reason for discrepancy between installed capacity and actual production: irregular arrival of wood, which is transported long distances over bad roads.

Investment on equipment:

In local currency Kp 10 million

In foreign currency US\$8,000

Total fixed capital investment: Kp 15 million

Number of persons employed: 30 to 40

Value added: Kp 25 million

Value of imports substituted: US\$1 million per year

Targets of expansion planned: none, because there is already a sufficient number of sawmills and forest resources have been considerably reduced.

b. New industries being planned

Some studies have been made on the possibilities of establishing new industries. Sufficient investment capital has not been forthcoming, however, and the studies therefore remain at the project stage. The most interesting of these projects are as follows:

pineapple juice manufacture,

¹ There are now in existence two such factories.

a modern, mechanical brick-works,
a mechanized factory to produce cement slabs, though-bonders and pipes of various sizes,
production of salt by evaporating salt water,
an oil-works,
cotton ginning.

Apart from these projects whose implementation is still in doubt, there is one industrial unit which has been in existence since October 1963 and which will probably start production in the next two or three months, namely, the Thakhek cement-works. This delay in start-up has been due in particular to the excessively late arrival of certain machine parts and electrical generators as well as difficulties in finding local manpower.

Planned production capacity: 2,000 tons per month

Year of operation: 1965

Estimated investment on plant and equipment:

In local currency Kp 40 million

In foreign currency US\$50,000

Estimated total fixed capital investment:

Kp 65 million

Estimated employment: 50 persons

Estimated value of imports to be substituted:

US\$100,000 per year

IX. EXPORT OF MANUFACTURED GOODS AND SEMI-MANUFACTURES

There are no exports of manufactured goods or semi-manufactures.

However, it remains for our country to explore the possibility of manufacturing such products of handicraft and small industries as silk yarns, silver wares, wood carving, wicker-work, musical instruments and pottery.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING AND PROMOTING EXPORTS OF MANUFACTURED PRODUCTS

a. Broad strategy of action

The measures taken in this field are described in chapter III. A and III. C, and chapter V.¹

b. External assistance needed

1. Joint ventures

Foreign investment is needed for ventures with the participation of national capital. Also, highly skilled foreign technicians and experts are needed to train local staff.

¹ Besides, measures have been taken by the Royal Government to protect the manufacture of matches, rubber sandals and gaseous drinks from foreign competition.

2. *Manpower surveys and training*

Experts are needed to train managerial staff locally.

3. *Facilities for fellowships and in-plant training*

Training courses abroad are needed for supervisory staff and entrepreneurs.

4. *Technical know-how*

There is a need for foreign experts to carry out fact-finding missions in Laos, in order to join with the government departments concerned in drawing up a programme of projects taking into account the urgency of local needs.

5. *Importation of manufactured goods into developed countries*

As was pointed out in chapter IX, Laos is not yet an exporter of manufactured or semi-manufactured goods. Moreover, we feel that the prices of these products in Laos are not yet competitive with prices in developed countries.

XI. INDUSTRIALIZATION PROBLEMS

The customs protection in developed countries is too stringent. Also, those countries should place a ban on exports of primary products.

DC 5923

A COUNTRY STUDY ON MALAYSIA

INTRODUCTION

Against the background of general political stability and sound economic development coupled with rich raw material resources and excellent infra-structural facilities, Malaysia presents an attractive area for industrial investment. The economy of the country has been extremely over-dependent on primary commodities such as tin, rubber and timber, which are subject to significant world price fluctuations. In order to reduce this dependence on a few commodities and to diversify the economy the country has launched an industrialization programme based on private enterprise.

The Government of Malaysia is allocating substantial sums to provide facilities to assist and encourage industrial investment. Initially, Malaysia's industries will aim at import substitution but it is hoped that, as they expand, they will also manufacture for exports. Though it is fully realized that the primary export sector will still remain a pillar of Malaysia's economy for some time to come, the Government believes that industrialization is the new frontier in the dynamic approach to the economic development of the country.

Data extraction

- (a) Examination of a statistical series published by the Departments of Statistics, States of Malaya and also the annual reports of the States of Sabah and Sarawak.
- (b) Extracts of data from the States of Malaya's Second five-year plan 1961 — 1965 and the State of Sarawak's development plan 1965 — 1969.
- (c) The Bank Negara's annual reports.
- (d) The Central Electricity Board's annual report and the Central Electricity Board's long-term forecast of the development of electricity supply in the States of Malaya.
- (e) Information supplied by various government departments and Ministries both Federal and State.
- (f) The various Ordinances of the States of Malaya:
 - (i) The Customs Ordinance 1952.
 - (ii) The Machinery Ordinance 1953.
 - (iii) The Electricity Ordinance 1949.
 - (iv) Road Traffic Ordinance 1958.

- (v) The Railway Ordinance 1948.
- (vi) The Port Authority Act 1963.
- (vii) The Air Navigation Order 1953.
- (viii) The Immigration Laws.
- (ix) The Company Ordinance No. 40 of 1946.

Scope

The scope of this paper may be considered from four angles; time, area, administration, and accuracy.

(a) Time

This paper is confined to the period of the late nineteen-fifty's and the early nineteen-sixty's when industrialization had its beginnings in the territories of Malaysia.

(b) Area

The territorial boundary for this study is that of Malaysia, which comprises the States of Malaya, the State of Sabah, and the State of Sarawak.

(c) Administration

This country study is concerned with the Ministry of Commerce and Industry, Malaysia, with special reference to the Industrial Development Division, the Ministry of Finance, State of Sabah and the State Financial Secretary's Office, State of Sarawak.

(d) Accuracy

The statistical data are obtained from sources available in this country: the Statistics Department, States of Malaya; Ministry of Finance State of Sabah; State Financial Secretary's Office, State of Sarawak. The main problem faced is to compute Malaysia's statistical data but as far as possible this study attempts to provide data on a Malaysia-wide basis. Of course, since the States of Malaya have forged further ahead in terms of industrial development, data from the States of Malaya are more detailed and more easily accessible.

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning and programming

Malaysia's economic prosperity has been closely associated with the tin, rubber and timber industries

and also with the entrepot trade of Penang and Brunei. Since 1959 the manufacturing industries have grown to play an important part in the economic development of these territories. Industrialization has further gathered momentum since the formation of Malaysia. The contribution of the manufacturing sector to the gross national product is around 9 per cent in the States of Malaya, 21.2 per cent in the State of Sarawak and 2 per cent in the State of Sabah, giving an over-all average of approximately 4.5 per cent of Malaysian GNP. The manufacturing sector has been estimated to provide employment for about 12 per cent of the economically active population of the States of Malaya. Manufacturing industries set up by both foreign and local enterprises include the chemical and allied industries, cement and asbestos cement products, textiles, light engineering industries, sugar refining and food processing industries.

The manufacturing sector in the Malaysian economy has been characterized by a large number of small establishments and until recently major manufacturing activities were confined to the processing of raw materials, and the manufacture of beverages and cigarettes. In the past the Government provided the traditional functions of maintenance of law and order and the provision of efficient administration, and its participation in promoting industrial development was confined mainly to investment in public utilities, transport and communications.

Since 1959 a conscious policy of industrial development has been implemented in the various territories that are now Malaysia, with the introduction of the Pioneer Industries (Relief from Income Tax) Ordinances in Malaya 1958, in Sarawak 1957 and in Sabah 1963. The Malayan Government established the Industrial Development Division in the Ministry of Commerce and Industry to undertake the promotion of new industries.

Since the introduction of the Pioneer Industries (Relief from Income Tax) Ordinances in 1959, the States of Malaya have granted pioneer status to 115 firms while the State of Sarawak and the State of Sabah have 23 firms. The rapid progress in the industrial field has been made possible by substantial investment on the part of the Central Government as well as the various state governments in infrastructural facilities as well as in the development of industrial estates.

To accelerate its programme of industrial expansion the Government of the States of Malaya sought the assistance of the Colombo Plan and the United Nations for experts to undertake feasibility surveys of the industrial possibilities of the two territories. In the States of Malaya, Canada sent experts who conducted a survey on the possibility of establishing a radio manufacturing industry, an industrial possibilities survey and a feasibility survey of the establishment of a pulp and paper industry. A team of three experts made a feasibility study of an iron and steel project.

Prior to the establishment of Malaysia, Professor Rueff's mission undertook a study on the economic

prospects of Malaysia and following the mission's recommendations the Malaysian Government established the Tariff Advisory Board, which is responsible for the gradual establishment of an integrated market. The Government will also be establishing the Federal Industrial Development Authority (FIDA) to perform various functions, namely processing applications for pioneer status, establishment of industrial estates, feasibility studies and promotion of industrialization within a pan-Malaysian framework. The Malaysian Government has also accepted in principle the recommendations of a United Nations expert, Professor L.A. Jordan, to set up a National Institute of Scientific and Industrial Research to assist the development of industry and technology. The Institute will consist of:

- (1) a division for industrial technology which will discover new uses for our raw materials in turning out manufactured products;
- (2) the Standards Institution which will enable the Government to maintain quality control (the National Standards Institution will be established in accordance with the basic recommendations of a Colombo Plan expert); and
- (3) a National Testing Division to test manufactured products.

b. Machinery for planning, implementation and evaluation

1. National Development Planning Committee

In Malaysia the central body for economic planning is the National Development Planning Committee which has as its Secretariat the Economic Planning Unit of the Prime Minister's Department. The National Development Planning Committee is a standing organization which consists of members who are appointed by the Government from among leading civil servants. It advises the Government on the progress of the development programmes and suggests solutions as problems arise. This committee is an effective focus for executive decision-making in relation to development. The secretariat is provided by the Economic Planning Unit of the Prime Minister's Department whose staff of economic officers and foreign specialists work on development planning, on high policy problems in plan execution and on all forms of technical assistance from overseas.

In matters connected with industrial development the Industrial Development Division of the Ministry of Commerce and Industry works in close liaison with the National Development Planning Committee and the Ministry of Finance.

2. Sarawak and Sabah

Development planning in Sarawak and Sabah is undertaken by the State Development Planning Committee, whose main functions are to consider all proposals for development projects from all divisional development committees and to make sure that correct priorities are established and that development policy

is properly co-ordinated and projects smoothly implemented.

II. INDUSTRIAL POTENTIAL

a. Industrial feasibility surveys

In the States of Malaya various experts from the United Nations and under the Colombo Plan have undertaken general feasibility surveys for the whole country and for special industries.

The feasibility surveys that have been conducted are as follows:

1. Radio manufacturing industry

A Canadian expert conducted a survey in 1960 on the feasibility of establishing a radio manufacturing industry.

2. Iron and steel industry

A team of three Canadian experts undertook a survey on the factors involved in the establishment of an integrated iron and steel industry in Malaysia. In Singapore a special United Nations team also made a study into the feasibility of establishing an iron and steel mill.

3. Pulp and paper industry

A preliminary survey on the establishment of a pulp and paper industry in the States of Malaya was undertaken by another Canadian expert.

b. Resources surveys

The assessment of the economic potential of a known mineral area or the assessment on a country-wide basis of a particular mineral or group of economic minerals is a more recent development. To implement the surveys of economic raw materials, a special division within the geological survey, the Economic Geology Division, was instituted. The Division has to date made an assessment of the following ores:—

- (i) iron ores;
- (ii) manganese ores;
- (iii) aluminium ores.

These assessments include compilation of data from existing records, additional field work where necessary and in the case of iron ores, data from aeromagnetic surveys were obtained in 1956/1957 covering 16,000 square miles of Malaya.

In the case of Sarawak, near Silantek, about 87 miles by road from the Kuching area, total deposits of coal of the order of 7,000,000 tons were proved and 45,000,000 tons were inferred. The deposits are of good quality coking coal and natural cookes, for which there is likely to be a demand for a considerable time to come.

Investigations by the Nippon Coal Mining Company have revealed that some of the fire clay found in the Balai Ringing to Silantek area is suitable for the manufacture of refractory bricks and high grade ceramic wares and that a total of more than 2,000,000 tons of

clay of various grades occurs in nine areas adjacent to the Kuching to Simanggang Road in the First Division of Sarawak.

Glass sand occurs in the north of Bintulu. The deposit at Bintulu was examined by a consulting geologist on behalf of the Sarawak Development Finance Corporation Limited in 1962, and bulk samples of 500 tons were exported in October 1962 to Japanese glass factories for testing. The sand has been proved to be of good quality and a company has been formed to exploit the sand deposits.

The Forest Department has assessed the timber resources of Sarawak and this work is still being continued.

As regards mineral surveys, geological reconnaissance has been completed for the States of Malaya and Sarawak while detailed surveys have been conducted over approximately one-third of the country. The ultimate aim is to make a Malaysian-wide assessment of all the potentially economic rocks and minerals, using all modern techniques.

c. Infrastructure

1. Transportation

(a) Railways

The transportation system of the States of Malaya is well developed. The entire west coast region of the States of Malaya is covered with a first-class network of railways and roads. The federal capital, Kuala Lumpur, and parts of Selangor are covered with dual-carriage ways and fly-overs. The mainland of the States of Malaya is linked to the Republic of Singapore by a main trunk road and railway line.

Transport is an essential element for successful industrialization and the Malayan Railway Administration has been playing a great part by providing godowns and sidings to all the industrial estates established in the States of Malaya. In the Petaling Jaya area all the big industries on the east side of the federal highway have rail-served sidings while sidings have already been provided in the Tasek Industrial Estate.

Besides the Industrial Estates mentioned above, sidings have also been laid to serve other large industries like the Esso Refinery, and Shell Refineries, Port Dickson; the Pan Malaysia Cement Limited, Kanthan and the Malayan Sugar Manufacturing Company Limited, at Prai.

The Malayan Railway Administration proposes to lay sidings to the Senawang Industrial Estate in Negeri Sembilan so that firms that occupy sites in this particular estate will have the opportunity of obtaining rail services. A start has already been made to provide rail facilities to the new industrial estates of Batu Tiga and the first firm that has been provided with rail sidings is the Chemical Industries (Manufacturer) Limited which is building a large chlorine and fertilizer plant.

Negotiations are also under way to lay sidings to some of the new industries that are being established,

namely Guinness Brewery, Sungei Way and the Malayan Sugar Refining Corporation, Port Swettenham.

In order to ensure that as many of the industries as possible utilize rail facilities, the Malayan Railway Administration has always been prepared to negotiate special freight rates for the transport of raw materials and finished products.

(b) *Roads*

Under the second five-year plan a total capital expenditure of \$190,000,000 will be spent on road construction. It is proposed to spend about \$20,000,000 on improving the main West Coast Road. Another \$22,000,000 will be spent on the major road connecting the west coast with the east coast. There are motor vehicles in the States of Malaya.

The Industrial Estates at Mak Mandin in Penang, at Tasek in Perak, at Petaling Jaya and Batu Tiga at Selangor and in Tampoi in Johore, are served by excellent road facilities which enable raw materials to be transported to the factories and finished products to be transported from the factories to the domestic consumers as well as to Port Swettenham and Penang for export to overseas countries.

In Sarawak, a major programme of road construction is under way. Mileage maintained by the Public Works Department and the local authorities is as follows:

Bitumen and concrete	—	97 miles
Gravel or stone	—	454 miles
Earth	—	276 miles

Approximately 700 miles of additional road is to be built in the 1964 to 1968 development period.

In Sabah, the 1961 to 1964 development plan had devoted a large share of the expenditure to an intensive road development plan. In 1963 approximately 224 miles were added to the road mileage. The main effort continued on the Sandakan-Telupit road where the 86th mile from Sandakan was reached with the earth formation. Five schemes for the improvement or extension of the feeder road system were in progress in 1963.

(c) *Ports*

The estimated cost of \$43,000,000 will be spent on the North Klang Straits project so that on its completion Port Swettenham, the port servicing Kuala Lumpur, will be able to handle cargo of 2.2 million dead-weight tons without congestion or delay. The development of Port Swettenham will also accelerate industrialization in the central region of Malaysia especially in Selangor and Negeri Sembilan.

It is also proposed to construct six deep-water berths with a traffic handling capacity of 1.0 million tons on the mainland at Butterworth, Penang. The whole scheme will cost \$30,000,000. The completion of deep-water berths on the mainland will give rise to significant economies of scale in the handling of goods. Moreover, the new port facilities will be able

to cope with ships which desire to handle cargo in contained loads requiring substantial craning capacity.

Regular ship services operate between Australia, Bangkok, Hongkong, Japan, Singapore, Taiwan and the United Kingdom and the Sarawak ports of Kuching, Sibul, and Tanjong Manu and to a lesser extent Miri. Tanjong Manu is an anchorage only with customs sufferance facilities and is mainly used for loading timber. Port development is being undertaken to provide Sarawak's main ports with modern facilities for handling overseas trade vessels. Large vessels can now reach Sibul by way of the recently developed Paloh Channel.

In Sabah the principal ports are Sandakan, Labuan, Jesselton, Tawau and Kudat. The main export from Sandakan is log timber, principally to Japan, with smaller consignments to Hongkong, Formosa and Australia, while Labuan is the principal transshipment port for the Brunei Bay area.

A new match godown was completed in Jesselton in 1963. Work on the construction of the new 300 ft x 40 ft wharf in Kudat has been in progress and by the end of 1963 the 250-foot approach causeway was nearing completion. In Tawau the new Customs and Marine Offices signal tower and port godown were completed in October 1963. Landing steps at the western end of the new wharf were completed in December of the same year.

(d) *Rivers*

These are the main internal trade routes and means of internal communication in Sarawak and Sabah. Frequent and regular services of passenger and cargo launches and out-board speed boats ply between the states' main trading and administrative centres which mostly lie on the main river system. Other rivers are serviced by long boats and speed boats powered by outboard engines.

(e) *Civil aviation*

In Malaysia the following air fields are in operation:

States of Malaya	—	8
Sabah and Sarawak	—	4

Owing to the demand for air travel in this region Malaysian Airways Limited in 1963 commenced replacing DC-3 aircraft with large and fast turbo-propeller Fokker Friendship aircraft which now operate into the above air-fields with the exception of Kuala Trengganu and Kuantan.

Malaysian Airways also entered the jet age on 4 December 1962 with the operation of Comet aircraft to Hongkong and Bangkok.

The major project envisaged in civil aviation is the construction of an international airport at Kuala Lumpur — an airport equipped to handle the most modern and the largest civil aircraft operating in this part of the world. It was expected to be in operation in August 1965. In addition to the new airport it is proposed to re-construct the runways at Malacca and

Kota Bahru airports in preparation for the introduction by Malaysian Airways of more modern aircraft. The Penang airport extension has been completed. Extension of Miri, Bintulu, Lahat Dato, Tawau and Sandakan air fields in eastern Malaysia are planned to enable Fokker Friendship aircraft to operate at these air fields.

There are at the moment twelve international airlines stopping over at the Kuala Lumpur airport. The Government has also signed air agreements with: the United Kingdom, Australia, New Zealand, France, Italy, Germany, the Netherlands, Japan, Switzerland, Sweden, Norway, Denmark and Belgium.

2. Power

Electricity and gas are the two main sources of power in Malaysia. In the States of Malaya, the Central Electricity Board is the main source of power supply. In the State of Sarawak the major source of public electricity is the Sarawak Electricity Supply Corporation, which operates twelve stations throughout Sarawak. In Sabah electricity is provided by the Sabah Electricity Board in all the main towns except in Beaufort, Kota Belut, Mengattal and Semporan, where it is responsibility of private licensees. The Central Electricity Board's part in accelerating industrial development in the States of Malaya can best be seen from the increase in sales of electricity to industrial consumers over the past five years. Table 1 gives the annual sales to industrial undertakings, which include tin mines and dredges, in relation to the total sales of electricity in the Board's organization.

TABLE 1. ELECTRICITY SOLD TO INDUSTRIAL CONSUMERS BY THE CENTRAL ELECTRICITY BOARD, 1960-1964
(million units)

Year	Industrial mines	Industrial others	Total Industrial group	Total in board's undertaking
1960	161.2	92.6	253.8	544.9
1961	198.3	133.6	331.9	632.8
1962	215.2	155.2	370.4	709.1
1963	234.5	181.2	415.7	802.2
1964	249.9	215.1	465.0	917.3

TABLE 2. ESTIMATED SALES OF ELECTRICITY BY THE CENTRAL ELECTRICITY BOARD TO INDUSTRIAL CONSUMERS IN RELATION TO TOTAL SALES, 1965-1974
(million units)

Year	others Industrial	others Industrial	Total Industrial group	Total in board's undertaking
1965	250	258	508	1,027
1966	250	304	554	1,147
1967	250	353	603	1,380
1968	250	406	656	1,580
1969	250	467	717	1,801
1970	250	537	787	2,026
1971	250	618	868	2,271
1972	250	771	961	2,541
1973	250	818	1,068	2,842
1974	250	941	1,191	3,180

The annual sales of units have been estimated to increase as follows:

Industrial — Dredges and Open Cast Tin Mines	— Nil
Industrial — Others	— 20% in 1965
	— 18% in 1966
	— 16% in 1967
	— 15% each year thereafter.

To provide for the annual increase in electricity demand the Board's generating capacity has been augmented; table 3 shows the Board's increased generating capacity during the period 1960-1964.

TABLE 3. INCREASE IN GENERATING CAPACITY OF THE CENTRAL ELECTRICITY BOARD 1960-1964
(kW)

Year	Existing capacity	Increase in capacity
1960	154,592	Nil
1961	165,360	10,768
1962	159,687	Nil
1963	232,258	72,571
1964	283,931	51,673

It is to be noted that out of a period of five years there were three years during which the Board's generating capacity was augmented to meet the continued growth in demand for power. Those increases consisted of:

- The commissioning of a third 10,000 kW turbo-alternator at the existing Malacca Power Station and 768 kW of diesel generating sets in the Board's diesel generating stations in 1961.
- The commissioning in 1963 of two major power stations one hydro station at Cameron Highlands and one thermal station at Johore Bahru, with an initial generating capacity of 50,000 kW and 20,000 kW respectively. The balance of 2,571 kW was the result of an increase of generating capacity in the Board's various diesel stations.
- The commissioning in 1964 of a further 2 x 25,000 kW generating sets at the hydro station in the Cameron Highlands as mentioned in paragraph (b) above together with a general increase of 1673 kW in the Board's diesel stations.

The Central Electricity Board operates a transmission network consisting of 413 miles of 66 kV and 132 kV overhead lines and underground cables extending from Batu Pahat in the South to the Cameron Highlands in the North. In addition the Board operates approximately 1,858 miles of high voltage distribution lines and underground cables of voltages varying from 33 kV to 3.3 kV.

Generally speaking, the immediate plans for the development of the Board's generation and transmission schemes are as follows:

(a) *Development of the Batang Padang Hydro Electric Project in the Cameron Highlands*

This is the second stage of development which follows the completion of the first stage and is now progressing in the Batang Padang valley. The main power station will be situated underground and is designed to house 3 x 50 MW generating sets with an average output of approximately 530 million units. It is planned for completion in early 1968.

(b) *Upper Perak Hydro Electric Development*

This project was investigated in 1960 by Mr. F. I. Morton under the auspices of the Canadian Colombo Plan. It is estimated to have a potential generating capacity of 230 MW with an annual output of 1,300 million units.

(c) *Port Dickson Power Station*

This thermal power station is planned to have an ultimate generating capacity of 480 MW. The first two turbo-alternators of 60 MW each are expected to be commissioned in the year 1969.

(d) *Prai Power Station*

The initial plant to be installed in this thermal power station comprises two 30 MW turbo-alternators and it is planned that these sets will be commissioned in mid-1966.

(e) *Malacca Power Station*

The final extension to the existing Malacca Power Station consists of the installation of the fourth 10-MW turbo-alternator and this is scheduled to be completed by the middle of 1966.

(f) *Transmission schemes*

The transmission lines associated with the Batang Padang and Prai development schemes as mentioned above will connect the Perak hydro network and the Prai network to the general network, forming a 132 kV grid which will cover most of the western part of Malaya.

The major source of public electricity in Sarawak is the Sarawak Electricity Supply Corporation, which operates 15 stations throughout the state. The Corporation's installed capacity has increased from 6,117 kW at the beginning of 1959 to 13,602 kW in December 1964. In 1963 approximately 26,000,000 units of electricity were sold.

Total generating capacity in private ownership has risen from 454 kW at the beginning of 1959 to an estimated 8,500 kW at the end of 1963 so that at present about 40 per cent of capacity is privately owned. Sarawak Shell Oil Fields Limited is the major private licensee generating electricity solely for its industrial and domestic use with a capacity of 5,150 kW.

In the State of Sabah, electricity is provided by the Sabah Electricity Board in all the main towns

except Beaufort, Kota Belut, Mengattal and Semporan where it is the responsibility of private licensees.

In Sandakan a further 150,000 kW set was commissioned and a further unit placed on order for delivery in 1964. An underground cable will shortly feed the town area and a number of additional transformer stations were installed.

The Board's minor stations have continued to play their part in providing electricity and it is noted that a number of light industries have now come into these towns where a 24-hour supply is available.

With the rapid increase in electricity demand in Jesselton it is essential that alternative means of generation be considered and a principal hydro-electric power station site has been located in the Paper/Labek area. Initially this would give a maximum output of 20,000 kW. A further stage in the scheme would be the building of a dam downstream in the Paper River which would create water storage and enable the capacity of the hydro-power station to be increased to a range of 50,000 to 60,000 kW.

III. INDUSTRIAL POLICY

a. Investment laws and regulations

1. Basic legislation

The government of the States of Malaya introduced the Pioneer Industries (Relief from Income Tax) Ordinance in 1958. The Sarawak government passed the Pioneer Industries (Encouragement) Ordinance in 1957 and the Sabah government enacted the Pioneer Industries (Relief from Income Tax) Ordinance in 1956. The basic objective of this legislation is to provide tax incentives for industrial investments.

A new Act was introduced in early 1965 to amend the four existing ordinances in Malaya, Sarawak and Sabah and to harmonize the law governing Malaysia's pioneer industries. The bill makes amendment to provide for an initial tax relief period of two years with extensions:

- (i) to three years where fixed capital expenditure of \$250,000 has been incurred;
- (ii) to four years where such expenditure of \$500,000 has been incurred; and
- (iii) to five years where such expenditure of \$1,000,000 has been incurred.

Besides the tax exemption incentives, the various governments also provide other privileges and assistance to pioneer companies:

States of Malaya

(a) *Tariff protection*

For many industries the existing revenue tariff automatically provides a measure of protection against competing imports. However, cases arise when an industry requires tariff protection in the form of new or increased import duties and concession or remission or reduction of duty on imports of raw materials and component parts. Such matters will be dealt with the Tariff Advisory Board set up principally to implement

the measures for bringing about Malaysian common market.

(b) *Protection against dumping*

The Customs (Dumping and Subsidies) Ordinance 1959 is another important measure adopted by the Government to protect industries against unfair competition from foreign companies. This legislation provides for the imposition of duties — in addition to normal imports duties — on dumped imported goods, if their import is solely to endanger an established industry or retard the establishment of an industry in the country.

(c) *Import duty exemption*

To encourage the establishment of pioneer industries to Government also permits exemption from import duty on machinery and in some cases on raw materials to be used for manufacturing purposes.

(d) *Free transfer of capital and earnings*

The Government adopts a liberal attitude towards the remittance of capital out of the country. For such transfer nominal permission is required from the Controller of Foreign Exchange. The Government has also given an undertaking to guarantee the security of foreign investment in the country by concluding investment guarantee agreements. Such agreements have been concluded with the United States and Germany. Besides this the Government has also signed a double taxation agreement with the United Kingdom.

(e) *Industrial estates*

Five industrial areas, one each at Petaling Jaya near Kuala Lumpur, Sungei Mak Mandin near Butterworth, Tasek near Ipoh, Senawang near Seremban and Tampoi near Johore Bahru, have been established and opened to industry. The purpose of setting up these areas is to provide industrialists with readily available and fully serviced sites at low rates. The States of Perak, Kelantan and Malacca are also planning to develop industrial estates. The state governments, on their part, undertake the development of these industrial areas and with the co-operation of the Central Government and statutory bodies provide facilities such as communication, electricity and water.

Sarawak

Customs duty

A pioneer manufacturer is entitled to import into Sarawak free of customs duty during a period of five years, articles required for the construction, alteration, re-construction or extension of a pioneer factory.

Sabah

Repatriation of capital to foreign investors

No repatriation undertaking in the form of unconditional guarantee is ever given, but it is normally stated that no less favourable terms will be given to capital repatriation to the country responsible by the investor than to transfer of the interest or dividend. In practice transfer of this latter item has been allowed in full.

2 *Other pertinent laws and regulations*

(a) *Control of capital issue*

There are no laws governing control of capital issue but in practice the timing of an issue on the market is determined by the Central Bank of Malaysia and companies take the opportunity to consult the Central Bank regarding their prospectuses.

(b) *Import of capital goods*

The relevant law regarding the licensing of imports of capital goods is to be found in the respective Customs Ordinances of Malaya, Sarawak and Sabah. (For extracts of the relevant laws please see appendix I.) The law vested the Minister of Finance with the power to prohibit the importation of any goods into the territories mentioned. The law does not differentiate capital goods from other goods.

The Minister has in fact made the necessary order prohibiting the importation of goods into the territories concerned. In practice the effect of these orders is that all goods on importation into any of the state territories will be subject to one of these licences.

(a) the Open General Licence, or

(b) the Specific Licence.

Where the Open General Licence applies the goods concerned may enter into the country freely (in unrestricted quantities) without going through the bother of paper work such as submitting an application for licence, obtaining approval of the licence, and then presenting the licence to Customs at points of entry. In other areas once goods are listed on the Open General Licence such goods may enter the country without restriction, subject, of course, to new observations of the proper requirements of the law. Where a specific licence is required, the Import Licence must be obtained from the Office of the Import and Export Control Officer for each individual import. The Import Licence usually stipulates the quantity approved for importation and the time and place of importation.

(c) *Regulation of the location of industrial enterprises*

The law governing the location of commercial industrial enterprises would be the Land Code. Location of industrial enterprises would be in accordance with the regulations of the various local authorities and town planning bodies.

(d) *Licensing of factory establishments*

The Machinery Department of the Ministry of Labour, Malaysia, enforces the Machinery Ordinance and Regulation only in places in which machinery is used and thus does not have jurisdiction over all factories.

The Ordinance itself requires that all machinery with one or two exceptions shall be registered with this Department and shall not operate unless a Certificate of Fitness has been applied for and issued after inspection by an inspector of the department.

Boilers and unfired pressure vessels require that the design be approved by the Chief Inspector before approval is given for the installation.

The following is a list of regulations made under the ordinance

I.N. 1428 30 April 1953	1	Machinery Ordinance 1953
I.N. 337 22 August 1957	2	The Machinery (Steam Boiler and Unfired Pressure Vessels) Regulations 1957
I.N. 8 19 September 1957	3	The Machinery (Administration) Regulations 1957
I.N. 148 28 March 1957	4	The Machinery (Board of Examiners) Regulations 1957
I.N. 148	5	The Machinery (Inspection and Certificates of Fitness) Regulations 1957
I.N. 150 28 March 1957	6	The Machinery (Persons-in-Charge) Regulations 1957
I.N. 527 29 December 1955	7	The Machinery (Electric Passenger and Goods Lifts) Regulations 1955
I.N. 208 5 July 1956	8	The Machinery (Safety, Health & Welfare) Regulations 1956
I.N. 284 26 August 1959	9	The Machinery (Driven Machinery) Regulations 1959
I.N. 285	10	The Machinery (Transmission Machinery) Regulations 1959
I.N. 286 26 August 1959	11	The Machinery (Foundry Installation) Regulations 1959
I.N. 287 26 August 1959	12	The Machinery (Dredging Installation) Regulations 1959
I.N. 35 2 February 1961	13	The Machinery (Prime Mover) Regulations 1961

(e) *Control of raw materials*

There is no law governing the control of raw materials but the Government would like to see the utilization of local raw materials by industries. The Government, however, encourages the import of raw materials for industries if such materials are not available locally by allowing the company to import the materials, where applicable, duty free.

(f) *Control of power supply and transportation*
Power supply

The laws governing the control of power can be found in the Electricity Ordinance 1949 and the Electricity Regulations 1951. The Electricity Ordinance No. 30 of 1949 is an ordinance to provide for the

establishment of a corporation to be known as the Central Electricity Board of the Federation of Malaya and for the exercise and performance by the corporation of functions relating to the supply of electricity and certain other matters; for the transfer to the corporation of electrical installations owned by the Federal Government; to amend and consolidate the law relating to electrical installations and the generation, supply and use of electricity; to authorize the acquisition by the corporation of electrical installations and to regulate the payment of compensation therefore and for purposes connected with the aforesaid matters.

Transportation

Road. The law governing the control of road transportation is the Road Traffic Ordinance, 1958, which is an ordinance providing for the regulation of motor vehicles and traffic on roads, and to provide for the co-ordination and control of means of and facilities for transport.

Railway. The laws governing the control of rail transportation are the Railway Ordinance of 1948 and also the amendments and modifications effected under or by virtue of the Transfer of Powers Ordinance 1948:

L.N. 654/1953
L.N. 663/1953
L.N. 42/1954
L.N. 109/1954
L.N. 111/1954

The Railway (Amendment) Ordinance, 1954.

Ports. The law governing the control of ports is the Port Authority Act, 1963, which provides for the establishment of port authorities, for the functions of such authorities and for matters connected therewith.

Civil aviation. The laws governing the control of civil aviation are the Air Navigation Ordinance, 1952, and the Air Navigation Order, 1953, and the following regulations:

Air Navigation (Investigation of Accidents) Regulations, 1953;
Air Navigation (Licensing of Air Services) Regulations, 1953;
Air Navigation (Wreck and Salvage) Regulations, 1953;
Air Navigation (General) Regulations, 1953;
Air Navigation (Radio) Regulations, 1953;
Landing and Housing Fees Regulations, 1953;
Authorization under article 2 of the Air Navigation Order, 1953;
Notifications regarding the Date of Coming into Force of the Ordinance, Orders and Regulations.

(g) *Control of import of technical know-how*

The control of the import of technical know-how in terms of foreign personnel is undertaken by the Malayanization Committee which is responsible for

recommending foreign personnel for entry into the country; it is also governed by the Malaysia Immigration Laws [Immigration Ordinance, 1959 (F.M. 12 of 1959)] as extended to apply throughout Malaysia, and the Immigration Act, 1963 (F.M. 27 of 1963), incorporating all amendments and modification up to 16 September 1963, together with the subsidiary legislation in force on 16 September 1963.

(h) *Company law administration*

The law governing company administration in the States of Malaya is the Companies Ordinance No. 40 of 1946 of the Straits Settlement, as applied to the States of Malaya by the Companies Ordinance No. 13 of 1946 enacted on 4 July 1946. The latter ordinance was amended slightly by the Companies (Amendment) Ordinance No. 25 of 1946. Section 80 of the principal ordinance was amended by the Companies (Amendment) Ordinance No. 8 of 1946, by which a charge on land is deemed to be created from the date of registration of the charge with the land office.

The Companies (Winding Up) Rules, 1946, came into force on 9 October 1946.

Subsidiary legislation relating to forms and the like under the Companies Ordinance was published in Gazette Notification No. 1331 of the Government Gazette dated 31 January 1948.

The Trust Companies Ordinance No. 33 of 1949 was brought into force on 28 September 1949.

The Companies (Reduction of Capital) Rules, 1950 came into force on 29 June 1950 and was published in the Legislation Supplement (Subsidiary Legislation) in the Government Gazette of the same day No. 29 Vol. III Federal L.N. 254.

Procedure on application under the Companies Ordinance is contained in Order 53B of the Rules of the Supreme Court 1957 which came into effect on 1 April 1958.

The fees chargeable under the Companies Ordinance are contained in the Second Schedule which was last amended under Legal Notification No. 302 dated 16 October 1958 and was brought into force on 1 January 1959.

The Companies Ordinance No. 49 of 1946 is based on the Companies Act, 1929 of the United Kingdom which has been repealed and replaced by the Companies Act, 1948. The 1948 legislation has already been considered and reported on by the Jenkins Committee and to date many amendments have been suggested.

A committee under the chairmanship of Y. M. Raja Mohar bin Raja Badiozaman, Secretary for Commerce and Industry, was set up by the Government on 30 October 1963 to advise on the forms and contents of new legislation to replace the existing Companies Ordinance 1940-1946. As a result of the deliberations of the Committee a draft Companies Bill was prepared by the draftsman of the Australian Uniform Legislation whose service were made available

by Australia under the Colombo Plan. The revised bill is to be introduced in Parliament in the near future.

b. Conditions governing public and private investment

1. *Fields of investment open to different kinds of investor*

In fact the Government practises a free private enterprise policy and all fields of investment are open to private investors domestic and overseas.

Suggested fields of investment open to the private investors domestic and overseas include:

- (a) building and construction industries.
- (b) manufacture of industrial machinery.
- (c) manufacture of agricultural machinery and implements.
- (d) manufacture of high quality glasswares, cutlery and electrical appliances.
- (e) manufacture of pulp, paper and articles made of paper.
- (f) agriculture including development of copra, oil palms, sugar-cane, jute, cocoa, sago flour and timber.
- (g) mining including development of coal, ceramic clay, glass-sand, oil and gold.

2. *Investment services*

(a) *Malaysian Industrial Development Finance Limited*

In the States of Malaya the most important investment organization providing investment services and loans to industries is the Malaysian Industrial Development Finance Limited.

Basically three types of loans are offered by the MIDFL: medium- or long-term loans, factory mortgage loans, and hire purchase finance. In addition, MIDFL is also willing to consider taking up debenture, preference or equity share participation in public or private companies. MIDFL will act as an issuing house for capital flotations for new or existing companies and is also prepared to underwrite capital issues.

(b) *Borneo Development Corporation Limited*

In the States of Sabah and Sarawak, the Borneo Development Corporation Limited acts as the main investment advisory service for small industry and as a development bank. It is matched in the agricultural sector by the Sarawak Development Finance Corporation.

3. *Procedure to be followed by an entrepreneur in establishing a new industry*

(a) *States of Malaya*

In the States of Malaya applications for pioneer status under the Pioneer Industries (Relief from Income Tax) Ordinance 1958 for products and industries that have not been declared pioneer will have to be made under Section 3(1) of the said Ordinance. Information can also be obtained from the Industrial

Development Division for those who set up non-pioneer factories.

Section 3(1): Where it is represented to the Minister that:

- (a) any industry is not being carried on in the Federation on a commercial scale suitable to the economic requirements or development of the Federation or at all;
- (b) there are:
 - (i) favourable prospects of further development of the industry; or
 - (ii) insufficient facilities in the Federation to enable the industry to be carried on on a commercial scale suitable to the economic requirements or development of the Federation;
- (c) it is expedient in the public interest to encourage the development or establishment of the industry in the Federation by the making of an order declaring the industry to be a pioneer industry and any product or products of such industry to be a pioneer product or products, the Minister may, upon receipt of any such representation, call for any further details which he may consider necessary.

Provided that every such representation by a member of the public (including a company or a body of persons) shall be accompanied by a deposit of live hundred dollars which shall be returned to the persons making the deposit unless the Minister, after giving due notice to such person of his intention to declare such deposit forfeit on the ground that the representation is frivolous, and after considering any objection thereto by such person declared such deposit forfeit: in which event such deposit shall be forfeited for the general revenue of the Federation.

After a product and industry have been declared pioneer the applicant will have to apply under section 4 of the said Ordinance which reads as follows:

Section 4(1): Any company or persons proposing to register a company, being desirous of establishing or participating in a pioneer industry for the purpose of producing any pioneer product or products and intending that a factory be constructed, or, where the factory is already in existence, be occupied, in the Federation for such purpose, may make an application in writing to the Minister for a pioneer certificate, or for a pioneer certificate to be given when the proposed company has been registered, certifying:

- (a) the company to be a pioneer company in relation to such industry and product or products;
- (b) the factory, when constructed or occupied by the company, to be a pioneer factory for the purpose of developing or

establishing such industry and of the production of such product or products.

- (2) In any application under sub-section (1) the applicant shall
 - (a) give particulars of the pioneer industry and of the pioneer product or products intended to be produced by the company in the factory;
 - (b) estimate the rate of production in the factory of the intended products, in terms of marketable quantities which he anticipates the factory will be producing on production day;
 - (c) except in the case of an existing factory
 - (i) give particulars of the estimated size, cost of construction and production capacity of the factory;
 - (ii) specify the locality in which it is proposed to construct the factory;
 - (iii) specify the date on which he expects that construction of the proposed factory will commence.
 - (d) specify the day on which the factory will commence to produce in marketable quantities the pioneer product or products intended to be produced therein.

Applicants should ensure that the information given in the form of application is fully detailed.

In instances where precise dates for the commencement of construction and production depend on the day on which pioneer status is granted, it will be sufficient to describe these dates as the number of weeks or months following the day on which pioneer status is granted.

All applications must be marked "Confidential" and forwarded by registered post to:

The Secretary for Commerce and Industry,
Industrial Development Division,
4th Floor, Police Co-operative Building,
P. O. Box 985,
Kuala Lumpur.

All applications must be submitted in triplicate and accompanied by a crossed cheque for the sum of \$500 as a deposit made payable to the Accountant General, Malaysia.

The Industrial Development Division of the Ministry of Commerce and Industry will be pleased to answer any queries any applicant may have on completion of an application form.

All information given in the application will be treated as confidential by the Government.

The procedure either a local or foreign entrepreneur will have to follow in the States of Sabah and Sarawak is basically the same as that in the States of Malaya except that under Section 3(1) of their pioneer ordinances representation is made to the Ministry of Finance, Sabah in the case of Sabah; and the Financial Secretary, Sarawak in the case of Sarawak. In Sabah the government departments with which contact

must be made is the Ministry of Finance, Sabah; and in the case of Sarawak it is the State Financial Secretary, Sarawak. Under the Malaysia Agreement all applications must be approved by the Central Minister of Finance for pioneer status.

c. Customs duties and taxes

1. Customs duties on raw materials and components

Industrialists are welcome to apply for exemption from customs duties on raw materials and components and customs duties exemption has been given to several pioneer industries. However, each application is judged on its merits by the Treasury and the granting of pioneer status does not automatically imply customs duties exemption on raw materials and components for a particular industry.

2. Taxes affecting industry

Malaysian companies are taxed on their income at 40 per cent, a credit being allowed to shareholders for this tax when dividends are paid out of the company's income.

Companies which are granted "pioneer status" are entitled to up to five years' exemption from income tax on profits and the shareholders are exempted from tax payable out of those exempt profits.

Individual income tax is charged at rates ranging from 6 to 50 per cent after the following reliefs have been deducted from the tax-payer's income:

	(M\$) States of Malaya	Sabah and Sarawak (M\$)
Personal relief	2,000	3,000
Earned income relief (1/10th) maximum	1,000	—
Wife relief	1,000	2,000
Wife's earnings relief (9/10th) maximum	500	500
Child allowance 1st	750	700
2nd	500	500
3rd	500	500
4th	300	300
5th	300	300
Life Assurance premiums and Provident Fund contributions	max. 3,000	3,000

The rates of tax for resident individuals in Malaya will apply to the chargeable income, that is the assessable income after deduction of all personal reliefs and donations. The rate will be:

First M\$ 2,500 of chargeable income	6%
Next 2,500	9%
Next 2,500	12%
Next 2,500	15%
Next 5,000	20%
Next 5,000	23%
Next 5,000	25%
Next 10,000	30%
Next 15,000	40%

M\$50,000

On excess of chargeable income over \$50,000 50 per cent. In Sabah and Sarawak for 1965 the income

tax due on the above scale of rates is abated by a discount of 40 per cent in respect of the first \$50,000 of chargeable income.

Other taxes

There is a general turnover tax of 0.5 per cent on business and professions from which tax the export and pioneer industries are exempted and which does not apply to businesses where the annual turnover is not more than \$36,000 nor to professions where the annual turnover does not exceed \$20,000. There are also certain other exemptions from the tax and the tax itself is deductible in computing profits for income tax purposes.

Payroll tax at the rate of 2 per cent is payable by employers where the total payroll exceeds \$6,000 per year. The tax payable is deductible for the purpose of computing income for income tax purposes. There is no corresponding levy on employees.

The payroll tax is charged on the remuneration paid each month and during 1965 the tax applies only to the States of Malaya. There are a number of exemptions from the tax. (Pioneer companies are now exempted from the payroll and turnover taxes.)

IV. MARKET ANALYSIS AND SURVEYS

a. States of Malaya radio industry

In 1960 Mr. G. Moes conducted a feasibility survey of the establishment of a radio industry in the States of Malaya.

The present position of the imports of radios and transistor sets is as shown in table 4.

TABLE 4. IMPORTS OF RADIO AND TRANSISTOR SETS INTO THE STATES OF MALAYA, 1962-1964

Commodity	Commodity code	Year	Quantity	(M\$) Value
Radio receiving sets — transistor	724 204	1962	245,639	18,316,289
		1963	303,799	23,395,883
		1964	303,834	24,063,111
Radio receiving	724 205	1962	28,537	4,170,337
		1963	23,273	2,522,858
		1964	7,415	798,341
Radio receiving sets- battery operated, excluding transistor	724 206	1962	4,756	476,103
		1963	3,704	425,525
		1964	930	150,724

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. Rate of capital in industry

Data for capital investment in pioneer industries in the States of Malaya are available from the Ministry of Commerce and Industry, Malaysia. There is, however, no comprehensive coverage for the whole industrial sector, pioneer and non-pioneer, in the census of the manufacturing industries, States of Malaya.

Capital investment in the top five industry groups in the States of Malaya is as follows:

States of Malaya	
Industry	Called-up capital (M\$)
1. Manufacture of products of petroleum and coal	152,310,087
2. Manufacture of chemicals and chemical products	78,392,499
3. Food manufacturing industries	46,601,404
4. Manufacture of rubber products ..	16,100,000
5. Beverage industries	10,715,000

These are the five major industry groups which have attracted most of the financial investments in the States of Malaya.

According to the annual statistics of progress in industrial development in the States of Malaya published by the Ministry of Commerce and Industry, new investment in pioneer companies has been as shown in table 6.

TABLE 6. ANNUAL STATISTICS OF PROGRESS IN INDUSTRIAL DEVELOPMENT IN THE STATES OF MALAYA, 1959-1964

Year	Nominal capital (M\$)
1959	61,400,000
1960	156,020,000
1961	227,420,000
1962	357,670,000
1963	612,960,000
1964	654,550,000

b. Structure of the capital market

The structure of the capital market in Malaysia will be discussed under the following sub-headings:

1. the role of commercial banks in the capital market in Malaysia;
2. special financial institutions in the Malaysian capital market;
3. government finance for industries and rural investment;
4. stock Exchange; and
5. new issue market.

1. The role of commercial banks in the capital market in Malaysia

At the end of 1964 there were 43 licensed banks in Malaysia operating a total of 378 banking offices. Of the 43 licensed banks in Malaysia, 22 are local banks operating 239 banking offices. With the expansion of banking facilities in 1964 the ratio of persons per banking office has improved from 13,600 to 29,300.

Total assets of the banking system amounted to \$3,223,000,000 at the end of 1964. The assets and liabilities of the Malaysian banking system are shown in table 7.

The high level of bank advances in deposits reflected a general expansion in the economy although advances rose at a faster rate than deposits. At the end of 1964 total loans and advances excluding loans to banks and money at call amounted to \$2,151,000,-

000 compared with \$1,944,000,000 at the end of 1963, an increase of 10.6 per cent.

TABLE 7. ASSETS AND LIABILITIES OF COMMERCIAL BANKS IN MALAYA, 1963-1964 (M\$ million)

	Dec 1963	June 1964	Dec 1964
ASSETS			
Cash and balances with Central Bank	190	174	194
Malaysian and State Government Treasury Bills	60	106	125
Other Malaysian and State Government securities	178	181	173
Advances and Malaysian trade bills	1,847	1,992	2,040
Other Malaysian assets	520	526	555
Net overseas assets (including trade bills)	290	195	136
	3,085	3,174	3,223
LIABILITIES			
Capital and reserves (local banks only)	143	160	167
Deposits	2,490	2,584	2,656
Other Malaysian liabilities	452	430	400
	3,085	3,174	3,223

The purposes for which bank credit was made available reflected the growth of investment opportunities in Malaysia. There are significant increases in bank credit for manufacturing and construction, reflecting well the encouragement given to industrialization. Part of the increase in credit given for this purpose was due to advances made to meet the requirements of the seasonal rice milling industry. Loans for the manufacture of rubber, food products and other goods also increased steadily.

Details of the general pattern of bank lending in Malaysia are shown in table 8.

TABLE 8. CLASSIFICATION OF LOANS AND ADVANCES OF THE COMMERCIAL BANKS, 1963-1964

Purpose	31 Dec. 1963		30 June 1964		31 Dec. 1964	
	(million M\$)	(% of total)	(million M\$)	(% of total)	(million M\$)	(% of total)
Agriculture	114.2	5.9	115.0	5.5	126.4	5.9
Mining and quarrying	42.2	2.2	38.4	1.8	34.3	1.6
Manufacturing	186.8	9.6	266.7	12.8	282.8	13.1
Construction	110.2	5.7	125.2	6.0	140.4	6.5
Commerce	1,002.4	51.5	983.1	47.2	999.2	46.5
Professional and private individuals	306.2	15.7	346.7	16.7	344.1	16.0
Others	182.2	9.4	207.2	10.0	224.0	10.4
Total	1,944.2	100.0	2,082.3	100.0	2,151.2	100.0

Apart from the introduction of the one month fixed deposit for which the maximum rate of interest payable was 2 per cent per annum, there was no change in maximum interest rates on fixed deposits or

in the minimum lending rate of commercial banks in Malaya between 30 August 1962 and 24 November 1964. During this period the maximum interest rate on fixed deposits for 3, 6, 9 and 12 months was 4 per cent per annum and the minimum lending rate was $6\frac{1}{4}$ per cent per annum. On 25 November 1964 the maximum rate of interest for fixed deposits of one month was increased to $2\frac{1}{2}$ per cent per annum while the maximum interest rate of fixed deposits for 3, 6, 9 and 12 months was increased to 5 per cent per annum at the same time as the minimum lending rate was increased to 7 per cent per annum.

Medium- and long-term government interest rates

Interest rates for government loans during 1961 were $4\frac{3}{4}$ per cent for five years and $5\frac{1}{2}$ per cent for 16-18 years. During 1962 interest rates for government loans were $4\frac{1}{2}$ per cent for two years, 5 per cent for five years and $5\frac{1}{2}$ per cent for 16-18/18-20 years. Between 30 August 1962 and 24 November 1964 the rates remained unchanged. As from 25 November 1964, the interest rate for 18-20 year government loans was increased to 6 per cent.

Savings bank deposit rates

Interest allowed on savings deposits by the Post Office Savings Bank and the commercial banks remained at $2\frac{1}{2}$ per cent per annum. This has been increased to 3 per cent.

The commercial banks also furnish other services in relation to the capital market, such as provision of application forms, information in the raising of loans, shares, and so forth.

2. *Special financial institutions in the Malaysian capital market*

Special financial institutions in Malaysia may be conveniently grouped into two broad categories. One category may be called savings-mobilization and investment institutions, and the other capital-channelling or lending institutions. Institutions in the first group are the Post Office Savings Bank, the Provident Funds, Insurance Companies and the Muslim Pilgrims Corporation. Institutions in the second group may conveniently be further subdivided into three groups — institutions channelling capital primarily into the rural areas, such as the Rural Industrial Development Authority, institutions channelling capital primarily to the industrial areas, such as the Malaysian Industrial Fund Limited, Borneo Development Corporation; and institutions channelling capital into housing development, such as the Malaya Borneo Building Society and the Borneo Housing Development Limited. A further group covers a number of miscellaneous financial institutions such as the National Investment Company Limited, finance companies, pawnshops, unit trusts and so on.

(a) *Savings mobilization institutions*

The Employees Provident Fund which was established in 1951 operates in Malaya. There are no

central provident statutory funds in Sabah and Sarawak but consideration is being given to extending the Employees Provident Fund to these two states.

(i) *Employees Provident Fund*

In Malaya, the Employees Provident Fund, established in 1951 to provide some form of social security, had over 1,400,000 registered contributors at the end of 1964 with over \$1,067 million to their credit. A great portion of the contributions received was invested in long-term Government and Public Authority Securities amounting to \$1,018 million at the end of 1964.

The Employees Provident Fund is an important source of finance for the Central Government.

(ii) *The Post Office Savings Bank*

The Post Office Savings Bank in Malaya, at the end of 1964 operated 274 offices and held balances of \$177.3 million for 1,028,000 depositors. The Post Office Savings Bank in Malaya is an important source of finance for the second five-year development plan; it is expected to provide \$50,000,000 for the period 1961-1965. The interest rate of this Savings Bank has increased from $2\frac{1}{2}$ to 3 per cent.

(iii) *The Malayan Muslim Pilgrims Savings Corporation*

The Malayan Muslim Pilgrims Savings Corporation established by legislation in 1962, aims at providing savings facilities specifically for pilgrimage purposes. At the end of 1964, there were over 12,000 depositors with over \$835,000 to their credit. In time, the Corporation could become a significant source of finance for development.

(iv) *The Insurance Act of 1963*

The Insurance Act of 1963, apart from ensuring that insurance business is conducted on sound lines, requires that insurance companies maintain a proportion of their assets in local investments. This proportion, initially fixed at 25 per cent of the company's liabilities in Malaya is to be increased by stages to a minimum of 55 per cent.

Now that the Insurance Act, 1963, has been extended to cover Malaysia, the availability of financial resources for domestic investment can be expected to increase further. At the end of 1964 there were 95 insurance companies registered in Malaya and in 1963 premium income for life and general business amounted to \$70.8 million.

3. *Capital channelling institutions*

The description of the various capital channelling institutions will be described in answer to question (iii).

Housing development institutions

(a) *The Malaya Borneo Building Society Limited* with an issued capital of \$39.7 million, operates in Singapore and Malaya and is one of the most important sources of finance for housing. The resources of the society are

provided through medium and long-term borrowings. Loans released in 1964 totalled \$25.2 million, whilst total loans outstanding amounted to \$102.7 million.

- (b) *Borneo Housing Development Limited* provides housing finance in Sarawak and Sabah. The amount of loan released in 1964 was \$8.5 million while mortgage assets and loans outstanding increased by \$3.1 million to \$20.1 million at the end of 1964.

4. *Rural investment institutions*

(a) *The Rural Industrial Development Authority* was established in Malaya in 1954 to provide a broad range of economic activities in the rural area which include rural businesses and industries, small processing factories, contracting and transport. Total amount of loans approved by Rural Industrial Development Authority up to the end of 1964 amounted to \$27.5 million. Plans have been made to extend the activities by the Authority to the other States of Malaysia.

(b) *The Federal Land Development Authority* was established in 1959 to carry out land development and group settlement projects in various states of Malaya. Included in these group settlement schemes were the clearing of primary jungle for settlement and agricultural purposes, especially for the planting of rubber and other cash crops, but in recent years emphasis had been on the cultivation of oil-palm, in line with the Government's aim of agricultural diversification.

(c) *The Sarawak Development Finance Corporation*. The capital resources of the Sarawak Development Finance Corporation established in 1958 were increased to \$2,000,000 by an interest-free loan of \$1,000,000 from the state governments. The main object of the corporation is to promote private investment through the provision of loans but with emphasis on rural projects such as livestock production, paper, and rubber processing. The amount of loans approved in 1964 was \$865,000.

(d) *The Sabah Credit Corporation* occupies a position similar to the Sarawak Development Finance Corporation as a source of rural finance in Sabah. Set up in 1955 the Corporation aims at promoting private investment with emphasis on rural projects. The total amount of loans approved in 1964 was \$367,000, of which \$174,000 was released. The main projects financed were livestock production, mixed farming, coconut and paddy planting, rice milling and transport.

5. *Government finance for industries and rural investment*

Provisions were made in the development plans of the Malaysian territories for government encouragement to industries and rural investment. In line with its policy of free enterprise the Government does not participate directly in industries but provides suitable conditions to attract investments, both local

and foreign, for industrial development, through income tax relief for pioneer companies for periods ranging from one to five years, double taxation agreements, tariff protection, and investment guarantees. The Government also invests heavily in providing an infrastructure conducive to industrial development, with the development of industrial estates in various states, increase in the electricity generating potential, water supplies, access roads, bridges and port facilities.

In the rural areas, the Government has taken a more active role in providing grants to the Rural Industrial Development Authority and the Federal Land Development Authority. Credit facilities are provided by the Rural Industrial Development Authority for a broad range of economic activities in the rural areas including rural businesses and industries, small processing factories, contracting and transport. The Federal Land Development Authority was set up by the Central Government mainly to develop group settlement schemes in various states in Malaya.

Allocations were also made in the Development Plans for the drainage and irrigation projects in the rural areas, various rural electrification schemes and other rural development projects. Grants and loans were also given to various state governments to implement their rural development projects, especially those concerning roads, bridges and water supplies in the rural areas. To spearhead rural development the Government has set up the Ministry of National and Rural Development. This Ministry has been responsible for the implementation of the rural development goals of the Government.

6. *Stock Exchange*

The Stock Exchange is an important constituent of the Malaysian capital market, and is of great assistance not only to private enterprise but also to government, semi-government and local authorities in raising capital and loans. Transactions are generally made through stockbrokers who are members of the Stock Exchange of Malaysia.

Large companies generally seek a listing on the Stock Exchange, but before being granted a listing such companies have to comply with comprehensive listing requirements designed to protect investors and to ensure adequate disclosure of financial and other information. The Central Bank of Malaysia takes a keen interest in the orderly development of the Stock Exchange and has supplemented the Stock Exchange's own efforts by offering advice and facilities for trading and the like from time to time.

The existence of an organized market for equities and securities provides liquidity of capital. Capital assets can be rapidly converted to cash with the least possible loss. The market is a continuous one in that securities may be bought or sold at any time during business hours. Business is conducted in a trading room in Kuala Lumpur. This arrangement ensures that the best "bid" and "offer" prices are known to the two centres simultaneously. Provision is made in the

by-laws for the Stock Exchange activities to be extended to Sabah and Sarawak. The Stock Exchange publishes a monthly Stock Exchange Gazette and this has some influence in directing the flow of funds toward more prosperous and successful enterprises.

The Stock Exchange of Malaysia is an association of stock brokers in the States of Malaya and the Republic of Singapore. There are fourteen member firms which operate in the following States:

Kuala Lumpur	6
Penang	3
Ipoh	3
Malacca	2
	—
	14
	—

There are no jobbers as such though occasionally some jobbing is done. As in India, stockbrokers may employ remisers, but the number that may be recruited is limited and they must be approved by the committee of the Stock Exchange.

The Malaysian stock market is not dominated by institutional investors. Provident and trust funds invest mainly in government securities. It is intended that the Trustee Ordinance should be amended to allow for investment by trustees and the like in equities, subject to certain safeguards as to size of capital and the profit record of the selected equity. This should help to stimulate the share market. The Insurance Act stipulates that an increased percentage of funds must be invested locally. The increase is to be spread over a number of years and in time would have an effect on both the stock and securities markets.

The Malaysian securities market is small but growing. While the Central Bank of Malaysia does not engage at the moment in "open market operations", it has nevertheless been a strong influence as it has a relatively large portfolio of government securities which it will sell to stimulate the securities market. It will also buy from time to time to augment its portfolio. The growth of a securities market has been facilitated by the issue of government securities of varying maturities so that a wide range of securities of from one to twenty years' maturity is now available in the market.

There is also a developing market in government Treasury Bills which has been helped by the operations of Malaysia's first discount house which commenced operations early in 1964. Rediscounting facilities have been provided by the Central Bank of Malaysia and these are frequently made use of. Some M\$240 million Treasury bills are in circulation and bills of 6, 9 and 12 months are also available.

7. New issue market

As a result of government encouragement, industrialization has proceeded fairly rapidly in recent years. As a result, many new ventures have been started, some with foreign capital, others on a joint venture basis

and yet others with purely local capital. Many of these newly-formed companies have resorted to seeking capital in the market by the issue of shares and the sale of debentures.

There are broadly speaking, four ways in which shares can be offered:

- (i) by an invitation to subscribe by the issue of a prospectus;
- (ii) by an offer for sale whereby institutions, groups of individuals or stockbrokers take up all or a large part of the issue of the company and offer them to the public at a fixed price; in such a case particulars have to be provided to the public as also in the case of an issue by prospectus;
- (iii) by private placing with institutions or other investors or stockbrokers followed by listing of the shares in the Stock Exchange;
- (iv) by an offer to existing shareholders.

The first two are the more usual methods followed in Malaya. In 1963 thirteen companies raised \$65,707,995. Of these, six were by public issue, five were offers for sale and two were private placements. In 1964, twelve companies attempted to raise capital and of them eleven were successful. Of these, five were by public issue, four by tender and two by private placement. The amount raised was \$43,791,980.

c. Measures taken to promote savings and channel them into industry

There are no specific measures to channel government and business savings into industries but there are three main existing capital channelling institutions which participate in industrial promotion and investment:

1. *The Malaysian Industrial Development Finance Limited*

The Malaysian Industrial Development Finance Limited was established in 1960 with capital subscribed by the Central Government, commercial banks, insurance companies and the public, to provide long-term loans for industrial development, factory mortgages and hire-purchase facilities for industrial machinery purchases. In 1963, the capital resources were increased by an interest-free loan of \$37.5 million from the Central Government, of which \$22.5 million was paid to the company, a loan of \$24 million from the World Bank and an increase of its capital of \$225 million, of which 60 per cent was paid up. Loans outstanding at the end of 1964 amounted to \$23.4 million.

2. *Borneo Development Corporation Limited*

The Corporation operates in both Sabah and Sarawak. Its activities consist mainly of the provision of mortgage finance for the construction of industrial buildings and for the development of industrial estates. Out of the investment of \$3.5 million approved at the

end of 1964, \$3.4 million was for projects in Sarawak and the remainder for Sabah. Of the eighteen factories financed by the corporation in Kuching, fifteen were completed and one was still under construction at the end of 1964. In Sibul the corporation financed the construction of eight godowns costing approximately \$640,000.

d. Mobilization of private capital

It is generally believed that capital is not a scarce factor in Malaysia. However, the States of Malaya, Sabah, and Sarawak are traditionally agricultural economies where most of the local capital and financing institutions have been used to develop the rubber, tin and timber industries. The major part of the capital in the States of Malaya has been accumulated from profits from rubber and tin. In the past four years an increasing number of local business circles and traders have shown a keen interest in investing in industries. In fact, they have invested in various industrial projects either by themselves or by incorporation with foreign capital.

Up to 28 February 1965 the local called-up capital in Malaysia amounted to \$189,021,898 while the total called-up capital amounted to \$467,387,848. As can be seen, local called-up capital constitutes 38.6 per cent of the total called-up capital in Malaysia.

Once new industrial enterprises have been soundly organized they can generally raise capital in the market through the Malaysian Stock Exchange which is now playing an important role in the mobilization of capital for industrial development.

e. Inflow of foreign capital

To date, capital from foreign sources amounted to about 61.4 per cent of the capital of 254 pioneer companies in Malaysia. So far the response from foreign investors willing to go into joint ventures with local entrepreneurs who lack technical know-how has been quite successful.

f. Measures for servicing external public debts

As evidenced by the attached schedule (appendix 2), Malaysia has not as yet relied to any significant extent on public borrowing from external sources although current public development plans have been formulated on the assumption that a certain amount of foreign capital would be available to bridge the gap between investment targets and available domestic resources.

In the second five-year plan (1961-1965) for Malaya, it was forecast that an investment of \$1,070 million of foreign capital would be needed to finance more than one-fifth of the plan. Of this amount, it was expected that \$585 million would come from external public loans and grants-in-aid and \$485 million from private foreign capital (including retained earnings of foreign companies). It is not possible at this stage to say whether the target for public external loans will be reached.

Servicing foreign capital

Article 98 of the Constitution of Malaysia and similar clauses in the constitutions of the States in Malaysia provide that all debt charges for which the several governments are directly liable, shall be charged on their respective Consolidated Funds. In other words, public debt servicing has a prior claim on all moneys and revenues entered in the Consolidated Fund and ranks *pari passu* with a few other similar claims on the Fund. Such expenditures are charged on the Consolidated Fund without further legislative authority. All other expenditures from the Consolidated Fund must be appropriated annually by Parliament in the case of the Central Government, and by the various legislative assemblies in the case of the state governments.

The Government of Malaysia and the state governments have paid when due, the full amount of principal and interest, and complied with amortization or sinking fund requirements for all foreign debts.

In addition, the Malaysian Government has guaranteed the principal and interest payable in respect of certain foreign obligations of statutory authorities. These authorities, too, have made ample provisions out of their revenues for the servicing of their foreign debts.

On the whole, service charges on official foreign capital brought into Malaysia have not been large in relation either to public revenues or to export earnings. For instance, the Malaysian Government, whose total direct foreign debt amounted to \$438 million at the end of 1964 and comprised more than 60 per cent of the total official foreign debt, spent in 1964 \$11 million on amortization, \$14 million on interest charges and \$14 million on sinking fund provisions in respect of its direct foreign debt. The total was equivalent to 2.0 per cent of budget revenues, and 0.7 per cent of export earnings for the year. Current estimates indicate that foreign debt service requirements for the Central Government and other components of the public sector for the years 1965-1970 in respect of foreign debt outstanding at the end of 1964, should pose no problem for the Malaysian economy. (see appendix 2)

General

On present indications, Malaysia has the capacity to service a much larger foreign debt, official and private, than the present one. At the present time, Malaysia is exploring several possibilities to raise additional foreign official capital.

g. Measures taken to encourage joint ventures between domestic and foreign entrepreneurs

The Malaysian Government is conscious of the fact that technical know-how is lacking in the country and in order to enjoy the benefits of the latest techniques and production methods, it encourages the establishment of joint ventures between local and foreign investors. In order to encourage this the governments of the Malaysian territories have adopted

a liberal attitude in respect of remittance of profits and dividends of foreign capital. Of course, as has been mentioned earlier in this paper, the Government also provides tax holidays, tariff protection, readily serviced industrial estates and other inducements.

h. Public ownership

There are no provisions made by the Government of Malaysia in the event of nationalization of foreign-owned industries. To date, however, no industries in Malaysia have been nationalized and for the foreseeable future it is inconceivable that nationalization of industries in the private sector should take place. The Government has signed two investment guarantee agreements, one with West Germany and another with the United States and might be prepared to enter into similar agreements with other countries.

i. Remittance of profits, dividends and foreign capital

The Malaysian Government does not adopt any restriction in respect of the remittance of profits and dividends of foreign capital. Remittance of profits and dividends out of the sterling area will require permission which is readily granted from the Controller of Foreign Exchange. This is one of the inducements for investment in Malaysia.

j. Areas of industrial activity open to foreign investors

All areas of industrial activity are open to foreign investors. There are no regulations prohibiting ownership or control of foreign industrial enterprises. Overseas investors are, however, usually encouraged to form joint ventures with local capital.

k. Steps taken to encourage foreign investment in the country

To encourage foreign investment in Malaysia the Government provides certain infrastructural facilities and other inducements such as the tax holiday for a period ranging from two to five years, industrial estates, no restriction in respect of remittance of profits and dividends, import duty exemption and tariff protection.

l. Measures and regulations effecting the import of technical know-how

With respect to the import of technical know-how in terms of tapping the technological resources of well-established firms overseas for local enterprises, the Government is prepared to permit the payment of royalty and other technical fees. However, to ensure that there is no excessive outward flow of the Malaysian currency, pioneer companies must obtain the prior written approval of the Ministry of Commerce and Industry before entering into any form of management or technical agreement with overseas firms.

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

a. Industrial development corporations

1. Industrial Development Division, Ministry of Commerce and Industry

Following the recommendations of the Working Party on Industrial Development in 1957, the Industrial Development Division of the Ministry of Commerce and Industry was established, to assist the Ministry in formulating and implementing the Government's policy on industrialization and in the administration of the Pioneer Industries Ordinance. In the course of its work the Industrial Development Division also undertakes the processing and evaluation of pioneer industries applications and industrial promotion.

2. Federal Industrial Development Authority

Besides the existing industrial development organizations, the Government of Malaysia proposes to establish the Federal Industrial Development Authority to co-ordinate industrial development policies throughout Malaysia. This body will also undertake economic feasibility studies and industrial possibilities, industrial promotion work, industrial site development and the evaluation of applications for pioneer status. The Federal Industrial Development Authority will be entrusted with the promotion of industries for the whole of Malaysia and will devote itself to the promotion of industries; thus, the work of these organizations will be complementary.

b. Industrial development banks

1. Malaysian Industrial Development Finance Limited

The Malaysian Industrial Development Finance Limited (MIDFL) was set up to stimulate industrialization in Malaysia by assisting manufacturers who need capital and technical or financial advice.

The Malaysian Industrial Development Finance Limited provides medium and long-term loans for the purchase of the fixed capital assets of a factory such as land, buildings, plant and machinery. MIDFL can normally provide up to half of the total financial capital required for new or existing projects. It can also offer debenture, preference or equity share participation in public or private companies. In providing this kind of assistance it prefers in the long run to sell out its interest in the company to the existing shareholders on terms previously arranged.

For the purchase of factory buildings together with the land on which they are to be created, MIDFL operates a factory mortgage scheme which will enable manufacturers to obtain suitable premises for their operations. Up to 80 per cent of the cost can be granted on a long-term easy repayment basis. To assist in the financing of machinery and equipment MIDFL operates a hire-purchase scheme whereby it will under-

take to supply major items of industrial equipment on a payment-by-installment basis. Upon deposit of an initial instalment of at least 25 per cent of the c.i.f. price of the plant or machinery, the remaining 75 per cent being advanced by MIDFL, it is hire-purchased at rentals payable monthly over a maximum of three years. In addition to these direct methods of finance it also acts as an issuing house for capital flotations for new or existing companies and is even prepared to underwrite capital issues.

In conjunction with overseas associates it can organize turnkey projects which are ready-made plans for the building and establishment of suitable production units. They include detailed descriptions of capital cost, plant layout, equipment and labour requirements. Also included in such plans are proposals for the provision of on-site technical assistance by the suppliers of the machinery as well as suitable credit facilities. Plans can be drawn up to suit the individuals needs of local manufacturers.

Borneo Development Corporation Limited

Its activities in Sabah and Sarawak consist principally of the protection of mortgage finance for the construction of industrial buildings and the development of industrial estates.

c. Management and productivity centres

The National Productivity Centre, Petaling Jaya

The National Productivity Centre in Petaling Jaya provides all forms of managerial and supervisory training as well as training of workers. The Productivity Centre attempts to improve the efficiency of industrial operations with particular reference to methods of increasing productivity, of improving the quality of local goods, of lowering costs and of developing better labour/management relations.

d. Industrial research and extension institutions

1. National Institute of Scientific and Industrial Research

The Malaysian Government proposes to establish the National Institute of Scientific and Industrial Research to assist in the development of industry and technology. The Institute will include a Division of Industrial Technology which will discover new uses for new materials in turning out manufactured products and a National Testing Division for testing manufactured products.

2. The National Standards Institution

The main function of this institution will be to enable the Government to maintain quality control of the products produced by industries and it will also provide facilities for testing and inspecting, to support, certify, approve and license the standards marks which indicate conformity with standards issues.

e. Evaluation of success achieved and problems faced

1. Industrial Development Division, Ministry of Commerce and Industry

The success of the work or of the functions of the Industrial Development Division can be judged by the fact that over a period of six years, 108 pioneer companies have been established with the total nominal capital of \$654,550,000. Out of the total \$214,324,348 have already been called up. In the initial phase these pioneer companies have also been able to provide employment for 10,225 persons and it is estimated that when in full production they will be able to provide employment opportunities for 13,868 persons.

The industries that have been established include chemical and allied industries, food processing industries, sugar refining, cement and structural concrete products and textile.

2. Industrial development banks

Malaysian Industrial Development Finance Limited

To date, the Malaysian Industrial Development Finance Limited has drawn an equivalent of M\$7.5 million from a line of credit extended by the International Bank for re-construction and development. In its promotion of industrialization in Malaysia this amount has been invested in the following industries:

plywood/veneer	— US\$	330,000 (M\$1.0 million)
flour	— Stg. £	350,000 (M\$3.0 million)
cement	— US\$	1,170,000 (M\$3.5 million)

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT

a. Manpower surveys and the need for trained personnel

A manpower survey in the States of Malaya was initiated by the Economic Planning Unit and the Ministry of Labour early in 1965. In the past, apart from the basic data yielded by population censuses which are normally conducted at ten-year intervals, hardly any manpower information has been available with the kind of detail necessary for sound educational and development planning. The studies undertaken have aimed or will aim at overcoming this shortage of manpower information through the collection of data on various significant characteristics and distribution of the nation's current stock of manpower. It is planned to follow this with attempts to assess both future supply and demand potentialities which would then provide an important basis for the formulation of policy to increase the contribution of human resources in accelerating economic and social development.

The purpose of the manpower survey which got under way in late February 1965 is to enable the Government to know the number of trainees in each establishment and the number of working proprietors, working partners and unpaid family workers in each

establishment. From a study of this survey the Central Government proposes to:

- (i) formulate and implement the economic development plans and programmes aimed at creating employment opportunities;
- (ii) expand training facilities to up-grade the level of skill throughout the country;
- (iii) equip the increasing work force for productive employment.

Manpower Sub-Committee, National Development Planning Committee

This sub-committee has been formed with the following terms of reference:

- (i) to review the manpower planning programme and to advise as to its content and the priorities implied, including identification and definition of problems requiring attention.
- (ii) to participate in the assessment of problems and the development of plans and programmes.
- (iii) in the longer range context to guide and assist the development of a rational Malaysia-wide set of manpower development and utilization policies designed to maximize national unity and development in all parts of the country.

Higher Education Planning Committee

The Higher Education Planning Committee was established with the purpose of submitting and making a study of the requirements of "higher level manpower" by the nation and also to look into the measures to be taken by the Government on present and projected needs for higher education by its people.

State of Sabah

In the State of Sabah a report of manpower enquiry was conducted during September 1964. The Government conducted an eight-day enquiry into its manpower problems. The observations made included the over-all labour market situation, the education and training system, transfer of labour from other Malaysian States, employers' training responsibilities, public training programmes and organization of the labour market. The enquiry called for a manpower survey for the guidance of educational planners and other government departments in the state.

b. Forecasts of the future needs for trained personnel

No forecast has been made as yet in the various territories in Malaysia pending results of the more comprehensive manpower surveys that are being undertaken since 1964.

c. Training programme for different categories of personnel

States of Malaya

For the skilled foremen and operatives level there is a Central Apprenticeship Board which trains skilled tradesmen for the various industries. There are also the existing training facilities such as the Technical Institutes in Penang and Kuala Lumpur and the Junior Trade Schools in Johore Bahru and Ipoh. However, a big step forward in Malaysia's effort to meet the growing demand for skilled technicians was taken with the opening of the \$2.2 million Industrial Training Institute in Kuala Lumpur this year.

The University of Malaya provides courses for students to become qualified as engineers, doctors, dentists, and pharmacists, and it also has a section on Business Administration and Accounting in the Faculty of Economics and Administration to train undergraduates to be equipped for appointments at managerial levels in the various industrial enterprises.

State of Sarawak

Technical education began in the State of Sarawak with the opening of a Nautical School in Kuching in 1959 and has expanded to include a Commercial Institute and a Trade School.

d. Mobilization of manpower resources

The stage of manpower evaluation has not yet been reached as Malaysia is just beginning to formulate a manpower planning policy and programme which will form part of the first Malaysian development plan.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

In Malaysia the industrial sector is left completely to private enterprise. The role of the Government is to provide facilities and factors conducive to industrial development.

The Department of Statistics of the States of Malaya conducts an annual survey of manufacturing industries. The position of the existing major industries in the States of Malaya may be obtained from these surveys and censuses, extracts from which are given in tables 9-11.

TABLE 10 ANNUAL OUTPUT OF MANUFACTURING, PROCESSING, MINING AND FOREST-BASED INDUSTRIES, 1960-1964

Industry and Products	Unit	1960	1961	1962	1963	1964 (Jan. Sep.)
1 <i>Rubber Milling</i>						
Milled rubber	Tons	24,778	19,826	17,010	9,247	13,240
Crepe	Tons	84,869	74,126	76,576	74,896	53,257
2 <i>Latex Processing</i>						
Processed latex	Tons	113,651	103,355	112,339	115,763	93,054
3 <i>Copra and Palm Kernel</i>						
Copra estate	Tons	32,309	33,841	33,214	33,219	23,285
... smallholding	Tons	140,650	127,644	99,694	104,579	n.a.
Palm kernels	Tons	23,672	24,227	27,844	30,135	21,217
4 <i>Oil Milling</i>						
Coconut oil	Tons	73,613	87,367	91,660	71,281	46,775
Palm oil	Tons	50,343	93,348	106,462	123,649	85,002
Coconut cake	Tons	45,680	52,564	54,137	45,145	29,878
5 <i>Tea</i>						
Tea (black and green)	Lb	5,595,000	5,809,000	6,260,000	6,020,000	5,200,000
6 <i>Rice Milling</i>						
Milled rice	Piculs	4,297,000	4,475,000	3,709,000	3,751,000	2,919,000
Bran and chaff	Piculs	2,286,000	2,133,000	1,754,000	1,789,000	1,361,000
7 <i>Tobacco Products</i>						
Cigarettes	Lb	7,879,000	9,517,000	11,021,000	12,834,000	9,849,000
Cigars and cheroots	Lb	1,765,000	1,771,000	1,628,000	1,598,000	1,133,000
Tobacco	Lb	2,185,000	2,326,000	2,250,000	2,151,000	1,595,000
8 <i>Beverages</i>						
Cordials and aerated waters	Gal	12,830,000	12,674,000	12,518,000	13,686,000	10,475,000
9 <i>Biscuit Manufacture</i>						
Biscuit	Cwt	119,000	340,000	353,000	353,000	266,000
10 <i>Misc. Chemical Products</i>						
Soap	Cwt	356,000	378,000	384,000	450,000	350,000
11 <i>Rubber Footwear</i>						
Canvas shoes with rubber soles	Doz pairs	710,436	710,715	698,364	743,329	649,774
Slippers and other footwear wholly and partly of rubber	Doz pairs	718,335	726,463	812,672	928,386	740,070
Soles and heels	Doz pairs	80,875	91,748	72,322	33,625	41,279
12 <i>Misc. Rubber Products</i>						
Rubber sheeting and matting	Value M\$	4,348,000	4,924,000	5,087,000	4,577,000	3,413,000
Foam rubber mattresses	Pieces	45,472	48,192	55,759	59,163	51,673
Other foam rubber products	Lb	1,032,409	1,422,818	1,706,592	2,064,510	1,903,614
Rubber compound	Lb	3,503,000	3,577,000	3,493,000	4,021,000	3,737,000
Tubing and hose	Lb	252,000	170,000	149,000	120,000	76,000
Tubing and hose (part rubber)	Ft	416,000	344,000	410,000	378,000	317,000
Bicycle tubes	Pieces	1,278,000	1,822,000	2,026,000	2,125,000	1,802,000
Solid tyreing	Ft	101,000	69,000	251,000	182,000	396,000
Other rubber goods	Lb	1,222,000	1,386,000	1,845,000	1,654,000	1,305,000
13 <i>Structural Concrete Products</i>						
Concrete posts	Pieces	17,720	11,430	26,035	38,880	22,465
Paving slabs	Pieces	136,594	111,915	148,787	162,609	128,313
Floor tiles	Pieces	209,265	193,134	156,927	110,142	108,778
Septic tanks	Pieces	826	401	1,014	671	366
Channels and inverts	Pieces	385,481	331,243	383,136	434,653	301,981
Spun concrete pipes (diameter under 12")	Ft	60,268	65,345	72,737	86,688	46,610
Spun concrete pipes (between 12" - 36")	Ft	84,507	138,289	151,486	156,635	101,129
Spun concrete pipes (over 36")	Ft	22,612	35,920	54,724	34,880	22,269
Cement	Tons	281,862	325,571	320,547	355,963	290,468
Asbestos cement roofing sheets	Pieces	2,580	12,112	8,860	3,338	1,645
Cement bricks	Pieces	1,191,000	2,639,000	1,346,000	1,513,000	1,267,000
14 <i>Structural Clay Products</i>						
Earthen bricks	Pieces	75,368,000	87,757,000	99,524,000	109,493,000	85,905,000
Roofing tiles (Chinese type)	Pieces	1,714,000	1,363,000	3,035,000	2,731,000	2,058,000
... (French type)	Pieces	5,797,000	5,570,000	6,433,000	7,204,000	n.a.

Industry and Products	Unit	1960	1961	1962	1963	1964 (Jan-Sep)
Earthen pipes — glazed and unglazed						
Diameter 6" and under	Ft.	788,501	863,379	889,675	950,461	630,252
.. 7" and over	Ft.	128,967	136,678	210,363	263,080	254,995
Earthen channels	Ft.	41,856	24,308	28,733	17,500	14,000
15. Mining Industries						
Tin in concentrate	Tons	51,979	56,028	58,603	59,947	44,618
Iron ore	Tons	5,640,258	6,733,520	6,507,302	7,264,543	5,328,104
Gold raw	Troy Oz	20,745	12,486	6,924	9,116	6,082
Bauxite	Tons	451,958	409,881	349,419	444,047	345,524
Ilmenite	Tons	118,242	106,975	101,657	147,014	92,084
Coal	Tons	6,847	Nil	Nil	Nil	Nil
16. Timber and Fuel						
Timber round	Solid cu. ft.	79,452,000	78,173,000	81,625,000	95,265,000	n.a.
Poles	"	1,932,000	2,278,000	2,544,000	2,920,000	n.a.
Charcoal	"	10,794,000	10,469,000	10,202,000	10,674,000	n.a.
Firewood	"	7,302,000	8,172,000	6,680,000	5,878,000	n.a.
Sawn timber	1,000 tons of 50 cu. ft.	729.4	711.1	755.7	507.6	n.a.

Source: Monthly Statistical Bulletins of the States of Malaya.

TABLE II. PRINCIPAL STATISTICS OF SELECTED MANUFACTURING INDUSTRIES, 1959-1962

Industry (A)	Year (B)	Number of establishments (C)	Gross value of sales of own manufactured products (M\$'000) (D)	Cost of material purchased (M\$'000) (E)	Value of year end inventory owned (M\$'000)		Net value of output (M\$'000) (H)	Number of paid employees at December 31		Salaries and wages paid (K)	
					Opening (F)	Closing (G)		Full-time (I)	Part-time (includes home-workers) (J)		
Processing of estate-type agricultural products in stories off estate											
Rubber re-milling off estate	1959	65	268,857	232,045	n.a.	n.a.	23,275	4,910	81	8,302	
	1960	68	301,366	272,627	25,568	21,034	24,205	5,082	113	8,713	
	1961	69	205,779	176,441	20,908	15,728	24,158	4,937	115	8,449	
	1962	63	211,161	204,456	15,681	26,124	17,148	4,982	140	8,213	
	(old)										
	1962 (new)	72	217,719	210,393	16,322	26,979	17,983	5,222	147	8,466	
Rubber latex processing off estates	1959	14	186,075	174,474	n.a.	n.a.	12,872	2,375	64	4,810	
	1960	14	197,979	177,369	14,977	13,168	18,801	2,316	6	5,129	
	1961	14	146,622	128,084	13,029	10,414	15,923	2,000	9	4,362	
	1962	12	158,235	137,685	10,848	12,060	21,762	2,115	8	4,402	
Crude coconut oil mill off estates	1959	78	87,718	81,585	3,829	5,279	7,583	859	23	1,288	
	1960	74	74,995	71,138	5,279	5,968	4,536	824	11	1,293	
	1961	73	72,612	66,252	6,252	4,755	7,863	827	57	1,360	
	1962	69	70,033	64,053	4,665	3,962	5,277	783	64	1,353	
	(old)										
	1962 (new)	71	73,338	67,278	4,713	4,052	5,399	799	66	1,375	
Food manufacturing industries											
Ice cream and other dairy products	1959	33	3,998	2,072	286	363	2,003	336	24	563	
	1960	32	3,833	2,100	343	327	1,717	334	17	633	
	1961	33	7,585	7,536	496	2,834	2,387	423	15	1,030	
	1962	31	13,476	9,268	2,848	3,450	4,810	549	48	1,451	
	(old)										
	1962 (new)	55	14,074	9,607	2,868	3,472	5,071	606	55	1,506	
Large rice mills	1959	77	87,399	80,935	13,818	13,807	6,453	1,735	78	3,101	
	1960	76	118,795	105,086	13,755	10,790	10,744	1,791	69	3,579	
	1961	76	116,927	104,759	10,394	7,314	9,088	1,819	77	3,616	
	1962	74	102,970	95,742	7,374	7,442	7,296	1,670	116	3,297	
Biscuit factories	1959	80	15,996	11,405	1,033	1,159	4,717	1,128	81	1,691	
	1960	83	17,510	12,640	1,216	1,399	5,143	1,469	88	1,845	
	1961	81	18,941	14,029	1,511	1,647	5,048	1,555	77	2,248	

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	1962 (old)	76	20,876	15,921	1,614	2,004	5,345	1,708	77	2,551
Ice factories	1962	136	22,962	17,439	1,705	2,114	5,932	1,865	115	2,709
	1959	49	4,902	1,935	103	102	2,966	561	23	1,477
	1960	48	5,950	1,822	96	93	4,125	534	8	1,450
	1961	51	5,841	1,889	98	96	3,950	517	10	1,384
	1962	54	6,425	2,080	103	112	4,354	543	17	1,483
<i>Beverage manufacturing industries</i>										
Soft drinks and carbonated beverages	1959	73	17,380	7,688	2,278	2,244	9,658	1,792	67	3,157
	1960	71	19,769	8,863	2,179	2,522	11,249	1,913	59	3,324
	1961	72	20,399	9,023	2,476	2,254	11,145	1,912	97	3,549
	1962	69	20,371	8,894	2,226	2,331	11,582	1,861	65	3,670
	1962 (old) (new)	80	20,932	9,248	2,260	2,376	11,800	1,917	70	2,723
<i>Tobacco products manufacturing industries</i>										
	1959	143	48,252	41,831	5,429	9,631	10,624	3,122	348	3,539
	1960	149	94,453	80,348	9,295	13,056	17,866	3,345	358	4,162
	1961	146	115,008	106,008	13,380	25,702	22,219	3,484	390	4,512
	1962	143	147,169	121,506	25,800	28,019	27,882	3,815	379	4,931
<i>Wood products manufacturing industries</i>										
Sawmills, plywood and particle board mills	1959	355	75,362	47,835	n.a.	n.a.	26,949	7,464	195	12,776
	1960	369	105,100	69,560	5,373	6,268	36,435	8,841	239	17,292
	1961	374	94,362	62,368	5,954	7,014	33,054	8,591	268	17,197
	1962	360	98,192	62,163	6,990	7,081	36,120	8,925	213	17,852
	1962 (old) (new)	398	102,974	65,342	7,189	7,514	37,957	9,470	248	19,800
Joineries	1959	33	2,369	1,407	n.a.	n.a.	987	372	13	633
	1960	34	3,061	1,799	208	175	1,229	364	27	706
	1961	37	3,832	2,426	197	342	1,551	411	27	909
	1962	41	4,947	2,965	370	447	2,059	538	56	1,323
Wooden boxes, cases and crates	1959	25	505	315	35	36	271	86	12	112
	1960	24	945	533	39	52	425	112	61	162
	1961	28	1,160	664	53	48	491	167	14	203
	1962	31	1,003	521	50	60	492	154	52	226
<i>Rubber products manufacturing industries</i>										
Rubber, footwear, foam rubber products and rubber products n.e.c.	1959	46	31,280	19,338	5,450	5,885	12,377	4,971	59	5,992
	1960	45	37,543	25,620	5,886	6,275	14,312	4,974	54	6,846
	1961	43	39,548	24,603	6,510	7,172	15,607	5,375	54	7,212
	1962	46	42,327	27,056	7,187	7,621	15,705	5,579	82	7,612
<i>Chemical products manufacturing industries</i>										
Refined coconut oil	1959	10	10,878	10,365	462	521	572	136	6	192
	1960	12	11,547	10,832	511	545	749	123	11	192
	1961	12	12,296	11,592	444	461	721	120	1	207
	1962	11	14,046	13,314	546	391	577	143	1	261
	1962 (old) (new)	19	17,718	16,695	618	465	870	161	6	289
Edible vegetable oils and fats, and other veget- able and animal oils and fats, n.e.c.	1959	20	7,840	5,148	1,171	1,096	2,617	211	—	499
	1960	22	8,295	5,470	1,095	1,010	2,740	234	3	608
	1961	21	6,922	4,601	1,051	1,002	2,272	253	2	685
	1962	28	7,895	4,982	1,013	898	2,798	270	3	785
Paints, varnishes and lacquers	1959	3	1,511	2,605	—	2,245	1,151	103	—	216
	1960	5	4,038	7,990	2,245	2,893	1,696	158	1	361
	1961	7	7,125	5,589	2,501	3,552	2,587	265	1	696
Soaps, washing and cleaning compounds	1962	9	9,884	6,698	3,353	4,340	3,991	295	—	972
	1959	33	12,282	7,654	2,756	3,415	5,287	594	2	1,764
	1960	29	15,398	8,429	2,475	2,120	6,614	660	1	2,050
	1961	32	15,196	10,726	2,921	4,831	6,380	735	10	2,295
	1962	30	23,375	13,612	4,872	5,400	10,291	906	7	2,742
1962 (old) (new)	59	24,175	14,181	4,968	5,512	10,536	—	28	2,803	
Medicinal and phar- maceutical preparations	1959	16	1,728	1,182	411	405	540	221	28	188
	1960	15	3,357	2,336	522	1,188	1,687	260	9	303
	1961	16	4,278	1,975	1,206	1,100	2,197	284	32	403

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
	1962 (old)	16	4,637	1,899	1,103	789	2,424	311	44	433
	1962 (new)	56	6,393	2,798	1,331	1,031	3,295	376	54	503
Perfumes, cosmetics and toilet preparations	1959	13	2,499	1,931	218	412	762	106	20	147
	1960	15	3,394	1,748	387	605	1,864	130	29	195
	1961	15	8,462	4,616	657	1,630	4,819	179	26	377
	1962 (old)	15	9,533	4,212	1,598	1,680	5,403	220	22	471
	1962 (new)	52	11,435	5,552	1,986	2,129	6,026	347	28	668
Matches	1959	3	2,752	1,552	216	745	1,729	543	—	513
	1960	3	2,704	1,243	745	945	1,661	497	—	605
	1961	3	2,818	1,269	949	1,036	1,636	521	—	598
	1962	3	3,015	986	1,036	818	1,811	529	—	561
All other chemical pro- ducts industries ^b	1959	29	9,015	6,800	699	1,311	2,827	391	15	947
	1960	29	11,059	8,228	1,311	2,107	3,627	522	71	1,173
	1961	30	15,535	11,092	2,107	2,186	4,522	545	157	1,469
	1962 (old)	28	14,098	9,877	2,291	2,328	4,258	680	135	1,686
	1962 (new)	89	15,492	10,894	2,437	2,608	4,769	782	314	1,851
<i>Non-metallic mineral products manufacturing industries</i>										
Structural clay products	1959	60	5,061	1,796	640	531	3,156	1,158	88	1,740
	1960	58	5,813	2,570	431	367	4,179	1,416	116	2,227
	1961	58	8,063	3,043	370	500	5,150	1,659	109	2,846
	1962 (old)	55	9,391	3,588	506	546	5,843	1,926	103	3,273
	1962 (new)	76	10,702	4,139	368	368	6,581	2,211	134	3,665
Pottery, china and earthenware products	1959	27	799	265	61	74	547	158	24	212
	1960	27	818	287	76	81	536	160	24	225
	1961	27	948	367	75	79	583	171	37	248
	1962 (old)	26	915	352	78	99	584	172	48	274
	1962 (new)	41	1,060	404	82	107	681	198	54	309
Structural cement and concrete products ^c	1959	49	4,468	2,203	553	518	2,230	493	36	797
	1960	47	5,809	2,934	494	547	2,928	636	49	1,028
	1961	49	6,462	3,277	564	649	3,270	676	45	1,146
	1962 (old)	45	8,007	4,112	694	1,080	4,281	802	24	1,148
	1962 (new)	71	9,085	4,786	744	1,154	4,709	889	36	1,682
<i>Basic metals and metal products manufacturing industries</i>										
Iron foundries	1959	9	1,205	647	174	152	536	160	1	286
	1960	9	1,483	854	152	177	654	206	—	369
	1961	9	1,556	1,057	152	270	617	171	24	333
	1962 (old)	9	1,877	999	270	241	849	195	12	391
	1962 (new)	24	2,319	1,249	281	253	1,042	233	17	437
Architectural metal products	1959	31	1,662	1,113	127	167	589	177	16	266
	1960	33	2,488	1,742	151	167	762	225	31	361
	1961	28	2,561	1,714	156	152	843	224	33	364
	1962 (old)	28	2,670	1,794	167	142	851	270	40	419
	1962 (new)	74	5,500	3,648	280	394	1,966	574	93	880
Wire and wire products	1959	9	2,555	1,828	255	268	740	157	35	244
	1960	11	3,708	2,615	286	193	1,000	197	30	308
	1961	13	3,875	2,773	249	418	1,271	209	—	328
	1962 (old)	10	4,507	3,290	421	480	1,276	245	—	365
	1962 (new)	24	6,208	4,674	475	631	1,690	335	7	477

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
Hardware, tools and cutlery, (including repairs)	1959	12	272	154	8	9	119	50	1	97
	1960	11	157	79	9	11	80	24	—	32
	1961	10	140	65	11	11	75	22	2	29
	1962 (old)	10	165	86	12	9	76	24	1	27
	1962 (new)	61	616	306	68	62	304	57	8	78
Tin cans and metal boxes	1959	17	4,679	3,563	464	626	1,276	480	7	488
	1960	19	6,770	6,061	645	2,033	1,097	563	63	742
	1961	19	8,402	6,341	2,029	2,485	2,517	745	—	1,021
	1962 (old)	19	8,729	6,337	2,574	2,566	2,384	708	1	999
	1962 (new)	25	10,222	7,746	2,676	2,805	2,605	833	1	1,123
Brass, copper pewter and aluminium products	1959	12	3,052	2,107	205	176	916	234	7	388
	1960	12	3,327	2,020	174	157	1,290	278	12	511
	1961	12	4,102	2,817	157	182	1,310	345	10	597
	1962 (old)	12	4,416	2,798	182	230	1,666	348	21	653
	1962 (new)	32	5,769	3,774	254	311	2,052	437	37	782
Other metal products industries ^d	1959	15	7,361	4,517	1,979	1,684	2,549	355	8	851
	1960	13	7,838	5,061	1,643	1,292	2,426	414	50	1,015
	1961	15	9,347	6,042	1,280	1,155	3,180	499	61	1,439
	1962 (old)	15	10,300	6,863	1,149	1,499	3,787	624	77	1,509
	1962 (new)	35	12,152	8,170	1,250	1,788	4,520	844	122	1,839
<i>Machinery manufacturing industries</i>										
Industrial machinery and parts	1959	60	5,263	2,416	n.a.	n.a.	2,799	1,065	8	1,597
	1960	59	8,007	4,139	1,424	1,251	3,695	1,271	39	2,033
	1961	63	9,052	4,725	1,267	1,295	4,365	1,374	97	2,421
	1962 (old)	63	10,475	5,329	1,317	1,364	5,193	1,551	119	2,951
	1962 (new)	146	14,246	7,355	2,000	2,220	7,111	2,095	162	3,862
<i>Transportation equipment manufacturing industries</i>										
Shipbuilding and repairing and boat building and repairing	1959	6	2,352	539	1,131	1,019	1,701	433	1	735
	1960	6	2,797	961	981	966	1,821	468	1	1,055
	1961	7	3,701	1,688	982	1,036	2,067	549	4	1,260
	1962 (old)	7	2,894	1,221	1,034	1,429	2,068	563	—	1,250
	1962 (new)	21	3,217	1,405	1,053	1,446	2,205	588	3	1,313
Motor vehicle bodies	1959	18	2,174	1,463	162	156	705	202	8	440
	1960	18	2,633	1,788	156	174	863	250	14	544
	1961	18	3,200	2,079	185	185	1,178	289	18	632
	1962 (old)	18	3,699	2,340	236	178	1,301	370	10	810
	1962 (new)	30	4,328	2,704	260	214	1,578	424	17	964
Motor vehicle parts and accessories	1959	3	46	17	*	*	29	9	—	12
	1960	3	48	21	*	*	27	10	—	12
	1961	3	71	34	*	2	39	11	—	13
	1962 (old)	3	90	36	2	2	54	12	—	17
	1962 (new)	31	1,215	758	38	52	471	154	19	210
Bicycle, tricycle and trishaw parts and accessories	1959	7	260	148	n.a.	n.a.	117	46	1	52
	1960	9	590	346	n.a.	n.a.	458	101	—	152
	1961	9	703	354	n.a.	n.a.	288	107	—	164
	1962	11	655	479	56	59	179	72	—	71
Other covered industries and establishments ^e	1959	12	33,317	24,361	6,045	9,540	12,451	2,253	10	4,517
	1960	20	49,302	36,722	9,463	12,903	16,020	2,757	61	5,802
	1961	22	68,228	49,981	13,274	16,253	21,226	3,293	146	7,130
	1962	37	85,072	63,313	16,852	21,397	26,304	3,820	112	9,255

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
Total selected industries	1959	1,545	953,202	807,244	n.a.	n.a.	166,680	39,446	1,390	64,639
	1960	1,572	1,143,676	936,984	109,658	113,221	210,255	43,459	1,725	77,039
	1961	1,595	1,652,556	841,899	114,207	126,279	222,589	45,264	2,025	82,732
	1962	1,580	1,137,530	910,827	127,300	148,678	248,081	48,228	2,097	90,026
	(old)									
	1962	2,267	1,183,446	944,558	130,650	153,548	261,786	51,754	2,666	95,232
	(new)									

Source: Survey of Manufacturing Industries, Federation of Malaya, 1962 — Table 1.

^a Does not include retreading and vulcanizing of tyres.

^b Includes industrial and commercial gases; basic industrial chemicals; fertilizers; synthetic fibres; resins; plastics; etc. miscellaneous industrial chemicals; miscellaneous chemical products.

^c Does not include hydraulic cement (this industry has been included under 'other covered industries and establishments').

^d Includes fabricated structural steel; boilers, tanks and platework, and other stamped, pressed, and coated metal products.

^e Includes tea factories off estates; pineapple canning, hydraulic cement; other iron and steel shapes; non-ferrous metals rolling, casting and extruding; standardization, calibration and check-testing of meters (service), and firms with pioneer status in non-covered industries.

IX. EXPORT OF MANUFACTURED GOODS AND SEMI-MANUFACTURES

a. Present balance of trade

In 1961 Malaysia had a trade deficit of \$237.8 million. This unfavourable balance of trade position has continued and in 1962 the deficit was \$410.7 million. The trade deficit was further increased to \$659.1 million in 1963.

This trade deficit of Malaysia can be extended by heavy imports of food and live animals, machinery and transport equipment and manufactured goods into these territories.

Moreover, the gross exports of Malaysia's rubber have declined by about 16 per cent in volume and 20 per cent in value since 1963 owing primarily to the discontinuance of imports of Indonesian rubber for re-export. This latter factor together with the lower rubber prices prevailing contributed to the decline in the value of gross rubber exports during 1964.

The declining trend in the balance of trade of Malaysia is to be expected with any developing economy. The marked increase in imports relative to

exports reflects the growing requirements for heavy machinery and transport equipment in view of the increased tempo of development since 1960. In fact, imports of machinery and transport equipment increased substantially in 1964. This is explained by the sharp increase in the gross capital formation particularly in the States of Malaya — which is being stimulated by the intensification of development activities in all fields.

More and more machinery and transport equipment is being imported by both the public and private sectors in order to launch the various development projects. A more disturbing cause of the reduction in the favourable balance of trade is the fall in the world prices of rubber, Malaysia's leading export commodity.

Thus the dominating factors that determine the balance of trade in Malaysia seem likely to be the accelerating crescendo of capital expenditure as the development and industrialization programmes of the country gather momentum and the continued adverse drift in terms of trade owing mainly to the falling prices of primary export commodities.

TABLE 14. TRADE OF THE STATES OF MALAYA IMPORTS, 1959-1964 (Jan.-Oct.)
(million M\$)

Commodity	1959	1960	1961	1962	1963	Jan.-Oct. 1963	Jan.-Oct. 1964
Food	510.2	558.1	561.8	562.7	656.7	542.3	572.9
Beverages and tobacco	80.4	82.4	88.4	72.1	61.3	49.6	41.5
Crude materials inedible	210.7	339.3	282.9	339.7	292.3	255.8	186.4
Mineral fuels	128.9	149.3	142.7	151.2	152.7	124.3	139.5
Oils, animal and vegetable	12.8	13.2	13.5	13.6	11.7	10.2	10.5
Chemicals	119.5	143.2	158.7	152.5	168.1	143.6	145.9
Manufactured goods	289.3	366.1	408.5	471.9	469.3	393.0	374.8
Machinery and transport	242.4	330.3	388.9	482.1	511.4	423.3	425.3
Miscellaneous manufactured articles	104.4	123.1	131.6	130.9	151.4	122.9	120.4
Miscellaneous transactions net	40.7	45.6	50.5	60.4	59.0	48.8	41.9
Total	1,739.3	2,150.6	2,227.5	2,447.4	2,533.9	2,113.7	2,059.1

Source: Federation of Malaya Statistics of External Trade (CTR 1)
Federation of Malaya Annual Statistics of External Trade (1961 and 1962)
States of Malaya Monthly Statistics of External Trade (1963 and 1964 (Oct.))

b. Principal manufactured goods and semi-manufactures exported

Domestic exports of manufactured and semi-manufactured goods amounted to \$680.8 million in 1963 in the States of Malaya.

The exports of manufactured and semi-manufactured goods constitute 25 per cent of the total exports of the States of Malaya. In terms of total export this is a small percentage annual rate of expansion, but it has gradually increased, especially in 1963

and 1964, because of the spreading efforts of the pioneer industries now in production.

Pioneer industries in the States of Malaya export various products such as insulplast and related chemicals to Thailand; grey cotton cloth to the United Kingdom; metal cans to Hongkong; canned tuna to West Germany, United States of America, Canada and the United Kingdom; surgical dressings and allied products to Hongkong, Thailand and Australia; cotton wool to Thailand and Hongkong and cable wires to Burma (See table 17.)

TABLE 15. TRADE OF THE STATES OF MALAYA EXPORTS, 1959-1964 (Jan-Oct.)
(million M\$)

Commodity	1959	1960	1961	1962	1963	Jan-Oct. 1963	Jan-Oct. 1964
Food	88.6	102.6	108.1	117.9	112.3	92.2	101.7
Beverages and tobacco	0.8	0.4	0.7	0.7	1.3	1.1	0.5
Crude materials, inedible	1,908.2	2,100.7	1,704.2	1,626.8	1,669.3	1,423.3	1,342.2
Mineral fuels	11.2	8.2	9.2	10.9	13.2	10.4	36.2
Oils, animal and vegetable	81.6	85.2	89.5	87.5	91.2	76.8	74.9
Chemicals	13.3	17.2	19.1	21.4	31.9	26.3	32.2
Manufactured goods	319.1	543.7	609.8	664.5	680.8	576.3	614.5
Machinery and transport	18.0	30.8	42.3	51.0	51.9	41.7	46.8
Miscellaneous manufactured articles	13.3	16.3	18.2	19.9	22.1	17.4	20.6
Miscellaneous transactions n.e.s.	19.0	22.3	25.0	25.3	30.6	25.3	22.1
Total	2,473.1	2,927.4	2,626.1	2,625.9	2,704.6	2,290.8	2,291.7

Source: Federation of Malaya Statistics of External Trade (CTR 1)
Federation of Malaya Annual Statistics of External Trade (196 and 1962)
States of Malaya Monthly Statistics of External Trade (1963 and 1964 Oct.)

TABLE 16. STATES OF MALAYA EXPORTS OF PRIMARY PRODUCTS, 1959-1964 (Jan-Oct.)
(million M\$)

Commodity	1959	1960	1961	1962	1963	Jan-Oct. 1963	Jan-Oct. 1964
Pineapple canned	21.6	26.1	25.6	27.8	29.0	24.4	28.4
Rubber	1,721.8	1,829.5	1,442.4	1,367.6	1,374.0	1,154.6	1,078.9
Timber	20.5	39.0	41.5	49.0	65.8	54.5	72.2
Palm oils	51.7	60.6	61.2	65.1	69.0	56.8	63.6
Oil palm fruit and kernels	9.2	11.1	7.2	6.6	7.3	6.2	5.6
Copra	13.4	34.5	18.8	9.1	13.0	12.3	2.8
Coconut oil	29.8	23.9	27.7	22.2	22.0	19.9	11.1
Iron ore	99.9	140.2	163.8	166.1	176.3	168.4	152.7
Lin	29.45	505.9	550.1	616.4	638.3	541.1	575.3
Total	2,262.4	2,670.8	2,338.3	2,329.9	2,394.7	2,038.2	1,990.6

Source: Monthly Statistical Bulletin of the Federation of Malaya
States of Malaya Monthly Statistics of External Trade (1963 and 1964 Oct.)

TABLE 17. STATISTICS OF EXPORT OF PIONEER PRODUCTS MANUFACTURED IN THE STATES OF MALAYA

Description of articles and countries of destination	Unit of quantity	Exports during 1961		Exports during 1962		Exports during 1963	
		Quantity	Value (M\$)	Quantity	Value (M\$)	Quantity	Value (M\$)
Insulplast and related chemicals	Value						
Thailand		—	578,658	—	523,564	—	—
Grey cotton cloth	Yard						
United Kingdom		4,958,831	3,109,170	4,123,618	2,201,146	—	—
Staple fibre yarn	lb						
East and South Africa		102,830	129,999	617,000	838,843	—	—
Metal cans	Piece						
Hongkong		3,393,976	323,735	1,857,248	183,577	—	—
Canned tuna	Carton						
West Germany		49,600	856,206	23,075	397,135	—	—
Netherlands		800	16,445	1,000	18,300	—	—
Italy		200	3,709	—	—	—	—

Gauze						
Thailand	—	—	—	—	—	34,587
Hongkong	—	—	—	—	—	3,540
Total						38,127
Bandages						
Thailand	—	—	—	—	—	10,767
Sanitary towels						
Thailand	—	—	—	—	—	79,590
Hongkong	—	—	—	—	—	1,169,777
Ceylon	—	—	—	—	—	151,563
Indonesia	—	—	—	—	—	4,413
Total						1,405,343
Printed cloth		Yards				
Australia	—	—	—	—	10,380	10,602
Cable wires		Yards				
Burma	—	—	—	—	8,847	12,730

Source: Investment Returns of Pioneer Companies

c. Export — potential industries

As industrialization advances in the Malaysian territories the pioneer industries will aim at overseas markets. In fact, some industries, such as textile and garments factories, were able to export to the United Kingdom shortly after they commenced production in 1963. Plywood and veneers are also exported in substantial quantities. However, these pioneer industries will take five years in order to produce goods of international standards and at competitive prices with other overseas producers before they enter the world market.

Therefore as a start, industries should aim at a domestic market as the basis for their future development.

As the governments of the various territories in Malaysia do not plan industries either for export or for local consumption, literature and figures on specific 'export-potential' industries that can be developed with plans, projected capacities, target dates, and so on, are not available. At the moment, Arthur D. Little Incorporation is undertaking general and specific feasibility studies for the Malaysian Government.

d. Standardization and quality control

1. Laws and regulations

In the near future the Central Government of Malaysia will be establishing the Malaysian Standards Institution which will enable industries to seek assistance from this organization to achieve the Malaysian standards in its products.

2. Organizational structure

The organizational structure of the Malaysian Standards Institute will be worked out when such a body is formed. Its basic function will be to undertake the defining of standards for local manufacturers.

3. Standards and specifications

Industries are left to adopt their own standards and specifications for their products but at the moment in Malaysia the majority of the products are produced according to British Standards and Specifications. In the case of the rubber industry, quality control exists and the organization carrying out this function is Malayan Rubber Export Registration Board.

In the States of Malaya the Malayan Rubber Export Registration Board, the Rubber Research Institute, the Department of Chemistry and the Public Works Department are collaborating with the Central Government in maintaining standards and specifications for products in various industries.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING, AND PROMOTING EXPORTS OF MANUFACTURED GOODS

e. Broad strategy of action

At the moment, with the object of accelerating industrialization, the governments of the various territories in Malaysia offer a number of incentives and facilities to induce investors to participate in the governments' industrialization programmes. The incentives and facilities include readily serviced factory sites, tax exemption for periods ranging from one year to five, duty-free import of machinery and raw materials, in some cases preferential buying by government departments and statutory bodies of local manufactures, loans by the MIDFL to industries, minimal immigration restriction on industrialists and technical staff, no restriction on remittance of profits or repatriation of capital, and tariff protection within the Malaysian common market.

The main procedure for the diversification of manufacturing is to establish industries which will lead to the establishment of ancillary industries. It is also

hoped that with the discovery of various uses of local raw materials by the proposed National Institute of Science and Industrial Research, various new manufacturing activities will take place.

At the moment the various Embassies and High Commissions of the Malaysian Government have offices dealing with the promotion of exports of the primary products and industrial products of Malaysia. In its attempt to intensify the sales of its industrial products on the overseas market the Central Government proposes to establish a Trade Commissioners' Service within the Ministry of Commerce and Industry which will have Trade Commissioners stationed in important centres of the world such as Washington, London, Paris, Bonn, Canberra and Tokyo. Prior to the establishment of this Trade Commissioners' Service the Central Government of Malaysia, in their efforts to promote the export of industrial as well as primary products, occasionally sent missions overseas.

The Government has obtained the services of Arthur D. Little Incorporated to undertake feasibility surveys so that a broad range of possibilities that exist will be made known to industrialists at home and abroad.

b. External assistance needed

1. Manpower surveys and training

The Central Government of Malaysia is planning manpower surveys, and the assessment of the training needs of Malaysia will depend on the results of these surveys.

The training programme of the citizens of Malaysia covers formal education at school level, technical and vocational education. Training is also provided by the Central Apprenticeship Board, the Industrial Training Institute and the Technical College in Kuala Lumpur. In the Malaysian territories there is an urgent need for the expansion of training facilities but the basic drawback is the lack of skilled instructors and it is in this particular aspect of the training programme that the more developed countries can assist.

2. Facilities for fellowship and in-plant training

Fellowships are required for the training of personnel for the proposed Federal Industrial Development Authority and the National Institute of Scientific and Industrial Research and the Malaysian Standards Institution. For FIDA, fellowships are required for training in economics, statistics, small-scale industries development and project evaluation, for the NISR, fellowships are required for training in the scientific research of raw materials for industrial uses, advanced analytical chemistry, and so on, and for the MSI, fellowships and in-plant training are required for its team of engineers to be trained in standards and quality control.

Fellowships are also required by the Malaysian Government for supervisory training and skilled train-

ing. The expansion of technical co-operation that will provide in-plant training in advanced countries is most desirable for both pre-production training of workers and for qualified technical personnel who require practical experience. In-plant training in giant industrial corporations in the advanced economies will enable the skilled personnel of local industries to tap the latest knowledge on production methods and equipment.

XI. INDUSTRIALIZATION AND THE ECONOMIC FUTURE OF MALAYSIA

It is a common feature among developing economies to place much reliance on industrial development as a means for bringing about economic growth with parallel objectives of diversifications and the provision of employment opportunities for an expanding population. Malaysia considers that economic development means not only industrial development but also agricultural diversification. In fact, as the famous economist, Eugene Staley, has pointed out, "Improvement in the productivity of agriculture is one of the most solid means to promoting industrialization; in fact unless agriculture does modernise substantially, industrial expansion in most under-developed countries is likely to be cut short by lack of markets, for the great majority of the population will not have the necessary purchasing power". In view of the fact that Malaysia has an agricultural base to its economy, the development goals of the Government centre around agricultural diversification and industrialization.

Over the past six years, the country, mainly by establishing import-substituting industries, has built up a frontline of industries directly serving consumers' markets and construction industries, and increasing the importance of semi-manufactured imports and locally-produced primary products as raw materials for their manufacture. Such industries, for instance, as the manufacture of chemical products, metal products, textiles and part manufacture of machinery and equipment, by developing the backward 'demand' for imported semi-finished materials and the building-material industries by making use of local resources, will by their activities exert a powerful stimulus on the growth of intermediary 'second-line and satellite industries'. This has been the development approach undertaken by numerous developing economies and the economic promise in this process lies in the fact that the industrial sector growing in this way will be growing at a rate constantly proportionate to itself. The "big push" that will enable industrialization to gather momentum will take place with the formation of the Federation Industrial Development Authority which will spear-head the industrialization process. Working together with it will be the National Institute of Scientific and Industrial Research through which research on all existing problems and the technological feasibility of industrial processes undertaken under local conditions will be conducted, thus making a major



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contribution to the general effort to remove technological boundaries to industrial progress. Equally important to assist industrialists in their work is the proposed Malaysian Standards Institution to undertake the defining of standards for local manufactures. As all these institutional facilities become available, the industrial sector in Malaysia will be in a position to aim at high productivity and keep abreast of modern technology and production methods.

Besides these institutions the Tariff Advisory Board was established to take positive action in the process of establishing a Common Market in Malaysia. When realized, the Malaysian Common Market will permit the free flow of locally-manufactured products throughout these territories behind a common external tariff barrier. In view of the enlarged market of 10.5 million people, industries are expected to benefit from the economies of scale, as the European experience in economic integration shows, and industrialization will be speeded up in a larger market than would otherwise be available.

One of the major problems that has faced and will be facing the Central Government will be resolving conflicting regional claims to an equitable share of development and the achievement of external economies to be derived by industries polarizing towards a few centres of development. It is the policy of the Central Government to achieve balanced economic growth for the various territories of Malaysia, and industries will be established in regions which have the most suitable raw materials and infrastructure. It is one of the tasks of the Central Government to shape the future growth of industries by identifying 'points of growth' in regions of Malaysia for various groups of inter-related industries and creating the conditions for development of the growing points so that the dual aims of balancing regional growth and maximizing the benefits of industry polarization will be achieved.

Annex 1

Extracts from Customs Ordinances

- (a) The Customs Ordinance, 1952 (No. 42 of 1952)
Malaya

Power of Minister to prohibit imports or exports

30. (1) The Minister of Finance, may, by order —

(a) prohibit the importation into, or the exportation from, the Federation or any part thereof, either absolutely or conditionally, or from or to any specified country, territory or place outside the Federation, or the removal from one place to another place in the Federation of any goods or class of goods;

(b) prohibit the importation into, or exportation from, the Federation or any part thereof, or removal from one place to another place in the Federation of any goods or class of goods, except at specified ports or places.

(2) If any question arises as to whether any particular goods are or are not included in a class of goods appearing in an order made under sub-section (1) of this section, such question shall be decided by the Comptroller-General.

- (b) The Customs Ordinance (chapter 26), Sarawak
Power of Minister to prohibit imports or exports

28. The Minister may, by order, provide for —

(a) prohibiting the importation into, or the exportation from, Sarawak or any part thereof, either absolutely or conditionally, or from or to any specified country, territory or place outside Sarawak, or the removal from one place to another place in Sarawak, of any goods or class of goods;

(b) prohibiting the importation into, or the exportation from, Sarawak or any part thereof, or removal from one place to another place in Sarawak, of any goods or class of goods, except at specified ports or places.

- (c) The Customs Ordinance, 1953 (No. 25 of 1953)
Sabah

Power of Minister to prohibit imports or exports

28. The Minister may, by order —

(a) prohibit the importation into, or the exportation from the Colony or any part thereof, either absolutely or conditionally, or from or to any specified country, territory or place outside the Colony, or the removal from one place to another place in the Colony of any goods or class of goods;

(b) prohibit the importation into, or exportation from, the Colony or any part thereof, or removal from one place to another place in the Colony or any goods or class of goods, except at specified ports or places.

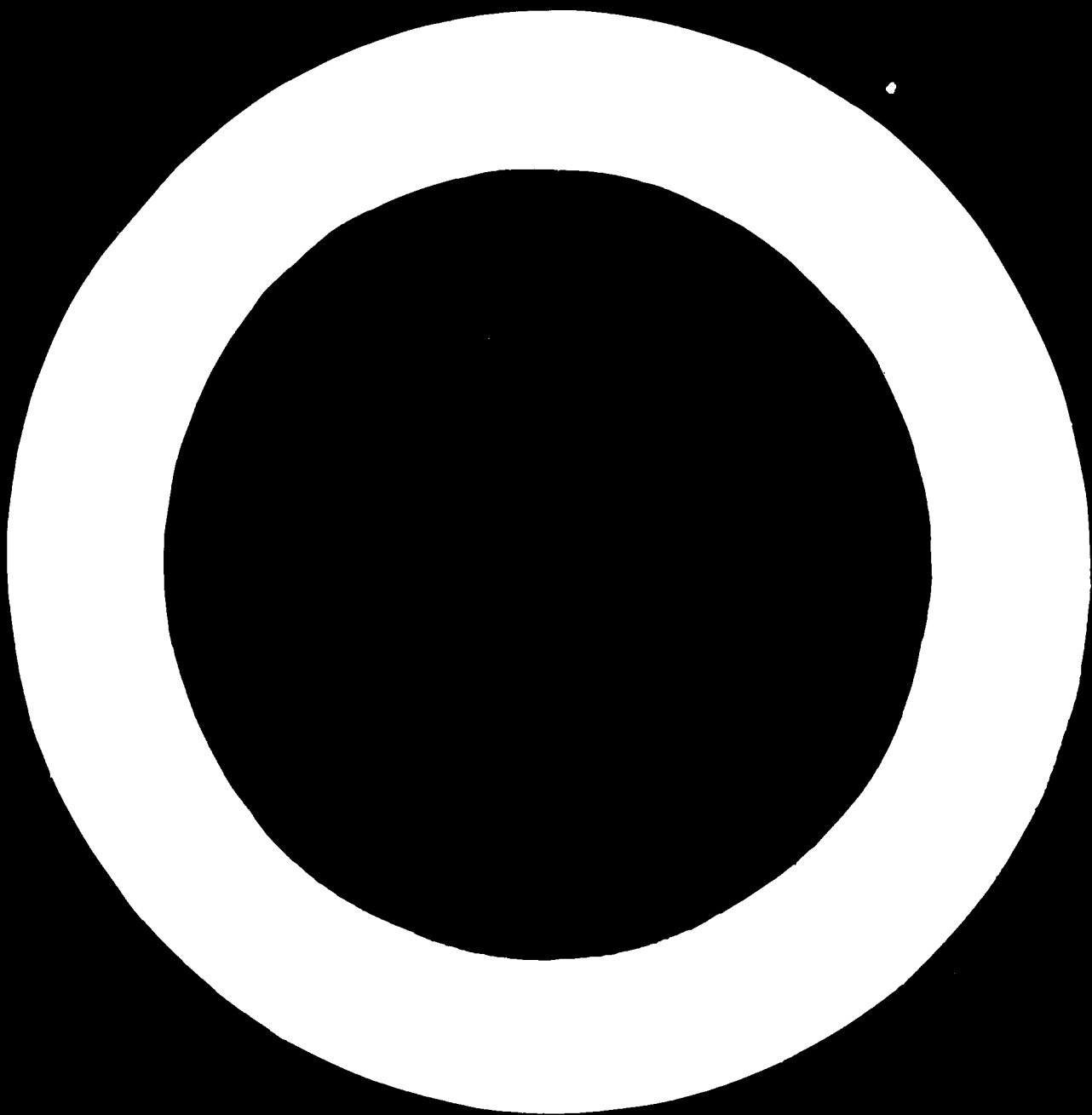
Annex 2

External Debt of the Government of Malaysia and of Public Authorities in State of Malaya, December 1963 and December 1964

(million Malayan dollars)

	Total amount of loan		Amount drawn (at end of 1964)	Amount repaid (at end of 1964)	Outstanding amount at end of:	
	Foreign currency	Local currency			1963	1964
A. External Debt of the Federal Government:						
<i>Funded Debt</i>						
1. F.M. 3% Sterling Loan (1935), 1960/70	£4.0	34	34	—	34	34
2. F.M. 3% Sterling Loan (1949), 1974/76	8.1	69	69	—	69	69
3. F.M. 3% Sterling Loan (1954), 1960/70	2.9	25	25	—	25	25
4. F.M. 3% Sterling Loan (1954), 1974/76	1.9	16	16	—	16	16
5. F.M. 1955 Brunei (ICL) Sterling Loan (1956) 1971/76	4.67	40	40	—	40	40
6. F.M. 3½% 1959 (Brunei) Sterling Loan:	11.67	100	100	—	100	100
(i) First Instalment (1959), 1989	4.67	40	40	—	40	40
(ii) Second " (1960), 1990	4.67	40	40	—	40	40
(iii) Third " (1961), 1991	2.33	20	20	—	20	20
7. F.M. 6½% Sterling Loan (1963), 1973	5.0	43	43	—	43	43
Sub-total		327	327	—	327	327
<i>Unfunded Debt</i>						
1. War Damage Compensation Loan 1956/75 ^a	£11.71	100	100	49	55	51
2. British Export Credit Guarantee Dept. Loan (1960) for Telecommunication Project, 1962/70	2.25	19	18	5	14	13
3. United States D.L.F. Loan (3½%) (1959) for Roads and Bridges, 1960/70	US\$10.0	31	37	10	30	17
4. United States D.L.F. Loan (3½%) (1959) for North Klang Straits, 1961/70	US\$10.0	31	39	2	27	27
5. Fed. Republic of Germany (3%) (1963) for Butterworth Wharves	DM21.0	16	1	—	—	1
Sub-total		197	175	66	116	109
Total External Debt of the Federal Government		524	502	66	443	436
External Debt of Public Authorities						
1. <i>Central Electricity Board</i>						
(i) British Colonial Development Corp. 6¾% Loan (1958), 1961/85	£7.01	61	61	5	58	56
(ii) Comm. Dev. Fin. Corp. Loan 6¾% (1958) 1970/79	0.5	4	4	—	4	4
(iii) IBRD Loan 5¾% (1958) 1964/83	US\$28.6	88	80	—	74	80
(iv) IBRD Loan 5½% (1963) 1968/88	US\$51.9	159	22	—	2	22
2. <i>Federal Land Dev. Authority</i>						
British Col. Dev. Corp. Loan 6¾% (1969/94)	£0.6	5	5	—	5	5
3. <i>Bank Negara Malaysia</i>						
Chase Manhattan Bank of New York Loan 5½% (1963), 1968	5.0	15	15	3	13	12
4. <i>Malaysian Industrial Dev. Finance Ltd.</i>						
IBRD Loan (1963)	8.0	24	1	—	—	1
Total External Debt of Public Authorities		356	188	8	158	180
Grand Total of External Debt of the Central Government and Public Authorities		880	690	74	602	180

^a Singapore portion is not included.



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A COUNTRY STUDY ON NEPAL

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning and programming

Efforts toward planned industrial development in Nepal on a national scale by the Government date back to September 1956, which saw the launching of the first five-year plan. Previously, the growth of the industrial sector, a minor sector of the predominantly agrarian economy of Nepal, had resulted from temporary stimulants such as unusual concessions from the Government and scarcity conditions created by the Second World War. In other words, the establishment of industrial enterprises by private initiative was haphazard and sudden, and was devoid of any preliminary investigation of their economic soundness. As a consequence, many of the ventures suffered losses and some went into liquidation.

This misfortune in the industrial sector, however, brought the Government and private entrepreneurs alike to a realization of the necessity for planned and scientific industrial growth, as the road to stable and secure industrialization of the country. In view of the decaying conditions of existing industries at that time, the first five-year plan (1956-61) envisaged a programme for the revival and expansion of cottage industries selected on the basis of their quality and capacity to survive; it encouraged private savings and investment in productive enterprises, and also foreign capital under appropriate safeguards. Likewise, assistance to existing industries requiring help on the basis of their potential future soundness was also promised.

Embracing the concept of a mixed economy, the plan sought to foster the development of sound industrial enterprises. The criterion for determining which industries would fall into the public and which into the private sector was based on practical rather than theoretical considerations, taking into account the degree of public interest, the availability of investment

funds, managerial talent, and so on. In any case, it was assured that industries in the private sector would be accorded treatment and facilities no less favourable than those given to public enterprises. However, industries such as cement, sugar, forest products, textiles and cigarettes were given priority consideration.

As to cottage industries, emphasis was laid upon the development and improvement of designs, quality production and skills. A number of training-cum-production centres were set up to encourage the development of cottage industries all over the country.

Achievements did not come up to expectations however, because of the paucity of vital industrial statistics and the lack of co-ordination between different industrial projects. Moreover, the announcement of the new industrial policy in June 1958 could not create a sound industrial base to an appreciable extent. As part of the programme under the plan, an Industrial Development Centre was established in 1958, and was converted in 1959 into the Industrial Development Corporation under the NIDC Act of 1959 as a statutory corporation. This corporation was formed with the objective of assisting and encouraging private enterprise by giving financial and technical help. A Timber Corporation was also established in order to utilize forest products in a more scientific way.

An Industrial Enquiry Commission was appointed in September 1959 to assess the conditions of existing industries, in order to recommend measures for their revival and expansion.

In February 1961, industrial policy was again revised with a view to providing additional facilities to private industries. The main aims of the policy is to encourage different types of industries, for which the Government would make available monetary loans to improve existing industries and to set up appropriate new ones to bring about efficient and increased production. It also aims at a balanced growth of cottage and rural industries on the one hand and of the medium and large industries on the other, in the process of industrialization.

Another industrial study committee was appointed in February 1961, and its report to the Government pointed out the need for rehabilitation of some of the big industries running at a loss. Following the recommendations of the committee, jute mills were given financial help and foreign exchange facilities. Similarly, big industries manufacturing matches, sugar, cigarettes, and so forth were developed and modernized.

Note:

CONVERSION RATES

Weight
 1 metric ton = 0.98 long ton = 27 mounds
 1 kilogramme = 2.21 pound

Length
 1 metre = 1.09 yard
 1 kilometer = 0.62 mile
 1 square feet = 0.093 square metre

Exchange rate
 US\$ 100 = Rs 768.00

FY: the fiscal year begins in mid-July.

Favourable fiscal measures including tax relief to foreign and private entrepreneurs for ten years and other attractive facilities are given in order to attract local and foreign capital. To facilitate the development of large industries, the Company Law and the Factory Act have been amended, with considerable improvement.

On 6 March 1962, the three-year plan was announced, reflecting a greater determination to speed up industrial progress in Nepal. The main targets envisaged in the plan were the completion of construction of some foreign-aided industrial projects in the public sector, the improvement of existing industries in the private sector, the establishment of industrial estates, and finally the provision of financial and technical assistance to new industries in the private sector. In this connexion, achievements during the current plan period have been remarkable. The achievements made under the plan in both the private and public sectors of industry are as follows:

Achievements in the private sector

Modernization of existing industries

1. Jute industry
2. Lumber industry
3. Printing press
4. Rice, oil and flour mills
5. Mechanical workshop
6. Hotels

Establishment of new industries

1. Sugar industry
2. Textile industry
3. Metal crafts
4. Catechu and training
5. Pharmaceutical industry
6. Biscuits and confectionary
7. Hotels
8. Re-rolling mill
9. Match factories
10. Transport (bus and trucking)
11. Miscellaneous

As to physical targets in the public sector, it is encouraging to note that the following major industries have been commissioned before the end of the three-year plan, with the help of foreign aid:

<i>Industry</i>	<i>Location</i>	<i>Proposed annual capacity</i>
Janakpur Cigarette Factory	Janakpur	2 milliard pieces
Birgunj Sugar Factory	Birgunj	12,000 tons

The cement and paper industries which were proposed to be set up at Hetauda and Nepalgunj respectively, are likely to be completed only in the second five-year plan, but the tannery and shoe factory in Kathmandu has been completed ahead of schedule.

With a view to promoting small-scale industrial units and fostering a decentralized pattern of industrial growth, a number of industrial estates were to be installed and expanded in the three-year plan. The

following tables give in brief the progress of the two estates:

	<i>Number of buildings</i>	<i>Number of industries in operation</i>
Balaju Industrial District	13	7
Patan Industrial Estate	22	17

Also, remarkable progress has been made on the construction works in Hetauda Industrial District.

The draft outline of the second five-year plan to be launched in 1965/66 reveals the following objectives in the industrial sector:

1. to diversify the predominantly agricultural economy with a view to attaining a balanced growth;
2. to channel the resources of the landed class to industrial investment;
3. to create employment opportunities.

Priorities are given to the following industries:

1. Industries based upon locally available raw material;
2. Industries substituting imports;
3. Industries producing materials for development works;
4. Export-oriented industries.

Since the change-over to democracy from an oligarchy in 1951, the Government has thus been making vigorous efforts to transform an agrarian economy into a well-balanced economy, through a planned process of industrialization.

b. Description of machinery for planning, implementation and evaluation

Successful planning for the economic development of any under-developed economy calls for the existence of a strong, competent and incorruptible administration machinery. This condition is all the more pronounced in Nepal, where the out-moded system of administration inherited from the Rana Regime still persists along with the modern system of Panchayat democracy under the leadership of His Majesty King Mahendra.

The National Planning Council, the planning agency of Nepal, was constituted by His Majesty the King on 5 February 1961. Previously, a number of national planning organizations had come into existence and disappeared again as bubbles in the fitful period of political instability. The National Planning Council is entrusted with the task of preparing, approving and implementing smoothly a practical development plan on the basis of a practical, comprehensive study of the problems facing the country. The Council is vested with high powers and its decisions are equivalent to those of the Cabinet. It is headed by His Majesty King Mahendra himself, in order to invest it with the necessary prestige and power to remove any obstacles that might hamper the formulation and execution of the plans.

The National Planning Council decides basic policies of economic development in the light of the country's economic needs and frames practical development plans to raise the standard of living of the people; it gives final approval to the proposed projects, evaluates the plan and its progress and makes allocations from the country's resources and foreign aid. In short, the Council is essentially a co-ordinating agency in the field of planning. The Ministry of Finance and Economic Affairs assists the Council in making studies and assessments of the plan as well as carrying out the objectives of the Council, while projects and development in all aspects of the plan are formulated by the respective ministries and departments and are submitted to the Council for review and concurrence. Priorities in the plan are determined by the Council and targets are fixed in consultation with the various departments.

One feature of the present planning system in Nepal is the introduction of annual development plans along with the perspective plan. The necessity to formulate a national annual plan is dictated by the decentralized pattern of Panchayat democracy in Nepal. On the basis of the national development plan, the local authorities prepare zonal and district development plans, which are forwarded to the respective departments.

II. INDUSTRIAL POTENTIAL

a. Feasibility surveys

Endowed with a variety of climates and natural resources, Nepal has an immense potential for industrial development. The sub-tropical plain of the Terai has proved to be an ideal location for industries. During the second five-year plan, a number of consumer industries are to be established both in the private and in the public sector. A total sum of about 40 million rupees, including 30 million rupees in the private sector, is to be invested on these industries. It would be unthinkable to establish these industries without a real assessment of the industrial potential of the country's resources. Although general industrial feasibility surveys for the whole of the country or for groups of industries are a prerequisite for industrial development, a broad framework for this programme is still in the preliminary stage. With the advent of planning consciousness in Nepal, efforts are being made in this direction, but owing to the lack of a planned approach and a judicious programme, efforts have been scratchy and achievements unsatisfactory. The absolute necessity of industrial feasibility surveys for efficient planning of industrial development is realized, however, and the current three-year plan accords priority to surveys and feasibility studies. The NIDC has been designated as the agency to conduct such studies. For the year 1964/65, the NIDC will conduct complete feasibility studies (technical and marketing) for the following industries:

paper, plywood and chipboard, ropeways, glass products, jute twine and rope, a tanning and bone mill, re-rolling mills, wool carpeting, hand-made paper, brewing, powerloom and hosiery, cold storage, straw-board, soap, lime, tea, tin containers and integrated oil mills. Owing to the lack of trained personnel in the NIDC, negotiations have already been made for foreign firms and consultants to undertake these complete feasibility studies. Some of the consultants have already started work in Nepal and India. The United Nations have been requested to augment these efforts and a team of experts is expected to arrive in Nepal to help assess the country's resources and needs and to draw up feasibility reports on other selected industries not covered by the NIDC work plans. A list of feasibility studies and surveys conducted and prepared by the NIDC and other agencies is given in table 1.

The essential objective of the above surveys and feasibility studies is to evaluate and assess the availability of raw materials, power, transportation, water, labour and other supporting facilities in each of the alternative locations for the establishment of new industries and also for the already established ones. Within this framework, the aim, by and large, is to ascertain the feasibility prerequisites and industrial growth prospects for each alternative location of the industries.

TABLE 1. LIST OF SURVEY REPORTS AND FEASIBILITY STUDIES CARRIED OUT BY THE NIDC AND OTHER ORGANIZATIONS

- | A. NIDC | |
|------------------------|---|
| 1. | Preliminary Report on the Paper Industry |
| 2. | Report on Blacksmithies |
| 3. | Report on Jute at Biratnagar and Jhapa |
| 4. | Report on Jute Production in Morang |
| 5. | Survey Report on Bara, Parsa Districts |
| 6. | Survey Report on Dhankuta and Ilam |
| 7. | Industrial Market Survey of West, No. 3 |
| 8. | Timber Market Survey of Kathmandu |
| 9. | Report on Sugar Industry in Butawal District |
| 10. | Industrial and Market Report of Doli |
| 11. | Survey of Lumber and Wood Working |
| 12. | Survey Report on Brick in Hetaura |
| 13. | Market Survey Report of Kathmandu for Soap |
| 14. | Industrial Survey of Jhapa |
| 15. | Market Survey Report of Butawal and Palpa |
| 16. | Survey Report on Mahotari District with special reference to Tobacco Industry |
| 17. | Report on Oil and Oilseeds in Bara, Parsa, Rautahat |
| 18. | Feasibility Studies on Cement Project in Nepal |
| 19. | Feasibility Study on Pulp and Paper in Nepal |
| B. Other organizations | |
| 1. | Ford Foundation
"Report on Small and Village Industries" |
| 2. | Ramseyor, C.F., President — Ramseyor and Miller, Incorporated, Consulting Engineers, United States
"Report to the Government of Nepal on the Establishment of an Iron and Steel Industry in Nepal" |
| 3. | Fairchild Aerial Surveys, Incorporated, Photogrammetric Engineers, United States
"A proposal for Developing the Economics and Making Inventory of the Nation's Resources". |

- | | | |
|--|--|--|
| <ol style="list-style-type: none"> 4. USOM/Nepal — Nepal/American Co-operation Source Industrial Development Centre "Market Survey Report of Pokhara" 5. "Market Survey Report of Rapti Valley" 6. "Survey Report of Dhankuta, Illam, Bhojpur and Bijayapur" 7. Shrestha B.H., Surveyor "Report on the Industrial and Marketing Survey in Dadeldhura Districts" 8. Shankar, M.B., I.A. Mission "A Detailed Scheme for the Establishment of a State Trading Corporation" 9. Pradhan, B.B., Director of Industry "Industrial Estate for Kathmandu" 10. Preliminary Survey on Paper in Nepal 11. Survey of Economic Botanical Products 12. Report on the Crop Production 13. Report to the Govt. of Nepal on Forestry. 14. Market Survey Report of Rapti Valley 15. Illam Tea Kaman Project 16. Industrial Survey Report of Butawal District 17. Report of Morang and Saptari 18. Industrial Survey Report on Bara, Parsa, Rautahat, Sarlahi and Mohotari 19. Industrial Survey Report of Banke, Kailali-Kanchanpur 20. Industrial Survey Report West No. 2 and 3 21. Industrial Survey of Butwal 22. Report on Ghee in Butawal District 23. Report on Soap Industry in Nepal 24. Report on Tourism 25. Report on Resuscitation and Reorganization of the Tannery in Balaju 26. Report on the Technical Expert Service provided for Development of Plywood Industry in Nepal under the auspices of the APO | <ol style="list-style-type: none"> 2. Soda ash, caustic soda and chlorine 3. Nitrogenous fertilizer (synthetic ammonia) 4. Gelatin and glue (raw materials: bone and hides) 5. Starch, dextrin, dextrose from corn 6. Fire bricks, refractories and artificial abrasives 7. Glass and ceramics including electrical insulators and isolators 8. Foundries 9. Ghee purification and canning 10. Fibre board 11. Graphite 12. Rock salt (sodium chloride) 13. Industrial alcohol from molasses 14. Pigments, paints and varnish 15. Soft wood distillation 16. Carbide 17. Cement 18. Techno-economic survey of Nepal 19. Industrial district development 20. Cotton plantation development 21. Sheep breeding development 22. Chyuri tree plantation development | <p>Biratnagar, Bhairahawa Birgunj</p> <p>Biratnagar, Dharan, Birgunj, Hetaura, Bhairahawa</p> <p>Saptari, Bhairahawa, Nepalgunj Birgunj</p> <p>Birgunj, Hetaura</p> <p>Bhairahawa</p> <p>Bhairahawa, Nepalgunj</p> <p>Bhairahawa, Nepalgunj</p> <p>Nepalgunj, Birgunj, Biratnagar</p> <p>Illam and Taplegunj</p> <p>Bandipur and Western Hills of Nepal</p> <p>Birgunj, Bhairahawa, Nepalgunj, etc.</p> <p>Hetaura</p> <p>Nepalgunj, Hetaura</p> <p>Hetaura</p> <p>Eastern Nepal</p> |
|--|--|--|

The feasibility surveys, at present, are mostly carried on in the sub-tropical areas of the Terai, which is the country's most promising zone for industrial development. It has rich forest resources and fertile soil for industrial crops. The present transport facilities and planned construction of roadways are supporting factors for industries. For all these reasons, many of the feasibility surveys already conducted and others proposed are mostly concentrated in this area.

During the second five-year plan period (1965-1970), investigations into the possibility of developing certain cash crops and commercial plantations will be carried out. Pre-investment surveys on a number of essential industries based on the known resources of the country and feasibility studies on a number of consumer goods industries will also be made. The Government of Nepal has designated the NIDC as the agency to conduct surveys of industrial raw materials and to make pre-investment studies of possible industries, with the necessary support from outside consultants. A tentative programme of the feasibility studies and surveys to be made by the NIDC during the plan period is shown in table 2.

TABLE 2. LIST OF FEASIBILITY STUDIES PLANNED FOR 1965-1970

Study	Area concerned
1. Paper, pulp and newsprint	Kailali Kanchanpur Dang/Sallyan, Bhairahawa, Palpa

b. Resources survey

A real assessment of the country's economic resources is a prerequisite for development. The collection of statistical data on the resources available inside the kingdom has been recognized as the basic task and accordingly given high priority in the present plan. The survey operations to be conducted under the plan are of two types:

(1) a general survey of physical resources, (2) pre-investment surveys that will make available the detailed costs and benefits to be expected from given projects.

The following important surveys of the country's resources are being carried out under the current plan:

- (a) forest resources
- (b) soil
- (c) water resources (irrigation)
- (d) water resources (power)
- (e) hydrological survey
- (f) minerals
- (g) industrial surveys
- (h) transport requirements
- (i) town planning

To conduct this survey work, the Government has arranged to provide foreign experts and make the necessary institutional arrangements. Progress on the various surveys may be summarized as follows:

(a) Since the start of the plan period, a separate office for conducting the forest resources survey has been established. A stock map has been prepared for the Rapti Valley area and a cutting programme drawn up on the basis of the survey. Data have been collected on 261 sample plots in the Rapti Valley, 166 in Banke Bardia, Birgunj, Janakpur, Hanumannagar, Biratnagar and Meehi.

(b) Under the soil survey programme, different agricultural areas of the country are being surveyed and a soil study is being made.

(c), (d) The survey of water resources under the current plan is progressing. A preliminary report on Kankai and Saptari has been prepared, with a scheme for providing irrigational facilities in the districts of Jhapa and Saptari, covering areas of 100,000 and 300,000 acres of land respectively.

(e) Of the major hydrological surveys provided for in the current plan, the preliminary report on the Karnali river has been completed, with the assistance of the United Nations Special Fund. The engineering survey of the Kulekhani and Kaligandaki rivers is under way with the help of Japanese experts, and the reports are in the course of preparation and/or consideration.

(f) In the field of mines and minerals, activities have gone ahead in the form of a geological survey, exploration and a pre-investment survey.

(g) As regards industrial surveys in the country, the NIDC has been designated to undertake complete feasibility studies on the industries mentioned elsewhere in this chapter.

(h) A survey of transport requirements has been made by a team from the International Bank for Reconstruction and Development, and the report is being prepared.

c. Infrastructure

The inadequate development of power and transport facilities has proved to be the main bottleneck in plans for industrialization in Nepal. Most of the large industries already established are to be provided with adequate transport and power facilities and for the new industries that will come into being through future plans, an integrated programme of transport and power development is being taken up in the current plan and will be continued in the future.

The total mileage of roads at present is 466 miles all-weather and 451 miles fair-weather. Except for the Capital Valley, which is opened up to places in the interior, no other areas of the country have an adequate transport system. Similarly, in the field of power development, Nepal is lagging behind. The total power generation is about 10,000 kW only, and the places served are the Kathmandu Valley, Biratnagar and Birgunj. In all these places, the power supply is not only inadequate but very undependable for industrial use.

To break through this serious handicap of inadequate transport and power, the Government has formulated separate sectoral plans allocating the necessary expenditure in the successive plans.

The first five-year plan (1956-1961) accorded priority to the development of transport and power out of consideration for the needs of industrial development. Of the total outlay of the plan, 40 per cent was allocated to transport and power.

The three-year plan (1962/1963—1964/1965) also gave top priority to the development of infrastructure, transport communication and power accounting for 35 per cent of the total financial outlay.

In the proposed third plan, power and transport together account for 44 per cent of the total outlay. The comparative figures for capital expenditure on infrastructure in the various plans are as follows:

	Expenditure on transport (million Rs.) (a)	Expenditure on power (million Rs.) (b)	(a) and (b) as percentage of total outlay
First five-year plan	104	30	40
Three-year plan	137	91	35
Proposed second five-year plan	460	210	44

It is clear from the above table that a substantial share of public expenditure under all plans is being devoted to building up infrastructure, which is urgently needed, though by no means exclusively for industrial development alone.

The existing transport system in Nepal consists of roadways, air transport, ropeways and railways.

Roadways: The total mileage of roads at present is about 917, of which 466 miles are all-weather and 451 miles fair-weather.

Important road ways at present	Approx. miles
Tribhuban Raj Path	87
Kathmandu/Kodari	80
Hetaura/Narayangarh	52
Hetaura/Raxaul	35
Kathmandu/Trisuli	45
Roads in the Valley	80
Biratnagar/Dharan	35

Air transport: There are internal flights from Kathmandu to Biratnagar, Rajbiraj, Janakpur, Simara, Pokhara, Bhairahawa, Dang, Nepalgunj, and Dhangarhi. External flights go from Kathmandu to Delhi, Calcutta, Patna and Dacca.

Ropeways:

Kathmandu-Hetaura, distance 28 miles
Capacity 25 t/h.

Railways:

NJR, Janakpur — Jayanagar, 30 miles
NGR, Amlekhgunj — Raxaul, 29 miles.

Existing power supply:

Kathmandu Valley	4,750 kW
Birgunj	216 kW
Biratnagar	4,866 kW

The current three-year plan includes many projects in the power field. Work on the Trisuli Hydro Project (9,000 kW) and the Panauti Hydel Project (2,500 kW) is progressing well. The expansion and extension of diesel power projects in Hetauda, Kathmandu and Birgunj (6,500 kW) is going ahead. When these projects are completed, the central zone will be more or less well served with power. Plans are under way to add 1,600 kW of diesel electric power in Biratnagar. With this expansion, the present power difficulties in these areas will be overcome. The Kosi Project is expected to supply 5,000 to 7,000 kW of hydro-electric power to the area by 1966/1967. In addition, small power projects are under way in Nepalgunj, Dharan and Bhairahawa, but these are too small to cater to the needs of large industries.

Future programme for the development of transport and power

Special efforts will be made towards the development of transport and cheap power, which are the basic pre-conditions for rapid industrialization. The development programme to be undertaken in these fields is given below.

Roads: A total of 1,000 miles of roads, including 500 metalled and 500 fair-weather, will be constructed during the next five-year plan period. The Simra-Janakpur and Janakpur-Ithari roads will be the principal ones coming under the East-West Highway. Other links are Kathmandu-Kodari (60 miles), Sunauli-Pokhara (128 miles), Dharan-Dhankuta and elsewhere.

Air transport: Expanded aviation facilities will be developed to provide fast means of transportation. In the remote hilly areas, where a complete network of roads is not likely to be developed in the immediate future, air transport will be provided to open up the area. The existing airports at Jhapa, Simra, Biratnagar, Rajbiraj, Pokhara, Nepalgunj and Dang will be improved and metalled. About 20 STOL airstrips will be constructed in the hills. New aircraft will be procured for the RNAC. Transport development will also be encouraged in the private sector. Some ropeway lines will be set up through private initiative with the help of the NIDC. The expansion of Kathmandu airport to take faster and bigger aircraft will be completed by 1966.

Power development: Efforts will be made to ensure an adequate supply of electricity to the important industrial centres of the country like Hetauda, Birgunj, Biratnagar and Nepalgunj. About 35,000 kW of electricity will be added to the existing supply. The second phase of work at the Trisuli Project will be completed. Attempts will also be made to complete the Kulikhani Project, which will be started in the current plan period. In addition, a few microplants will be established in different parts of the country, and construction work will be started in Karnali.

III. INDUSTRIAL POLICY

a. Investment laws and incentives

Industrialization is a process closely linked with the formulation of industrial policy and programmes. There are many factors which accelerate or retard the pace of industrialization, and among them industrial policy is perhaps the most important. The conditions of the existing industries have, until very recently, been unsatisfactory. It would be useless to set up new industries before the existing industries are functioning properly, and the Government has therefore given adequate attention to the improvement of existing industries. A clear-cut policy has been announced offering facilities and incentives for new industries. Nepal has also invited foreign private investment and technical know-how and has provided the security and facilities needed to attract them.

1. Industrial Enterprise Act

The Government's policy in this field is clearly stated in the Industrial Enterprise Act of 1961. The Act provides for a broad and liberal programme to encourage the investment of capital — especially foreign and domestic private capital — in industry, by offering concessions and other facilities.

An industry is defined by the Act as a company or firm registered under the Nepalese law, employing ten or more persons in the case where mechanical power is used, or employing twenty or more persons in the case where mechanical power is not used, the company being engaged in any of the following activities:

- i) excavating, collecting, or otherwise processing iron ore, coal, gas, oil or other mineral products, with a view to the use, transport, sale or supply thereof;
- ii) producing, collecting or otherwise processing any cinchona rubber, tobacco, tea, cotton or coffee, with a view to the use, transport, sale or supply thereof;
- iii) supplying electricity or mechanical power or electric light or water;
- iv) carrying on hotel business by providing residential facilities with or without board or any other arrangements on cash rents;
- v) manufacturing, adapting, producing, or otherwise processing any other material with a view to the use, sale or supply thereof.

The Act also makes a classification of industries on the basis of capital investment. Any industrial enterprise having an investment of up to 50,000 rupees is called a "cottage" or "small" industry. A medium-scale industry is defined by the Act as an industry having a capital investment of 50,000 rupees to rupees 500,000 rupees. A large-scale industry is defined by the Act as an industry having a capital investment of more than 500,000 rupees. A basic industry is defined by the Act as one declared as such by the Government through notifications pub-

lished in the Nepal Gazette from time to time. Industries relating to defence are those which manufacture arms and ammunition, cartridges and explosives employed for defence purposes.

The Industrial Enterprise Act also states very clearly the facilities and concessions offered to industries by the Government of Nepal. They are as follows:

- i) New industries are exempted from the payment of income tax for a period of ten years from the date at which production commences.
- ii) Foreign currency facilities are granted to the industry for the purchase of machinery, tools, spare parts and raw materials, and for the payment of remuneration to foreign technicians.
- iii) Persons investing foreign capital in industry are generally allowed to repatriate profit annually up to the extent of 10 per cent of the total capital invested in the capital stock.
- iv) Foreign currency to the extent of 25 per cent of the capital invested by foreign industrialists in industries is made available annually for repatriation of capital.
- v) The Government may, by notification published in the Nepal Gazette, guarantee for any iron industry having an investment of more than the amount prescribed in the same notifications, a profit of 5 per cent for the five years from the date of establishment of such industry on the following conditions:
 - a) that the industry shall operate on the terms and conditions prescribed by the Government from time to time;
 - b) that the industry, if it earns a profit of more than 10 per cent, shall pay to the Government 40 per cent of such profit during the ten succeeding profit years.
- vi) The Government provides industries with the timber needed for the construction of factories and living quarters for labour at 15 per cent less than the auction rate and assists in acquiring the necessary land for such purposes.
- vii) Machinery imported for the installation of industries is charged nominal customs duty only.
- viii) Government protection is given to new industries to the extent needed.

2. *Licensing of factory establishments*

With the growing consciousness of the need for a well-planned factory system in the country, the necessary legislative measures are being taken in this field too. The Nepal Factories and Factory Workers Act 1959, as amended, is such a piece of legislation.

The Act covers all power-using industrial establishments employing ten or more workers, and establishments employing twenty or more workers and not using power. The term "factory" does not include mines, which are governed by the Nepal Mines Act 1957.

The Government is empowered to make rules concerning the registration and licensing of factories. The Act lays down that the occupier of a factory shall, before occupation, send to the local Inspector of Factories a written notice containing full details regarding the factory.

The Act prescribes certain provisions regarding sanitation, temperature, ventilation, prevention of overcrowding, safety measures, amenities, compensation for accidents, minimum scale of wages, and so on.

The maximum number of working hours per week and per day have been fixed at fifty-four and ten respectively. No worker shall work more than five hours before he has had a rest interval of at least half an hour. Payment for overtime is to be one-and-a-half times the ordinary payment. The hours of employment for women are to be between 6 a.m. and 6 p.m. Children below fourteen years of age are not to be employed. Minors (persons between fourteen and eighteen years of age) shall not be allowed to work without a certificate of physical fitness from a medical practitioner.

3. *Other pertinent laws and regulations*

Foreign investment by Nepalese nationals is discouraged. The movements of raw materials and imports of capital goods are governed by the Export-Import Act, though there is no specific mention in the Act regarding industrial development. There are no separate regulations for the establishment of industries, except for rice and oil mills, but the establishment of industries at the border is not encouraged. The Director of Industries is also in charge of company law administration. The Nepal Company Act 1951 was completely amended in 1964 and the main feature of the new Act is the removal of government interference and restriction in the affairs of private companies.

b. *Conditions governing public and private investment*

1. *Fields of investment open to different types of investor*

Virtually all fields are open to private industrial investment, except those relating to defence. As there is great scope for industrial expansion within the private sector, the Government itself has no intention of establishing industries. The policy of the Government in this respect is stated clearly in the Industrial Enterprise Act of 1961, as amended in 1963. No investment estimate for private industries was made in the three-year plan, but the NIDC was established to provide the necessary technical and financial assistance for the development of industries in the private sector. The second five-year plan also emphasizes the development of industries in the private sector, and provides for 300 million rupees to be invested in such industries. In the public sector, 100 million rupees only will be invested.

The regulations governing the treatment of foreign nationals or organizations and Nepalese nationals or organizations establishing industries within the Kingdom of Nepal are as follows:

- i) only Nepalese nationals or organizations controlled by Nepalese nationals are permitted to establish cottage and village industries.
- ii) preference is given to Nepalese nationals or organizations controlled by Nepalese nationals in the matter of issuing permits to establish medium-sized industries.
- iii) permission is given for the establishment of large-scale industries with capital investments by Nepalese citizens or foreigners or both.
- iv) in the establishment of basic industries, permission is given to establish such industries only in the public or semi-public sector;
- v) industries relating to defence are to be run only by the Government.

2. *Investment services*

At present, there are no investment centres specifically designed to offer investment services by mobilizing domestic savings for industrial investment. The reason for this lies mainly in the lack of a capital market. The opportunity for the kind of investment services provided by investment centres in other countries is quite lacking in Nepal.

However, the activities of the NIDC have proved quite helpful in creating an increasingly favourable investment climate in Nepal. Though the NIDC is not an investment centre by nature, it has stimulated industrial investment by providing commercial and industrial information and statistics to interested entrepreneurs and by assisting them to obtain additional information, if necessary, from other sources. It also performs public relations activities, providing liaison services to local and foreign investors.

To stimulate industrial investment in the private sector, it underwrites new issues of shares raised by industrial concerns, and also guarantees loans raised by industrial concerns through commercial banking facilities in Nepal. As a result of these promotional efforts, the NIDC has generated quite a substantial investment in industry. (For further details of the NIDC's activities, see Chapter VI.)

As it seems opportune from the point of view of the investment climate, steps have been taken to establish a stock exchange in Nepal, and draft legislation will be presented to parliament in the near future.

3. *Procedure to be followed by an entrepreneur in establishing a new industry*

In Nepal, businesses and industrial enterprises may be established by Nepalese or non-Nepalese, subject to the applicable laws and regulations. Enterprises may be in the form of limited corporations, partnerships, or sole proprietorships.

With the few exceptions already mentioned, Nepalese and non-Nepalese nationals are accorded equal status in setting up new business, subsidiaries, or branches. The Constitution of Nepal places no restriction on the economic activities of non-Nepalese as such.

Before setting up an industry, an entrepreneur must take the following steps:

- (a) secure a Government license to set up an industry;
- (b) register the industry under the Nepal Company Act, if it is to be a private or public limited company, or under the Partnership Firms Act 1964 if it is to be a partnership, or under the Private Firms Registration Act 1958 if it is to be a proprietary concern;
- (c) secure a Government permit for the importation of machinery and equipment and any necessary raw materials from countries other than India.

a) *Government licence*

An application for a licence to set up a new industry, or to expand an existing unit, is to be submitted to the Director of Industry, Government of Nepal. Apart from the information called for by this application, the applicant should include in a covering letter any other information relevant to the proposed venture, such as the terms and conditions of foreign participation (if any), or the draft agreement between the foreign investor and the Nepalese share participants.

The Department of Industry will appraise the technical and financial aspects of the project, in consultation with other interested departments and ministries of the Government, and the Government's decision as to the application will be made and passed on to the applicant as soon as possible. The length of time required to reach a decision in respect of a licence application depends largely on the completeness and adequacy of the supporting data.

If the Government's decision is favourable to the project, a licence is issued in the name of the applicant and it remains valid so long as the project is implemented within a period of six months (or within some other period of time, specifically stated in the licence, as special circumstances may warrant).

In some circumstances, in order to assure a prospective investor of a licence after he has incurred the expense of making the feasibility and technical studies needed to obtain a licence, the Government will issue a Letter of Intent.

b) *Registration*

The holder of an industrial licence is required to register his company with the Department of Industry within 35 days of issuance of the licence.

An industrial concern may be organized and registered as a sole proprietorship, a partnership, a private limited company or a public limited company. There is a different registration procedure for each.

Non-Nepalese investors may organize a company in Nepal, or participate in the ownership of a Nepalese company already in existence, subject to the same company regulations applicable to the Nepalese investors. Non-Nepalese nationals may also set up a branch or a subsidiary of a foreign company in Nepal by registration of the branch or subsidiary under the Nepal Company Act.

(i) A sole proprietorship is set up in accordance with the Private Firm Registration Act, 1958. According to this Act, application for registration is to be filed with the Director of Industry in the case of industrial concerns, and with the Director of Commerce in the case of commercial concerns, and it is to consist of a statement giving the name and address of the registrant, together with a detailed statement of the aims and objectives of the enterprise.

(ii) The Partnership Act, 1964, defines a partnership as a business registered with the Government under the Act by two or more individuals using a single name, and based upon a written agreement which specifies the extent of participation in its business transactions by each partner on behalf of every other partner, or by any individual partner on behalf of all other partners, and which sets forth their share of profits, and responsibility for losses.

According to this Act, a proposed partnership must submit an application with the following information to the Director of Industry or the Director of Commerce, depending on whether it is an industrial or a commercial enterprise, together with the fees prescribed by the Act, and a copy of the partnership agreement, if any has been executed:

- a) full name of the proposed company;
- b) principal business address of the proposed company;
- c) brief description of the articles or commodities to be manufactured, sold, or otherwise handled by the company, or of the service or services that it will render;
- d) full name and permanent address of each of the partners;
- e) particulars of restrictions, if any, imposed on the rights of any partner;
- f) category of each partner, and amount of capital to be contributed by each;
- g) name(s) and address(es) of partner(s) authorized by the partnership agreement to represent the company;
- h) methods of sharing profits and losses;
- i) any other information requested by the Department of Industry Commerce.

(iii) A private or public limited company is to be registered with the Director of Industry in accordance with the provisions of the Nepal Company Act, 1964. The salient features of this Act are described below.

Preliminary: Private companies are limited to one fifth shareholders and may not sell shares by public offering. If a subsidiary of another company, the parent company may own less than 50 per cent of the stock, provided it retains control.

For incorporation of a private company, capital must be subscribed by at least two investors; for a public corporation, by at least seven. Incorporation is permitted only if no less than 30 per cent of the issued capital has been subscribed. Application for incorporation is to be submitted to the Government along with the memorandum and articles of the company and, in the case of a public company, the prospectus. The application must be signed by at least two prospective shareholders in the case of a private company, or seven in the case of a public company.

Memorandum of the company: The following details must be supplied in the memorandum:

- a) full name of the company;
- b) address of the main office of the company;
- c) objects of the company;
- d) amount of authorized capital to be raised, and the number and denominations of shares of different categories;
- e) a statement to the effect that the liability of the shareholders is limited, so that they are not personally liable for any liabilities of the company except to the extent of the value of the shares held by them;
- f) restrictions, if any, on the purchase or transfer of shares;
- g) other details deemed necessary.

If there exists any agreement providing for the following matters, the memorandum must also indicate the existence of such an agreement and the provisions contained therein:

- a) purchase of or claim over shares by any promoter signing the memorandum or by any other person for any consideration other than payment in cash; or
- b) acquisition of any property in any manner or by the company from any promoter signing the memorandum; or
- c) liability of the company itself for expenses incurred in its establishment; or
- d) conferment of any special facility or privilege by the company to any promoter signing the memorandum.

The memorandum shall have the full names and addresses of the persons who have undertaken to purchase shares, and must be signed by each such person who has undertaken to purchase at least ten shares.

Articles of the company (to come into force after they have been approved by the government department concerned; must, together with the memorandum, be printed and published): The articles shall contain

the following matters, and shall have been signed by the promoters signing the memorandum:

- a) appointment and term of directors;
- b) time for convening the shareholders' annual general meeting;
- c) matters relating to the procedure of the company's meetings, notice of meetings, and so on;
- d) other necessary matters.

Publication of prospectus: Before inviting the public to purchase its shares or debentures, a public company must print and publish a prospectus, having first obtained approval from the government department concerned. The prospectus must include the following details:

- a) the objects of the company and other main particulars given in the memorandum and articles;
- b) the number of shares to be subscribed by the directors, and the salaries, allowances, or remunerations prescribed for them;
- c) shares or cash received, or to be received as remuneration by the promoters of the company;
- d) names and addresses of directors and of the managing agent, if any;
- e) the minimum number of shares that must be sold prior to allotment, and the advance payment to be made on each share along with the application;
- f) reasons for obtaining loans in the form of debentures, the number of partly or fully paid up debentures, and the total amount of outstanding loans;
- g) assets purchased from the proceeds of the sale of shares, the name of the shareholder selling them, and particulars of arrangements, if any, made for payment in the form of shares or debentures instead of in cash;
- h) brokerage on shares and debentures;
- i) estimates of the expenditure required for the business of the company;
- j) financial arrangements of the company;
- k) names and addresses of auditors and audit reports, if any;
- l) particulars as to whether any amount belonging to the promoters or directors is involved in assets purchased or sought to be purchased by the company, and whether such promoters or directors are in any firm or are connected with any other company;
- m) the time when the notice in respect of allotment of shares is to be published;
- n) the time and place of inspecting the balance sheet and the profit and loss account of the company.

Provisions pertaining to foreign companies

(1) Any foreign company wishing to do business or already doing business in Nepal must have the company registered, after submitting the following documents to the department concerned:

- a) an authentic copy or translation in Nepalese or English of the law or licence under which the company was incorporated and established;
- b) an authentic Nepalese version of the memorandum and articles of the company;
- c) full address of the head office of the company;
- d) a list of the directors, managing agent, managers, secretary, etc. of the company, along with particulars specified in section (2) below;
- e) name and address of the resident representative or representatives of the company in Nepal, who is or are empowered to accept on its behalf time-limits, notices, and the like issued to it;
- f) the main place where the business of the company is or will be conducted in Nepal, and the full address of the company at that place.

(2) The list to be submitted under clause (d) of section (1) above must include the following:

- a) if individuals, their full name, address, nationality and occupation;
- b) if a corporate body, its incorporated name, head office and address, and the name, address, and nationality of each of its directors.

(3) If any amendment or alteration is subsequently effected in any document submitted by any foreign firm under section (1), the firm must notify the department concerned within 35 days from the date of such amendment or alteration.

(4) The document duly submitted by any foreign company under section (1) or the notice submitted by it under section (3) must be registered with the department concerned on payment of the fee prescribed in section (5) hereunder.

(5) In registering a foreign company after the documents mentioned in section (1) have been submitted, the department concerned charges the company a registration fee which must not exceed 5,000 rupees; in registering notices, it charges a fee of 5 rupees each.

Every foreign company registered under the Act must prepare a balance sheet and a profit-and-loss account every year and present them at its general meeting. It must send three copies of the balance sheet and profit-and-loss account either in Nepalese or in English to the department concerned.

c. Customs duties and taxes

1. Customs duties on raw materials and components

The Government has maintained a favourable policy regarding customs duties on raw materials and components for industrial concerns.

In cases where new or old industries start to export goods manufactured by themselves and to earn foreign currency, the Government grants them full or partial exemption from export duties through a notification published in the Nepal Gazette, for the period prescribed therein, in order to encourage and protect such industries. If any industry has to import machinery and parts thereof, or raw materials, the Government may grant it full or partial exemption from import duties for a given period in the same way.

2. Taxes affecting industry

Tax rates in Nepal are relatively low, and the basis for taxation is uncomplicated. The taxes which directly affect business and industry are described below.

(a) Income tax

Income tax is regulated by the Income Tax Act, 1963, according to which this tax is levied on the income of Nepalese citizens derived from the following sources:

Trade; remuneration for work or services performed; income from any occupation or profession; house and land rents; investment in cash or in kind; agriculture; insurance business; agency; or others.

The following exemptions are specified:

- a) remuneration paid to a diplomatic representative of any foreign country, and to the non-Nepalese members of his staff;
- b) remuneration paid to any foreign citizen who is appointed to the service of the Nepalese Government on condition that he is not required to pay income tax; or the remuneration paid by any foreign government, foreign agency, or international organization to any foreign citizen staying in Nepal to advise and assist the Government;
- c) dividends received by shareholders from the total income of a company or firm, if income tax has already been levied on the company's or firm's profit.
- d) a maximum of 20,000 rupees or five per cent of net income (whichever is lower), spent for religious or public-welfare purposes, and the income of guthis;
- e) income of town panchayats, village panchayats, public institutions, or educational institutions, or the Nepal Rastra Bank;
- f) all facilities other than salaries provided by the Government to Ministers or Assistant Ministers;
- g) income of the Employee's Savings Fund or the principal amount deposited by any

employee, together with interest to which the employee is entitled;

- h) amounts deducted from an employee's salary and deposited in the Employee's Savings Fund, subject to prescribed conditions and limits;
- i) any income which is prescribed by the Government as partly or wholly exempt by notification in the Nepal Gazette.

As the basis for income tax is the net income derived from one or more of the nine sources listed above, the Act specifies how net income is to be determined.

Net income derived from agriculture is equal to 25 per cent of the total income, the balance of 75 per cent to be deducted from total income to provide for expenses, including land tax.

In the case of income from houses and lands rented out, income from investments in cash or in kind, or income from a profession or occupation, a flat rate of 10 per cent is allowed as a deduction for necessary expenses, and the balance of 90 per cent of the gross income serves as the basis for tax assessment.

In the case of income from trade and insurance businesses or agencies, the amount remaining after deducting the following items of expenditure from gross income is considered net income and is taken as the basis for income tax:

- a) payments as rental for land or houses;
- b) expenditure for the repair of houses made in lieu of rent;
- c) interest on loans;
- d) land or other taxes paid or payable in respect of houses and land;
- e) remuneration paid to employees or workers;
- f) amounts which have been set aside for remission in the accounts, which cannot be collected, or which do not represent actual income;
- g) reasonable amounts spent on repair of machinery, furniture, and other equipment;
- h) depreciation to be remitted at rates not exceeding:
 - 6 per cent of the value of buildings in which machinery has been installed, 3 per cent of the value of buildings used by insurance businesses or agencies,
 - 5 per cent of the value of furniture,
 - 15 per cent of the value of motor cars, lorries and other vehicles,
 - 7 per cent of the cost of other items;
- i) other reasonable amounts spent with the motive of making a taxable profit.

Rebate in income tax: The Act provides that the Government may grant full rebate on income tax to be levied under the Act, or on the income tax to be levied under the Act or existing Nepalese law, to newly established industries for a period of ten years from the date of commencement of their business, and a rebate

of 25 per cent on the income tax to be levied thereafter. To qualify for this rebate, new industries are required to obtain a recommendation from the Department of Industry to the effect that they are entitled to it.

Papers submitted to the Tax Office in connection with this Act are kept secret. They must not be published for any purpose other than the action to be taken in respect of income tax, and must not be used as evidence in any court.

Deduction of Losses: If a tax-payer has already paid income tax after submitting particulars of his income, and then he subsequently sustains a loss, the loss (if reasonable) may be deducted for the preceding two years from the income of the year when the tax was assessed.

The rates of income tax are fixed by the Finance Act every year in the budget speech. The rates fixed by the Finance Act, 1963, are as follows:

Net income (Rs.)	Tax
First 6,000	Nil
Next 4,000	5%
.. 6,000	6%
.. 4,000	7%
.. 5,000	8%
.. 5,000	10%
.. 5,000	12%
.. 5,000	15%
.. 5,000	20%
.. 10,000	25%
.. 10,000	30%
.. 10,000	35%
.. 20,000	40%
More than 95,000	40%

(b) Excise duties

Excise duties are levied in Nepal on matches, sugar, cigarettes, liquor, jute and *bidis* (a type of cigarette). The rates fixed by the Finance Act, 1963, are as follows:

1. Matches (one gross of boxes each containing 40 sticks on average) Rs. 4.00
Additional surcharge of 0.95 rupees per gross of boxes is levied when the match box contains on average 42 sticks or more. If a match box contains no more than from 10 to 20 sticks, the excise tax will be Rs. .095 per 144 matches or part thereof.
2. Cigarettes per thousand Rs. 1.00
3. Sugar, per maund Rs. 7.00
4. Khansari sugar, per maund Rs. 3.25
5. Liquor, per proof of spirits gallon Rs. 60.00
For liquor of additional proof, excise duty will be charged proportionate to the additional amount.
6. Jute (hessian), per metric ton Rs. 150.00
7. Jute, sacking and yarn, per metric ton Rs. 70.00
8. *Bidi*, per thousand (but only by those factories employing more than 10 labourers) Rs. 1.00

d. Patents and trademarks

The rights of inventors or owners of designs and unique names are protected by the Nepal Patent, Design, and Trademark Act, 1936. The provisions of the Act are described below.

1. Patents

Any person may apply for a patent on an invention, in the prescribed manner to the department concerned. The application should include an affidavit from the applicant that he is the possessor of the invention or the legal heir of the inventor, or the purchaser of the invention from the inventor.

The application for a patent must include sketches of the invention and full details of its specifications and manner of operation.

The invention for which a patent is applied is examined by specialists and other experienced persons, and a notice of intention issued by the government office concerned.

In no opposition is received within three months of the date of the notice, and if the applicant is deemed to be the rightful owner of the invention, the department concerned grants a patent for the invention by means of an order (*sanad*) in his name. If, however, opposition is received within three months of the date of the notice, the department concerned must determine who is the rightful owner, and grant the patent to him.

The life of a patent is from seven to fourteen years, and it may be used by the patentee freely during that period, or sold by him, so long as he pays the prescribed fee.

The life of a patent may be extended by application submitted no less than six months prior to the expiry date. If a patent expires owing to failure of the patentee to pay the prescribed fee, it may be reinstated if the patentee immediately applies for its reinstatement, stating a satisfactory reason for the non-payment of the fee.

The department concerned advertises from time to time the articles for which patents have been granted.

2. Designs

Any person may apply for the registration of a new design (not previously used anywhere in Nepal), and it will be registered upon payment of the prescribed fee.

A certificate of registration will be given to the applicant after the design is registered in the prescribed manner, upon payment of a fee ranging from 5 rupees to 50 rupees at the discretion of the department concerned.

When a design is registered, the proprietor's right is secured for five years, and may be extended for two additional terms of five years each.

During the prescribed period for which the design is registered, any one who without the written consent of the proprietor, imitates the registered design, or sells

any article using an imitation of such design with a fraudulent motive, will be subject to a fine not exceeding 300 rupees.

3. Trademarks

Any person may have his trademark registered upon payment of a sum ranging from 5 rupees to 35 rupees at the discretion of the department concerned.

Any one who counterfeits and uses a registered trademark is subject to imprisonment for not more than six months, or a fine of not more than 200 rupees.

IV. MARKET ANALYSIS AND SURVEYS

The concept of market analysis is a novel thing in Nepal and has been introduced only recently. During the early post-war period, industries received a severe setback and experienced successive failures since they did not have the guidance of proper market investigation and industrial surveys. The need for a thorough study of industrial raw materials and other available resources, in addition to market data, is also felt. Accordingly, the three-year plan includes a programme of market surveys under the auspices of the Nepal Industrial Development Corporation.

It is evident that, without proper marketing investigation and analysis, the potential output of various industries cannot be determined. Since industrialization in Nepal is in the preliminary stage, individual industries have not yet investigated the market potential for their products nor have any separate institutions been established to provide consultant services in this respect. At present, the only institutional support for such functions comes from the NIDC. To determine the market potential for industrial products in the country, the NIDC has undertaken a number of market surveys and made marketing analyses for existing and prospective industrial projects.

A list of the market survey reports prepared by the NIDC is given in table 1. These surveys mainly refer to the market within the country. The industries covered are: timber, jute, ghee, soap, processing industries and other forest-based industries. Very lately, the NIDC has negotiated with foreign consultants to undertake market investigation outside the country, especially in India. The major industries to be covered are pulp and paper, plywood and chipboard, woollen textiles and so on. The findings of these studies will be passed on to prospective investors.

With regard to market analysis, the NIDC has since its establishment made about 120 project studies of various industries, including those seeking licences from the Department of Industry, to ascertain the market potentials for the various products. With the increased rate of investment promotion activities, the number of applications for industrial licences to the Department of Industry and for financial assistance to the NIDC has increased proportionately. To carry out marketing and engineering analyses of those industries, the NIDC has set up a separate division.

It is firmly believed that the volume of activity in preparing market analyses and surveys will increase in line with the increasing industrial activity in the country. It has been proposed that the NIDC be reorganized into three separate bodies, one of which, the Industrial Development and Productivity Centre, will carry on the present activities in a more concentrated form.

The market analyses and surveys already conducted in the country have enabled a number of factories to be started up in recent years. Most of them are sugar mills, saw mills, leather and shoe factories, soap factories and the like. Market surveys are being conducted on paper and pulp, woollen textiles, plywood and chipboard, and other industries, and actual implementation of these projects may thus be expected in the next few years.

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. Rate of capital investment in industry

In the absence of a census of manufacturing it is very difficult, if not impossible, to make an assessment of the rate of capital investment in industry by sector. However, a record of the licences issued by the Department of Industry to set up industries is available. According to the Nepal Company Act, 1964, persons desirous of undertaking any enterprise must submit an application for registration in the Department of Industry. The law classifies industrial concerns into four categories:

1. Private company
2. Private limited company
3. Public limited company
4. Partnership

The amount of authorized capital and paid-up capital has to be mentioned in the registration form. According to the record of industrial firms registered in the Department of Industry, the paid-up capital of those firms from 1955 to 1965 was as shown in table 3.

TABLE 3. ADDITIONAL PAID-UP CAPITAL OF FIRMS REGISTERED IN THE DEPARTMENT OF INDUSTRY, 1955-1965
(thousand rs.)

Fiscal year	Additional paid up capital (000 Rs.)	Index (1956/56=100)
1955/1956	69,433	
1956/1957	3,045	100
1957/1958	3,565	117.8
1958/1959	2,628	86.3
1959/1960	8,254	271.1
1960/1961	28,876	948.3
1961/1962	20,079	659.4
1962/1963	28,155	924.6
1963/1964	39,213	1,287.8
1964/1965 (first 5 months)	22,510	
Total mid-Dec. 1964	225,762	

TABLE 4. AMOUNT OF PAID-UP CAPITAL OF FIRMS REGISTERED IN THE DEPARTMENT OF INDUSTRY, BY TYPE OF INDUSTRY, 1955-1965 (rupees)

Type of industry	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65 (N)
Rice oil and flour mills	6,474,651	416,317	1,861,968	169,600	1,720,000	1,916,130	2,209,215	5,494,794	12,370,259	7,862,985
Other agricultural products	1,013,234	894,529	90,000	160,000	404,450	3,431,120	821,000	296,715	3,215,400	235,525
Jute mill and jute press	24,320,000	—	—	—	1,223,120	—	—	—	—	—
Cigarette bidi and tamakhu	8,822,400	62,850	109,400	264,180	214,859	136,425	70,836	61,772	369,780	132,800
Furniture and saw mills	333,320	6,000	6,000	82,000	237,000	10,439,500	1,039,000	771,600	1,409,323	448,000
Engineering works	2,516,790	1,556,670	1,101,000	163,000	2,603,500	6,009,500	5,505,500	351,000	3,851,950	4,127,000
Mining works	1,656,358	—	4,000	300,000	45,000	120,000	190,000	60,000	1,117,600	72,500
Match factory	960,000	—	—	320,000	320,000	168,000	8,000	—	405,000	—
Sugar mills	2,400,000	—	—	—	—	—	—	—	417,122	450,000
Soap factory	452,080	38,560	68,100	131,720	137,500	188,000	201,000	145,000	70,904	94,000
Bricks and tiles	43,442	—	—	100,000	—	186,000	170,000	751,586	1,388,821	286,000
Transport undertakings	820,000	—	—	—	590,000	474,000	2,646,000	554,001	2,389,000	474,000
Hotels	2,191,600	—	—	—	—	—	150,000	8,112,900	3,205,000	100,000
Pharmaceuticals	465,940	—	14,206	40,000	11,000	2,000	664,000	36,500	89,000	—
Distillery	642,600	—	61,000	—	—	—	—	—	1,620,000	61,000
Cotton textiles and handloom	5,014,200	—	—	—	—	—	—	10,000,000	395,000	1,275,000
Woolen mills	614,216	—	—	3,000	30,000	128,000	—	270,000	230,000	30,000
Hosiery	—	—	—	—	—	—	—	—	—	—
Plywood, chipboard and straw-board	—	—	—	—	—	—	—	—	—	—
Miscellaneous	10,692,905	70,909	249,700	894,700	718,000	4,677,800	6,404,500	1,249,200	1,300,000	4,200,000
Total	89,433,736	3,045,835	3,565,274	2,628,180	8,254,429	28,876,555	20,079,051	28,155,068	39,213,820	22,510,360

As of mid-December 1964, the amount of paid-up capital of the registered industrial firms in the private sector was Rs. 225.8 million. At the end of FY 1955-1956, when the first five-year plan started the paid-up capital had amounted to Rs. 69.4 million only. In the absence of investment data, it may be appropriate to take the paid-up capital of the registered firms as the capital investment in industries in the private sector. On the basis of that assumption, the figures given in table 3 show that the annual rate of net capital investment in industry has been increasing since the start of first five-year plan, except in FY 1958-1959 and FY 1961-1962. The magnitude of the increase in capital investment was, however, low during the first four years of the first five-year plan period. The annual net capital investment in industries was 8.3 million rupees in FY 1959-1960, and this was increased by more than three times in FY 1960-1961. The figures for FY 1962-1963 and FY 1963-1964 were 28.16 million rupees and 39.2 million rupees, respectively. Taking FY 1956-1957 as the base year, the index of net capital investment for industries in FY 1963-1964 was 1,287.8. From these figures, it can be seen that, although the amount of capital investment in industry in Nepal is still low, the increase in net investment has been spectacular.

The amount of paid-up capital of firms registered in the Department of Industry since 1955 is shown in table 4, by types of industry.

Although the amount of paid-up capital recorded in the registration form does not indicate the actual amount of capital investment, it does help to show the trend of net capital investment per annum for industries in Nepal. One may argue with a little more logic that the paid-up capital registered will not actually be invested in the same year, and the amount of paid-up capital of the industrial firms registered in earlier years will be invested in the following years. In this case, one has to assume that the capital investment committed by industrial firms while making registration each year will be counterbalanced by an equal amount of investment carried over from preceding years.

The NIDC has made an attempt to estimate the capital investment in industries in the private sector during the three-year plan period on the basis of the amount of investment generated for industrial development through NIDC participation. According to that estimate, the total capital investment in industries in the private sector during the three-year plan period was 102.2 million rupees, of which 63.9 million rupees was invested through NIDC participation and 38.4 million rupees without NIDC participation. During the three-year period, capital investment in industries in the private sector was made at the rate of 34.0 million rupees per annum.

Investment in the private industrial sector during the second five-year plan has been estimated at 300 million rupees that is 60 million rupees per annum. Of

this, a total of 102.1 million rupees is to be generated through NIDC participation. The estimates of capital investment along with possible industries are shown in table 5 and 6.

TABLE 5. PROBABLE INVESTMENT IN INDUSTRY IN THE NEXT FEW YEARS (thousand rs.)

Industry	Project cost	Private equity investment	Financial assistance to be provided (primarily through NIDC)
Agriculture:			
Sugar	49,000	17,150	31,850
Fruit canning and Preservation	1,000	350	650
Brewery and distillery	5,000	1,750	3,250
Rice and flour mill	7,500	2,625	4,875
Oil Mills	2,500	875	1,625
Forest-based:			
Saw mills and furniture	10,000	3,500	6,500
Plywood and chipboard	8,000	2,800	5,200
Pharmaceuticals	3,000	1,000	2,000
Rosin and turpentine	1,200	420	780
Textiles:			
Jute	15,000	5,250	9,750
Woolen textiles	1,500	1,000	500
Hosiery	1,000	300	650
Chemicals:			
Soap	3,000	1,050	1,950
Paint and varnish	1,000	400	600
Cement	23,400	8,190	15,210
Minerals:			
Mines and minerals	3,000	1,300	1,700
Engineering:			
Automechanic workshop	3,000	1,200	1,800
Foundries	600	200	400
Leather:			
Leather works	3,000	1,050	1,950
Hotels:			
Hotel projects	42,000	17,000	25,000
Miscellaneous:			
Cold storage	2,000	700	1,300
Electric goods	350	125	225
Others	15,000	5,000	10,000
NIDC investment in industrial districts, old and new	10,000	—	10,000
Total	211,050	73,285	137,765
Transport facilities in the private sector	12,000	4,200	7,800
Power development in the private sector	5,000	1,750	3,250
	228,050	79,235	148,815

Of this projected investment, it is assumed that only 80 per cent will be actually implemented during the second five-year plan period, and the rest will be carried over. On this assumption, net investment during the five-year plan will be as follows:

	Net investment during the third plan	Carry over to the fourth plan	Total investment
1. Project cost	182,440	45,510	228,050
2. Private investment	63,388	15,847	79,235
3. Financial assistance from NIDC and other sources	119,052	29,763	148,815

TABLE 6. INVESTMENT IN INDUSTRIES WHICH MAY BE STARTED DURING THE SECOND FIVE-YEAR PLAN (IF CERTAIN CONDITIONS ARE FULFILLED) (thousand rs.)

Industry	Project cost	Private equity investment	Financial assistance to be provided (primarily through NIDC)
Textile:			
Jute	35,000	12,250	22,750
Cotton	30,000	10,500	19,500
Chemical:			
Glass container	1,370	480	890
Cement	32,000	11,200	20,800
Metal-based:			
Re-rolling mills	2,000	700	1,300
Forest-based:			
Pulp and paper	95,000	33,250	61,750
Total	195,370	68,380	126,990

Note: Net investment during the plan period is estimated at 10 per cent of the above total. On this assumption, net investment is as given hereunder:

	Net investment during the plan period	Carry over to the fourth plan	Total investment
1. Project cost	19,537	175,833	195,370
2. Private investment	6,838	61,542	68,380
3. Financial assistance from NIDC and other sources	12,699	114,291	126,990

The three-year plan envisaged the receipt of foreign loans amounting to 60 million rupees to meet development expenditure. So far, the Government has obtained a loan in sterling from the United Kingdom equivalent to 11.2 million rupees and a loan in roubles from the Soviet Union equivalent to 20.9 million rupees. The sterling loan is for power development while the rouble loan has been used for the construction of a sugar mill and a cigarette factory, which are now in operation, and a hydro-electric power project which will be ready soon. Repayment to the United Kingdom is to be made in convertible currency, while the rouble loan may be repaid in kind, in Indian currency, or in any currency acceptable to both parties. Apart from these loans negotiated directly by the Government, Nepal has also received loans from the United States to the amount of \$1,400 million in US dollars and \$2 million in Indian rupees through the NIDC. Also, a loan of DM 2 million was granted to the NIDC by the Government of the Federal Republic of Germany. The NIDC has been using these funds, from foreign countries to provide loans to industrial tenants in order to set up new industries and to improve existing industries in Nepal. The Nepalese Government

has also received a loan of 10 million Indian rupees from India.

b. Structure of the capital market

Nepal does not possess a fully-organized money market. In order to promote local as well as foreign private investment and to extend credit facilities to private industries, the Nepal Industrial Development Corporation was set up in 1959. This Corporation participates in private industrial enterprises. To encourage investment in the private sector, the Government has decided to establish a stock exchange in Kathmandu and it is expected to be ready in 1965.

1. Nepal Bank Limited

Nepal Bank Limited is the only commercial bank in Nepal, and also the oldest financial organization in the country. Incorporated under the Nepal Bank Act of 1937, it is partly private and partly government-owned; the Government holds 52 per cent of the shares, entitling it to 30 per cent of the voting power. In the absence of discount operations by the Central Bank, the interest rate structure has been fixed by the Nepal Bank in a manner which has not been conducive to the mobilization of private savings; the rate of interest paid on saving deposits has been low in relation to the higher rates of interest charged on loans. The commercial nature of the Nepal Bank has also limited the spread of banking facilities to outlying regions, thereby hindering the monetarization of the economy. Its demand, savings and fixed deposits rose from 47.5 million rupees in mid-July 1959 to 111.5 million rupees in mid-April 1964.

During the same period its advances to the private sector increased from 34.2 million rupees to 90.8 million rupees, the bulk of this being used to finance trade with India. The rest of the Bank's loan portfolio consists mostly of advances against the collateral of gold and silver bullion, fixed deposit receipts, share certificates, and property title deeds.

Its domestic cash resources are composed of cash in vault and deposits with the Rastra Bank. The interest rate on current deposits and on savings deposits has been $\frac{1}{2}$ per cent and $1\frac{1}{2}$ per cent, respectively, while the rates for loans and advances for imports have ranged from $5\frac{1}{2}$ per cent to $7\frac{1}{2}$ per cent, and the rate of credit against the security of gold and silver has been 7 per cent. Loans and advances cannot exceed a year in maturity, and are made only against security of property.

2. Nepal Rastra Bank

The Nepal Rastra Bank is the Central Bank of Nepal. It was established through the Nepal Rastra Bank Act which was enacted in 1955, and it started to operate in 1956. The Act vests the Nepal Rastra Bank with the sole right to issue notes; however, the power to issue notes has been exercised since 1960 only. The value of notes issued by the Nepal Rastra

Bank increased from 54.9 million rupees in mid-July 1957 to 249.5 million rupees in mid-June 1964. The value in mid-June 1963 was 152.9 million rupees. The increase in notes issued reflects the increase in monetary circulation and the replacement of Indian currency by Nepalese currency. The Nepal Rastra Bank is authorized to make mortgage loans and engage in warehouse financing within town panchayats, and to make loans to co-operatives. The total amount of treasury bills and bonds that the Nepal Rastra Bank can hold is not limited, but the amount that the Government can discount each year is limited by the appropriations in its approved budgets.

The Nepal Rastra Bank is also charged with the task of mobilizing capital for trade and industry, as well as developing the banking system in the country.

It receives private deposits, and these increased from 4.7 million rupees in mid-July 1959 to 53.0 million rupees in mid-April 1964, in spite of the fact that it cannot legally pay interest on its deposits. Its advances to the private sector increased from 1 million rupees in mid-July 1959 to 3.5 million rupees in mid-September 1964. It can not grant ordinary commercial loans, and its industrial loans must be considered sound by both the Bank and the Government.

3. Loans to small and village industries

The Government has also provided small loans for the establishment of small-scale and cottage industries through the Department of Cottage and Small Industries.

4. Government Employees' Provident Fund

More attention is now being directed to the task of mobilizing domestic savings. Serious consideration is being given to the promotion of such schemes as postal savings, and life insurance policies. Government employees contribute to a compulsory provident fund from their monthly salaries. An attempt has been made to channel the resources of the provident fund into investment in industries.

5. Establishment of new commercial bank

With a view to improving the money market and mobilizing private savings in accordance with the proposal of the Nepal Rastra Bank, the Commercial Bank Act was enacted in 1964. The Act provides for the establishment of a new bank, which will be an autonomous and corporate body with perpetual succession. The paid-up capital of the bank is to be not less than one million rupees and the authorized capital not less than Rs. 4 million. The main objective of establishing such a bank is to make the necessary credit available for industry and trade.

6. Issue of government bonds

For the first time in the history of Nepal, government bonds were floated in FY 1963/1964. Public enthusiasm to purchase the bonds is quite encouraging. Out of Rs. 13.1 million worth of government bonds,

TABLE 7. REVENUE AND EXPENDITURE IN THE REGULAR BUDGET,
1956/1957 TO 1964/1965
(thousand rs.)

	FY 1956/57 Actual	FY 1957/58 Revised Est.	FY 1958/59 Actual	FY 1959/60 Actual	FY 1960/61 Actual	FY 1961/62 Actual	FY 1962/63 Actual	FY 1963/64 Revised Est.	FY 1964/65 Budget Est.
Revenue	54,845	64,432	72,647	84,047	93,652	105,401	119,542	157,999	178,900
Expenditure	44,995	87,665	66,858	85,980	107,275	104,576	116,238	117,689	123,112
Surplus or Deficit	+9,850	-23,233	+5,789	-1,933	-13,623	+825	+3,304	+40,310	+55,788

the general public has purchased bonds worth Rs. 9.0 million. It has been proposed to issue bonds at the rate of Rs. 10 million a year during the second five-year plan period.

7. Government saving

The Government is aware of the great need to improve the mobilization of domestic savings to finance development expenditure. The principal aim of the Government's budgetary policy is to minimize regular expenditure and to increase government revenue, so that sufficient domestic resources may be made available to finance the development plan. To achieve the desired "austerity", the Finance Minister has proposed abolishing those agencies and departments which are no longer suited to the needs of Nepal. Among the economy measures adopted by the Government, public utilities such as electricity services, the ropeway and other transportation services were converted into statutory corporations run on basically commercial lines. The regular expenditure of the Government has been considerably reduced by adopting these measures.

As a result of the austerity measures introduced by the Government, the amount of government saving has been increasing satisfactorily. In FY 1960/1961, there was a deficit of Rs. 14.0 million in the regular budget. Since FY 1961/1962, however, there has been a surplus. In FY 1963/1964, the surplus amounted to Rs. 40.3 million and it is expected to reach Rs. 56.0 million in FY 1964/1965. The revenue and expenditure in the regular budget of the Nepalese Government for the period of nine years from FY 1956/1957 to FY 1964/1965 are presented in table 7.

8. Monetization

The economy of Nepal is based on agriculture, which absorbs more than 93 per cent of the total economically active population. More than 64 per cent of the national income is contributed by agriculture. Most areas of the country have not yet been monetized and possess no banking institutions. In these circumstances, an exceedingly high proportion of household savings is in the form of non-financial asset such as houses, land and equipment. There is no possibility of an improvement in the field of capital mobilization without monetization of the area. Also, there has been no proper action to channel savings for

investment. Realizing this, the Government passed the Commercial Bank Act in 1964 to provide institutional financing facilities in the country. The Nepal Rastra Bank and Nepal Bank Limited have also opened branches, sub-branches and depots in several parts of the country. The Government has given priority to development projects in rural areas, so that those areas will become monetized. The total money supply in the country increased from 87.7 million rupees in mid-July 1959 to 355.2 million rupees in mid-July 1964, one of the causes of the increase being the monetization of non-monetized areas.

9. Land reform and compulsory saving scheme

Institutional reform in agriculture is a pre-condition for the mobilization of private capital in rural areas. In order to raise the saving capacity of cultivators, the level of their income has to be raised, and without institutional reform this is not possible. In the past, the rich community in Nepal has been represented by the landlords, who are reluctant to make investments in fields other than agriculture. In order to raise productivity in agriculture and to direct inactive capital and manpower from the land to other sectors of the economy, the Land Reform Act was introduced in FY 1964/1965. This Act has been enforced in sixteen selected districts of Nepal, and it includes a clause on compulsory savings and credit arrangements.

According to the Land Reform Act, every land-owner as well as tenant is required to make compulsory savings in kind at the prescribed rates, from the main annual crop on the land owned or cultivated by him, and to deposit them with the prescribed committee, agency, or authority. In the case of lands yielding cash crops other than food grains, the savings must be deposited or caused to be deposited in cash at the prescribed rates. Interest at the rate of 5 per cent per annum is paid on the savings deposited. The penalty for any person who fails to deposit savings as required is a fine not exceeding 1,000 rupees. In all the sixteen district where the Act has been enforced, the compulsory saving programme has been implemented satisfactorily.

10. The NIDC and private investment generation

The Nepal Industrial Development Corporation has played a major role in generating private capital for the industrialization of the country. It was esti-

TABLE 8. FOREIGN GRANTS TO NEPAL

	Calendar year 1952/1962	Fiscal year ^a 1962/63	Fiscal year ^b 1962/63-1964/65 (estimated in three-year plan)	Estimates proposed in three budgets FY 1962/1963 to FY 1964/1965	Estimated expenditure ^c during three years FY 1962/1963 to FY 1964/1965
United States	298.5	77.2	210	258.2	197.5
India	198.8	46.2	140	65.3	41.0
China, Peoples' Republic of	46.9	1.7	40	25.4	19.8
Soviet Union	38.0	5.7	80	22.5	3.1
United Kingdom	4.8	4.1	15	5.3	3.1
Switzerland	3.7	—	—	.7	—
Canada	1.1	—	—	—	—
Australia	0.8	—	—	—	—
New Zealand	0.6	—	—	1.4	—
Ford Foundation	10.7	0.3	—	2.6	1.6
United Nations	17.9	2.9	10	0.3	—
Unspecified other countries	—	—	—	5	6.1 ^d
Total	621.8	138.1	500	381.8	272.2

Source: Ministry of Economic Planning.

^a According to the revised estimate for the year, the amount released through the government budget was only Rs. 55.5 million.

^b Certain specific projects financed by foreign aid are not included.

^c Includes only funds released through government budgets.

^d Includes assistance from Switzerland and New Zealand.

mated that, during the three-year plan period, loans approved by the NIDC to private entrepreneurs would amount to 57.3 million rupees of which 26.6 million rupees would actually be disbursed. During the same period, investment committed by the borrowers would amount to 75.81 million rupees of which 30.3 million rupees would actually be invested. Equity investment from the NIDC would amount to 7 million rupees during the three-year plan period. It was thus estimated that private investment generation through NIDC participation for industrial development would amount to 63.9 million rupees during the three-year period. In addition, the Cottage and Small Industries Department of the Government has been supplying loans for the development of small-scale and cottage industries.

11. Importance of foreign capital

It is tentatively estimated that more than 50 per cent of the national investment in Nepal has been financed by external sources. Of the estimated national investment of Rs. 204.1 million per annum in the public sector, external sources have financed Rs. 162.4 million. Estimates of foreign grants to Nepal are shown in table 8.

As a result of measures taken by the Government to reduce regular expenditure and to raise domestic revenue, government revenue increased from Rs. 93.6 million in FY1960/1961 to Rs. 158.0 million in FY1963/1964. Government domestic revenue is expected to amount to Rs. 178.9 million in FY 1964/1965, and it has been estimated that, during the next plan period, government saving will amount to Rs. 80 million per annum.

However, Nepal will have to depend on external sources for a number of years in its efforts to develop the country.

12. Promotion of foreign investment

The need for foreign capital in carrying out industrialization in a country like Nepal cannot be over-emphasized. Because of the low level of savings and the lack of entrepreneurial capacity, Nepal always welcomes foreign capital in its efforts to industrialize the country. Equality of treatment between foreign nationals or organizations and Nepalese nationals or organizations in establishing industries is the main theme of the Industrial Enterprise Act (see Chapter III. A. 1).

His Majesty The King has said that "In the field of industrialization, the policy of my government is to encourage both local and foreign private investment in all industries other than those of defence".

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

a. The NIDC: Introduction

Nepal, deliberately isolated by the Rana rulers in the field of systematic industrialization, has only recently been able to formulate industrial development programmes by conscious planning efforts. The development of modern industries started a few years ago, but these industries could not all survive for long owing to the lack of basic facilities and proper investigation. The need for a planned approach in this field was felt. A significant step toward promoting industrialization was the establishment of the Nepal Industrial Development Corporation (NIDC) in 1959, with a total capital of Rs. 10 million. The NIDC is a public corporation wholly owned by the Government and it has been the only agency to promote industrialization in Nepal. It has proved to be a major stimulus to industrial development in the country.

Other institutional arrangements necessary for assisting and promoting industrial activities are still lacking. There are no separate public or private institutions specifically designed to work as an industrial development bank or productivity and management centres and industrial research institutions. For this reason, the role of the NIDC at present is vital. It tries to cater for all the manifold needs of industrial development. It is a development bank, a productivity and management centre, an industrial research institution, and so on, although at present its functions in fields other than financial and technical assistance are limited.

Formerly, the NIDC was merely an industrial development centre, its function being confined mainly to providing assistance to industry. It became a Corporation in 1959. Since the establishment of this Corporation was directly attributable to the lack of an organized capital market and other institutional facilities, it carries on divers functions and services with the broad objective of expediting industrialization.

As the nation's industrial finance corporation, it renders the following functions and services:

1. issues long- and medium-term loans for the establishment of new industries and the modernization of existing ones
2. provides expert advice and training both to private industrialists and the Government for the successful organization of industries.
3. encourages industrial development by providing financial assistance in the form of shares, stocks, bonds and debentures.
4. assists and organizes industries on its own initiative to demonstrate existing and new possibilities for industrial growth.

To carry on its day-to-day activities, the NIDC is divided into the following departments:

1. Industrial Finance Division: handles industrial banking transactions and performs the development banking functions of the corporation;
2. Industrial Feasibility Division: provides NIDC's clients and different government agencies with feasibility studies and analyses in respect of different industrial projects;
3. Productivity and Training Division: extends preliminary consultation programme for industries in respect of employee training, production methods, increased efficiency and productivity;
4. Investment Promotion and Publicity Division: develops, supervizes and conducts promotional and publicity campaigns for the Corporation, in order to arouse entrepreneurial interest, domestic as well as foreign, and to create an increasingly favourable investment climate in Nepal;

5. Administrative and Accounts Division: looks after the day-to-day business affairs of the Corporation.

b. Achievements of the NIDC

During the short period of its existence, the NIDC has promoted and assisted quite a number of industries. The total amount of financial assistance including equity investment increased cumulatively from Rs. 716,000 in FY1959/1960 to Rs. 38.5 million by the end of FY 1963/1964. Correspondingly, the private investment stimulated through NIDC participation increased cumulatively from Rs. 368,000 in FY 1959/1960 to Rs. 48.6 million by the end of FY 1963/1964. Thus, the total industrial investment committed through NIDC participation in the private sector amounts to Rs. 87.1 million.

In its early stages, the NIDC's assistance was mainly for the modernization and expansion of existing industries. Its assistance programme today covers varied industrial fields such as hotel projects, jute industries, sugar, breweries, food processing, textiles, transport organization and power projects.

During the next five-year plan, the NIDC's activities in the industrial field will expand rapidly, as it is able to arouse effectively the interest of entrepreneurs, both local and foreign, supported by an increasingly favourable investment climate primarily due to the stable administration. To give a further fillip to the industrial sector, Rs. 100 million have been set aside in the plan for the private sector, to be provided through the NIDC in the form of loans. The industries not likely to be helped by the NIDC are sugar, food-processing, tea, forest-based industries, textiles, cement, leather, small engineering, and so forth.

c. Problems of the NIDC

Like all development banks in developing countries, the NIDC faces certain difficulties and problems. Being the country's first industrial financial corporation, its present activities are confined simply to borrowing from the Government and other financial institutions on the one hand and investing in long-term loans on the other. One of the major obstacles to mobilizing domestic savings for industrial investment in Nepal is the lack of a capital market. In this respect the NIDC has not yet been able to achieve much success.

Also it is not running on a profit-and-loss basis and this inhibits the sale and purchase of industrial shares and debentures.

d. Proposed industrial development agencies

Adequate institutional facilities are greatly desired to support the increasing industrial activity. More and more special agencies such as development banks, investment centres, productivity and management centres and industrial research centres, designed to promote and assist industries, must be created. The present

activities of the NIDC are sufficiently diverse to suggest the desirability of splitting it into three separate organizations. The essential purpose of this reorganization would be to relieve the NIDC of all its 'non-banking' activities, with the result that the NIDC would begin to show an operating profit. It should then be possible to induce private capital to purchase equity stock of the NIDC, and this change would facilitate the mobilization of domestic savings for capital formation and also the securing of foreign loans.

Three separate organizations have been proposed:

1. The Industrial Development and Productivity Centre,
2. The Industrial District Corporation,
3. The Nepal Industrial Development Corporation.

Relieved of all its 'non-banking' activities, the existing NIDC would carry on its functions as an industrial development bank, concentrating on its banking activities only.

The proposed Industrial Development and Productivity Centre (IDPC) would be entrusted with 'non-banking' activities such as promotional, engineering, technical and market analyses and consultation on productivity and management. These services are currently rendered by the NIDC itself through the Industrial Feasibility Division, the Productivity and Training Division and the Investment Promotion and Publicity Division.

The proposed Industrial District Corporation, as a new subsidiary company, would take over the operation of Balaju and Hetauda Industrial Districts and any other districts brought into existence by the NIDC.

It is proposed to bring these organizations into existence at the beginning of FY 1965/1966, the preparatory work being finished in FY 1964/1965.

e. Small-scale and cottage industries

So far, attention has been focussed on institutional support for the development of medium- and large-scale industry only. To an agricultural country like Nepal, the development of small and cottage industry is equally important. Cottage industries can offer the population fuller employment and an opportunity to supplement their income. With this in mind, the Cottage and Small Industries Department was established in 1945 to promote and assist the development of small and cottage industry.

The establishment of this Department was to initiate a small industries programme throughout the country. However, the Cottage and Small Industries Department was given a new look in 1955 when an agreement was signed between the Government and the Ford Foundation concerning the introduction of measures to check the decline in cottage industries. The cottage industries development programme includes the Kathmandu Valley Cottage Industries Centre, Cottage Industries Regional Development Centres, Cottage In-

dustries Training and Production Centre, the Central Jail and Orphanage Centre and others.

The major development activities under cottage industries are (i) training, (ii) industrial promotion, (iii) assistance in the marketing of handicraft products.

(i) *Training.* This programme was initiated primarily to assist village craftsmen, artisans and small enterprise groups, providing them with training in cottage industries and the technical know-how of production methods.

The training programmes are of three types; general training of an elementary nature for two years, advanced training for one year, and professional training for six or seven months given to artisans. Apart from training, extension programmes have also been launched, with a view to making technical advice available to existing and prospective industries and imparting training to local artisans through a mobile training team. During the current three-year plan, 583 people graduated in different crafts and trades from the Kathmandu training centre and about 1,200 trainees passed through the regional centres.

(ii) *Industrial promotion.* The main activity of the Department in this field is to promote cottage and small industries by providing loan facilities. It also aims at absorbing people already trained by providing them with credit facilities to open up new firms in their villages. During the current three-year plan, a total of Rs. 2.67 million has been loaned to 307 industries, against the target of Rs. 2.5 million to 350 industries.

(iii) *Marketing assistance.* The principal objective of this programme is to provide selling and purchasing facilities to artisans and small industries. Raw materials, machinery and equipment are made available to small industrialists at reasonable prices. The artisans' products are purchased and sold through the Government Sales Emporium.

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT

e. Manpower surveys and the need for trained personnel

Rational planning for economic development in a country and its successful implementation demand up-to-date and exhaustive knowledge of the manpower situation in the country. Practical development plans are generally based upon statistics regarding the current and anticipated manpower resources and requirements in terms of manners, location and occupation, finally upon the consideration of factors influencing the labour market.

In Nepal, the acute need for knowledge of manpower resources was felt only during the formulation of the first five-year plan in 1956. Consequently, at the request of the Government, the United Nations Technical Assistance Administration (UNTA) conducted a manpower survey with the assistance of the ILO in January 1957. Although several attempts to take a census of the population had been made in the

past, a scientific survey of manpower resources was accomplished only in 1957, based, nevertheless, upon the findings of the population census undertaken in 1952/1954.

Table 9 gives an idea of the increase and distribution of population since 1911.

TABLE 9. POPULATION GROWTH AND DISTRIBUTION SINCE 1911

Year	Eastern Nepal	Kathmandu Valley	Western Nepal	Total
1911	x	x	x	5,638,748
1920	2,733,111	367,010	2,437,667	5,573,788
1930	x	x	x	5,532,574
1941	2,828,370	323,336	3,137,407	6,283,649
1952-54	3,755,913	415,637	4,268,241	8,473,478
1961	4,268,868	456,804	4,661,987	9,387,061

Source: Central Bureau of Statistics.

The population of Nepal is at present 10 million. There is no information on the age structure of the current population available. Accepting the proportion found in the 1952/1954 census, 56 per cent of the population are within the age group of 15 to 59 years. Children below the age of 15 make up 39 per cent of the total population. Further classification of the population in terms of economically active and inactive (table 10) shows that 89 per cent of the economically active population are within the age group of 15 to 59 years, and 7 per cent of the economically active population are below 15 years of age. The occupation distribution of population shows (table 11) that about 94 per cent of the economically active persons are engaged in agriculture and less than 2 per cent are engaged in manufacturing. A surplus of manpower is found in agriculture and a shortage in the non-agricultural sector.

TABLE 10. DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION BY AGE AND SEX, 1952/1954

Age group	Male		Female		Active population	
	Number (in '000)	Percentage of total	Number (in '000)	Percentage of total	Number (in '000)	Percentage of total
0-14	146	4	113	3	259	7
15-59	2,192	53	1,516	37	3,708	89
60 and over	122	3	64	1	186	4
	2,460	60	1,693	41	4,153	100

The shortage of manpower in Nepal is not in sheer numbers of people, but in people with the right knowledge and skills. Skilled labour for construction trades, experienced labour for working in newly created industries, managerial talent, engineers, doctors, chemists and other professional people are all in short supply.

In view of the extreme paucity of skilled manpower in Nepal, the emphasis laid on training in the first five-year plan is understandable. The plan pointed out that training, more than any other single factor, would determine the rate at which plans could be translated into action. It estimated that an average of at least 5 per cent of the budget of each department

would be spent on training over the five-year period, and that the percentage during the first two years would be much higher.

TABLE 11. DISTRIBUTION OF ACTIVE POPULATION BY SEX AND OCCUPATION, 1952/1954

Occupation	Male		Female		Active population	
	Number (in '000)	Percentage of total	Number (in '000)	Percentage of total	Number (in '000)	Percentage of total
Agriculture						
Forestry	2,257	54.3	1,626	39.6	3,883	93.9
Fishing						
Manufacturing	53	1.3	27	0.6	81	1.8
Construction						
Electricity	7	0.2	1	x	8	.2
Gas and water						
Commerce	44	1.0	14	0.3	58	1.3
Transport	13	0.3	0.6	0.1	20	.4
Other ^a	86	2.0	18	0.4	104	2.4
	2,460	59.0	1,692	41.0	4,153	100.0

x = less than one-tenth per cent.

^a 'Other' includes services, mining etc.

b. Training programmes in operation

Essentially three steps are being adopted by the Government to eliminate the manpower shortage and to adjust the available labour to the available occupations. The ultimate aim is to transform the existing labour force of the agricultural sector into a well-trained group in non-farming and manufacturing occupations.

The first step is in the field of education. Thirteen years ago, a formal educational system was virtually non-existent in Nepal. Now, Nepal has already 210,000 students in primary schools, 140,000 students in secondary schools and 4,900 students in colleges. Four hundred new primary schools are being opened each year, existing schools are being up-graded, curricula have been revised and modernized and an educational materials production centre has been established with a capacity of 600,000 text books per year. Some 30 under-graduate colleges are now functioning.

With respect to formal or organized instruction for specific applied purposes, twelve institutes are now in operation. In FY 1961/1962, a total of 6,351 persons were receiving training in those institutions. The breakdown of this instruction is given in table 12.

The second step involves the reorganization of agriculture programmes to increase agricultural productivity. For the effective implementation of this policy, a separate department of agriculture with research and extension components has been established. Moreover, a co-operative banking system to stimulate production by providing loans has come into existence.

The third step is a systematic programme of recruitment, linked with education, to effect 'occupational adjustment' from agriculture to the manufacturing sector. There is also a programme for providing compensation and education to children of families working on development projects and so on.

TABLE 12. SPECIALIZED SCHOOLS AND INSTITUTES IN NEPAL

Name	Year established	Number of students in training
Forestry Institute	1958	172
Agricultural School	1957	291
Panchayat Development Institute (formerly Rural Institute)	1954	1,123
Nurses Training School	1956	23
Auxiliary Health Workers School	1958	65
Engineering School	1961	30
Home Science School	1956	90
College of Education	1957	233
Nurses School	1954	2,253
Survey or Training	1958	548
Cottage Industry Training Centres	1957	1,425
Census Training		168
Total		6,351

High-level professional training is also being provided through scholarships and other types of grants to enable Nepalese to pursue courses of study in foreign countries. During the period of twelve years from 1951 to 1963, 872 persons were sent abroad for studies. In FY 1962/1963, alone, 341 persons were sent abroad. The number of students sent abroad for studies during 1951-1963 is shown in table 13.

TABLE 13. NUMBER OF STUDENTS SENT ABROAD FOR STUDIES, 1950 TO 1963

Field of study	Number of students
Medicine	262
Civil engineering	169
Specialized medical subjects	53
Chemical engineering	7
Mechanical engineering	23
Electrical engineering	21
Other engineering	43
Agriculture	183
Veterinary science	39
Forestry	53
Mining	19
Total	872

Source: Three-Year Plan of Nepal.

In addition, job and in-service training has been provided in association with most development projects in Nepal. Another job-training programme is in progress for 3,000 accountants, to revise the government accounting procedure, and one-third have finished their training. In-service training is provided by panchayat development officers. The Public Administration Department has also conducted several courses of instruction attended by workers from various government ministries.

Technical assistance has been provided over the past decade by various foreign governments and organizations such as the United Nations and the Colombo Plan countries, in such fields as education, agriculture, road construction, public health, industrial development, finance and engineering.

All the same, it must be admitted that the manpower programme is still in its infancy. Only a preliminary study of the manpower needed to avoid a bottleneck in the implementation of the plan has so far been made in the formulation of the current three-year plan (1963-1965). The plan classifies technicians into three categories, high grade, middle grade and low grade.

High-grade technical personnel are those who have passed degree courses in engineering and related subjects. Overseers and draughtsmen form the middle grade, while the low-grade technicians are skilled workers such as masons, carpenters and plant operators. Following the example of the first five-year plan, the current three-year plan continues the policy of training middle-grade and low-grade technicians inside the country and sending persons abroad only for high-grade training. The plan estimates of technical personnel requirements in the three-year period are given in table 14.

TABLE 14. TECHNICAL PERSONNEL REQUIREMENTS AND PLANNED AVAILABILITY IN THE THREE-YEAR PLAN PERIOD

Type of technician	Number now employed	Additional number required	Number to be trained in Nepal	Number to be trained outside Nepal
Civil engineers	87	81	—	70
Mechanical engineers	5	13	—	7
Electrical engineers	12	16	—	12
Chemical engineers	2	—	—	5
Electronics engineers	1	2	—	—
Mining engineers	7	6	—	6
Geologists	8	11	—	9
Overseers	202	360	209	77
Agricultural graduates	50	66	—	55
Veterinarians	6	30	—	26
Agricultural diplomas	214	352	380	—
Fieldmen and assistants	36	62	90	—
Forest specialists	37	22	—	6
Rangers	52	62	50	—
Foresters	130	379	150	—
Medical graduates	150	43	—	73
Nurses and midwives	27	69	60	10
Health workers	166	78	169	—
Primary teachers	4,250	2,400	3,000	—
Secondary teachers	215	500	700	—

In addition to this, the NIDC has programmes to conduct training courses on such subjects as supervisory development, method study, corporate accounting, elementary management, executive development and office management, in order to foster supervisory and administrative skills in the private industrial sector.

Table 15 depicts the extent of achievements made during the first two years of the three-year plan (1962-1965).

Through the programme of sending persons abroad for courses of training and higher study on various subjects offered by different friendly nations, some 356 persons were sent in the first two years of the three-year plan to India, Japan, the Soviet Union, the United Kingdom, the United States, and various European countries.

TABLE 15. NUMBER OF PERSONS TRAINED IN DIFFERENT OCCUPATIONS, 1962/1963 AND 1963/1964

Subject	Target of the plan	Number trained in 1962/63	Number trained in 1963/64
Agriculture			
Agriculture and junior technical assistants	365	171	79
Field assistants and fieldmen	90	—	—
Stock peons and supervisors	160	15	60
Forestry			
Rangers	50	24	24
Foresters	150	40	40
Engineering			
Overseers, draughtsmen	290	40	50
Health			
Nurses and midwives	60	12	36
Health assistants	198	20	—
Education			
Primary school teachers	3,000	481	787
Middle school teachers	700	138	62
Cottage Industry			
Training from Cottage Industries Training Centre	2,000	124	1,015
Panchayat			
Panchayat workers	1,500	728	351
Co-operative Development			
Co-operative officers	180	21	60

Since the draft outline of the second five-year plan (1965-1970) is under preparation, it is legitimate to deal briefly with some of the programmes and policies envisaged by the Government with regard to manpower requirements and measures to be adopted to meet them.

It is noteworthy that the proposed plan recognizes the shortage of skilled manpower that may constitute a bottleneck to the effective implementation of the industrialization programme. The training programmes in industry, as scheduled in the plan, are as follows:

Training in Cottage Industries Centre. Number of modern crafts (13)	200 trainees/year
Training in Balaju Yantra Shahla Subject — mechanical training	10 trainees/year
Training in Biratnagar Workshop Subject — mechanical training	10 trainees/year

Moreover, the plan proposes that the work initiated to establish a training centre in the following crafts with the assistance of the Government of the Federal Republic of Germany be completed and the centre commissioned:

Subject	Duration	Number of trainees/year
Automechanics	3 years	18
Telecommunications mechanics	3 years	14
Plumbing and sheet-metal mechanics	3 years	18

The plan provides for the following number of persons to be sent for training abroad:

Subject	Number
Mechanical engineers and overseers	150
Civil engineers and overseers	150
Electrical engineers	50
Chemical engineers	50
Textile technologists	28
Paper technologists	15

Cement technologists	10
Leather technologists	9
Pharmacists	6
Metallurgists	2
	470

The number of personnel required for the implementation of private sector industrial projects proposed in the next five-year plan is 10,446. The breakdown of the personnel required is shown in table 16.

TABLE 16. PERSONNEL REQUIREMENT FOR PRIVATE INDUSTRY PROJECTS IN THE SECOND FIVE-YEAR PLAN

Category	For industries which may be established in the next few years	For conditional industries	Total
Unskilled	2,933	159	3,092
Semi-skilled	1,881	119	2,000
Skilled	2,133	221	2,353
Engineers ^a	333	5	338
Supervisors ^b	680	10	690
Clerks	681	19	700
Plumbers	219	1	220
Steam fillers	43	1	44
Blacksmiths	10	1	11
Electricians	282	1	283
Welders	77	1	78
Sheet metal workers	55	1	56
Automobile mechanics	186	2	188
Lathe operators	25	1	26
Carpenters	67	1	68
Instrument technicians	30	1	31
General mechanics	171	2	173
Boiler plant operators	81	2	83
Tool crib clerks, technical	9	1	10
Total	9,896	550	10,446

^a Includes specialists also.

^b Includes managerial staff also.

The training programme presently being carried out will be expanded and training for the following categories will be introduced in a new technical school:

machine operators	turbine operators
electricians	carpenters
welders	
boiler mechanics	fitters
general mechanics	

Private industry will also be assisted to organize on-the-job training through the provision of training experts. The engineering school will be expanded and better equipped, and will organize courses on electrical and mechanical engineering (junior level). The estimated personnel requirements for industry in the second five-year plan period are shown broken down by industries in table 20.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

a. Existing industries

The growth of organized industries in Nepal may be traced back to a few years before the Second World War. It was primarily due to private enterprise, but

generally resulted from unusual concessions and facilities provided by the Government, and temporary stimulants such as war-time scarcities. The past three years have been a period of gradual modernization of the existing big industries, but a number of foreign-aided industries such as cigarette, sugar and shoe factories and a tannery have also been established in the public sector.

The first joint stock industrial enterprise to be launched was the Biratnagar Jute Mills in Biratnagar in 1936. It is now the most important industrial concern in Nepal. Started with 156 looms and a capital of Rs. 800,000 in ordinary shares and a corresponding amount of debentures, the Jute Mills received great impetus during the Second World War. The company's prosperity continued until 1951. Losses started after 1951, however, as a result of internal disorders such as labour disputes, and the disappearance of the favourable conditions created by the war. Moreover, the prices of jute and jute goods fell in 1952. In fiscal year 1952/1953 alone, losses were estimated at more than Rs. 1 million. However, the programme of expansion started in 1947 has continued more intensively in the last three years.

The second jute mill, Raghupati Jute Mills Limited, was started in 1946 with an authorized capital of Rs. 10 million. From the very beginning, this mill saw quite frequent changes of management until 1953, when the Government took it over. At first production did not increase due to various adverse circumstances, and in January 1960 the management of the mill was entrusted to an OPEX manager from the United Nations. In August 1961, the Government accepted a plan for improvement and expansion, and the mill has since operated quite satisfactorily under entirely new management. The first dividend was declared recently to shareholders for the fiscal year 1962/1963. This mill has now 126 looms as against 63 in 1958 and the average daily production is now 18 tons compared with 6 tons in 1958.

The production of jute goods (hessian, sacking and twine) over the last few years has been as follows:

Year	Production (tons)
1957/1958	13,039
1958/1959	14,493
1959/1960	15,277
1960/1961	13,744
1961/1962	14,870
1962/1963	15,089
1963/1964	17,015

In spite of certain improvements in recent years, the jute industry in Nepal has had to face certain problems. First, there is the general problem of rapid expansion and renovation of the jute industry, which was started in the post-war period. As this industry in Nepal is more dependent on the foreign market, it would be highly desirable to modernize and equip it

with up-to-date machines. Secondly, the management has also been defective in some respects from the beginning. In addition, there have been difficulties regarding technical personnel, the availability of raw materials from time to time, and the extension of the market.

However, conditions have considerably improved during the last three or four years. The leadership provided by the Government in industrial development has had marked success.

The match industry is also dependent on local raw materials. The Juddha Match Factory Limited was started in 1942 in Birgunj with an authorized capital of Rs. 10 million. A branch factory was later opened in Biratnagar with an authorized capital of Rs. 500,000. In the very first year of operation, this mill showed a profit, and so far it has maintained a tradition of high dividends, seldom below 10 per cent. It has been working quite independently since 1950, and, as it is a small unit, it is undergoing a process of expansion.

Being the first purely Nepalese venture with indigenous capital and labour the match factory's success has been a continuous source of inspiration for the establishment of a number of similar industries in Nepal.

In fact, the abundance of semal wood at Pokhara in western Nepal led to the establishment of another match factory in early 1957, but as a result of certain major difficulties such as transport, this factory has not succeeded so well.

The sugar industry also generally concentrated in the neighbourhood of cane-growing area. The Morang Sugar Mills at Biratnagar started production in 1948/1949. Though some losses were incurred in the initial stages because of the high cost of production, there has been slow but steady progress. Some of the formidable problems of this industry in the way of expansion and development relate to the shortage of cane and technical inefficiency.

The Birgunj Cigarette Factory Limited was set up in 1947 at Birgunj, and was subsequently expanded. However, the product has invariably been of low grade. A cotton textile plant was set up at Biratnagar in 1942. A number of medium-sized rice and saw mills have been working in various places in the Tarai region. Some mineral-based industries have also been set up on an experimental basis.

However, in view of the unsatisfactory conditions of these industries, the three-year plan set out to improve and modernize them, and to increase their production. Details of the existing industries are given in table 17, and the trend of production from 1961 to 1964 in table 18.

b. New industries being planned

Thanks primarily to the stable administration and attractive industrial policy, the investment climate has improved steadily in Nepal and industrial investment

TABLE 17. EXISTING INDUSTRIES IN NEPAL

Name	Location	Authorized capital (Rs.)	Paid up capital (Rs.)	Capacity
Raghupati Jute Mills	Biratnagar	10,000,000	4,613,595	12.5 tons
Biratnagar Jute Mills	Biratnagar	5,200,000	4,932,150	40/45 tons
Morang Cotton Mills	Biratnagar	2,200,000	1,442,597	1.4 million lb yarn and 6.3 million yd. textile a year.
Bobbin and Plywood Factory	Biratnagar	950,000	652,429	20,000 sq ft plywood 25 gross bobbins
Juddha Match Factory	Biratnagar	500,000	500,000	1,000 gross
Juddha Match Factory	Birgunj	500,000	500,000	700 gross
Nepal Cigarette Factory	Birgunj	3,000,000	794,690	1.2 to 1.5 million sticks per year
Morang Sugar Mills	Birgunj	1,400,000	1,279,975	200 tons
Hydro-electric Company	Birgunj	1,500,000	1,279,950	160 kW

TABLE 18. TREND OF INDUSTRIAL PRODUCTION, 1961 TO 1964

Industry	Unit	1961/1962	1962/1963	1963/1964
Jute	Tons	15,034	18,534	12,462 (7 months only)
Sugar	Mauinds	70,000	46,317	43,092
Cigarettes	500 sticks	258,054*	221,542	374,182
Matches	Gross	295,609	382,162	397,529 (contains figures for only 9 months for one factory)

* This understates actual production because the output figures for one factory are not available.

has been rising gradually. The third five-year plan, in a more determined effort to intensify the process of industrialization, allocates Rs. 410.5 million, or 20 per cent of the total plan outlay to the industrial sector. Of this, Rs. 300 million is for the private sector and Rs. 110.5 million for the public sector. These financial allocations demonstrate the increasing emphasis laid on the private sector in the development of industry. A list of possible industries for the private sector, with their estimated capital investment, planned production capacity, and other items is given in table 20. Of these new industries being planned, some of the big projects will be initiated in the plan period only if certain conditions are fulfilled, the most important of them being the development of transport and power. It should be mentioned here that, since the private sector is freely granted licences for any feasible project, the actual development need not necessarily tally with the projected programme. This is just a forecast of the likely development of the private industrial sector.

The second five-year plan also emphasizes, in a more pronounced way, the development of industries in the private sector. The industries to be established in this sector are jute, cotton and woollen textiles, cement, paper, forest-based industries, soap and other consumer goods industries. Most of this production is intended to replace the present heavy imports of consumer goods.

The industries being planned in the public sector are mainly those in which the interest of private investors is found lacking, but which are important for development. Some of them are basic industries such as nitrogenous fertilizer, agricultural tools and cement. A list of these industries is given in table 19.

TABLE 19. INDUSTRIES LIKELY TO BE ESTABLISHED IN THE PUBLIC SECTOR DURING THE SECOND FIVE-YEAR PLAN PERIOD (1965-1970)

Industry	Projected cost (1,000 Rs.)
Cement	35,000
Industrial district	20,000
Nitrogenous fertilizer	10,000
Agricultural tools	5,000
Distillery and power alcohol	5,000
Limestone	3,000
Brick and tile	2,500
Soapstone	2,000
Mica	500

IX. EXPORTS OF MANUFACTURED GOODS AND SEMI-MANUFACTURES

a. Present balance of trade

There are no complete balance of payments data for Nepal. However, the position of the foreign exchange holdings of the Nepal Rastra Bank (Central Bank of Nepal) shows that Nepal has a favourable balance of payments. Including Indian currency, the foreign exchange holdings of the Nepal Rastra Bank increased by the equivalent of Rs. 94.7 million from mid-July 1963 to mid-July 1964. In the year mid-July 1962 to mid-July 1963, the corresponding increase was only Rs. 33.0 million. These figures indicate that the balance of payments position of Nepal has been improving.

Data on foreign trade are available for the eight years from FY 1956/1957 to FY 1963/1964. The open frontier with India extending over 500 miles and the frequency of barter in the border regions make it most difficult to obtain accurate trade figures. Record-

TABLE 20. PRIVATE INDUSTRIES LIKELY TO BE ESTABLISHED IN THE SECOND FIVE-YEAR PLAN PERIOD (1965-1970)
(value in thousand rs.)

Industry	Number of units	Estimated total fixed capital	Estimated investment in plant and equipment		Planned production capacity	Estimated employment	Planned year of operation	Expected value of substituted exports	Expected value of exports
			T-2	Foreign currency					
Agriculture-based									
Sugar	2	49,000	32,500	13,000	19,500	720	1966	406	
Fruit-canning and preservation	4	1,000	700	280	420	80	1966	m.a.	
Brewery and distillery	4	5,000	3,300	1,320	1,980	100	1967	—	1,860
Rice and flour mills	10	7,500	5,000	2,000	3,000	1,000	1966	n.a.	
Oil mills	5	2,500	1,600	640	960	250	1966	n.a.	
Tea factory	1	800	500	200	300	—	1967	716	
Forest-based									
Pulp and paper	1	95,000	60,000	24,000	36,000	340	1970	3,620	32,600
Saw mill and furniture	13	10,000	7,000	2,800	4,200	1,160	1966	—	10,000
Plywood and chipboard	3	8,000	5,000	2,000	3,000	400	1967	1,050	
Pharmaceuticals	3	3,000	2,000	800	1,200	60	1968	3,000	
Rosin and turpentine	2	1,200	800	320	480	—	1968	n.a.	
Textile									
Jute	2	50,000	30,000	12,000	18,000	4,050	1959	—	
Cotton	2	30,000	20,000	8,000	12,000	1,100	1966/1968	20,000	
Woolen	1	1,500	1,000	400	600	150	1967	1,300	
Hosiery	5	1,000	700	280	420	100	1967/1969	—	
Chemical									
Soap	15	3,000	2,000	800	1,200	150	1966/1970	950	
Paint and varnish	2	1,000	700	280	420	200	1967/1969	—	
Tin and glass containers	2	1,370	900	360	540	160	1967/1969	1,374	
Mineral-based									
Cement	3	55,400	40,000	16,000	24,000	4,500	1968	22,300	
Mines and minerals	5	3,000	2,000	800	1,200	100	1967/1969	—	
Engineering									
Auto mechanic workshop	5	3,000	2,000	800	1,200	250	1966/1968	—	
Foundries	2	600	400	160	240	100	1967	—	
Re-rolling mills	1	2,000	1,300	520	780	100	1967	—	
Leather									
Shoes and tannery	3	3,000	2,000	800	1,200	500	1967/1969	100	
Hotel									
Hotel projects	2	42,000	28,000	11,200	16,800	500	1967/1970	4,930	
Miscellaneous									
Cold storage	1	2,000	1,300	520	780	100	1967	500	
Electrical goods	4	350	233	93	140	1,500	1966	—	
Other	150	14,200	9,500	3,800	5,700	1,500	1966/1970	—	

ed information on foreign trade covers only part of the total exports. At present, approximately 90 per cent of recorded imports originate in India, and about 95 per cent of recorded exports go to India, except for a small amount of trade with Tibet, all other exports and imports pass through India. The foreign trade policy of Nepal is designed to achieve a greater degree of diversification of both exports and imports by increasing trade with countries other than India.

Imports of goods originating in India are free, while other imports require import licenses from the Ministry of Commerce. The Ministry of Commerce checks the import applications on the basis of the list of goods in the import programme set by the Foreign Exchange Committee and approved by the Government. The granting of import licences for industrial machinery is also governed by the industrial priority list set forth in the development programme. When an import licence has been obtained, the importer has to apply to the Ministry of Finance for foreign exchange to pay for the import. The authorities issue import licences until quotas are filled on a "first-come-first-served" principle. No discrimination is involved in the granting of licences. The issuing of import licences to approved industries is more or less automatic.

Imports and exports are subject to four customs tariffs, one for Tibet, one for India, one for most-favoured nations, and one for other countries. The most-favoured nations mentioned in the customs tariff schedule are mainland China, Pakistan and the United States of America. A bilateral trade and payments agreement between Nepal and Pakistan was signed in 1962, providing for the settlement of payments between the two countries through a clearing account in inconvertible Pakistan rupees. According to a provisional payments arrangement between the Nepal Rastra Bank and the People's Bank of China, payments between the two countries are made through an open account in pounds sterling. A trade agreement has also been entered into with the United States of America. It is the policy of the Government to negotiate additional trade and payments agreements. Private barter trade has taken place with Poland. Nepal has also entered into a trade agreement with mainland China and trade agreements with some other countries are being arranged.

b. Exports of manufactured goods and semi-manufactures

Nepal being preponderantly an agricultural country, its total exports consist largely of primary goods. About 60 per cent of its GNP comes from the agricultural sector. The industrial sector contributes a very small proportion of the GNP. Manufactures therefore represent only an insignificant fraction of total exports.

Land-locked between two big countries, China in the north and India in the south, Nepal is not free

and open to trade with the remote countries of the world. Trade routes to the north are much more difficult because of the topographical conditions, those in the south are more convenient for all practical purposes. Trade with the other parts of the world is possible only through India. Traditionally, therefore, the bulk of Nepalese trade has been with India. In fact, trade with India constitutes at least 95 per cent of Nepal's total trade.

The major exports from Nepal consist of a large group of primary goods such as jute and jute goods, rice, ghee, mustard, rape seed, wood and timber, medicinal herbs, hides and skins, oilseeds, and tobacco. The country's total exports are, however, small in comparison to the heavy imports.

The major imported items are textiles, salt, cigarettes, mineral oils, iron and steel, other metals and metal manufactures, cement, drugs and medicine, sugar, tea, motor vehicles and machinery, vegetable oils, soaps and a variety of other articles of daily use.

The volume of exports and imports for last eight years is shown in table 21.

TABLE 21. VALUE OF EXPORTS AND IMPORTS,
1956/1957 TO 1963/1964
(million rs.)

Year	Exports	Imports	Balance
1956/1957	95.4	169.8	74.4
1957/1958	73.3	158.3	85.0
1958/1959	117.9	223.3	105.4
1959/1960	131.7	287.5	155.7
1960/1961	209.7	397.9	188.2
1961/1962	281.2	454.1	172.9
1962/1963	379.7	577.0	197.3
1963/1964	500.0	700.0	200.0

Source: Central Bureau of Statistics.

The figures given in table 21 indicate the chronic deficit of trade, and the fact that both exports and imports have been increasing steadily, except in 1957/1958. In addition to the recorded trade, there is a substantial volume of unrecorded transactions, so actual trade will be much larger than the recorded figures. These figures relate to visible trade only and the invisible trade, which is in favour of Nepal, is not included.

The unfavourable balance of trade may be attributed to several factors. First, agricultural output, which has provided the major items of export, has not yet expanded sufficiently to augment the marketable surplus. Second, the heavy imports of consumer goods have yet to be substituted by local production. Last, the export promotion policy recently pursued has not yet quite succeeded in boosting the country's exports to the desired extent.

As a dynamic economy deliberately moving with ever-increasing development activity towards a high level of economic growth, Nepal has considerable scope for expanding its international trade. At present, however, the only manufactured goods exported

from Nepal are semi-finished jute goods. There are no export-oriented industries, not even industries primarily designed to substitute imports. During the period of the second plan, the Government achieved a breakthrough in overcoming stagnation in the industrial sector. Quite a few modern industries both in the public and in the private sector were established. As figures on exports of primary goods in terms of quantity are not available, it is assumed that 90 to 95 per cent of total exports go to India.

To take advantage of the exploitable industrial raw materials in the country, the coming five-year plan provides for the establishment of new industries in the public and private sectors. Among the industries that offer reasonable prospects in Nepal are jute, paper and pulp, cotton textiles, cement, plywood and hardboard, rosin and turpentine, drugs and pharmaceuticals, beer and soft drinks, fruit preservation and canning, and so forth. The establishment of these industries will have a marked influence on the pattern of trade, as well as on the economic situation of the country.

The aim is for these industries to manufacture export goods on the one hand and to substitute the present heavy imports of manufactured goods on the other. Emphasis is to be given to the development of light consumer industries. Some of the export-potential industries likely to be established during the forthcoming five-year plan period are listed in table 22.

TABLE 22. INDUSTRIES SCHEDULED FOR ESTABLISHMENT DURING THE SECOND FIVE-YEAR PLAN

Industry	Projected capacities per annum	Target dates
Jute	15,000 tons	1970
Plywood and hardboard	1,500,000 sq ft	1966
Fruit canning and preservation	87,000 bottles squash 29,000 bottles jam	1967
Brewing and distilling	250,000 Brewery gats 600,000 Distillery gats	1966
Paints and varnish	1,000 tons	1966
Pulp and paper	15,000 tons	1970
Rosin and turpentine	48,000 tons turpentine 21,000 tons rosin	1968

No efforts have yet been made to devise measures for standardization and quality control of industrial products for export. Laws and regulations in this respect are being laid down and the organizational structure to implement these measures is being established. Measures for more determined export promotion will also be taken in the coming five-year plan period.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING AND PROMOTING EXPORTS OF MANUFACTURED PRODUCTS

a. Broad strategy of action

The Government has assigned an important role to the private sector to accelerate industrialization in

Nepal. As domestic savings are inadequate and are channelled to investment too slowly, Nepal has invited foreign capital by providing the necessary foreign exchange provisions, tax concessions, equality of treatment between foreign and Nepalese nationals, facilities for the repatriation of profit and invested capital, and other facilities. Indian capital is participating in a textile mill, a woollen yarn factory and a sugar mill. Industrial development is not possible without the necessary infrastructure, such as transport and power facilities, technical and skilled manpower. In these fields, Nepal lags behind considerably. Development plans in Nepal have given higher priority to transport, communication, power and social services.

Of the total outlay of the three-year plan, 34 per cent was allotted for transport, communication and power; the next five-year plan proposes to allocate 44 per cent of the total outlay to those sectors. The construction of 1,000 miles of road is scheduled during the next five-year plan period, and the installed capacity of electric power is to be increased by 35,000 kW.

In the next five-year plan, the industrial development programme will be directed both towards increasing the capacity of various industries and towards the fuller utilization of existing capacity. Emphasis will be given to the establishment of consumer goods industries and industries that will help to expand exports and earn foreign exchange, and also industries that make use of domestic resources. In the next five-year plan, a total of Rs. 110 million has been allotted in the public sector for industry. The following industries will be established in the public sector:

- Agricultural implements factory
- Brick and tile factory
- Cement factory

In addition, the capacity of the Government-owned Timber Corporation will be expanded. Industrial estates will be established at five different places and industrial surveys will be continued to provide a basis for planned and effective utilization of the national resources.

Greater financial and technical assistance will be provided to the private sector. The industrial programme in the next five-year plan calls for Rs. 300 million in the private sector. Through the Nepal Industrial Development Corporation, the Government will provide loans amounting to Rs. 100 million to private entrepreneurs.

It has to be admitted that Nepal does not possess the required resources of technical know-how for the promotion of industrial growth to a desired level. It needs technical and financial assistance from international organizations and developed countries for the success of its industrial programme; of particular interest are joint ventures, by which technical and managerial know-how could be made available, in addition to the much-needed capital.

The Government of Nepal has designated the NIDC as the agency to conduct surveys of industrial raw materials, and to undertake pre-investment studies of possible industries. With the collaboration of foreign agencies the NIDC has a programme to undertake feasibility studies on paper, plywood and chip-board, ropeways and glass products. Feasibility studies on a large number of medium- and small-scale industries, such as jute twine and rope, a tannery and bone mill, a re-rolling mill, a brewery, cold storage, straw-board, soap, lime, handmade paper and so on, will be undertaken almost wholly by NIDC personnel. Preliminary studies will also be undertaken on tea, tin-containers, ghee and integrated oil mills. Shortage of capital and shortcomings in entrepreneurial and managerial talents are the basic factors to be overcome in Nepal. These deficiencies can be removed by the establishment of joint venture industries. In 1960, Nepal signed an Investment Guarantee Agreement with the United States in order to encourage the inflow of private investment from that country.

b. External assistance needed

1. Joint ventures

Resources investigations and surveys have been started recently, as effective planning for the utilization of resources is at present very much restricted to a few known resources, of which forests, hydropower and tourist trade are the major ones. Based on these, we can suggest a list of industries for which joint ventures would be highly beneficial to Nepal. The industries proposed for joint ventures, along with the financial requirements, production capacity and probable sites, are shown in table 23.

TABLE 23. INDUSTRIES PROPOSED FOR JOINT VENTURES

Industry	Estimated fixed capital required ('000. Rs.)	Production capacity	Location
Cement	55,400	60,000 tons	Hetauda and W. Nepal
Pulp and paper	95,000	1,500 tons	Jhapa
Fertilizer	10,000	1,000 tons	Birgunj
Jute textile	50,000	7,500 tons	Jhapa and Saptari
Pharmaceuticals	3,000	—	Kathmandu and Butwal
Tourist hotel	42,000	300 rooms	Kathmandu and Pokhera
Transport services	12,000	240 trucks (5 tons)	Birgunj, Nepalgunj and Kodari
Power projects	5,000		

In establishing industries through foreign collaboration, it would be desirable for Nepal to receive the machinery, equipment and technical know-how from the foreign sources, and the entire portion of the local cost would then be financed by the local agencies. This sort of arrangement would solve the double-edged problem of shortage of foreign exchange and lack of technical know-how.

Other import-substituting industries in which joint ventures would be welcome are textiles (woollen and cotton), paints and varnish, toilet soap, breweries and cosmetics.

2. Manpower surveys and training

External assistance is also needed in manpower training, the requirements in this field are fully discussed in chapter VII.

3. Facilities for fellowships and in-plant training

In view of the large number of prospective industrial ventures during the period of the second five-year plan, the need for a number of technical experts and specialists is acutely felt by the planning body in Nepal. Indeed, the supply of technical experts determines the extent to which the plan can be successfully carried out.

An attempt is made in table 24 to assess the need for specialized skills that will be needed for the planned industrial programme in the five-year period.

TABLE 24. REQUIREMENT OF SPECIALISTS IN THE THIRD FIVE-YEAR PLAN PERIOD

Subject	Number
Mechanical engineers	75
Civil engineers and architects	75
Electrical engineers	50
Chemical engineers	50
Textile technologists	10
Paper technologists	8
Cement technologists	10
Leather technologists	4
Food technologists	4
Metallurgists	4
Tobacco technologists	2
Chemists and tobacco blenders	2
Miscellaneous	6
	300

The number indicated in this table refers to training that has to be imparted outside the country, and the provision of training fellowships through United Nations agencies or by more advanced countries would be most welcome.

4. Institutional support

It is now widely recognized that international co-operation can speed up the pace of industrialization in a developing economy at a rate never imagined by an isolated economy.

Like most developing countries, Nepal has had to face some basic problems, such as the paucity of technical know-how and the shortage of foreign exchange with which to buy the necessary capital equipment. Consequently, Nepal has adopted a policy which is attractive to foreign capital investment and has offered all possible facilities and privileges. The effort of the capital-importing country should be supplemented by that of the exporting country, which could encourage its entrepreneurs to invest abroad by insuring them

against war and political risks, and by providing special tax and credit advantages and so on.

Yet another way of helping developing countries is to help them organize themselves, which is sometimes more effective than direct grants or outright gifts. The aim should be to assist and encourage the countries towards self-reliance and self-support. Outside help should be provided as far as possible on an *ad hoc* basis, as the need arises. Institutional support to mobilize domestic resources and invest them in sound ventures should prove more effective than random grants.

Obviously one of the effective ways of helping Nepal to industrialize quickly is to organize and strengthen by all available means the institutional framework for developing and supporting industries in Nepal. Notable institutions in Nepal are the Nepal Industries Development Corporation, the Department of Cottage and Small Industries, the Co-operative Bank and the Sajha.

5. Foreign markets

Overseas exports from Nepal at present are insignificant and consist of jute, curries and a few other commodities. About 95 per cent of the exports go to India. Steps have been taken only recently to diversify the foreign trade of Nepal, and the next five-year plan provides for the establishment of a large number of industries in the private sector. As the domestic market is small, Nepal will need foreign markets for the finished goods when these industries start production. In most cases, exports to India will continue. Overseas markets will be needed in the course of the next few years for the following manufactured goods:

- Pulp and paper
- Brewery and distillery products
- Jute textiles
- Sugar
- Shoes and leather goods

XI. SUGGESTIONS FOR INTERNATIONAL CO-OPERATION

In order to accelerate the development of the economy of any particular country or of the region as a whole, Nepal feels that the co-operation now obtained between the developed countries and the developing ones on an official level could be augmented

by similar collaboration on a non-official level. This could be achieved in the fields of industry, commerce, transportation and power. Collaboration on the part of private capital between the developed and developing countries would go a long way towards meeting the shortage of capital and technical know-how in the developing countries. Such collaboration could be achieved by the foreign investor providing machines and equipment wholly or in part, as the case may be, and the local investor meeting the entire local currency cost of the enterprise. This would help the balance of payments of the developing countries and at the same time assist them in producing quality goods with the help of the foreign experts.

Another suggestion would be to examine the possibility of associating capital from different countries of the region in a single big enterprise. The products of such an enterprise could then, after providing for home consumption, be exported to the countries of the investors also.

Other fields for mutual co-operation could be the establishment of a common investment and trade centre working for the benefit of a group of developing countries and joint ventures supplying the needs of a number of countries by processing imported raw materials and/or assembling imported components. In this way, petroleum refineries could be constructed and vehicles, newsprint and like products could be promoted. The possibility of arranging the mutual exchange of specific regional products or of establishing a marketing "pool" could also be explored.

Co-operation among countries of the region as well as between developed countries in matters of trade on the lines suggested by the developing countries at recent international conferences would be another great step forward towards the common objective of accelerating the economic growth of developing countries.

The third field in which collaboration could be useful, at least for a country like Nepal where transportation is difficult and where cheap hydro-power could be produced, is the field of cheap and quick transport undertakings and the establishment of hydro-power stations. Collaboration in those sectors would accelerate trade and industrial development within the country.

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A COUNTRY STUDY ON NEW ZEALAND

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning and programming

Industrial development in New Zealand has not been implemented through specific, fully co-ordinated plans, nor through a system of indicative planning. The objective of successive Governments over the last 20-30 years has been to create and maintain a climate which encourages the growth of a more balanced, less vulnerable economy in a context of maximum use of domestic material and human resources.

To achieve this objective, the Government has employed a combination of measures, both fiscal and monetary, including regulation of imports, and has provided for and promoted the continuing development of an adequate infrastructure. In addition, in 1963 the Government adopted a set of guidelines for the development of new industries. Where possible the Government endeavours to ensure that industrial expansion is in accord with the intent of these guidelines.

Thus, the Government does not fix broad or sectoral levels of investment and output, but acts to stimulate growth and within limits to influence its direction.

Within this framework the private sector is free to make its own plans and projections. These plans are not necessarily communicated to other industries nor to the public sector.

b. The machinery for planning, implementation and evaluation

In the New Zealand setting there is a need to distinguish between policy measures adopted to provide broad guidelines for industrial development and those to direct rather than induce the growth of specific industries or the development of industrial resources. Instances of specific planning relate to few sectors of the economy, and then only to State activities.

An example of planning by the public sector is the projected output of hydro-electricity. The generation of electric power is a function of the Government, the generating system being operated and administered by the New Zealand Electricity Department. Power is transmitted to main substations and

Note: Money values are expressed in pounds, the exchange rate being £NZ1 = US\$2.78, except where otherwise specified.

is distributed by various electrical supply authorities to consumers. Each year the electrical supply authorities prepare estimates of their power requirements for the five years ahead. These estimates are supplied to a committee which collects the figures and submits the estimated total energy and power requirements for each year to the Power Review Committee. This committee also has the use of separate estimates by the Government Statistician who analyses demand trends for separate classes of consumers. It extends the estimates supplied to it for a further period of five years and in due course reports to the Government. Thus each year revisions are made in the light of experience and of estimates published of the probable power needs for the ensuing ten years. The estimates of power needs are submitted to a Planning Committee on electric power development. This committee reports to the Government on progress made in new power developments and related matters and/or on adjustments to previous plans. By this process an annual review is made of the power development programme to meet the growing power needs of the country. A building programme to meet the power needs is then drawn up. This is integrated into the three-year public works programme. A massive ten-year power development programme estimated to cost £483.3 million (\$1,353.24 million) was recommended in 1964 by the Planning Committee and accepted in principle by the Government. The Planning Committee considered that this was the minimum expansion necessary if expected demand was to be met in 1975.

Long-term planning is also essential in the forestry sector. This is undertaken by the New Zealand Forest Service which works on some aspects in conjunction with the private sector. The State encourages adequate planting programmes and the full utilization of the timber available to private enterprise as well as undertaking activities in these fields itself. A survey of timber resources was undertaken by the New Zealand Forest Service in 1963 and on the basis of the findings plans are now being made to meet expected heavy local and export demands in the future.

The Ministry of Works is the agency responsible for the government works programme, which involves the design and construction of State housing, schools, railways, river control, land development and soil conservation. This vast programme involves discussion and negotiation with relevant departments and interested bodies in the private sector to determine

priorities in the provision of their physical requirements. Not only bridges, roads, and power cables, which are all part of the essential infrastructure for an increasingly productive and diversified economy, but also the schools and the higher education institutions, to give the grounding for increased productivity, must be taken account of in the public works programme so that there is an element of forward planning involved.

The Education Department is also responsible for projecting its needs. To meet the more specialized needs of a growing industrial society, the Government gave its approval in January 1964 to a five-year rolling programme involving the expenditure of £7 million (\$19.5 million) on land, buildings and equipment for polytechnic colleges. To enable this programme to be carried out, the Government established the Technical Institutes' Works Committee. In addition, the responsibility for advising the Government on present and future needs for technical education has been placed with the New Zealand Council for Technical Education.

The Government considers specific proposals for manufacture in New Zealand, mainly when additional import licences are required, but also at times when assistance of a special nature (e.g. development of a steel industry) is called for. Such proposals are examined in the light of the criteria for industrial development recommended to the Government by the Tariff and Development Board. The major objective of these criteria is to ensure that the projected undertaking will be operated on a viable basis. In carrying out this function, Government is able to exert some influence on the course of industrial development.

The Tariff and Development Board reports to the Government on all matters referred to it by the Minister of Industries and Commerce or the Minister of Customs. These matters cover a wide range of topics involving the customs tariff and industrial and economic considerations. For instance, the Board has examined the need to protect the woollen textile industry, and the need to control hire purchase transactions and their relation to industrial development.

The extent to which New Zealand can promote industrial growth through tariff protection is limited by certain contractual arrangements. As a member of GATT, New Zealand has negotiated bindings on the most-favoured-nation tariff for various items and if, because of industrial development, it wished to increase tariffs on any bound items, negotiations on compensating items would have to be held.

New Zealand has a three-column tariff with the Commonwealth, most-favoured-nation and general rates. Under its trade agreement with the United Kingdom, New Zealand has granted the United Kingdom margins of preference between the British preferential and most-favoured-nation rates of duty of 5 per cent, 7½ per cent and 10 per cent. These

margins can be altered only after consultation between the two Governments. Separate trade agreements which include some specific tariff provisions also operate between New Zealand and Australia, Canada and Malaysia but generally British preferential tariffs are extended by New Zealand to all British Commonwealth countries and Colonial territories.

The direction and rate of industrial development is also to some extent pre-determined by import licence allowances. Each year a committee of officials from the Treasury, the Department of Industries and Commerce, the Customs Department, the Statistics Department, and the Reserve Bank estimates how much can be spent on imports. This is based on expected export earnings, other receipts, payments for invisibles, the level of reserves and the amount of imports necessary to keep the economy going and to maintain living standards. This estimated sum is then allocated among items by the Department of Industries and Commerce and the Customs Department and a schedule is prepared giving the basis on which licences will be granted. Domestic consumption and the raw material and capital equipment needs of industry are taken into account in working out the amount allocated for imports. Both the estimate of total import expenditure and the proposed import licensing schedule are submitted to the Cabinet for approval.

For most of the items for which import licences are granted, the allocation is made on the basis of a percentage of the licence received in a moving base year. Applications for licences in excess of the basic allocation are considered individually. Some items are exempt from licensing and their number has been increasing in the last few years; such items now constitute over 30 per cent of imports. They are mainly raw materials for industry and bulk commodities. Some examples are tea, cocoa beans, coffee beans, sugar, fuel, oils and cotton piecegoods.

The schedule is published several months before the licensing period to give importers an opportunity to study it and to arrange their buying and production programmes. During the year, adjustments may be made to the schedule in view of the balance of payments and the supply and demand position. A budget is set aside to meet the needs of manufacturers and a special budget is allocated for machinery and materials for approved new projects.

Clearly, in some industries, where domestic production is either on a very small scale or in the hands of a few major manufacturers, the task of consulting with New Zealand industry about the capacity to meet domestic demand in the coming years is relatively easy. In others, where manufacture is both geographically widespread and shared by many firms, the exchange of information is more difficult. Fortunately, however, main industries are organized into associations of one kind or another and the department is able to hold discussions with industry representatives rather than individual firms.

For example, the woollen mills have a group organization which prepares, a year in advance, a detailed programme of the investment in new or replacement plant that they would like to undertake. This programme is appraised by officers of the Department of Industries and Commerce who have specialized knowledge of the textile industries; meetings are held with the mill owners; and, if necessary, visits are made to the mills to assess the need for new plant. Finally, a plant investment programme is agreed upon and the department recommends to the Minister the volume of funds which it considers should be set aside to meet these requirements. Through this liaison and consultation the department is kept fully informed of developments in the mills and the owners are made aware of the directions in which the Government would like to see development take place. If, for example, the department considers that a particular mill could develop its top-making or its spinning capacity it can encourage the mill to install appropriate equipment and set aside the necessary overseas funds.

In some industries, such as cigarette manufacture, programmes of investment in new plant must be made as far ahead as three years because of the long delivery periods for specialized capital equipment. By careful appraisal of the needs of individual firms and by budgeting to meet their needs it has been possible, through the control inherent in the import licensing schedule, to develop the cigarette industry to the point that New Zealand is now self-sufficient and able to export. The planned development of the cigarette industry had also given the domestic growers of leaf the security needed to develop their acreage and crop yield. Without it New Zealand would have spent many more millions of pounds on imports of cigarettes and unmanufactured leaf.

The Exports and Shipping Council was established in March 1965. Its function is to ensure that the recommendations of the British and New Zealand Port Streamlining Committees are implemented. The Committees were appointed in October 1962 by the three Statutory Boards which have responsibility for the export of meat, dairy produce and fruit from New Zealand, and by four British shipping companies. They produced a report in February 1965 which recommended ways of effecting economies in the turn-round of shipping on the New Zealand coast, at ports in the United Kingdom and Europe and at ports to and from the United Kingdom and the Continent. On the Council's recommendation, the Government has established a Transport Commission to examine the flow of future exports and imports and to make recommendations on the development of ports and the internal transport system.

Each month the Officials Committee on Economic and Financial Policy meets to draw up a report on the current situation for the Cabinet Committee on Economic and Financial Questions. The Officials Committee comprises representatives of the Depart-

ment of Statistics, the Department of Industries and Commerce, the Treasury, External Affairs Department, and as required, representatives of the Reserve Bank, Customs Department, the Department of Agriculture and the Labour Department.

In addition, in 1961 the Government set up a Monetary and Economic Council

"to make reports from time to time on the extent to which stability in the prices of goods and services, economic growth, full employment, and higher standards of living are being achieved, and to make recommendations from time to time relating to the short-term and long-term measures that should, in its opinion, be taken to promote economic growth and to raise standards of living while maintaining full employment and the maximum stability in the internal price level."

The Ministry of Finance also publishes each year, in conjunction with the Budget, an Economic Survey.

In recent years the Government has called several national conferences as a means of pooling information on the needs of industry, for expansion, and of providing in general terms guidelines for future policy. In 1960 the Industrial Development Conference was held and this was followed by the Export Development Conference in 1963 and the Agricultural Development Conference in 1964.

The private sector is also involved in assessing industrial progress in New Zealand. The New Zealand Institute of Economic Research (Inc.), founded in 1958, is an independent, non-profit-making Incorporated Society with a membership open to any person or corporate body. Its object is to increase knowledge of New Zealand's economic development through research, education and the training of research workers. It conducts research through its own staff and in co-operation with the universities. The Institute has undertaken important work in surveying business opinion, and has started quarterly forecasting of national income and expenditure a year ahead. In addition, probes into factors affecting economic growth, such as the development of the tourist industry, are proving of importance to the assessment of economic performance in New Zealand.

The Universities, the Manufacturers' Federation, and the Chambers of Commerce also assist by examining special aspects of the economy.

II. ECONOMIC POTENTIAL

a. Economic surveys

Indicative economic surveys of regions are carried out by the Department of Industries and Commerce. Areas surveyed so far include Nelson, the west coast of the South Island, Dannevirke, Otago, South Canterbury and Northland. The surveys cover all sectors of regional economies with the objective of indicating preferred lines of development from both

regional and national aspects and of making recommendations on how these could be obtained.

The Ministry of Works in its National Resources Survey aims to provide a comprehensive picture of New Zealand's resources as a background for regional planning authorities, and other bodies. New Zealand is to be covered in nineteen regions, and four sections have so far been published—West Coast, Bay of Plenty, Northland and Nelson.

Detailed studies of land and land resources are undertaken by the Lands and Survey Department. Four "problem" areas have so far been surveyed—Northland, West Coast, North East Taranaki—Gibbsborne/East Coast.

In April 1966 a National Seminar on Decentralization was held in which the Central Government, a number of local governments and other interested organizations, and industrialists participated. Its object was to stimulate study of the advantages and disadvantages of decentralization of manufacturing and other economic activities. The Seminar considered there was a need for some decentralization and recommended further research into the problem and that such decentralization should take place within the context of long-term economic planning.

Investigations into the feasibility of various industries are normally undertaken within the private sector although sometimes the Government has a hand in their instigation. For instance, in 1960 the Government invited representatives from various sectors of the economy to an Industrial Development Conference to appraise the need for and opportunities to expand the industrial sector. Arising out of recommendations at the Conference, a Development Finance Corporation has been established. One of the functions of the Corporation is to examine the feasibility of new industrial undertakings. Most of the Conference's recommendations have been adopted.

The Government also concerns itself directly with the establishment of new industries either where these require import licences, where there is a royalty arrangement, or where the industrial project is considered of national importance. New industries requiring import licences must satisfy the Government that production in New Zealand is both desirable and feasible especially regarding quality and price in comparison with similar overseas products. Development proposals which have been investigated by the Government include electric cables, spirituous liquors, wool tops, carpets and bicycles.

In projects of national importance, the Government undertakes to examine their potential. If an industry is established, direct investment in the company is predominantly the responsibility of the private sector but, in some cases, the Government becomes a shareholder. The most important examples of recent undertakings include:

Iron and steel

Surveys have revealed that New Zealand's largest

resources of potential iron ore are contained in the black sands of the western beaches— from Westport northward in the South Island and from Wanganui to Muriwai in the North Island. Titanomagnetite sands make up most of the black sands in the North Island, but from Waikato Heads northward, the beach deposits also contain ilmenite in varying proportions. In the South Island beach sands, ilmenite is the chief iron-bearing material. New Zealand's beach sands have been estimated to contain some 800 million tons of titanomagnetite, with a further 8.6 million tons of ilmenite in the North Island and 43 million tons in the South Island.

Following tests made overseas into the chemical properties of New Zealand ironsands, the Government decided to establish the New Zealand Steel Investigating Company with a nominal capital of £250,000 (\$695,000). All shares were held by the Crown, except for six held in trust for the Crown by the directors. The Crown also reserved the right to prospect and mine ironsands at Onekaka.

The company was given wide scope to ascertain advisability and the technical and economic feasibility of establishing an iron and steel industry in New Zealand. At the outset it was realized that it would be necessary to have the help of overseas consultants for many phases of the investigation. The company appointed the Batelle Memorial Institute of Ohio, United States of America, a non-profitmaking foundation with a high reputation in the field of metallurgical research and with wide experience in the study and development of smelting processes.

The company was also free to employ whatever technical and other services it required in New Zealand, including appropriate government services.

In the first phase of its work, which included the proving of the Waikato North Head ironsands deposits, the company with the help of the Institute established the adequacy of supplies of raw materials. It proved the main deposit at Waikato North Head, and areas within easy reach to the north, to contain more than 150 million tons of concentrate, averaging between 56.8 per cent and 59.5 per cent iron. That is more than three times the estimated requirement of an industry producing 500,000 tons of steel a year for 50 years.

In the second phase, trials of smelting processes were carried out in the United States, Britain, and Norway using New Zealand ironsands and coal.

Evaluation of these results led to the conclusion that suitable smelting processes exist to convert domestic raw materials into high quality steel on an economic basis.

The investigating company reported to the Government in 1962 recommending the establishment of the industry and a £17.5 million (\$48.6 million) scheme in which the Government will have a 25 per cent share has been approved and is expected to be in operation by 1968. In July 1965 New Zealand

Steel Limited was registered with a nominal capital of £6.5 million (\$18.1 million). Over one thousand acres of land bought by the Crown has now been transferred to the company and work has begun on the site.

Fishing

Following a resolution passed at the 1960 Industrial Development Conference that the diversification and full development of the New Zealand sea-fishing industry should be undertaken, a Parliamentary Select Committee was established to which interested bodies were invited to make submissions. The Select Committee made a survey of the effects of the present conservation policy, distribution, other fields of expansion such as ownership, financial policy, fish processing, and the export trade.

One of the recommendations put forward by the Select Committee was that scientific investigation of the potential supply of fish should be undertaken. Following the Select Committee submissions, the Fisheries Amendment Act and the Fishing Industry Board Act were enacted in April 1964 and the Fishing Industry Board was established with £1 million (\$2.78 million) to advance for investment in the industry.

Research and investigation is now being carried out in North Auckland and Cook Strait waters using grid-patterned trawling techniques, fish tagging, trolling, and line-bait fishing for tuna. Research is also being carried out into the occurrence of tuna and material is being gathered for planning the future research programme. Other types of fish, marine mammals, and shellfish are similarly being surveyed.

A survey has begun on the location and extent of the existing fishing grounds around the New Zealand coast, using information provided by commercial fishermen. The Government has also recently granted £80,000 (\$222,400) toward the cost of a research vessel for a university marine research group.

Funds have been provided to enable the Massey University Food Technology Department to investigate preservation and preparation methods for edible fish not at present utilized commercially. Quality standards for fish have been formulated and published. Export Regulations for fish are in the course of preparation. An inspection service administered by the Department of Agriculture has been established.

Financial assistance is provided by the Government to enable individual fishermen to acquire fully equipped fishing vessels. The scheme which provides for a total expenditure by way of mortgage guarantees and £300,000 (\$834,000) by way of loan finance will be reviewed in three years' time.

The Government has also arranged training courses for fishermen as part of its policy for promoting technical training in the industry.

Aluminium smelting

A detailed investigation into the hydro-electricity potential of the Manapouri-Te Anau lake system in the

South Island has been carried out by the Government and work has commenced on the construction of a tail race and underground hydro-electric station to provide power both for the national grid and in expectation of an aluminium smelting plant to be built nearby.

Comaleo Industries Proprietary Limited, an aluminium operating company owned jointly by Conzinc-Rio Tinto of Australia Limited and Kaiser Aluminium and Chemical Corporation of the United States of America, carried out extensive investigations into power needs, costs and the world market for aluminium. The Government signed an agreement in 1963 giving this company options over blocks of power for a plant to smelt bauxite from Weipa, Australia. No announcement has yet been made by the company on the expected date of establishment.

Titanium industry

At the request of the Mineral Resources Committee, a feasibility and market study for a titanium industry is being undertaken by the Department of Industries and Commerce. Technical investigation is being undertaken by the Geological Survey and the Chemistry Division of the DSIR on the separation of titanium from domestic raw materials. The industry could have the following alternative sources of materials:

- (1) The titanium-rich slag of the forthcoming steel industry.
- (2) The ilmenite impurity in the titanomagnetite sands of the North Island.
- (3) The ilmenite, rutile and leucoxene bearing sands of the South Island near Westport.

b. Resources surveys

The functions of the Mineral Resources Committee, a sub-committee of the Council of Scientific and Industrial Research, include the determination of the direction of mineral investigations in relation to financial resources available and the possibilities of early economic development. The Committee has a responsibility to encourage co-ordination between the Government and private organizations in the search for and development of minerals of national industrial importance. The Committee published a report in 1963 in which it stressed the importance of continued and more intensive surveys.

Almost all government geological work is carried out by the New Zealand Geological Survey, a branch of the Department of Scientific and Industrial Research. The Survey's principal work is to prepare geological maps of New Zealand and to determine the country's geological structure. The Survey studies and helps to assess the country's mineral deposits and underground water resources, and gives advice on geological problems encountered in State and private civil engineering projects.

Besides providing resource surveys, the State gives financial aid to prospectors, operates schools of mining, subsidizes roads to mining fields, and provides research facilities. The main mineral resources surveyed are outlined below:

1. Coal

Investigation of coal resources has been carried out in three phases: geological and chemical activities; detailed topographical surveys and shallow prospecting by means of cuts, pits, and hand drilling; and investigations by deep core drilling.

Coal utilization and research is guided by two committees: the Coal Mining Research Committee and the Coal Utilisation Committee. In addition, the coal-mine owners and the coal merchants have established and support financially a Coal Advisory Services Association. Its main functions are:

- to promote the use of coal and to provide a consumer service for coal users;
- to advance the study and understanding of coal utilization techniques;
- to disseminate and publicize information on coal and its efficient use.

The table below sets out the estimated coal resources:

Measured	118,815,000 tons
Indicated	234,270,000 tons
Inferred	755,100,000 tons
Total	1,108,185,000 tons

2. Petroleum and natural gas

Practically all the potential oil-bearing lands in New Zealand are held under petroleum-prospecting licences.

Seismic work is being carried out in a number of areas, including Gisborne, Hawke's Bay, the Waikato basin, Manawatu, Nelson, the west coast, and Southland. A number of exploratory wells have been drilled, mainly in the North Island, but all have so far proved dry.

The New Zealand Petroleum Exploration Company Limited is concentrating its initial prospecting on the Waikato basin. Coal measures in the Waikato basin are similar to those encountered in Kapuni and lie in beds of considerable thickness, and there are prospects that New Zealand's oil resources will be supplemented from this area.

Licences have been issued giving prospecting rights on the Continental Shelf. Most of the New Zealand coast is now covered and licences are pending for the remaining areas. Exploratory work has so far been confined to geological, geophysical and aeromagneto-meter surveys.

The major search for oil and natural gas in New Zealand has, however, so far centred around the Kapuni structure in Taranaki. Substantial quantities of natural gas, with a light oil in suspension, have been found by Shell, British Petroleum and Todd Oil Services Limited which hold the concessions for this area. The

field should support a daily production of treated natural gas of approximately 35 million cubic feet with a calorific value of about 1,140 BTU per cubic foot for about 20 to 25 years.

The company's investigations considered the use of the natural gas for an electric power station, or as a fuel, and presented a report recommending its use for electricity generation. The Government decided that further investigations should be carried out on the most economical use of the gas. Early in 1964, therefore, the Government engaged Zinder International Associates of New York to conduct an appraisal of the potential of the Kapuni natural gas field and possible uses of the gas. The consultants' report was presented to the House of Representatives in August 1964. Since the report was presented, the Government has retained Zinder International for the preparation of a report on the marketing prospects for the natural gas; appointed DeGolyer and Macnaughton Incorporated, Texas, to assess the natural gas and associated reserves of the Kapuni field; and engaged Pipeline Technologists Proprietary Limited, Texas, to carry out a feasibility study for a natural gas transportation system for the North Island.

The reports of these consultants were completed in 1965 and are now being studied by the Government. At present negotiations are continuing between the owners and the Government on the price to be paid for the gas.

3. Timber

Reference has already been made in chapter I to the importance given to the survey of New Zealand's timber resources.

A national inventory of exotic forest resources was completed in 1963. It was estimated that New Zealand has one million acres of exotic forest capable of supplying merchantable produce. Forests of 50 acres or more account for almost nine-tenths of this total.

4. Other resources

Other mineral resources include uranium and thorium, gold, silver, tungsten, copper, manganese, mercury, antimony, tin, platinum, bentonite, perlite, asbestos, phosphate, serpentine, and greenstone. Much survey work remains to be done but so far few of these minerals seem to have any great economic significance.

c. Transportation and power

1. Transportation

The capital investment in New Zealand transport facilities was estimated to have been £948 million (\$2,635 million) in 1962. The nation's per capita investment in transport probably places New Zealand among the highest in the world and reflects not only problems peculiar to this country, inherent in the topography and geographical location of resources and population but also the high ratio of private cars in

relation to population. The following table gives an estimate of the proportions invested in the various sectors of the transport industry:

ESTIMATED CAPITAL INVESTED IN NEW ZEALAND
INTERNAL TRANSPORT: 1962

	<i>Amount</i> (in million pounds)
Aircraft	20
Coastal shipping and harbours equipment	30
Railways	148
Roads and road transport	750
	£ 948 ^a

^a \$2.635 million

(a) *Roads:* Administration of the country's roading system is exercised by the National Roads Board in respect of State highways and by local bodies in respect of streets and roads.

As far as national distribution is concerned the State highways are, of course, the most important routes. In 1965 there were 7,134 miles of State highways. The whole cost of State highways is met from the National Roads Fund and the importance of roading development in New Zealand may be gauged by the fact that expenditure on State highways consistently represents up to 7 per cent of gross capital formation.

Expenditure on all forms of roading for the year ended 31 March 1965 is shown in the next table:

EXPENDITURE ON ROADS FOR THE YEAR ENDED 31 MARCH 1965

<i>Type of fund</i>	<i>Amount (in pounds sterling)</i>
National Roads Fund:	
State highways	15,121,000
Subsidies, etc. — local roading	12,214,000
	27,335,000
Consolidated Fund (Vote Roads)	908,000
Local authority funds:	
Municipalities	7,343,000
County councils, etc.	7,661,000
	15,004,000
Total	43,247,000
	(\$103.5 million)

The National Roads Board expects to spend £34.5 million (\$96 million) in the 1965/66 financial year. The proposed budget allocates £16.86 million for State highways and motorways, subsidies of £8.41 million to counties and road boards or of £4.5 million to municipalities, £1.5 million for administration, £140,000 to subsidize highways, £50,000 for miscellaneous and unauthorized expenditures and £3 million reserved for claims to meet flood damage.

All vehicles using the roads must be licensed under the Transport Act 1962 and on 31 March 1965 there were 1,151,666 registrations including cars (688,534), trailers (163,879), trucks (153,766) and motor cycles (32,482).

The Transport Act 1962 is the main legislation governing road transport and the operations of the Transport Department. All passenger services, goods

services, rental services and harbour-ferry services can be carried on only under licence granted under the Act. A licensing authority is established in each district to examine applications and grant licences. All authority granted under the Act has regard to the following:

The provision of modern transport facilities best suited according to the nature of the service to meet both the needs of national production and living standards and those of national defence.

The fair and impartial regulation of all forms of public transport in order to develop and maintain transportation facilities adequate to meet the needs of New Zealand and of national and Commonwealth defence; and, for these purposes, to administer such facilities so as to recognize and preserve the inherent advantages of each form of transport; to promote safe, adequate, economic and efficient service, and the fostering of sound economic conditions in transportation; to encourage the establishment and maintenance of reasonable transport charges without unjust discrimination, undue preference or advantage, or unfair or destructive practices; and to promote good working conditions for workers.

Restrictions are placed on the operation of goods service vehicles where there are alternative railway services available. Exemption from these provisions can only be granted by the licensing authority. Appeals can be made to the Transport Licensing Appeal Authority.

(b) *Shipping and ports:* Shipping services are in the main provided by private enterprise. In 1965 there were 574 vessels registered in New Zealand with a total net tonnage of 126,456 tons. Of these, 95 vessels having a net tonnage of 31,124 tons, are engaged in the coastal track. For 1964 the total coastal cargo handled amounted to 7.4 million tons.

In 1962 the Railways Department began a Cook Strait freight and passenger shipping service between Wellington and Picton with the use of a single ship. This service proved so successful that another ship commenced operations in 1966.

Port facilities are the responsibility of local government through harbour boards. With increasing trade, the allocation of exports to different ports, and the growing size of ships handled at New Zealand ports since 1950, harbour boards have had to meet the demand for shipping facilities by extensive development of ports.

At Bluff in Southland, a development scheme involving a capital expenditure of £5 million (\$13.9 million) has made it into one of the most important meat exporting ports of the country. All-weather package loaders, which came into operation in 1963, have enabled the rates of loading to be substantially improved for meat and cheese. Successful operation in all weathers has been effected by the use of mechanical loaders which enable produce to be under cover from wharf shed to ship's hold.

At Whangarei, where an oil refinery has been built and has come into operation, a new wharf at Marsden Point and other oil refinery port facilities have involved an expenditure of £3 million (\$8.3 million).

At Auckland an overseas passenger terminal with modern facilities for handling passengers was opened in 1961, and in Wellington a similar two-storey passenger terminal costing one million pounds (\$2.78 million) has been completed.

A new wharf at Opuia in the Bay of Islands opened the port to overseas shipping for the export of butter in 1957, while extensions to the port of Tauranga are enabling it to serve the rapidly growing timber, woodpulp and paper industries of the Bay of Plenty area. Rail-road ferry terminals have been built at Wellington and Picton for the Cook Strait service.

Major development work is under way or projected at most other ports. (The linking of Lyttelton with Christchurch by a road tunnel constructed at a cost of £3 million and opened in February 1964 is an important ancillary development.)

New Zealand's first loan from the International Bank for Reconstruction and Development was authorized in 1964 for harbour development. It involves £2.8 million (\$7.8 million) which the Government is lending to five harbour boards, namely, Auckland, Lyttelton, Napier, Timaru and Whangarei.

The British and New Zealand Port Streamlining Committees were established in 1962 by the three statutory Boards which control the export of meat, dairy produce and fruit from New Zealand and the four British shipping companies which for many years have contracted to ship the Boards' produce. In 1964 the Committees published a report containing 51 suggestions for effecting economies in the turn-round of shipping. An Exports and Shipping Council was subsequently established to ensure that these recommendations are implemented. Of the recommendations relating directly to the development of the port facilities infrastructure the following are noteworthy:

Representations should be made to the Government to prepare, as a matter of urgency, a national plan for the further development of transport and ports. With this in mind an independent enquiry should be instituted at once to examine road, rail, air and coastal transport services, and ports with particular emphasis on the movement of traffic to and from the principal ports.

The proposed enquiry should be particularly directed to the concentration of development on those ports which can provide the most efficient service for New Zealand's overseas trade.

The proposed enquiry should also establish how many additional berths are required at each of the ports, how much more working space is required on the wharves and in the sheds, what improvements are needed for road and rail access, what space is required for marshalling road and rail transport and modern mechanical handling equipment.

The Minister of Transport set up a Commission of Inquiry in July 1965 to estimate the likely growth of demand for ports and transport during the next twenty years, the development of ports necessary to meet this demand and the development of internal transport facilities to serve the expected volume of goods.

(c) *Air transport:* Civil aviation in New Zealand is administered by the Civil Aviation Department. This Department is responsible for air safety, the planning, provision and maintenance of ground facilities and services for civil aviation, and for advising the Government in respect of air transport policy and international negotiations in the field of air transport.

Various facilities for air navigation are provided by the Civil Aviation Department. Radio navigational aids of different kinds are installed at the more important airfields in New Zealand and in the south-west Pacific, as well as *en route* aids at various points along the internal airways. In addition, there are a number of aeradio stations in New Zealand providing air to ground, ground to air, and ground point-to-point communication facilities, plus communication centres located at Auckland, Christchurch and Wellington.

The air traffic control system comprises control towers situated at the important aerodromes in the Cook Islands, Fiji, and Western Samoa. In Fiji an air traffic control service is also maintained by the Civil Aviation Department.

The Civil Aviation Department is responsible, in collaboration with the Ministry of Works, for airport planning. The Ministry usually undertakes the actual construction and maintenance, although this is sometimes done by the local authority. At other than minor aerodromes in New Zealand and the south-west Pacific, crash fire facilities are provided by the Civil Aviation Department.

A rapid rate of increase of civil aviation in New Zealand has been a feature of the post-war era. Net Government expenditure rose from £1.53 million in 1950 to £2.03 million in 1960-61, and to £4.3 million in 1964/65. (\$4.3 million, \$5.7 million, and \$12.0 million respectively.)

Licensing of air services in New Zealand is vested in the Air Services Licensing Authority and at present only one commercial airline is licensed to operate internally. This is the National Airways Corporation, which was charged by the National Airways Act 1945, "to satisfy the needs for air services within New Zealand" and now provides communications to all the major centres.

Aerial topdressing, seed sowing, spraying and poisoning have assumed increasing importance since 1955 and are playing an important role in increasing the productivity of the economy. The private companies require a licence to operate.

New Zealand's international air communications are provided by:

Air New Zealand, a wholly New-Zealand-owned airline (formerly known as TAEL) which

operates between New Zealand and Sydney, Melbourne, Brisbane, Suva, Norfolk Island, New Caledonia, Samoa, Hawaii, Los Angeles, Hong Kong and Singapore.

OANTAS Empire Airways Limited, which operates across the Tasman in association with Air New Zealand, and to other countries.

British Overseas Airways Corporation began a service in 1963 from Auckland to London via the Middle East.

Pan American World Airways Incorporated operates services between Auckland and the United States of America via Fiji, American Samoa, Canton Island, and Honolulu.

Canadian Pacific Air Lines operates a return service between Auckland and Vancouver via Fiji, Canton Island and Honolulu.

Two airports, Harewood near Christchurch and the Mangere airport in Auckland, are capable of handling large international aircraft. Rongotai airport (Wellington) can take certain classes of aircraft engaged in international services.

(d) *Railway transport:* The railways are wholly Government-owned and are operated by the Railways Department. Construction works are, in most instances, carried out by the Ministry of Works and transferred to the Railways Department when completed.

The total route mileage of railways vested in the Railways Department and open for traffic at 31 March 1965 was 3,254 miles. Double line is provided on 157 route miles of track. The gauge is 3 feet 6 inches.

Vast improvements have been made to existing railways during the past sixty years. Many sections have been reconstructed at considerable expense to ease gradients, shorten distances, and reduce curvature. Examples are the Rimutaka deviation and its 5½-mile tunnel between Upper Hutt and Featherston, which was opened in November 1955 to eliminate the 1-in-15 Rimutaka Incline used from 1878; and the Porirua-Plimmerton deviation and duplication completed in 1961.

The introduction of main-line diesel electric locomotives in 1952 was the beginning of a radical change in motive power operation in New Zealand, and there has been a steady increase in the percentage of total traffic hauled by this means. During 1962/63 diesel traction accounted for 52.4 per cent of the gross ton-miles; diesel railcars ran 45.3 per cent of the total passenger train miles.

The policy of dieselization is continuing. Twenty more "Da" class (1,425 hp) locomotives were imported and placed in service in 1965 enabling greater use to be made of diesel haulage in the North Island where 82 per cent were hauled by diesel locomotives. Eight new "Dsc" class (400 hp) diesel-electric locomotives have been placed in service. Since April 1963

the passenger express trains between Wellington and Auckland have been worked by "Da" class locomotives to a faster timetable.

The ferry G.m.v. Aramoana (4,160 tons) is designed to carry a maximum of 34 railway wagons, and 49 motor vehicles. Its sister ship the Aranui (4,542 tons) is designed to carry 34 railways wagons, as well as 51 road vehicles.

Up to 1950 the Cook Strait Rail/Air Freight Service operated between the two Islands with the co-operation of the Royal New Zealand Air Force. Thereafter, private enterprise was given the opportunity of tendering for the contract and the successful tender was offered by Straits Air Freight Express Limited, which took over in April 1951. The service is at present being maintained by five Bristol Freighter aircraft on a daily basis, the number of trips varying according to the amount of cargo offering. The Railways Department has assisted in streamlining this service by designing special traversers to transfer "Cargons" (removable trays) from the loading lorries to the aircraft.

Increasing attention is being given to improving efficiency in the New Zealand transport system through the use of pallets, containers, cargons, as well as new methods of bulk transport and new loading equipment and techniques. The Railways Department has collapsible 5-ton containers (designed for traffic handled by the Department's Road Service) and lightweight two-ton capacity containers (for rail-air and household removal traffic). The railways carry potatoes in owners' bulk containers and arrangements are being made similarly to handle wheat, barley, and grass seed. The Railways Department has also provided specially designed rolling stock for transporting pallets. Increasing use is being made of this technique with a consequent reduction in manhandling, costs, and loss through damage. The Government, as part of its policy of reshaping the Department's finances to achieve and maintain financial stability, wrote off from 1 April 1965, £70 million (\$194.6 million) of the £160 million (\$444.8 million) capital.

In 1965 the World Bank approved a loan of \$42 million (£15 million) to assist in a programme to modernize the railways by improving their operating efficiency, reducing costs and providing better service.

(e) *Power:* The following table shows the main types of electric power stations with their installed capacity in New Zealand as at 31 March 1965:

MAIN TYPES OF ELECTRIC POWER STATIONS WITH THEIR INSTALLED CAPACITY AS AT 31 MARCH 1965

Type of station	Number of units	Installed capacity (KW)
Hydro-Electric	80	1,900,383
Thermal	14	229,000
Geothermal	12	192,420
Totals	106	2,321,803

The following table indicates the output of gas power from coal resources:

OUTPUT OF GAS POWER FROM COAL RESOURCES

	Number of plants	Quantity of coal used (tons)	Capacity available for distribution (000 kW)
1960-61	32	277,100	5,696,130
1961-62	30	279,058	5,860,538
1962/63	29	261,749	5,673,434
1963-64	29	268,101	6,047,566

The prospects of using natural gas to supplement these supplies may make gas a more significant source of power in New Zealand in the near future.

The development of power resources by the Government, particularly for the generation of electricity, has been rapid in recent years. On March 1955 the total electricity generating capacity of the North Island and South Island power systems, including the local plants owned and operated by a number of electrical supply authorities, was 940,000 kW. During the decade since 1955, electric generating capacity has more than doubled, over a million kilowatts of plant having been commissioned in new power stations, to bring the total installed generating capacity to 2,321,803 kW on 31 March 1965.

The Planning Committee on Electric Power Development, a body set up by the Government in 1960, is composed of government officials and representatives of the distributing authorities. It has calculated that to meet future power needs, generating capacity must be increased to four and a half million kilowatts by 1975. A massive ten-year power development programme estimated to cost £483.3 million (\$1,342 million) has therefore been recommended by the committee and accepted in principle by the Government.

Some progress has already been made to meet future requirements. At present the emphasis is on the exploitation of hydro-electricity potential. Three hydro machines have been installed at Aratiatia on the Waikato River ahead of schedule. From Benmore in the South Island, hydro-electric power has been made available for transmission via the Cook Strait cable to supplement North Island power supplies. At Aviemore in the South Island contracts have been let for a diversion tunnel and for the supply of aggregate. It is expected that generation will commence in April 1969. At Manapouri, also in the South Island, work has started on the construction of a tailrace tunnel, powerhouse access tunnel, and an access road. A first stage output of 400,000 kW is planned to supplement power in the national grid and to provide power for a proposed aluminium smelting plant.

In addition to several other projects, the committee has recommended that approval be given to the development of the final stages of the Tongariro scheme in the North Island. The Government has accepted this recommendation. This will involve the construction of two more power stations and, by 1974, an increase in installed capacity of 155,000 kW.

The potential of other power resources is also being exploited. At Wairakei station, a few miles

north of Taupo, geothermal steam is being harnessed for the generation of electricity. In November 1958 a stage I output of 69,000 kW was achieved. Stage II of the development was authorized by the Government in September 1957 and has brought the station capacity up to 151,245 kW. In addition, 41,175 kW of spare plant has been installed to enable full use to be made of the steam when some of the main units are shut down for overhaul. The Government has approved in principle stage III of the development which will add 90,000 kW to the station's capacity.

With stage II an experimental pilot plant for converting some of the hot water from the wells into steam at a lower pressure has been installed. The steam will be produced by piping the hot water to the station at a high pressure and spraying it into "flash" tanks where, owing to a drop in pressure, it will be "flashed" into steam and fed into the intermediate-pressure and low-pressure steam mains and thence to the turbines.

The Planning Committee on Electric Power Development has recommended that investigations proceed urgently into geothermal power resources, particularly at Orakei-Korako. Investigations have so far located four new underground geothermal areas. It is expected, provided the heat can be exploited, that each field will be able to support a geothermal power station as big as Wairakei.

Three coal-fired thermal stations have been constructed in the North Island but two are used only for peak load and emergency purposes. The third, Mercer station, was completed in 1960 and is equipped with six machines rated at 180,000 kW.

In 1965 the World Bank approved a loan of \$20.5 million for construction of a 240,000-kW thermal power station in the North Island. In 1964 the Bank advanced \$32.5 million for construction of an electric power link between the North and South Islands.

About three-quarters of the coal reserves in New Zealand are in the "inferred" category and much is widely scattered in relatively small pockets. Of the various possibilities examined by the Planning Committee only the Huntly, Kaitangata, and Buller areas appear to warrant consideration for power production purposes.

The Committee has reservations on the advisability of burning the limited reserves of high-quality bituminous coal for the production of electric power when its heat value could be used much more efficiently and to greater purpose by direct use. Nevertheless, the Committee considers that the costs of coal generation should be closely investigated and has recommended that a firm of overseas consultants be employed to report to the Government on the possibilities of establishing a 500,000-kW coal-fired station on the west coast of the South Island.

With the construction at Marsden Point, Whangarei, of an oil refinery, the construction of an oil-fired thermal plant using residual oil is feasible. To make the best possible use of the available quantities of the residual oil, the Planning Committee has pro-

posed that the plant shall have a capacity of 240,000 kW.

Overseas developments in the production of electric power from nuclear reactors are being closely followed since there is little doubt that this means of power generation must be introduced in New Zealand by about 1977.

III. INDUSTRIAL POLICY

a. Investment laws, regulations and incentives

1. Investment

Government control over the transfer of money out of and into New Zealand is exercised by the Reserve Bank of New Zealand (the State-owned central bank) under the powers delegated to it by the Minister of Finance. The Minister's authority is derived from the Exchange Control Regulations 1965 (as amended) and the Capital Issues (Overseas) Regulations 1966 (as amended).

It is government policy freely to allow remittance of profits earned on overseas investment in New Zealand, of royalty payments, and of non-resident capital. This is in line with Government's desire to attract overseas investors to New Zealand.

Because of continuing balance of payments difficulties and pressures on the domestic capital market, certain measures had to be introduced recently. The Minister of Finance's approval is now required,

- where an overseas investor wishes to take up 25 per cent or more of a New Zealand company's equity capital,
- where an overseas investor wishes to commence a business in New Zealand,
- where subsidiaries and branches of overseas companies wish to borrow money in New Zealand.

New Zealand companies wishing to borrow money overseas must apply to the Reserve Bank for permission.

For some years selective control of bank advances has operated in New Zealand in order to restrict the availability of credit to certain uses. Under this control industrial development has had high priority, but not for long-term loans.

Special arrangements have been made on occasions for the establishment or expansion of certain major industries or services. For example, the Tasman Pulp and Paper Company was permitted to make financial arrangements for expansion outside the existing control of advances.

The policy of controlling bank advances through selection was supplemented in 1952 by the quantitative control of advances provided for in section 45 of the Reserve Bank of New Zealand Act and reliance is now placed mainly on the quantitative method of control through the reserve-ratio procedure (the minimum cash balance that the trading banks must maintain at the Reserve Bank) and discount rate policy (the rate

charged on advances to the trading banks). Section 45 authorizes the Governor of the Bank, with the consent of the Minister of Finance, to vary the statutory reserve ratio of the trading banks with the Reserve Bank; this, in turn, affects the amount of cash (the balances in excess of the reserve ratio) held by the trading banks.

Liquidity in the banking system has been adequate to provide the necessary working capital for industry, etc. A periodic problem has been an over-expansion of bank credit, due partly to demands from the industrial sector. The main emphasis of trading banks' credit policy is to avoid the use of credit for long-term capital purposes, hire-purchase finance, speculation and the financing of excessive imports. Banks in New Zealand do not make long-term loans to industry.

Where the Reserve Bank is satisfied that it is necessary in the public interest to do so, it may from time to time direct the trading banks on the policy to be followed in relation to advances, discounts and investments as well as on rates of interest payable to or by such banks.

2. Incentives

The main industrial incentives are the depreciation allowances providing for exemption from tax payment. Depreciation is an allowance whereby the expected diminution in the value of an income-producing asset, attributable to "fair wear and tear" or obsolescence, may be spread as a deduction for taxation purposes over the expected productive life of the asset.

The allowance is of an interim nature because any loss suffered on assets (other than buildings) at the date of final sale or disposal, which exceeds the accumulated depreciation to that date, is allowed as a further depreciation allowance. Conversely, if the selling price exceeds the original cost less accumulated depreciation, the earlier depreciation allowance may be reviewed to recover any excess. In the case of buildings, "special" and "initial" depreciation only may be recovered (see following paragraphs).

Rates of depreciation are administered by the Commissioner of Inland Revenue. To permit an equitable allowance for different classes of assets, various "schedule rates" of depreciation have been fixed. These rates vary between one per cent on either the diminishing value or the cost price of the asset, to as high as 50 per cent, taking into account the customary usage of the assets in the production of income and of obsolescence under normal conditions. The basic rate of depreciation allowable on general plant and equipment operating under normal conditions is 10 per cent of the diminishing value.

"Special" depreciation allowances have been introduced as an incentive to promote the use of modern equipment, plant and machinery. The special allowance provides for a 20 per cent depreciation, in

respect of plant or machinery installed or extended up to 31 March 1968. Special depreciation also applies to employee accommodation, new farm buildings and extensions of existing farm buildings.

To encourage better and more permanent employee accommodation, an "initial" depreciation allowance has been introduced. The allowance is 20 per cent on the cost price of buildings erected for employee accommodation up to 31 March 1967. It is possible to choose either the "special" or "initial" depreciation allowances. Both are in addition to the ordinary depreciation allowances.

To attract new industry to the west coast of the South Island an investment allowance of 10 per cent of cost price is available on plant, machinery and buildings acquired for development projects in the area. This allowance is additional to all depreciation allowances. The incentive applies up to 31 March 1968.

To ease the cost of research expenditure and to encourage up-to-date equipment, the cost of plant, machinery and equipment acquired, installed or extended on or after 1 April 1963 for scientific purposes directly relating to the business of the taxpayer, may be written off over five years.

The authority for the above allowances is contained in sections 113 to 117 inclusive of the Land and Income Tax Act 1954 as amended by succeeding Land and Income Tax Amendment Acts.

b. Legal requirements

1. Control of capital issues

There is no general control on capital issues in New Zealand.

Official approval is required for overseas companies to establish a business in New Zealand, for overseas companies operating in New Zealand to raise domestic capital, or for a New Zealand-domiciled company to obtain capital overseas. In the latter case, an exemption is provided where the capital raised within a twelve months' period does not exceed £10,000.

2. Licensing of imports

For balance of payments reasons, a system of licensing control is used to regulate expenditure on imports. To promote continuing economic growth, priority is given to capital equipment and raw materials for industry. Care is also taken to ensure that there is an adequate supply of essential consumer goods.

A licence is required before any imports of controlled items may be made. No restriction is placed on the source of supply.

It is government policy to relax licensing controls as the overseas funds situation permits. In recent years considerable progress in this direction has been made and exemptions from control now represent about one-third of New Zealand's total import trade.

3. Regulation of the location of industrial enterprises

There is no control or direction of the location of industrial enterprises by a Central Government authority.

However, local authorities can bring their districts under planning control, in terms of the Town and Country Planning Act 1953, and they can zone areas as residential, commercial, industrial or rural. The location of industrial enterprises in a district may thus be confined to a particular area.

4. Licensing of factory establishments

A factory must be registered with the Department of Labour under the Factories Act 1946 before it can be used.

The Act is designed to ensure satisfactory conditions of work and has provisions on:

- hours of work and overtime;
- holidays;
- restrictions on employment;
- minimum rates of pay;
- safety, health and welfare;
- powers of inspection, registration, maintenance of records and exhibition of notices, requisition by inspectors; and the prescription of offences, penalties and procedures.

5. Control of raw materials

Apart from those on imports, the main controls on raw materials are concerned with the prospecting for and mining of New Zealand's mineral resources. Licences are required to search for and exploit minerals including petroleum, to ensure that the exploration for and extraction of the minerals is done in an orderly manner. The regulations have the added function of protecting the rights of Maori landowners.

6. Control of power supply and transportation

The generation and distribution of electric power for public consumption is almost wholly confined to central and local government organizations. Ninety-five per cent of all electric power is generated by the New Zealand Electricity Department and retail sales are mainly in the hands of electric power boards and local authorities.

The functions of the New Zealand Electricity Department under the Electricity Act 1945 include: promoting, organizing, co-ordinating, continuing, and maintaining the supply of electrical energy; regulating, controlling, allocating, and (whenever in the opinion of the General Manager it is necessary) restricting or preventing the use of electrical energy.

The development of electric power has rested with the Government partly because of a need for power resources to be exploited in the interest of the country as a whole rather than on the basis of commercial considerations only. Also, the private sector has not had the large amounts of capital necessary.

The controls regarding the gas industry relate to such matters as calorific value, purity and pressure of the gas produced and distributed. There are no administrative restrictions on expansion of the gas industry. In fact, there are measures to help the industry continue in existence in order to reduce the demand on the electricity supply.

Road transport is subject to licensing. The Transport Licensing Authority has regard to the public interest, the desirability of the service and the needs of the district. Goods services are limited to a 40-mile distance if suitable alternative rail services are available. Exemptions to this rule apply to livestock, perishable foodstuffs and logs.

This control over road transport and the operation of the railways by the State arises out of the need to ensure economic use of the transport system as a whole since, because of the ruggedness of the land and the fragmented small domestic market, this system is costly to develop and run.

An air service may not be established or carried on in New Zealand without a licence issued by the Air Services Licensing Authority. With a small population, air traffic is limited and it is to ensure that adequate services for the public are provided whilst at the same time preventing their haphazard and uneconomic development that a system of licensing is in force.

7. Control of import of technical know-how

Authority has to be obtained from the Reserve Bank of New Zealand to remit royalty payments for technical know-how and services and these are permitted if justified by adequate evidence of the usefulness of such services to New Zealand. Because of balance of payments difficulties, some restraint must be placed on the extent to which royalty agreements are entered into in view of the overseas exchange involved.

8. Company law administration

Comprehensive legislation relating to companies is contained in the Companies Act 1955, which came into force on 1 January 1957.

An important principle in the legislation is the protection of shareholders, creditors and the general public by the requirement that there must be the fullest practicable disclosure of information concerning the activities of public companies and to a lesser extent of private companies. The annual financial statements must exhibit a true and complete account of a company's affairs and transactions. A prescribed form of presentation is required and comparative figures for the previous year must be shown. A prospectus must be deposited with the Registrar of Companies before it is issued.

From two to twenty-five persons may form a private company; a public company must have at least seven members. A private company of not less than seven members may, under certain conditions, be registered as a public company.

c. Investment information and opportunities

1. Fields of investment

Government activities in the industrial sector are few as this is regarded as a sector that private enterprise should develop. Apart from the enterprises operated by a Government department, the Government holds investments in corporations and the like. See the next table.

GOVERNMENT INVESTMENTS IN CORPORATIONS, ETC.,
HELD AT 31 MARCH 1965

Investment	Amount 31 March 1965 (thousand pounds)
Owned by the New Zealand Government:	
Bank of New Zealand	12,018
Commonwealth Fabric Corporation	501
Finen Flax Corporation	180
New Zealand National Airway Corporation	2,500
New Zealand Steel Investigating Co. Ltd	238
Reserve Bank of New Zealand	1,500
State Advances Corporation of New Zealand	1,000
Air New Zealand	1,623
Tourist Hotel Corporation of New Zealand	4,145
New Zealand Broadcasting Corporation	400
Owned jointly with other Governments:	
British Phosphate Commission	467
Christmas Island Phosphate Commission	2,430
Shareholdings in limited companies:	
Bay of Plenty Co-operative Fertilizer Co. Ltd.	173
Dominion Salt Ltd.	150
Maramarua Coalfields Ltd.	94
New Zealand Woolpack and Textiles Ltd.	200
Tasman Pulp and Paper Co., Ltd.	(2,200 Ord.) (1,000 Pref.)
Miscellaneous	163
International finance organizations:	
Cash portion of subscriptions	12,683
Total	£43,664

The Reserve Bank can grant overdrafts to boards or other authorities having statutory powers in relation to the marketing of any New Zealand produce, for the purpose of the financing and marketing of any such produce. Except with the authority of the Governor-General in Council, the Reserve Bank may not engage in trade or otherwise have a direct interest in any commercial, industrial or similar undertaking.

New Zealand has a well-established and fully-developed financial system for the transfer of savings into investment.

The Government provides cheap long-term finance to farmers and home owners through the State Advances Corporation in the form of first mortgages on property. The Corporation has authority to lend to industry and has in the past given loans, but to support the drive for farm development it gives priority to lending for this purpose. The recently established Development Finance Corporation (see chapter VI) provides finance for medium-sized and small firms, particularly those engaged in manufacturing. The

Government holds some shares in a few limited companies (see table on page 91).

The main sources of private investment in industry are:

- trading banks and savings banks;
- finance institutions such as finance companies, building societies, hire-purchase companies, insurance companies, stock and station agents, investment trusts, stock exchanges.

Private investment in the public sector is achieved through the savings bank facilities of the post office and public issues of Government securities. Institutions such as insurance companies and trustee savings banks normally invest a proportion of their total holdings in Government stock issues. Some of these institutions are required by law to so invest a set proportion; for example, the trustee savings banks have to invest 50 per cent of their assets in Government securities.

The Government welcomes overseas capital for investment in industry and, although there is no legal provision requiring a proportion of New Zealand capital in a company, some consideration is given to the proportions of overseas and New Zealand capital participation. To ensure that ownership of important industries is retained in New Zealand, the Government has strengthened its powers to control overseas take-overs.

2. *Investment services*

Investment is achieved through finance companies, building societies, hire-purchase companies, savings banks and stock brokers. There are stock exchanges but no investment centre as such. Stock Exchange members execute orders for the public through both the "call" and "trading post" systems. The Exchange is not directly responsible for raising capital but it tries to ensure that full information is available to the public on all developments. The Stock Exchange Association has certain requirements for companies wanting official listing, market quotation, and so on. Most of such information is also available to the press and, together with their contacts with finance, with the Government and with trade circles, newspapers and periodicals provide some of the best material on investment matters. In addition, trading banks and organizations such as the chambers of commerce, the New Zealand Manufacturers' Federation, as well as various management consultants, provide commercial intelligence and various other investment services.

3. *Procedure for establishment of new industries*

Some overseas interests operate in New Zealand by means of licensing agreements. Apart from obtaining approval from the Reserve Bank of New Zealand for the payment of royalties, there are no other legal requirements.

An overseas company may establish a branch without incorporating a separate New Zealand subsidiary. The consent of the Minister of Finance (with delegated authority to the Treasury) must first be ob-

tained and then the branch must be registered with the Registrar of Companies. The registration automatically carries with it certain legal obligations. There are no restrictions on exchange being remitted to New Zealand from the overseas head office.

As an alternative, a New Zealand company can be established under the Companies Act. If finance is obtained from the overseas interest, the approval of the Minister of Finance must be obtained. If a public company is formed and capital raised in New Zealand, it is necessary to conform with the requirements of the Registrar of Companies. The obligations of private companies (those not raising public capital) are laid down in the Companies Act and are not as extensive as those for public companies.

If a company is incorporated or registered under the Companies Act, there is some control over the issue of new capital. In 1966 the Government extended the Capital Issues Overseas Regulations to include borrowing in New Zealand by the subsidiaries and branches of overseas companies. The consent of the Minister of Finance is needed where a New Zealand company wishes to borrow or issue securities overseas in excess of £10,000 in any twelve month period.

In view of balance of payments difficulties, import controls are in operation on many New Zealand imports in varying degrees. Thus persons requiring import licences for equipment to establish new industries have to submit details of their proposals to the Government and these are considered in the light of the criteria recommended by the Tariff and Development Board and adopted by the Government. Tariff matters are considered by the Tariff and Development Board, capital issues by the Treasury, exchange control matters by the Reserve Bank and import control by the Customs Department and the Department of Industries and Commerce.

In addition, before establishing an industry, attention must be given to ancillary regulations regarding the operation of factories, health standards, registration of patents, trade marks and so forth. The relevant legislation and authority is the Factories Act, the Health Act, the Patents Office, the Designs Act, the Trade Marks Act and The Copyright Act. Further regulations relate to price control, offensive trades, public safety, hire-purchase as well as the location of industrial buildings.

4. *Customs duty and taxes*

Tariffs on raw materials and capital equipment are fixed at low levels to encourage industrial development. Tariffs on components are low if there is no New Zealand production.

Income tax is levied under the Land and Income Tax Act, which is administered by the Inland Revenue Department.

Company income tax of two types is payable by resident companies — social security income tax of 1/6d (21 cents) in the pound (\$2.78) and a graduated system of ordinary income tax of 2/6d (35 cents) in

the pound plus one penny for every pound of income until £3,600 (\$10,008) is reached and thereafter of 8/6d (\$1.18) in the pound.

Non-resident companies operating in New Zealand are subject to the same two taxes except that income derived from interest by a special class of non-resident investment company is exempt from social security income tax. In addition, ordinary income tax payable is increased by an additional tax at a flat rate of 5 per cent on each pound making the rate 3/6d (49 cents) in the pound plus one penny for every pound of income until £3,600 is reached and thereafter at 9/6d (\$1.32) in the pound.

Rebates against the additional tax are provided in the case of such non-resident companies paying dividends to shareholders resident in New Zealand. Rebates against the additional tax are similarly provided for non-resident life insurance companies and non-resident investment companies receiving income from development projects in New Zealand.

Payments of dividends, interest or royalties to non-residents are liable to a withholding tax of 15 per cent of the gross amount payable.

Subject to certain exemptions, privately-controlled New Zealand companies are liable for an "excess retention tax". This tax, which is designed to ensure the declaration of a reasonable amount of dividend, is charged if a company fails to pay a dividend equal to at least 40 per cent of its tax-paid profits. The rate of excess retention tax is 7/- (97 cents) in the pound (\$2.78) payable on any amount retained by the company in excess of 60 per cent of the tax-paid profits. Provision is made for a recalculation and refund of the excess retention tax paid, if, in a later year, the company concerned declares a dividend greater than the amount required for that year.

New Zealand also has Double Taxation agreements in force with the United Kingdom, Japan, Sweden, United States of America, Canada and Australia.

There is no capital gains tax in New Zealand. Subject to certain exemptions, a tax is chargeable on the unimproved value of freehold land. Sales tax is levied on many goods manufactured in, or imported into, New Zealand. The rate is 20 per cent except in the case of motor vehicles where it is 33-1/3 per cent. It is levied only once and, where possible, at points where the goods pass to the retailer. A large number of goods including basic foodstuffs are exempt from the tax. Sales tax paid is a permissible deduction for income tax purposes.

In the 1966 Budget the Minister of Finance announced that a comprehensive review of the whole field of Central Government taxation would be undertaken by independent experts.

IV. MARKET ANALYSIS AND SURVEYS

Surveys of the domestic market are for the most part carried out by individual manufacturers or groups

of manufacturers or on their behalf by private market research organizations. Neither the methods nor results are published. However, on two important occasions (natural gas, and now steel), market research has been instigated by the Government.

In overseas markets, trade surveys are both part of the regular routine of trade commissioners and an essential first step in trade promotion in a new area. In some cases they are a preliminary to the establishment of a new trade commissioner post. An example of a major trade survey made by a New Zealand team was the visit made to Panama, Argentine, Peru, Uruguay, Chile, and Brazil in 1961.

Manufacturers' associations have also organized trade missions to promising markets.

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. Capital investment in industry

A table of annual increases in the value of plant, equipment and buildings by industry groups, covering the years 1947/48 to 1963/64, is given in chapter VIII A. It is not possible to distinguish between domestic and foreign capital in this table but a summary of private foreign capital inflow in broad industry groups is given in the next table.

NEW ZEALAND INDUSTRIAL CLASSIFICATION OF DIRECT OVERSEAS INVESTMENT 1963/64 AND 1964/65

Industry	Private direct overseas investment			
	1963/64		1964/65	
	Million dollars	Thousand pounds	Million dollars	Thousand pounds
Farming, hunting, fishing, forestry and logging	0.056	20	-0.334	- 120
Mining and quarrying	-0.834	300	1.864	670
Manufacturing				
Food, drink and tobacco	2.502	901	-3.253	- 1,170
Meat and dairy products	-2.085	750	8.562	3,080
Textiles, clothing and footwear	0.917	330	3.475	1,250
Wood, cork and furniture products	0.528	190	-0.128	- 10
Pulp, paper and printing	2.391	860	2.780	1,000
Leather and rubber products	0.195	70	0.389	140
Chemical and mineral products	4.420	1,590	4.393	1,580
Metalworking	2.335	840	1.334	480
Engineering and transport equipment	10.425	3,750	13.428	4,830
Miscellaneous	2.975	1,070	2.585	930
Building and construction	0.195	70	-0.195	- 70
Electricity, gas and water	—	—	—	—
Wholesale and retail trade	11.648	4,190	23.380	8,410

Banking, insurance and ownership of property	16,458	5,920	7,311	2,630
Transport and communications	-0,195	- 70	2,641	950
Services	1,001	360	-0,445	- 160
TOTAL	52,932	19,050	67,887	24,420

Source: Balance of Payments 1964-65.

Since 1950, overseas investment in New Zealand has increased rapidly: between 1950/51 and 1964-65 the total net inflow of capital from all sources amounted to £265.6 million (\$738.4 million) of which £200.5 million (\$557.4 million) was direct investment by overseas companies. A large part of this investment has been in the manufacturing sector and so has assisted New Zealand's post-war industrial expansion.

Government investment in industry is very small and the information in table 4 in chapter III C gives an indication of the few industries involved. Apart from this, remaining investment in industry comes from private and commercial sources. Chapter VI A gives details of the Development Finance Corporation established to provide finance for new and expanding industries.

b. Structure of capital market

Finance for capital expenditure is available in two broad ways:

- self-financing by means of depreciation allowances and retention of profits;
- borrowing and issue of shares.

The capital market is concerned with the second method. An efficient market provides adequate means by which savings are mobilized and lent, directly or through the financial institutions, to those borrowing. There are the deposit receiving institutions (banks, trading companies, the short-term money market and building societies) and finance can also be raised on the stock exchange. Funds also flow to the capital market through the insurance companies, superannuation funds, and trustees of estates or property.

Borrowers comprise individuals, companies, local authorities and the Government. For the individual seeking funds to finance a business or the purchase of property, there are numerous sources available — other individuals, private trustee and agency companies, insurance companies, trustee savings banks, building and investment societies, the Development Finance Corporation, and the Government-owned State Advances Corporation. The provision of both long-term and short-term finance for farmers is important to New Zealand and there are several sources including stock and station agents and/or co-operative dairy companies.

The main method by which companies obtain capital is by issuing shares or debentures, through the stock exchange in the case of public companies, and

by private arrangement in the case of private companies. In this way the capital of companies is drawn from individuals, directly through sale of shares or indirectly through the medium of savings institutions. Substantial sums are also obtained by companies from insurance companies.

While the Government obtains a proportion of its finance for capital purposes from taxation and from the Post Office Savings Bank, it also borrows by public issues of government stock to which both individuals and financial institutions subscribe.

The capital market is affected by action in the fiscal field. Thus changes in interest rates, in depreciation allowances for tax purposes, or in taxation on profits (both retained and distributed) affect both the supply of and demand for capital funds.

Government policy has an effect on the capital market through:

Direct control over Government works expenditure allocating available funds to various projects.

Government control over the works programmes of local authorities through the Local Authorities Loans Board which examines schemes involving the raising of loan finance by the local authorities concerned. The Board consults the appropriate government department in each case.

Control of borrowing overseas by New Zealand companies.

Control over the establishment of businesses in New Zealand by overseas companies.

Control over the raising of finance in New Zealand by overseas owned companies.

c. Promotion of savings

Government policy is directed toward encouraging a high rate of savings in New Zealand to provide the necessary capital for development. Because the Government itself does not engage in industry except in special circumstances, there is no special promotion of government savings for channelling into industry. Details of government investment in industry are given in chapter III C.

The promotion of business and personal savings is achieved through the general operation of the financial and banking systems: changes in the rate of interest, the trading banks reserve ratios at the Reserve Bank and the general inflationary/deflationary state of the economy will all affect the rate of business and personal savings. Chapter III gives details of the financial system operating in New Zealand as well as the main channels of investment in industry.

d. Success in mobilizing private capital

Private capital formation in 1964/65 was £240 million (\$667.2 million) compared with £215 million (\$597.7 million) in 1963/64. The 14.4 per cent rise was due in very large measure to increased build-

ing activity and farm investment. Private capital also played a part in capital formation of public authorities.

PRIVATE SAVINGS OVER THE PAST FIVE YEARS

	Private saving			
	Undistributed profits of companies		Other	
	Million pounds	Million dollars	Million pounds	Million dollars
1960/61	43	120	58	161
1961/62	30	83	51	142
1962/63	43	120	105	292
1963/64	52	145	139	386
1964/65	61	170	117	325

Source: National Income and Expenditure Statistics 1964/65.

e. Foreign capital

ANNUAL DIRECT OVERSEAS INVESTMENT IN NEW ZEALAND

Year ended 31 March	Overseas investment	
	Thousand U.S. dollars	Thousand N.Z. pounds
1950/51	15,624	5,620
1951/52	30,552	10,990
1952/53	29,496	10,610
1953/54	8,896	3,200
1954/55	30,914	11,120
1955/56	43,757	15,740
1956/57	28,134	10,120
1957/58	26,744	9,620
1958/59	38,559	13,870
1959/60	9,035	3,250
1960/61	47,594	17,120
1961/62	50,261	18,080
1962/63	67,866	27,650
1963/64	52,900	19,050
1964/65	67,888	24,420

Source: Balance of Payments, 1964/65.

As mentioned in chapter III, there are no direct controls on the inflow of foreign capital and government policy is to welcome such investment. There are no official plans for investment in industry to be provided from internal or external sources: this is left to the business community except in so far as some loans are raised overseas for a specific purpose such as harbour development.

f. Servicing of external public debt

Interest payments on and repayments of overseas loans raised on government account are serviced through the Public Account. Legislation relating to the custody, administration and audit of the public moneys and securities is contained in the Public Revenues Act 1953.

The Minister of Finance may raise loans overseas, when authorized by Parliament, and he may then prescribe the mode and conditions of repayment, the rates of interest and the times and places of payment of principal and interest respectively. The manage-

ment of the public debt is in the hands of the Reserve Bank of New Zealand which arranges for the servicing of the overseas public debt according to the conditions agreed upon.

g. Joint domestic and overseas ventures

While the Government favours joint ventures between domestic and overseas concerns, there are no legal provisions requiring a proportion of New Zealand capital or ownership in industries established by overseas interests. However, government consent is required for overseas companies to begin business in New Zealand. New Zealand participation in the form of a share of the equity capital is preferred, and it is considered that this type of arrangement should be beneficial not only to the New Zealand economy, but also to the overseas company which will have easy access to knowledge of local conditions and markets.

h. Public ownership of industry

Industries in New Zealand are mainly privately owned. The chief publicly owned industries are the Government's railway workshops, naval dockyards, State coal mines, and local authority transport workshops. Other publicly owned concerns include some sawmills and a linen flax mill. Provision of electric power is the responsibility of the Government, and the railways and some public transport services are operated by the Government or local authorities.

There is also a number of jointly-owned industries. The Government is a substantial shareholder in and has advanced finance to the Tasman Pulp and Paper Company. Other industries in which the Government has shareholding include some fertilizer works, milk treatment stations, coal-mining companies and a salt company.

In general, however, it is not the Government's policy to extend its activity in industry. Rather, its task is seen as being the provision of a climate in which industry can develop and prosper, through the provision of essential services and by devices such as taxation incentives and depreciation allowances. The Government has assisted industries only in a few cases, when the national importance of the industry was considered to warrant a departure from policy.

i. Remittance of dividends and foreign capital

It is government policy to allow the remittance of profits, interest and dividends earned by foreign investors, subject only to formal authentication in some satisfactory form. For new applications to remit such payments, it is normally necessary to trace receipt of the capital funds involved through the banking system. The repatriation of capital, including capital gains and capitalized profits, is normally permitted subject to formal approval of the Reserve Bank and to the funds having come to New Zealand through the banking system or some other equivalent approved form.

j. Restrictions on overseas investors

There are no restrictions on overseas private direct investment in New Zealand, except for those which may apply to specific industries or projects. A New Zealand company which wishes to obtain capital overseas must get Reserve Bank approval, except where the amount to be raised in a twelve-month period is less than £10,000 (\$27,800).

k. Encouragement of overseas investment

The important benefits which an inflow of overseas investment can bring to New Zealand are recognized by the Government. It therefore encourages such investment when it appears to be capable of making a positive contribution to the economy and industrial structure. Criteria which are taken into account when considering government approval for an overseas investment project are price and quality comparability; the degree of protection required by the industry; the use of domestic raw materials; the amount of processing carried out in the manufacture, and whether a large value of domestic production is added in relation to the overseas expenditure; the potential for export; the prospects of further technical knowledge and skill being brought into the country. As mentioned earlier, a degree of New Zealand participation in the capital is also preferred.

l. Regulations affecting royalty payments

The remittance of royalty payments for technical know-how and services is also subject to the control of the Reserve Bank. These payments are permitted if justified by adequate evidence of the usefulness of the services to New Zealand.

Once a royalty agreement has been agreed to by the Reserve Bank there is no difficulty in remitting payments under it.

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

a. Industrial development corporations and research institutions

1. Development finance

There are no corporations or bodies in New Zealand which exist solely for the purpose of planning or carrying out industrial development.

However, the Development Finance Corporation Act, passed in 1964, provided for the establishment of the Development Finance Corporation of New Zealand. This commenced operations in July 1965.

The corporation includes both government and private participants. The Governor of the Reserve Bank, the Secretary to the Treasury and the Secretary for Industries and Commerce are directors and the private participants elect between five and seven directors.

The Act provided for an initial share capital of £2 million (\$5.6 million) and allowed the corporation to borrow up to £2 million by way of debenture from the Government or Reserve Bank free of interest for a prescribed period and to borrow money in New Zealand or elsewhere up to five times the authorized capital. Such borrowing by the corporation would be covered by government guarantee up to £6 million (\$14.8 million). The corporation is required by the Act to offer to the Reserve Bank from time to time such number of its shares as will ensure that the Bank, if it accepts the offer, will hold 30 per cent of the share capital.

On its inception the corporation issued two million 10 - shares, which were taken up by the Reserve Bank (600,000 shares), the trading banks (600,000 shares) and the larger insurance companies (800,000 shares). This has provided the corporation with a share capital of £1 million (\$2.78 million), of which 2 6 per share, of £250,000 (\$695,000) has already been called up. The corporation in addition has received its first advance of £250,000 (\$695,000) from the Government.

The powers and functions of the corporation are broadly drawn. Its general functions are to supplement the activities of existing lending institutions in providing finance for the establishment of new industries or the development or extension of existing industries in cases where finance is not already available on reasonable terms and conditions.

The aim of the corporation is to assist industries of benefit to the economy generally, particularly those industries based on the extraction or processing of indigenous raw materials. It is also required to take into account the degree of New Zealand ownership, the character of the area in which the industry is to be located and the industry's capacity for earning overseas funds and contributing favourably to the balance of payments. The corporation is also to encourage industrial development by providing advisory and technical services. In special circumstances it can make loans to assist agricultural and pastoral production.

2. Industrial research and extension institutions

The Government provides for research into industrial processes and techniques through the Department of Scientific and Industrial Research (DSIR) in the following ways,

- by undertaking such work in its own laboratories in response to specific requests;
- by promoting the formation of industrial research associations financed jointly by industry and the Government;
- by making an annual grant towards the costs of operation of the Industrial Development Department of the University of Canterbury.

There is no industrial extension service as such, but the facilities of DSIR laboratories and its Information Bureau are available to assist industry wherever appropriate. The Department's Auckland Industrial Development Laboratories and the University of Canterbury Industrial Development Department were established to provide research and scientific services to industry. Both are concerned mainly with physics and engineering. Assistance to industry in the fields of physics, engineering and chemistry is also available from other divisions of the department.

Industrial research associations provide extension services for their particular industries. The range of service provided by the research associations varies according to the needs of the particular industries and in some cases extends to advice on individual problems, and testing. These associations are independent organizations supported jointly by industry and the Government.

The Department of Statistics prepares and publishes comprehensive statistics on the various sectors of the economy including manufacturing industries, transport and power, national income, inter-industry studies and productivity. Other government departments are closely concerned with economic research as a background for the formulation of fiscal and economic policies. The Monetary and Economic Council also publishes reports.

The most important privately supported economic research institution is the New Zealand Institute of Economic Research Incorporated, which was established in 1958 by the Government and is now financed by the private sector. It began work in 1960 and has published papers on such topics as the development of the tourist industry; economic aspects of electrical household durables; relative cost of domestic and imported goods industries; prospects for manufactured exports, output, employment and productivity growth in manufacturing industries; investment and decision making; strategic factors in New Zealand's economic growth; New Zealand-Australian trade. The Institute also publishes quarterly surveys of business conditions.

At the end of 1963 a National Research Advisory Council was established with nine members, three being permanent heads of Government departments, and six appointed by the Minister responsible. The functions of the council are to advise the Minister on all matters concerned with scientific research in New Zealand, with particular reference to the determining of priorities among research activities of the Government departments; the provision of scholarships and fellowships, and the promotion of the training of research workers; the association of the Government with industry in the promotion of fundamental and applied research, including the publication of reports and journals; and the promotion of co-operation with other countries, or with international organizations, in scientific matters.

b. Success achieved, problems faced, suggested measures

1. Development finance

Because the Development Finance Corporation has not yet been established long enough to assess its achievements, this heading can best be discussed in terms of some of the considerations which led to the decision to establish it. The New Zealand capital market, whilst not incorporating all the elements found in some of the larger countries overseas, is a fairly developed market with a broad range of institutional arrangements for the mobilization and re-lending of savings. As a preliminary to the Government's consideration of the establishment of a finance corporation, the Tariff and Development Board was asked to examine the extent to which this market provides adequately for the borrowing of establishment and development finance for the non-agricultural industries over the medium and long term. The Board concluded that, notwithstanding the existence of a fairly developed capital market, a need existed for additional finance of this type and for new means of directing capital to productive industry. A need was seen in many instances for capital on easier interest rates and repayment terms than was already available from existing commercial lending institutions. Greater efficiency was considered desirable in the use of industrial capital.

Special arrangements were considered necessary to facilitate and co-ordinate the introduction of overseas capital into private industry and to provide additional means for its association with domestic capital, and for access to overseas technical services. The Board pointed to the lack of an institution or body exercising an advisory function for developing business, particularly small and medium-sized businesses where knowledge of business organization, business financing, and the sources of finance are inadequate.

It was recognized that the necessity to achieve a more rapid rate of economic growth and to make appropriate adjustments to changes in overseas trading conditions would intensify these needs. Special arrangements should therefore be made to enable the increased needs to be met as they arise.

After considering the various alternatives, the Board concluded that the most suitable means of meeting these needs would be by the establishment of a new institution which might include but would be independent of the Government and existing lending institutions. It would be of greater advantage to the economy to have an experienced, soundly established corporation able to grow with the demand for its services, rather than to encounter at a later stage an urgent need and possibly be forced into emergency measures to meet it.

2. Research and extension institutions

A characteristic of research and extension services in New Zealand is the wide disparity between activity

in the agricultural and industrial sectors. Over the years New Zealand has developed impressive institutions in agricultural research which have done outstanding work of great value to the economy. This research activity has been accompanied by the development of effective extension services to promote agricultural production. By comparison, research of more or less direct value to manufacturing industries has been meagre and extension services have been limited virtually to those industries which themselves have been prepared to participate.

Because of the importance of agriculture in the New Zealand economy, the past and continuing emphasis on agricultural research and development work is entirely appropriate. However, the development of a balanced and mature economy, with the skills, techniques and facilities necessary to produce goods and services in pace with the increasing demand, presupposes an extension into industry of research activities and advisory services on a comparable scale. Notwithstanding New Zealand's dependence on agriculture and the overseas sale of farm products, only a very small proportion, for example, of all funds spent by the Government on agricultural research has been devoted to research on the processing and marketing of farm products.

A policy has accordingly been applied over recent years of intensifying the industrial research programme without detracting from agricultural research and development activities. The report of the DSIR for 1965 indicates that the department currently spends about 41 per cent of its vote on agricultural research and about 29 per cent on industrial research, including grants to research associations. The remaining 30 per cent is devoted to investigation of natural resources, the "earth sciences", and various scientific services. In 1960 some 24 per cent of DSIR's vote went on industrial research.

Not all the responsibility for research rests on the Government and while government services need expansion and are being expanded, within industry itself, research activities remain generally inadequate.

Scope exists for an extension of these activities particularly in such relatively inexpensive fields as operational research — the investigation of the efficiency of an operation or series of operations.

The establishment by the Government of the Research Advisory Council should give impetus to research and assist the coordination and development of research activities. As noted earlier, taxation incentives encourage private research.

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT

No detailed assessment of New Zealand's future needs of manpower in industry has been made, and there is no detailed statistical material which contains future projections of this type.

The basis of training in New Zealand is the school education system, which provides for free compulsory education up to a minimum age of 15. Some vocational subjects are taught at post-primary schools.

Skilled labour receives its training by means of apprenticeships, supplemented by part-time classes at technical schools. There are twenty nine New Zealand Apprenticeship Committees which have the task of reviewing conditions of apprenticeships and keeping them up to date. In the major industries apprenticeship orders usually provide for four hours weekly at technical classes during the day, and the same amount of time at evening classes. Recently there has been a tendency for full-time course lasting for a short period to be held, rather than courses requiring half a day's attendance each week.

There are six technical colleges in New Zealand, which provide a general secondary education with a greater emphasis on technical subjects than there is at other secondary schools. There has always been some provision for training of technicians at a tertiary level through special courses at these colleges, and certain administrative changes have been designed to increase the scope of this type of training. In three of the main cities, technical institutes have been established under the control of the Education Department which have the function of providing these technical courses. A polytechnic is planned for Dunedin and a technical college for Hamilton. Some courses are prescribed by the Technicians Certification Authority, a body comprising representatives of the Department of Education, teachers, and executive committees which are drawn from occupation groups concerned with the various technical courses. Other courses are provided by the technical institutes if there is sufficient demand in a particular field. At the end of 1964, the Government approved the preparation of plans for the development of a Central Institute of Technology to cater especially for some of the more specialized and more advanced types of course, and to provide some practical facilities for correspondence pupils.

Engineers usually receive their formal academic training at a university. Undergraduate engineering students are required to spend a specified period doing practical work during the vacation. A few engineers do not attend university but go straight into industry where practical experience is gained, at the same time study for the professional examination of the Institute of Engineers.

The training of executives and supervisors in industry comes under the Department of Labour's Training Within Industry scheme. The Department provides training programmes under this scheme concerning the use of supervisory skills by top and middle management, professional people and tradesmen and on the relation of management methods to production results. The scheme organizes conferences conducted by trained conference leaders, and these are followed

by a programme of learning and application of efficient methods on the job. Individual firms are encouraged to develop their own training courses with the help of Training Within Industry experts and material.

The universities also include in their curricula courses on business administration.

The New Zealand Institute of Management conducts a diploma course in industrial administration. The syllabus is fixed by the Institute, but teaching is carried out in part-time classes in the technical schools. Some major firms have permanently assigned training officers who conduct courses ranging from foreman-supervisor level to advanced management. Many companies send executives to managerial courses overseas, particularly in Australia, but also in the United Kingdom, the United States and other countries. Management consultant firms in recent years have organized increasing numbers of courses for executives in addition to their consultant work.

It has been recognized that the amount of technical training in New Zealand needs to be increased and its quality improved to assist in developing a more sophisticated industrial structure. In 1958 the Government approved the setting up of the New Zealand Council for Technical Education, an independent body which reports to the Minister of Education. It is charged, among other things, with fostering close relations between technical education and industries and commerce, with finding out the needs of industry and commerce for technical education, and with promoting co-ordination between technical education, industry and commerce, workers' organizations and government departments. In January 1964 the Government announced a five year "rolling programme" of building and land acquisition, a technical institutes' works committee to administer it, and a separate subdivision in the education vote for senior technical education.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

a. Existing industries

Note: Unless stated, statistics are for the year 1963/64.

1. Food processing

This is much the largest group for value of production. It is chiefly concerned with the processing of farm products, and covers most of New Zealand's staple export commodities. The group numbered 661 factories with a total production value of 313.8 million (\$872.4 million). Total employment in the group amounted to 34,195.

Industries covered by the food processing group are meat freezing and preserving, ham and bacon curing, sausage casings, ice cream, butter and cheese and milk products, fruit and vegetable preserving, fish preserving, grain milling, biscuits, cocoa, chocolate and confectionery, animal feedstuffs and other food preparations.

Of this group, meat freezing and preserving and butter and cheese production represented two-thirds of employment and three-quarters of the value of production. The 38 meat freezing works in New Zealand operated for the most part on a relatively large scale, 31 of the 37 having more than 200 employees each and 28 having an output of over £2.5 million (\$7.0 million) each. Increased production in recent years has come from increased efficiency and expansion in existing factories rather than in the building of new establishments — the total number of factories decreased from 48 in 1950/51 to 38 in 1963/64. On the other hand, butter and cheese factories and other factories processing milk tend to be small. Of the total number of 292 establishments about half employed between 6 and 20 persons and only three had more than 100 employees. The volume of production of the milk products industries has steadily increased over recent years.

2. Basic metals

There were 90 factories within this group with a total of 1,224 employees. The production value was £6.6 million (\$18.3 million). Important activities include iron, steel and brass founding; diecasting; smelting and refining lead into ingots, sheets, pipes and the like, copper wire drawing and subsequent fabrication into insulated wire and cable; smelting precious metals; and smelting and refining of non-ferrous metals other than lead. By far the greatest of these activities is iron and brass founding. The establishment of a steel industry, referred to elsewhere, using New Zealand's ironsands resources will substantially strengthen New Zealand's industrial base. New Zealand already has one plant for the manufacture of reinforcing rounds from domestic-collected scrap. Important developments have taken place in recent years in the rolling of aluminium sheet and foil and the manufacture of aluminium extrusions from imported ingot. The manufacture of brass extrusions has been undertaken in New Zealand over a longer period. An extensive range of brass, as well as copper, extruded products is made from scrap and virgin metal raw materials. The products of the industry are used to make parts for plumbing installations, radios, washing machines, refrigerators, cookers, motor vehicles, and for many other industries. The manufacture of electrical and telecommunication wire and cables began in New Zealand in 1945 and since that time there has been considerable expansion both in the range of products of the industry and depth of manufacture.

3. Metal products

The manufacture of metal products, except machinery and transport equipment, covers the conversion of basic metal forms into finished articles such as tin cans and other tin ware, hardware, hollow-ware, metal stampings, fabricated wire products, bolts, nuts, washers, rivets, nails. The group includes galvanizing,

plating and polishing metal products. There were 602 factories within the group employing 11,092 workers and having a value of production of £45.6 million (\$126.8 million). The engineering industry is one which benefited substantially from the enforced dependence on domestic resources during the Second World War. Since that time accelerated expansion has continued. Growth over the past five years has been as follows:

	1955/59		1963/64	
	No. of establishments	Value of output (\$'000)	No. of establishments	Value of output (\$'000)
Sheetmetal	158	31,595	188	52,931
Wire working	41	5,607	54	10,819
Nail making	6	3,111	6	2,844
Electroplating etc.	45	2,063	63	3,756
Other metal products	179	29,757	291	56,534

Source: Statistics of Industrial Production, 1963/64.

4. Machinery (other than electrical)

This group comprises the manufacture, assembly and repair of all classes of machinery, other than electrical. The industry covered 664 factories, having a total of 12,267 employees and a total value of output of £43.1 million (\$119.8 million).

The early and intensive development of agriculture in New Zealand led to the early establishment of manufacture of agricultural machinery. By the 1880's New Zealand was exporting ploughshares to the United States. There are now 94 plants concerned in the manufacture, assembling and repair of this type of machinery. Ploughs, harrows, cultivators, milking equipment, hayrakes, seed drills, artificial fertilizer spreaders, rotary mowers are some of the main products of the industry. The total production of agricultural machinery was valued at £6.7 million (\$18.6 million).

There are 570 factories engaged in the manufacture and repair of other types of non-electrical machinery. Products include washing machines, refrigerators, industrial machinery of many kinds, such as pumps, woodworking and heating machinery, lawn mowers, concrete mixers. Manufacture of most of the lighter types of machinery has been developed, but much of the heavier and highly intricate machinery for which New Zealand offers only a limited market, is still imported. The value of output of this sector of the industry amounted to £36.4 million (\$86.2 million).

5. Electrical products

This group comprised 178 factories, having 7,387 employees, and had a production value of £33 million (\$91.7 million).

The domestic industry produces a wide range of home appliances (stoves, refrigerators, washing machines, radios, television, and so on), electrical fittings, lead acid batteries and lighting equipment (both industrial and home).

There has been a substantial increase recently in production of telecommunications equipment. Con-

siderable progress is being made in the production of electronic control equipment.

6. Transport equipment

The great majority of the 2,300 units in the transport equipment industry which employed 27,231 persons and had a total value of output of £102 million (\$283.6 million) are garages for the repair of motor vehicles.

The most important units in this group were the 18 motor vehicle assembly plants which assembled over 60,000 motor vehicles. Steady expansion of the New Zealand content, to 50 per cent in some cases of the value of each finished vehicle produced, has followed the generally rapid expansion of all sectors of manufacturing industry in New Zealand. A motor body building industry covering 90 establishments and employing 1,406 persons has developed in association with the assembly industry.

Within the group, 77 establishments are concerned with boat building and repairing and marine engineering. For the most part the industry has been concerned with the building of small craft predominantly rowboats, yachts and motor boats in the range up to 40 foot length. However, fishing trawlers are now being built. Of the total value of output of £2.7 million (\$7.5 million) ships repairs and marine engineering and repair work represented £1.9 million (\$5.3 million).

7. Wood and cork products

This is a highly diversified industry with a large number of small units making timber products of a wide variety. The industry is directed mainly to supplying the needs of the domestic building and furniture trade. Sawmills and planing mills account for the greater part of production in this sector. Although the particleboard, plywood and veneer industry has been increasing in importance as more use is made of this type of building and furniture material: the value of output of plywood and veneers has increased over the last five years from £2.4 million (\$6.7 million) in 1959/60 to £3.4 million (\$9.5 million). At the same time, the relative importance of the manufacture of wooden containers has declined as other packaging materials have become more popular.

New Zealand's forests provide suitable timbers for most uses. A feature of wood production is the increasing use of exotic pines (especially *pinus radiata*) compared with native timbers. In 1952/3 less exotic pine passed through sawmills than native rimu, but by 1963/4 371,000,000 board feet of exotic pine was milled compared with 193,000,000 board feet of rimu. Export of wood manufactures has increased greatly: in 1953 their total value was £638,300 (\$1,774,500) while in the year ended June 1965 it was £2,387,609 (\$6,637,553). Hardwoods, for special purposes such as wharf piles, are imported, as well as some high quality furniture timbers such as mahogany and teak.

8. *Paper and paper products*

Production of paper and paper products on a major scale from New Zealand grown timber is a fairly recent development, dating from the early 1950s. Production increased threefold between 1949/50 and 1955/6, and between 1956/7 and 1963/4 the volume of production more than doubled. Exports, particularly of woodpulp and newsprint, have also increased rapidly in recent years. Exports of woodpulp were 65,601 tons and of newsprint 57,388 tons, the combined value being £8,525,000 (\$23,670,000). The major destination was Australia. The increased use of fibreboard and paperboard in building, and of paper bags, cardboard boxes and cartons in packaging has also contributed to the expansion of activity in this sector.

The industry included seven establishments employing 3,003 people. The range of products manufactured covers, mechanical and chemical pulp, newsprint, wrapping, printing and writing papers, tissues, box, carton and container boards and fibreboards. The 1963/4 value of output of the industry was £26 million (\$72.3 million).

9. *Printing and publishing*

The two most important sections of the printing industry are newspapers and general job printing. There are 20 major daily newspapers in New Zealand each with a circulation of over 10,000. These units had an output valued at £14.3 million (\$39.8 million), which was almost half the total output in the printing and publishing sector—£36.1 million (\$100.4 million). The volume of production in the sector increased over 60 per cent between 1956/7 and 1963/4.

10. *Manufacture of textiles*

The raw material which is used for most of the textile manufacture in New Zealand is wool. However, only a small percentage of the national production of wool is processed further in New Zealand—in 1961/2 the proportion of total raw wool production manufactured locally was 3½ per cent, and in 1963/4 it dropped to less than 3 per cent. (The bulk is exported.) At the same time, in 1964 (calendar year) New Zealand produced nearly 60 per cent of its requirements of woollen piece goods compared with only 33 per cent a decade ago. Certain types of wool manufacture have increased greatly in importance in recent years. The volume of production of all textile manufactures nearly doubled between 1956/7 and 1963/4, and there was an especially large increase in production of blankets, rugs, and carpets. Production of floor coverings in 1963/4 was 7,248,000 square yards compared with 3,089,000 square yards in 1956/7—an increase of 135 per cent.

An important development in the synthetic textiles field has been the recent development of nylon manufacture.

11. *Footwear, clothing and made-up textile goods*

The clothing industry is concerned mainly with production for the domestic market and is characterized by a large number of small units. Of the total of 867 establishments, only 26 employed over 100 persons each. There has, however, been a tendency for the smaller units to group together to attain greater efficiency. The value of output of the industry as a whole was £56.4 million (\$156.8 million). This has covered most of the needs of the domestic market and, with attention to quality and design, small but significant export markets have been developed.

The footwear industry is similarly made up mostly of smaller units—only 16 of the 127 establishments employing more than 100 persons. The combined value of output of the industry amounted to £12.5 million (\$34.8 million). The industry manufactures mainly for the domestic market, but, as in the clothing industry, small exports have been made.

12. *Chemicals and chemical products*

This group included 214 factories with 5,977 employees and a value of output of £44.5 million (\$123.7 million). There is as yet relatively little manufacture of basic chemicals in New Zealand. Soaps, paints, pharmaceuticals and so on, are all produced in large quantities from imported raw materials. One particular chemical industry that uses large quantities of New Zealand raw materials, and which has developed in response to New Zealand's farming techniques, is the fertilizer industry. This is a heavy industry and there are 14 factories dispersed around the country to meet local needs. Continued growth, in response to ever increasing usage of fertilizers on New Zealand farms, is assured. Some types of weedkillers are also being made in New Zealand—from imported intermediates.

The plastics and fibreglass industries have been making significant progress, becoming much more diversified in recent years. Apart from a wide range of consumer goods, plastic and fibreglass products now being made in New Zealand include downpipe and guttering, water and sewage reticulation pipes, sheeting, flooring, bulk transport containers, holding tanks, and vehicle bodies.

Although these products are still made generally from imported moulding powders, there is a trend toward compounding the latter and using New Zealand made colourants.

13. *Non-metallic mineral products*

This group, which covered 603 factories, had a value of output of £27.8 million (\$88.1 million) and employed 8,015 persons. It includes a highly developed cement industry, a window-glass industry, domestic glassware, an earthenware industry, separate units of which produce sanitary earthenware and tableware, and structural clay products such as insulators, roof tiles, pipes and decorative tiles.



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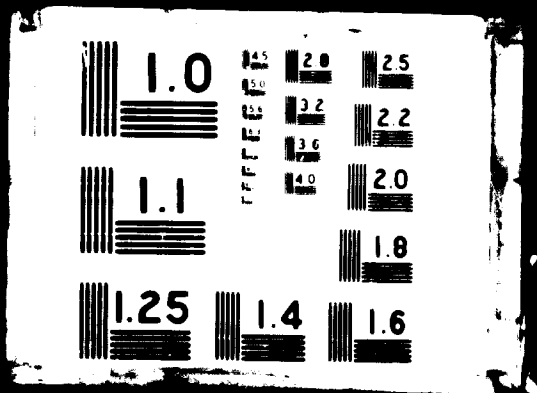


TABLE 1. FACTORIES: VALUE OF OUTPUT ACCORDING TO INDUSTRY GROUP
\$ (million) current prices

Industry group	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64
Food	492.3	557.1	573.8	605.8	634.6	656.4	684.4	672.5	719.5	696.3	733.9	768.7	872.4
Beverages	18.9	21.4	24.5	26.5	27.8	28.8	31.0	31.2	30.7	35.2	38.4	42.8	46.2
Tobacco manufactures	15.6	17.0	17.9	17.4	16.9	16.9	18.7	20.0	21.3	24.1	24.6	24.8	26.7
Textiles	59.1	60.5	68.0	81.4	80.4	84.1	83.5	88.1	106.5	114.9	128.1	122.5	158.4
Footwear, clothing, and made-up textile goods	103.6	96.7	100.6	113.7	114.3	109.7	118.8	129.5	125.6	137.6	146.3	144.0	156.8
Wood and cork products (except furniture)	72.9	77.2	85.1	94.8	101.4	101.5	107.4	116.0	126.1	139.8	146.1	143.1	154.3
Furniture and fittings	21.6	21.4	23.6	26.8	27.6	28.8	32.9	33.4	34.5	39.0	39.6	42.5	47.5
Paper and paper products	26.5	28.0	30.1	38.4	53.0	62.1	75.2	82.2	86.8	94.5	99.3	116.1	132.6
Printing, publishing etc.	37.0	40.8	44.2	51.0	55.1	58.0	63.6	66.6	72.8	82.5	87.5	90.9	100.4
Leather and leather products (except footwear and clothing)	13.1	11.6	13.0	12.9	12.4	11.4	11.4	12.9	14.4	16.7	17.1	17.1	18.4
Rubber products	23.3	17.9	19.8	24.6	27.7	29.4	30.3	31.9	32.1	36.0	37.8	39.1	40.6
Chemicals and chemical products	59.5	58.1	60.5	69.0	72.5	75.1	80.4	82.9	94.2	102.3	103.5	108.6	123.6
Petroleum and coal products	3.7	4.2	4.3	5.2	5.9	6.7	8.2	9.0	9.5	11.1	12.6	14.6	16.2
Non-metallic mineral products not elsewhere included	31.9	35.9	37.8	45.3	50.5	51.5	57.5	59.9	66.0	73.5	76.1	77.3	88.0
Basic metal manufactures	8.0	7.7	6.4	8.3	8.7	9.4	9.2	10.1	11.8	12.9	13.7	15.5	18.3
Metal products (except machinery and transport equipment)	37.4	40.6	42.5	53.8	58.3	58.1	66.0	72.1	79.8	93.6	102.4	112.1	126.8
Machinery (except electrical)	48.9	55.4	61.2	72.4	73.5	72.6	78.3	74.1	82.6	100.2	106.3	99.5	119.8
Electrical machinery and appliances	21.1	22.7	26.3	28.8	30.8	29.7	34.9	39.9	42.0	53.8	60.4	72.0	91.7
Transport equipment	91.6	105.5	117.1	140.5	161.9	167.1	181.4	176.2	177.6	206.8	232.4	244.6	284.6
Miscellaneous products	12.3	10.5	12.3	14.5	15.4	16.5	19.7	25.2	28.1	33.1	36.1	41.0	51.2
Total	1,198.3	1,290.1	1,377.1	1,531.2	1,628.9	1,673.7	1,792.9	1,833.3	1,961.6	2,103.9	2,242.1	2,336.9	2,674.3

Source: Report on Statistics of Industrial Production.

TABLE 2. FACTORIES. NUMBER OF PERSONS ENGAGED ACCORDING TO INDUSTRY GROUP

Industry group	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64
Food	25,113	25,757	26,154	27,217	28,479	28,656	29,835	30,785	31,184	31,156	33,229	34,178	34,195
Beverages	2,255	2,273	2,223	2,235	2,195	2,239	2,322	2,198	2,099	2,164	2,248	2,379	2,319
Tobacco manufactures	1,348	1,323	1,283	1,210	1,100	1,109	1,184	1,280	1,244	1,205	1,225	1,193	1,223
Textiles	7,689	7,768	8,187	8,564	8,323	8,273	8,671	9,557	9,914	10,703	11,224	11,085	11,587
Footwear, clothing and made-up textile goods	26,170	24,166	24,806	25,536	25,650	24,279	25,474	26,027	25,089	25,965	26,442	26,034	26,538
Wood and cork products (except furniture)	11,848	12,220	12,157	12,334	12,916	12,451	12,401	12,785	13,179	13,911	13,927	13,485	13,391
Furniture and fittings	5,210	4,955	5,059	5,153	4,950	4,944	5,112	4,984	4,960	5,132	5,126	5,114	5,453
Paper and paper products	2,851	2,771	3,148	3,394	4,354	4,615	4,858	5,191	5,363	5,864	5,966	6,403	6,982
Printing, publishing, etc.	8,451	8,468	8,635	8,990	9,457	9,684	10,102	10,408	10,832	11,414	11,916	12,085	12,579
Leather and leather products (except footwear and clothing)	1,737	1,578	1,656	1,680	1,612	1,494	1,465	1,611	1,567	1,708	1,704	1,730	1,789
Rubber products	2,472	2,066	2,267	2,642	2,848	2,833	2,805	2,911	2,872	3,095	3,251	3,205	3,278
Chemicals and chemical products	4,674	4,580	4,615	4,783	4,911	4,971	5,076	5,222	5,596	5,838	5,816	5,783	5,977
Petroleum and coal products	225	250	258	258	298	320	375	404	421	422	439	479	485
Non-metallic mineral products not elsewhere included	5,848	5,847	5,856	6,190	6,334	6,186	6,541	6,825	7,181	7,650	7,696	7,604	8,015
Basic metal manufactures	811	822	752	870	861	841	850	924	1,020	1,068	1,073	1,147	1,224
Metal products (except machinery and transport equipment)	6,149	6,191	6,562	7,355	7,505	7,453	7,902	8,306	8,858	9,659	10,005	11,092	11,849
Machinery (except electrical)	7,991	8,325	8,331	8,917	9,147	8,733	8,963	9,414	9,869	10,775	11,324	11,318	12,267
Electrical machinery and appliances	4,009	3,955	4,251	4,288	4,285	3,851	4,081	4,421	4,711	5,514	5,942	6,586	7,387
Transport equipment	16,649	17,279	17,575	19,218	20,299	21,053	21,994	22,045	22,199	23,443	24,681	25,698	27,231
Miscellaneous products	2,870	2,586	2,651	2,724	2,714	2,767	2,974	3,444	3,825	4,300	4,345	4,917	5,497
Total	144,370	143,180	146,426	153,558	158,238	156,752	162,985	168,742	171,973	181,346	187,579	191,515	199,266

Source: Report on Statistics of Industrial Production.

TABLE 3. FACTORIES: VALUE ADDED IN MANUFACTURE ACCORDING TO INDUSTRY GROUP

Industry group	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64
Food	87.2	90.2	98.6	106.4	114.9	120.2	126.7	130.3	160.8	147.5	180.7	186.9	207.9
Beverages	8.6	9.7	11.9	12.7	13.9	13.8	15.4	15.8	16.2	18.8	20.3	22.8	24.7
Tobacco manufactures	4.6	5.3	5.2	4.8	4.7	4.7	5.1	5.5	5.7	6.5	7.0	7.9	8.6
Textiles	18.6	19.1	22.1	24.1	24.2	23.9	27.3	31.6	36.4	40.0	45.5	44.3	48.4
Footwear, clothing, and made-up textile goods	41.0	38.0	41.7	47.4	48.8	47.7	51.9	57.0	56.2	62.1	67.0	67.2	73.4
Wood and cork products (except furniture)	36.1	37.1	40.9	45.8	48.2	48.3	51.7	54.6	59.4	64.4	66.9	65.6	70.9
Furniture and fittings	10.7	10.8	12.1	13.3	13.4	13.8	15.3	15.5	16.2	18.3	18.8	20.3	22.5
Paper and paper products	10.3	10.5	13.5	17.6	26.8	33.2	41.2	43.5	46.5	50.6	54.2	63.6	73.4
Printing, publishing etc.	23.6	25.2	28.1	32.4	35.4	37.0	40.9	42.7	46.5	53.1	57.4	60.4	66.4
Leather and leather products (except footwear and clothing)	4.2	3.9	4.2	4.5	4.6	4.2	4.4	5.1	5.6	6.6	6.8	7.4	8.2
Rubber products	9.5	7.7	10.2	13.0	13.7	14.0	15.2	16.7	17.1	18.3	20.4	22.1	23.4
Chemicals and chemical products	18.2	18.3	21.0	24.2	25.0	26.4	28.2	30.2	36.2	39.4	40.2	43.5	50.3
Petroleum and coal products	1.0	1.0	1.3	1.4	1.8	2.1	2.3	2.7	3.0	3.1	3.6	4.3	4.9
Non-metallic mineral products not elsewhere included	20.1	22.0	24.1	29.0	32.6	33.4	37.4	38.9	42.7	46.5	48.6	51.1	58.9
Basic metal manufactures	2.8	3.0	2.7	3.5	3.6	3.7	3.8	4.4	5.0	5.3	5.8	6.6	7.9
Metal products (except machinery and transport equipment)	17.8	18.4	20.8	26.4	28.2	28.2	31.0	34.0	38.7	45.1	49.8	55.4	65.5
Machinery (except electrical)	21.0	23.2	25.9	30.7	32.2	31.0	33.7	35.0	38.4	44.9	50.0	52.2	59.9
Electrical machinery and appliances	9.0	9.8	11.8	13.0	13.6	12.6	14.7	16.7	17.8	22.3	25.5	30.5	39.5
Transport equipment	39.9	44.4	49.1	56.9	66.1	69.1	75.1	75.7	78.0	87.9	97.6	104.2	117.6
Miscellaneous products	6.2	5.7	6.5	7.3	7.9	8.4	9.8	12.8	14.6	17.2	19.2	27.7	28.6
New Zealand Total	390.2	403.4	451.8	515.5	559.2	575.6	631.1	669.4	741.0	798.1	884.1	938.9	1,060.9

Source: Report on Statistics of Industrial Production.

TABLE 4. ANNUAL INCREASES IN PLANT, EQUIPMENT AND BUILDING VALUES BY INDUSTRY GROUPS
US\$ (millions) (current prices)

Year	1947/48	1948/49	1949/50	1950/51	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64
1. Food	9.4	5.7	9.6	10.5	8.5	15.9	17.9	18.3	18.4	20.5	20.2	16.8	29.9	29.1	25.1	26.4	22.4
2. Beverages	1.2	0.8	0.9	1.3	2.0	2.1	2.2	1.4	4.8	2.5	3.0	6.0	3.0	2.4	3.5	4.5	3.1
3. Tobacco manufacture	0.6	0.2	0.5	—	0.2	0.3	0.3	0.3	0.1	0.5	0.9	0.7	0.5	0.5	1.1	0.9	0.3
4. Textiles	1.8	2.3	2.4	2.2	2.8	2.7	2.0	3.2	3.0	1.9	2.8	3.8	5.0	7.3	9.0	5.5	8.7
5. Footwear, apparel and textile goods	3.1	0.6	0.9	3.5	4.6	2.1	2.5	2.9	3.2	2.4	4.0	5.0	2.3	5.3	5.9	5.0	6.2
6. Wood and cork products (excl. furniture)	3.0	2.0	3.0	5.8	5.3	4.5	2.9	3.9	14.4	4.8	3.0	4.5	4.1	7.4	6.3	4.5	4.4
7. Furniture and fittings	0.9	0.5	0.3	1.1	1.2	1.0	0.8	0.8	0.9	0.9	1.2	1.2	1.2	1.8	2.1	1.3	2.5
8. Paper and paper products	1.3	0.9	0.5	1.3	1.2	1.3	11.3	1.7	42.6	8.0	2.9	5.4	6.4	10.1	18.0	46.4	9.0
9. Printing and publishing	1.6	1.3	1.3	3.0	3.5	3.0	3.6	4.8	5.7	4.5	4.3	5.6	5.8	7.7	7.5	7.2	8.4
10. Leather and leather products (excl. footwear)	0.3	0.1	0.2	0.2	0.3	0.2	0.2	0.4	0.03	0.3	0.1	0.6	0.4	1.1	0.6	0.6	0.7
11. Rubber products	0.8	4.5	1.4	1.0	1.8	0.5	0.7	1.4	1.8	1.6	1.1	1.4	1.3	1.7	2.0	2.2	2.5
12. Chemicals and chemical products	2.1	0.5	1.5	1.7	1.8	3.2	2.1	4.8	4.4	6.7	3.8	9.5	8.5	5.2	9.0	6.4	6.7
13. Petroleum and coal products	0.1	0.1	0.04	0.1	0.1	0.2	0.1	0.2	0.4	0.6	0.6	0.3	0.4	0.4	0.5	2.2	0.9
14. Non-metallic mineral products	1.2	1.1	1.2	3.7	3.7	5.9	3.5	5.5	3.4	3.9	6.7	11.0	7.5	4.9	9.8	4.8	5.5
15. Basic metal manufactures	0.2	0.1	0.1	0.3	0.9	0.3	-0.4	0.7	0.4	0.3	0.5	0.5	0.2	0.6	0.6	0.7	2.0
16. Metal products (excl. machinery etc.)	1.0	0.6	1.1	1.6	2.2	1.2	1.7	3.7	4.1	1.9	3.3	4.0	4.1	9.3	10.7	17.0	8.6
17. Machinery (excl. electrical)	-0.3	1.4	0.7	2.0	2.3	2.5	2.7	3.6	4.6	1.9	2.0	2.5	3.1	6.1	7.0	5.3	7.7
18. Electrical machinery and apparatus	0.8	0.3	0.4	0.9	0.8	1.2	1.2	0.4	1.1	0.4	2.0	1.7	1.6	2.5	5.3	5.4	4.1
19. Transport equipment	3.3	0.8	1.5	4.4	3.7	5.1	5.5	6.7	8.8	7.5	7.7	6.6	6.9	9.0	10.1	10.8	10.8
20. Miscellaneous products	0.4	0.3	0.4	0.8	0.9	0.3	0.7	1.3	0.9	1.4	1.1	1.5	2.6	3.4	4.6	5.0	5.7
21. Gas industry	0.9	0.8	1.0	1.0	0.8	0.4	0.8	0.6	1.4	1.5	1.4	0.8	1.8	1.7	2.9	1.7	1.3
Totals	33.6	25.0	29.0	46.5	48.8	53.8	62.3	76.5	124.7	74.1	72.6	89.7	96.7	117.6	141.7	163.3	121.5
Gross Capital Formation (excluding changes in stocks)	211.3	250.2	291.9	350.3	405.9	486.5	519.9	611.6	628.3	639.4	697.8	700.6	728.4	831.2	875.7	895.2	995.2

Source: Report on Industrial Production Statistics.

Source: Official Estimates of National Income and Expenditure.

14. Oil refining

An oil refinery is now in operation in Whangarei. The capital cost of the plant was £10 million (\$27.8 million) excluding working capital. Of the £10 million, £6 million (\$16.7 million) is share capital—£3.6 million (\$10 million) has been supplied by overseas oil companies and New Zealand interests (including a domestic oil company and public subscriptions) have supplied £2.4 million (\$6.7 million). The refinery has an output of about 2 million tons a year of refined products from an actual throughput of slightly more than 2 million tons of crude oil. Products include motor gasoline, gas oil, diesel fuel, fuel oil and bitumen. The refinery employs a staff of 200.

b. New industries being planned

Some of the more important known developments are as follows.

Iron and steel

This industry will be established in four distinct stages. Operations are to begin in 1968. Stage 1 will give a production by 1970 of 189,000 tons of billets, wire rod and galvanized sheet.

The capital required for Stage I of the industry will be £17.5 million (\$48.6 million). Of this about 60 per cent or £10.5 million (\$29.2 million) will be spent overseas and about 40 per cent or £7 million (\$19.5 million) spent in New Zealand. The company was formed in July 1965 and has an equity capital

in addition to the output of an existing rolling mill, which has a present capacity of 50,000 tons a year on one shift.

IX. EXPORT OF MANUFACTURED GOODS AND SEMI-MANUFACTURES

a. Balance of trade

Since 1950, New Zealand has had a current account deficit each year (with the exception of 1953/54 and 1959/60) although trade balances have been favourable. The level of imports has been subject to Government control through import licensing and other arrangements, and this level has been held below the amount received from exports each year because of the recurring deficit in the invisible account.

The balance of trade figures for recent years are shown in the following table.

There are two factors which for many years have been especially important for the status of New Zealand's export trade. The first factor is the condition of world markets for wool, meat and dairy products, which together comprise over 90 per cent by value of the total exports of New Zealand produce; and the second factor is the predominance of the United Kingdom as a recipient of New Zealand exports: 80 per cent of exports went to the United Kingdom in 1930, and although the proportion is now considerably less, it was still high at 48.5 per cent in the year ended December 1965.

BALANCE OF TRADE FIGURES

	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
	(thousand dollars)					
Exports f.o.b.	862,650	797,850	809,400	843,300	1,007,200	1,043,900
Imports f.o.b. ^a	605,600	760,600	755,350	705,450	839,850	860,100
Net balance merchandise transactions f.o.b. . .	257,050	37,250	54,050	137,850	167,350	183,800

^a f.o.b. country of export

Source: Balance of Payments Estimates

of £6.5 million (\$1.8 million). Long-term loans of £11 million (\$30.6 million) have been authorized. It is intended to raise £3 million (\$8.34 million) of the loan money in New Zealand and to borrow £8 million (\$22.2 million) overseas.

The initial work force will be 850, of whom 300 will be specialized management, engineering and supervisory staff.

The industry will ultimately produce most of New Zealand's requirements of billets, wire rod, hot rolled strip, cold rolled strip, galvanized sheets, welded pipe and tin plate. The production of the industry will be

b. Export-potential industries

As New Zealand has no specific programme for export, there are no plans or projections for export-potential industries. Instead the policy is to promote conditions which will induce the expansion of industrial exports generally.

c. Standardization and quality control

The New Zealand Standards Association was established by the Standards Act 1965, which defines its constitution, powers and functions. It is governed

TABLE 5. NEW ZEALAND'S EXPORTS OF MANUFACTURED GOODS 1947-1965
(thousand U.S. dollars) (f.o.b.)^a

	1947	1948	1949	1952	1955	1958	1959	1960	1961	1962	1963	1964	1965
Newsprint	3	6	—	—	58	7,317	7,550	8,562	7,514	6,388	16,230	16,611	15,893
Woodpulp	—	3	—	—	3,144	7,576	8,120	7,809	6,994	7,856	7,108	7,851	6,566
Other paper and paper manufactures	50	81	156	275	128	759	1,079	1,351	398	473	467	542	1,409
Wood manufactures, including case timber in shooks	42	106	114	75	723	842	809	600	603	684	689	592	
Machinery including agricultural, wood working and electrical machinery	759	709	687	673	967	662	951	940	1,148	1,145	1,582	2,121	2,950
Manufactures of metals	378	214	97	78	106	106	97	120	167	209	261	445	2,809
Textiles, yarns, fabrics etc.	78	83	19	61	42	44	33	133	189	678	840	967	1,182
Manufactured tobacco and cigarettes	47	61	78	114	209	209	300	403	364	336	436	448	448
Rubber manufactures	31	39	44	17	150	230	311	373	442	370	389	442	442
Canned vegetables	6	31	39	573	1,476	876	600	439	242	161	400	598	1,020
Cereal preparations	726	776	806	523	514	178	125	231	186	239	336	434	567
Leather and leather manufactures	203	120	81	83	292	128	264	189	180	222	322	386	470
Beverages	164	192	136	209	181	261	200	203	322	272	322	411	373
Medical, pharmaceutical and toilet preparations	434	495	492	364	361	164	167	189	297	431	578	895	970
Clothing and footwear	578	33	14	19	16	8	70	108	41	106	303	612	364
Printed material	—	—	56	103	111	33	150	145	156	189	236	456	567
Petroleum products	—	—	—	—	—	—	—	—	—	—	—	1,396	3,828
Other manufactured goods ^b	2,811	2,655	1,685	1,404	1,960	600	703	1,095	790	926	1,496	2,699	3,539
Total manufactured goods	6,310	5,604	4,504	4,571	10,434	19,994	21,531	22,531	20,033	20,685	32,015	37,906	41,397

^a Official Exchange Rate £NZ1 = US\$2.78.

^b The composition of items in "other manufactured goods" has varied substantially over the period surveyed. In 1965 the most important items were articles of man-made fibre and other plastic materials; photographic equipment and measuring, controlling and scientific instruments; toys, games and sports goods; pottery, and food preparations.

by a Standards Council widely representative of producers, trade unions, consumers, government departments and technical organizations.

Standard specifications are formulated and issued by the Association. They are generally for voluntary use, as for citing in a contract between manufacturers and producers such as when a product is ordered to conform to a standard specification. In certain cases they are made legally mandatory, for example, by being cited in an act or regulation (such as the Electrical Wiring Regulations) or by local authorities adopting a model by-law prepared by the New Zealand Standards Institute (such as NZSS 1900 Model Building By-law).

When a standard is to be drawn up for a particular item, it is formulated by a committee of this Council, consisting of representatives of all the parties primarily interested in the standard proposal, that is, representatives of manufacturers, employees, consumers, traders, technical experts and other interested bodies (whether on the Council itself or not). An attempt is made to make the composition of each committee both complete and balanced. When the specification is drawn up by the committee, it is formally declared by the Council.

As the Standards Act 1965 states:

"Specification" means a description of any commodity, process, or practice, by reference to its nature, quality, strength, purity, composition, quantity, dimensions, weight, grade, durability, origin, age, or other characteristics, or by reference to any mark or label on any commodity; and includes a model form of by-laws, a glossary of terms, definitions or symbols:

"Standard mark" means a mark registered as a certification trade mark pursuant to section 24 of this Act:

"Standard specification" means a specification which has been declared to be a standard specification pursuant to section 23 of this Act.

When a standard is agreed upon for a particular commodity, the Standards Association publishes the specification and this would include details of the tests which are to be applied. In many cases, overseas standards (especially British Standards) are adopted in New Zealand; in other cases, original New Zealand standard specifications are drawn up. A complete list of New Zealand standards is published by the Standards Association.

In general, apart from those cases where standards are enforced by law (which are mainly in the fields of public health and safety), competition and the desire to increase production are considered the main incentives to quality control, and the responsibility for quality control rests with the manufacturers themselves. The role of the Government is in providing technical assistance, through the Department of Scientific and Industrial Research and in co-operation with manu-

facturers' associations, for testing and research which may lead to improved quality.

There are no special standard specifications for New Zealand's exports of manufactured products. On the other hand, there are standard specifications which cover in whole, or in part, manufactured products exported (although they may not necessarily be used).

For New Zealand's main agricultural export products, minimum standards of quality in the production of butter and cheese must be adhered to and these are enforced by regulations formulated and administered by the Department of Agriculture. A stringent system of inspection and grading has evolved in the meat industry, and all meat, whether destined for export or for the domestic market, must pass inspection tests and carry a grading mark.

If manufacturers falsely claim that their product is manufactured to a certain standard specification, legal action can be taken against them. The Standards Association of New Zealand is the registered owner of a certification mark (the Standard Mark) which is used by manufacturers under licence from the Association and subject to regular testing of products, which is arranged by the Standards Association and carried out in a suitable independent testing laboratory. A manufacturer is entitled to use the standard mark only if his products continue to satisfy the provisions of the relevant standard specification.

As stated above, standards of quality goods or minimum standards in a certain practice are sometimes legally established by citing the relevant standard specification in regulations under an act. Such enforcement of standards most commonly concerns public health and safety, such as the Electrical Wiring Regulations provide for legal enforcement of certain standards of electrical wiring and appliances, and they are binding on any wiring or appliance connected to the national power supply. In other cases regulations themselves define minimum standards, that is without reference to a standard specification, (such as the Food and Drug Regulations, embodying certain standards designed, among other things, to prevent the sale of unhealthy foods). The Electrical Wiring Regulations are administered by the New Zealand Electricity Department; the Food and Drug Regulations by the Health Department. The department concerned has inspectors who inspect the goods concerned and investigate complaints, and prosecution may be brought against a person who infringes the regulations.

In addition, local authorities can be authorized to make by-laws and, in some instances, they incorporate standard specifications in by-laws which can then be enforced. For instance, local bodies have by-laws governing the erection and design of buildings, the aim of which is to ensure both a minimum quality in the construction of buildings, and safety in structure and such matters as resistance to fire. The Standards Association of New Zealand has a Model Building By-law which forms the basis for the by-laws adopted by local bodies throughout the country, and

this in turn cites a number of standard specifications for building materials and components.

The Standards Association of New Zealand is the official body which draws up standards in New Zealand. The Association is a private organization established by statute and extensively backed by the Government. It took over from the previous Standards Institute which was run as a branch of a government department.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING, AND PROMOTING EXPORTS OF MANUFACTURED PRODUCTS

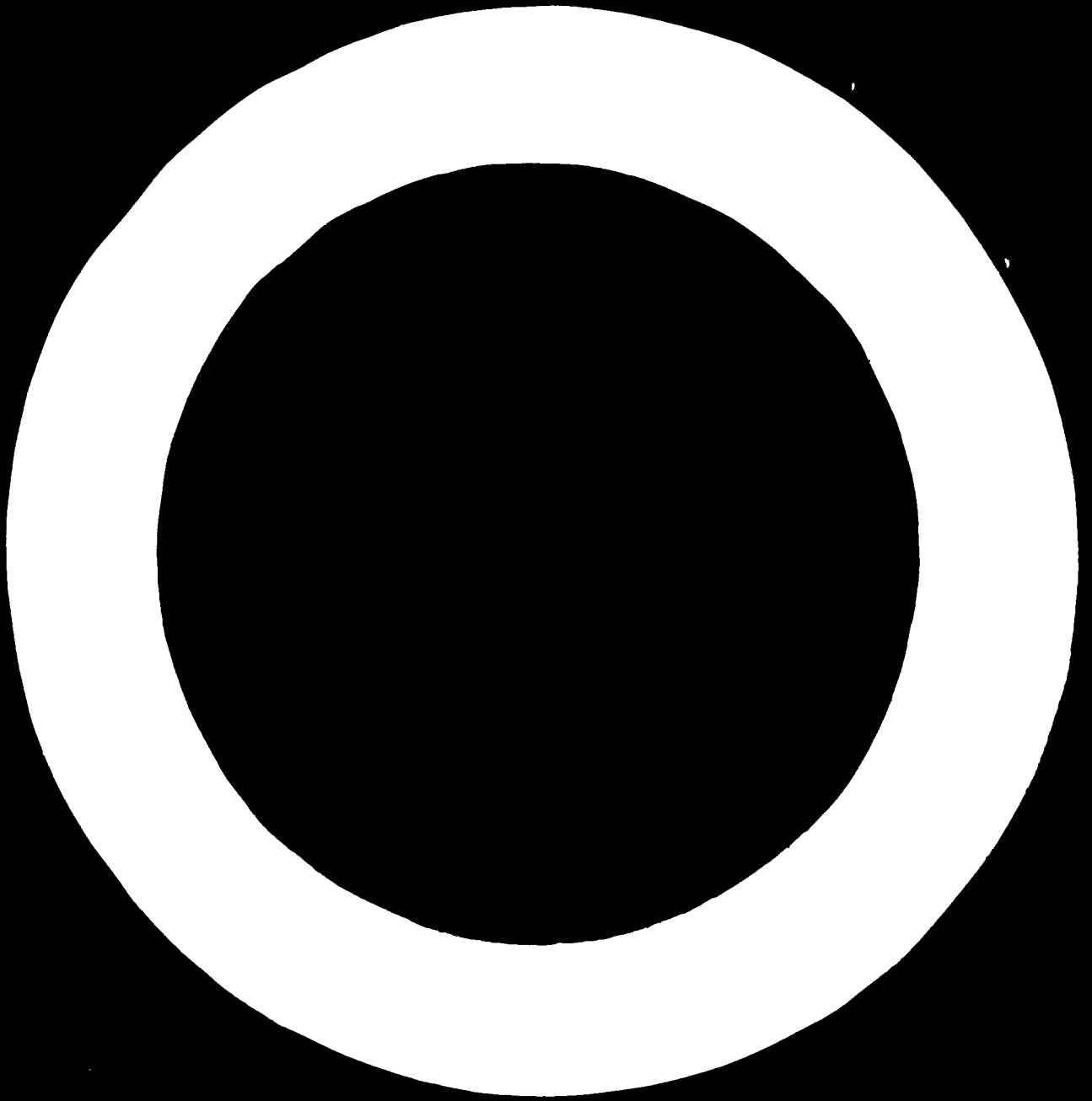
a. Proposed action to accelerate industrialization and to promote exports

As explained elsewhere in this study, New Zealand has no plan for industrial development or export promotion. Industrial development is achieved in-

directly by government encouragement of a more balanced and less vulnerable economy through the use of such measures as taxation incentives and bank credit controls as well as through the provision of import licences for new and expanding industries. Similarly, the export promotion of manufactured products is achieved through taxation incentives. In addition, the Department of Industries and Commerce through its trade commissioner service, its publication "Export News" and participation and assistance to exporters participating in Trade Fairs performs a valuable task in the direct promotion of such goods. An Export Development Conference was held in 1963, and there have been various Export Seminars and Trade Missions since then.

b. Assistance required

New Zealand is not concerned with planned assistance in the various fields enumerated under this heading.



A COUNTRY STUDY ON PAKISTAN

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning and programming

1. Industrial policy

Following the directions set by the President of Pakistan, economic planning in the country has been, and continues to be, pragmatic. The tone of the third five-year plan (1965-1970), an outline of which has been circulated for the purpose of eliciting opinion, amply proves this. The achievements in the second five-year plan (1960-1965) also lend full support to this statement.

Pakistan was created in 1947 and its initial efforts were directed toward overcoming problems of almost insurmountable magnitude. It had to begin literally from the scratch and, in the industrial field, where human and material resources were lacking, work was understandably slow and the results meagre; however, the Government started the work of reconstructing the economy of the country in earnest. In April 1948, the Government announced the industrial policy which continues to guide industrial development. Since 1958, when the present régime took over the administration of the country, the policy has acquired a pragmatic character. It aimed at establishing all facilities for the processing of locally available raw materials such as cotton, jute, leather, sugar, cement and paper. Under this policy, the Central Government assumed direct responsibility for the development of twenty-seven industries but the provincial governments were closely associated in the task of preparing development plans. Private enterprise was allowed free play and assured all possible assistance in establishing all types of industries with the exception of arms and ammunition, hydro-electric power generation and the manufacture of telephone and telegraph equipment. The main features of the 1948 policy announcement were:

- 1) Rapid industrialization of the country so as to balance its predominantly agricultural economy.
- 2) Early development of such heavy industries as are essential to the security of the State or to the speedy achievement of a strong and balanced economy.
- 3) Emphasis on reconstruction and development of agriculture and of industries dependent upon or connected with agriculture.

- 4) Exploitation of the country's mineral and oil resources and harnessing of power resources.
- 5) Encouragement of private enterprise.
- 6) Promotion of foreign investment in industry, by extending guarantees for repatriation of capital and remittance of profits, and so on.
- 7) Minimum control over privately owned industry, except by fixing targets and locations, allocating materials in short supply, regulating labour, and so on.
- 8) Assistance to industries in the procurement of capital goods, machinery, raw materials, technical help, scientific research, land, water, power, and so on.
- 9) Financial assistance by increasing the sources of credit.
- 10) Tax concessions and the like.

This statement of industrial policy was supplemented by further statements in November 1948, November 1954, and February 1959.

In the supplementary statement issued in November 1954, the Government detailed its policy of encouraging foreign investment. The policy statement described the facilities provided for repatriation of capital and also guaranteed just and equitable compensation in the event of nationalization. Tax incentives were also mentioned.

By 1959, substantial industrial development had taken place in the country and the Government, taking stock of the problems connected with the operation of existing industries and keeping in view the desirability of further expansion, decided to make a fresh announcement of policy.

The salient features of this policy were:

- 1) Primary emphasis on the development of industries based upon or connected with agriculture and raw materials available in the country.
- 2) Development of small and medium-sized cottage industries, in order to mobilize capital and employ skilled labour.
- 3) Establishment of more sophisticated and heavy industries considered essential for the achievement of a strong and balanced economy, taking account of available resources and without allowing industrialization to become a privilege of the few.

The broad aims of the policy were to expand production, give maximum scope to private enterprise, establish industries to earn and save foreign exchange, create healthy competition, provide tariff protection where necessary, evolve industrial specialties and undertake scientific and industrial research, and give special attention to uniform economic development of the country and the setting up of industries in less developed areas.

In this statement, the Government reserved for State ownership the following industries and undertakings:

- 1) Manufacture of arms and ammunition of war.
- 2) Production of atomic energy.
- 3) Railways, air transport, telecommunication, and the like.

The statement also assigned responsibility for industrial development to the two provincial governments (of East and West Pakistan), except in the following cases:

- 1) Industries located in the Federal Area of Karachi.
- 2) Industrial undertakings owned wholly or partially by the Central Government.
- 3) Mining of all minerals, including oil and gas.
- 4) Marine fisheries.

The Government's favourable attitude towards foreign investment was reiterated and industrial sectors designated in which foreign investment would be particularly welcome. Measures for the promotion of foreign investment were also outlined.

As a result of constitutional changes, the Government made another statement of industrial policy in 1963. This policy had the effect of rapidly expanding the production of consumer, export and producer goods, improving industrial efficiency and the quality of local products and accelerating the development of less developed regions of the country. Greater reliance is placed on private enterprise as usual to achieve these objectives. The climate for investment, in the public and private sectors, is improving fast and the tempo of industrialization is increasing with the help of financing agencies such as the Pakistan Industrial Credit and Investment Corporation and the Industrial Development Bank of Pakistan. The Department of Investment Promotion and Supplies under the Ministry of Industries and Natural Resources is playing a vital role in according approval to various schemes in the private sector and the two provincial Industrial Development Corporations are filling the gap left by the private sector in industrial investment. Apart from the concessions and facilities provided to encourage industry, expansion is being progressively achieved through various measures including import liberalization. The Government is fully aware of the need to balance and modernize the existing plants and to realize the economies of scale.

The impact of government policy on industrialization has been very favourable. It has been possible

to maintain the level of industrial development at an accelerated pace and to diversify the pattern of the country's economy. The present stage now calls for policies that will ensure the continuation of the present industrial development and also help in achieving the national objective of economic and social welfare of the people in the shortest possible period.

2. Economic development plans

(a) Background

The policy announcements led to the drawing up and implementation of economic development plans in which industrial development had a major share. Industrial programming was based on the physical targets set in the economic development plans.

In 1948, a Development Board and a Planning Advisory Board were set up. Owing to the paucity of resources, the achievements of the planning authorities were limited and the cost of all development schemes sanctioned by the Development Board up to the 28 February 1950 did not exceed 1,122,949 million rupees. Of this sum, 319,750 million rupees represented schemes implemented by the Central Government, 246,715 million rupees for schemes implemented by the Government of East Pakistan and the remainder (556,484 million rupees) for schemes implemented by the Government of West Pakistan.

Major emphasis was on the development of agriculture, irrigation, power and communications.

Well co-ordinated planning began in 1951. There were considerable shortcomings in the plans because the country still lacked adequate human and material resources. By that time, the Colombo Plan had been set up and its Consultative Committee was entrusted with the task of surveying the needs of the area and assessing the resources available and required, so that an international co-operative effort could be promoted to assist the countries of the area, to raise the living levels of their peoples.

(b) Six-year development plan, 1951-1957

Within the framework of the Colombo Plan, Pakistan launched a six-year development plan, 1951-1957. Its estimated cost of 2,600 million rupees was to be distributed as shown below:

Agriculture	Rs. 820 million
Transport and communications	Rs. 530 million
Fuel and power	Rs. 470 million
Industry and mining	Rs. 490 million
Social capital	Rs. 290 million

Some of the important targets of the six-year plan were:

- 1) Increase of 30 per cent in national income;
- 2) Increase of 256,000 kW in motive power;
- 3) Rehabilitation of railways;
- 4) Development of Chittagong port;
- 5) Geological survey;
- 6) Development of telecommunication services;
- 7) Increase in industrial production:

- a) Textiles — up to 1,350 million yards;
- b) Jute goods up to 130,000 tons per year;
- c) Paper up to 30,000 tons per year.

The six-year plan did not run its full course as it was substituted in 1955 by the first five-year plan (1955-1960). However, in the four years in which it was implemented, investment of over Rs. 2,090 million was made by the Central Government and the two provincial governments.

The six-year plan was substantially an "outline" plan: it only made sectional provisions for the main aspects of national development. The approach was largely on a project basis, that is to say, individual schemes were considered without their being integrated into a comprehensive plan. It was, therefore, felt that for balanced, integrated and co-ordinated planning, a special organization was necessary, which would be free from the day-to-day work of administration and would be exclusively assigned to the task of planning. Accordingly in 1953, the Government set up a Planning Board later re-designated the Planning Commission, which marked the beginning of the second phase of economic planning and which lasted until 1958.

The scope of government planning was explained by the Minister for Industries in 1952 as follows:

"The basic concept of the (Government's) policy is that it is primarily the role of private enterprise to undertake industrial ventures and that it is the duty of the Government to enable private enterprise to perform this role . . . while giving private enterprise free play in certain spheres, the Government must, in certain other matters, assist, guide and control it . . . in accordance with a co-ordinated and comprehensive plan, not confined to each particular industry but covering industrial development in general and, in fact, forming part of an over-all plan for the economic development of the country."

Industrial development in Pakistan was rapid just before the first five-year plan but it was rather disorganized and haphazard, since private investment selected only those industries which assured the highest profits, the least organizational effort and minimum investment. No account was taken of future needs. All this pointed to the urgency of drawing up co-ordinated plans.

The Planning Commission prepared the first co-ordinated, balanced and scientifically integrated five-year plan, which was launched in April 1955 and continued up to June 1960, three months in excess of its scheduled period owing to the conversion of the fiscal year in 1959, from April-March to July-June.

(c) *First five-year plan, 1955-1960*

The main objectives of the first five-year plan were:

- 1) to raise the national income and living standards of the people;

- 2) to improve the balance of payments position by increasing exports and substituting imports;
- 3) to increase employment opportunities;
- 4) to develop progressively the social services such as health, housing, education and social welfare;
- 5) to increase the rate of economic development, particularly in East Pakistan.

The total capital investment envisaged in the first five-year plan was 10,800 million rupees, made up of 3,300 million rupees (33 per cent) in the private sector and 7,500 million rupees (67 per cent) in the public sector. The private sector was given substantial recognition for the first time. As usual, largest consideration was given to agriculture; altogether, the infrastructure components, including water and power resources, were allocated 44.9 per cent of the total investment.

The plan envisaged investment of about 3,000 million rupees in large-scale industries, of which 2,700 million rupees was to be for new capacity and 300 million rupees for modernization. Of these amounts, the private investment was expected to be 1,600 million rupees and public investment 1,400 million rupees, mostly through the Industrial Development Corporations. The foreign exchange component was estimated at 1,900 million rupees. A sum of 86.5 million rupees was also provided for public investment in small-scale industries.

The major physical targets of the plan were:

- 1) Agriculture (increase in output):

Rice

8 per cent to 9 million tons.

Wheat

12 per cent to 3.84 million tons

Other cereals

10 per cent to 1.23 million tons

Raw jute

15 per cent to 6.4 million tons

Raw cotton

21 per cent to 2 million bales

- 2) Power, output to increase to 854,000 kW.

- 3) Industry (capacity increase targets):

Textiles

38 per cent to 2.20 million spindles

Jute goods

71 per cent to 12,000 looms

Veg. oils

3 per cent to 227,500 tons

Engineering

35 per cent to 176 million rupees

Sugar

104 per cent to 235,000 tons

Cement

91 per cent to 1.28 million tons

Cigarettes

120 per cent to 10,000 million cigarettes

Although the first five-year plan was highly integrated, it still fell short of over-all targets mainly because actual investment did not amount to more than 90 per cent of the planned amount. What emerged most satisfactorily was the performance of the private sector, which was largely responsible for the annual industrial growth rate of 12 per cent achieved in the 1955-1960 period.

The progress of industrialization since partition has been spectacular. The index of industrial production covering seventeen major industries rose from 100 in 1950 to 336.6 in 1955 and 543 in 1960. The increase in fixed assets in the private sector according to the Census of Manufacturing Industries is shown in table 1.

TABLE 1. FIXED ASSETS IN INDUSTRIES, 1955-1960
(million Rs.)

Region	1955	1957	1958	1960	Difference 1955-1960
East Pakistan	302.47	398.80	532.72	522.47	219.99
West Pakistan	473.08	705.70	904.24	951.63	478.54
Karachi	304.96	424.53	471.40	489.76	184.79
Total	1,080.52	1,529.04	1,908.37	1,963.86	883.33

The difference of 883.33 million rupees between fixed assets in industries in 1955 and 1960 does not indicate the actual investment, due to the deduction of annual depreciation from the amount of investment.

Foreign investment in the manufacturing industries was of the order of 305.04 million rupees on the 31 December 1959, from the following countries:

Country	Amount (million Rs.)
United Kingdom	72.93
India	209.46
United States	11.28
Rest	11.37
Total	305.04

It was anticipated that, by implementing the industrial development programme in the plan, employment in large-scale industries would increase by about 235,000 persons.

(d) *Second five-year plan, 1960-1965*

Based on the experience of the first plan, the second five-year plan (1960-1965) got off to a more auspicious start. Total outlay originally estimated at 19,000 million rupees was raised to 23,000 million rupees when the plan was finalized. Investments in the public sector were estimated at 12,400 million rupees and in the private sector at 6,800 million rupees. The balance of 3,800 million rupees was to be used in the semi-public sector.

The following development targets were set in the plan:

- 1) Increase in national income — 24 per cent.
- 2) Increase in per capita income — 12 per cent
- 3) Increase in food production — 21 per cent

- 4) Increase in industrial production — 60 per cent

- 5) Increase in foreign exchange earnings — 15 per cent

The plan also envisaged the creation of three million employment opportunities.

The implementation of the second five-year plan was most satisfactory; it achieved dramatic success and all the key economic indicators showed unmistakable progress. The growth rate in the five-year period was 5 per cent, and the increase in per capita income was 32 rupees— compared with only 3 rupees— in the previous ten years. The industrial growth rate levelled off at 13 per cent. The agricultural growth rate showed an unmistakable upward trend starting at about one per cent in 1950 and rising to 3.1 per cent by 1965.

Most remarkable results were obtained in investment. Gross investment was four times as high in the later years of the second five-year plan (1964-1965) as it was in 1949-1950 in terms of constant prices. In 1964-1965 alone, investment amounted to 16 per cent of GNP. The second plan has been more than successful in fulfilling its major objectives. The actual increase in national income over the plan period is over 29 per cent compared with the target of 24 per cent. Total outlay on the plan is now estimated at over 25,500 million rupees against the plan target of 23,000 million rupees. Exports are similarly placed at 2,000 million rupees above the plan target.

The index of industrial production rose to 156.5 (1959/60=100) by December 1963. On the basis of this calculation, it is expected that the plan target of a 60 per cent increase in industrial production will be achieved.

The private sector has been largely responsible for this impressive increase in production, justifying the greater reliance placed on it by the Government. In fact, the Government laid open the entire industrial field to the private sector (with the exception of manufacture of arms and ammunition and atomic energy). The public sector was entrusted with only such industries as were considered to be essential for the national economy and where private investment was not readily forthcoming. Even so, the role of the public sector has been that of a catalyst, stimulating and initiating growth in new fields and ventures and withdrawing in favour of private enterprise whenever the latter was prepared to take over the responsibilities.

The buoyancy of the private sector is reflected in the utilization of the Industrial Investment Schedules brought out by the Government for the guidance of private investors. The first Schedule announced in 1960 provided for a total investment of 2,840 million rupees. Within three years, it was over-fulfilled by 40 per cent. This necessitated a Revised Schedule which was announced in February 1963. By June

1964 this was also about 50 per cent utilized. Private investment has grown steadily at the rate of 7 per cent annually during the plan period.

(c) *Third five-year plan, 1965-1970*

The third five-year plan (1965-1970) is in the final stages of preparation. The objectives of the third plan are, briefly:

- 1) to increase national income by 30 per cent;
- 2) to provide nearly 5 million new job opportunities;
- 3) to increase foreign exchange earnings to Rs. 4,800 million;
- 4) to shift to producer goods industries, in order to reduce the country's dependence on foreign assistance;
- 5) to increase social welfare projects and the like substantially;
- 6) to develop additional capacity for export, where the country has natural or acquired advantages.

The third five-year plan is designed to take the country towards self-sustained economic growth. The plan envisages over-all investment at double the rate of investment achieved during the second plan. The plan allocates 12,880 million rupees or 24 per cent of the plan outlay to the industrial sector, of which 8,300 million rupees is to be in the private sector. The proposed investment is intended to achieve the following broad objectives:

- 1) increase the share of the manufacturing sector in national income from an estimated 13 per cent at the end of the second plan to 14.5 per cent at the end of the third plan;
- 2) to effect a drastic curtailment in imports of manufactures, thus reducing the country's dependence on foreign aid;
- 3) to augment the country's foreign exchange earnings after meeting the essential requirements of a growing population;
- 4) to provide a larger number of employment opportunities outside agriculture;
- 5) to increase the productivity and efficiency of industries.

The major aim of the industrial programmes in the third five-year plan is to shift the emphasis from the consumer goods industry to the basic capital and producer goods industries and to reduce the country's dependence on foreign assistance for the import of capital goods. The industries envisaged include steel, heavy machinery including agricultural and electrical machinery, transport equipment and heavy chemicals. Another important objective is to develop additional capacity for export in all those fields where the country has natural or acquired advantages, instead of confining the effort to import substitution; fertilizers, petrochemicals, pumps, cement, sugar, paper and newsprint, leather goods and processed fruits will be

specially encouraged, as well as the traditional cotton and jute textiles.

(f) *Criteria and priorities*

As stated earlier, industrial programming has been based on the physical targets set in the five-year (and other) plans. Physical targets had to be set within the framework of national economic objectives and in so doing the consideration of certain criteria and priorities was inevitable. Industrial development has been based on giving priority to the following types of industry:

- 1) industries expected to make the largest net contribution to national income per unit of investment;
- 2) industries expected to bring in large foreign exchange earning per unit of investment;
- 3) industries using indigenous raw materials;
- 4) producer goods industries;
- 5) essential consumer goods industries.

The criteria used in determining industrial programmes have been:

- 1) better utilization of existing capacity;
- 2) balancing of installed equipment;
- 3) modernization of existing units;
- 4) expansion of existing units where feasible;
- 5) new units.

In all industrial development programmes, the importance of economically viable, modern small-scale industries has always been kept in view, and new small- and medium-sized units have been encouraged. It has, however, at the same time been recognized that resources cannot be wasted by promoting at all costs an industrial pattern dominated by small enterprises. Essentially, where modern technology and large-scale operations were not indicated by over-riding technical and economic considerations, the choice has been in favour of small- and medium-sized units.

b. Machinery for planning, implementation and evaluation

1. *Development Board and Planning Advisory Board (1948)*

The Government set up a Development Board and a Planning Advisory Board in 1948. The functions of the Development Board were:

- 1) to co-ordinate development plans, both central and provincial, so that available resources were put to the best possible use;
- 2) to make recommendations regarding priorities among development plans;
- 3) to prepare, under orders of the Economic Committee of the Cabinet, memoranda on matters of general policy affecting development as a whole or any special aspects of it;

- 4) to act as a clearing-house of ideas and information relating to development and to bring to the notice of the ministries ideas or schemes which might aid development;
- 5) to keep a watch on the progress of development schemes in order to remove bottlenecks and difficulties hampering uniform progress in all sectors and to report on the progress of development schemes to the Cabinet.

The Planning Advisory Board was constituted with the Minister for Finance and Economic Affairs as Chairman and the Secretaries of Finance, Industries, Commerce, Health and Works, Food and Agriculture, and Communications as members. The functions of the Planning Advisory Board were as follows:

- 1) to advise the Government on matters relating to planning and development;
- 2) to review the progress made in implementing the plans;
- 3) to educate the public in regard to the necessity for various development schemes undertaken, in order to secure their enthusiastic co-operation.

Initial efforts at planning were not rewarding enough, mainly because of lack of human and material resources, and as time went on, it was felt necessary that the task of comprehensive and intensive planning should be entrusted to a special organization.

2. *Planning Board (1953)*

Accordingly, in 1953, the Government set up a Planning Board with the following functions:

- 1) to review the development that had taken place since Independence;
- 2) to assess the resources, material and human, which could be made available for development during the five years beginning April 1954 (later changed to April 1955);
- 3) to prepare a national plan of development based on fullest utilization of these resources for implementation in a period of five years beginning in April 1954 (later changed to April 1955), as a step towards the attainment of the economic and social objectives of government policy;
- 4) to make proposals regarding the administrative machinery best suited to ensure the successful implementation of the plan;
- 5) to make any other recommendation which, in the opinion of the Board, would contribute to the success of the plan.

Considerable attention was devoted to the allocation of responsibility for making and executing plans of implementation. It was felt that the co-ordinating and supervising organizations and staff bodies at best can stimulate and appraise but nothing can be accomplished unless the administrative agencies of the Government are able to perform the concrete tasks of programming and execution.

So far as industrial development was concerned, the Government created ministerial and departmental agencies to initiate and implement programmes.

3. *Planning Commission (1959)*

In June 1959, the Government reorganized the Planning Board and renamed it the Planning Commission. It was given a new charter of authority and responsibility, and, to overcome certain disadvantages that arose in co-ordinating planning and implementation, it was in 1961 finally entrusted with a number of planning and progressing functions. The planning functions are:

- 1) to prepare national plans at periodic intervals for the economic and social development of the country;
- 2) to make assessments from time to time of the human and material resources of the country;
- 3) to recommend such adjustments in the national plan as may be necessary in view of the changing economic situation;
- 4) to stimulate and, where necessary, initiate the preparation of development programmes and projects with a view to deciding whether they conform to national objectives and, in general, whether they provide for the most efficient use of available resources;
- 5) to co-ordinate the examination of development programmes and projects in consultation with the appropriate authorities and to secure the approval of the Central Government for acceptable programmes and projects;
- 6) to prepare the annual development programme within the framework of the national plan and, on a determination of priorities, to propose the allocation of resources;
- 7) to analyse and make recommendations on important economic policies and programmes;
- 8) to advise the Central Government and provincial governments whenever so required, on economic policies and problems;
- 9) to prepare data for the use of aid-giving countries, economic appraisal and evaluation;
- 10) to undertake and promote economic research and to initiate surveys and investigations needed to support effective planning and development.

The progressing functions of the Planning Commission are:

- 1) to progress the implementation of approved development projects, particularly aided projects;

- 2) to devise, obtain, collate and distribute to all concerned reports on the progress of projects, and to prepare periodic digests of these reports for the information of the Government;
- 3) to measure performance against promise, especially by comparing actual with estimated costs of projects;
- 4) to identify the causes of delays and difficulties, if any, in the implementation of projects and to promote specific solutions;
- 5) to advise on the nature of the machinery for securing the efficient execution of the national plan.

4. *National Economic Council*

The plans etc. of the Planning Commission require the approval of the National Economic Council, which is headed by the President of Pakistan and of which the Governors and the Ministers of the central and provincial development ministries are members. The Planning Commission serves as the secretariat of the Council. The functions of the Council are:

- 1) to review the over-all economic position of Pakistan;
- 2) to formulate plans with respect to financial, commercial and economic policies and the economic development of Pakistan;
- 3) to approve:
 - (i) the five-year plan.
 - (ii) the annual development programme.
 - (iii) the provincial development schemes in the public sector costing more than Rs. 2 million recurring or Rs. 5 million non-recurring,
 - (iv) the central development schemes in the public sector costing more than Rs. 500,000 recurring or Rs. 2.5 million non-recurring,
 - (v) all non-plan schemes,
 - (vi) schemes in the private sector;
- 4) to ensure that disparities between the provinces, and between different areas within a province, in relation to income per capita are removed and that the resources of Pakistan (including resources in foreign exchange) are used and allocated in such manner as to remove those disparities in the shortest possible time;
- 5) to appoint such committees or bodies of experts as may be necessary to assist the Council in the performance of its functions;
- 6) to submit every year to the National Assembly under Article 145 (8) of the Constitution a report on the results obtained and the progress made in the achievement of the object referred to in item 4 above. A copy

of the report must also be laid before each Provincial Assembly.

The National Economic Council has constituted an Executive Committee, with the Central Minister for Finance as chairman and with the following functions:

- 1) to sanction development schemes (in both the public and the private sector) pending their submission to the National Economic Council;
- 2) to allow moderate changes in the plan and sectoral readjustments within the over-all plan allocation;
- 3) to supervise the implementation of the economic policies laid down by the Cabinet and the National Economic Council.

The organization and functions of the Planning Commission have been substantially expanded, making the Commission responsible not only for the preparation of plans but also for over-all progressing and evaluation of development and preparatory work on foreign aid. The placing of the Economic Affairs Division under the Deputy Chairman, Planning Commission, ensures closer collaboration between the two agencies in the vital field of foreign aid. Planning cells have been set up in many central government ministries to assist in the formulation of projects and programmes. Of particular note is the planning cell in the Ministry of Industries.

5. *Planning cell in Ministry of Industries and Natural Resources*

In view of the importance of industrial planning and the importance enjoyed by this sector in relation to the general economic growth, balanced distribution of resources and so on, a planning cell was created in the Central Ministry of Industries and Natural Resources.

The following functions have been entrusted to the cell:

- 1) preparation, amendment and modification of Pakistan's five-year plan;
- 2) preparation, amendment and modification of the Industrial Investment Schedule, and periodical review of its progress;
- 3) preparation of the Central Annual Development Programme for the industrial sector, and scrutiny of all the development projects to be included in the development programme;
- 4) processing of projects through the Development Working Party;
- 5) preparation, co-ordination and presentation of all the projects being financed out of foreign credits, loans, aid and so on;
- 6) preparation of loan applications for projects and commodities for development projects;
- 7) checking and reporting on the progress made in implementing the five-year plan, the In-

vestment Schedule, and the Annual Development Programme, including all projects sanctioned in the private and public sectors:

- 8) consideration of the economic feasibility of development schemes in the light of the five-year plan;
- 9) co-ordination of all phases of work pertaining to loans, PL-480 and Commodity Aid;
- 10) examination, maintenance and correlation of all statistics.

During the five years of its existence, some additional work has been entrusted to the cell, for example:

- 1) preparation of material on industrial policy;
- 2) work relating to the National Income Commission, and the Statistical Council;
- 3) work relating to joint ventures and Pakistan's investment abroad.

6. Provincial planning departments

In the provinces also, the position has perceptibly improved. Both the provincial governments have planning and development departments, responsible for stimulating and co-ordinating the development programmes and schemes of the provincial departments, preparing provincial programmes for inclusion in periodic plans and annual development programmes, and evaluating the progress of provincial schemes. The planning and development departments have been strengthened and placed under additional chief secretaries. In East Pakistan, a planning board has been set up to advise on the formulation of provincial plans and programmes. Bureaus of statistics have been established in both provinces as integral parts of the planning and development departments.

7. Central and provincial organizations

A number of central and provincial organizations have been set up, most of them autonomous bodies, and have been entrusted with the responsibility for industrial development in the special fields assigned to them.

The more important organizations directly assisting industrial development are described in the following paragraphs.

(a) Department of Investment Promotion and Supplies (Central)

Set up in April 1959 as the Investment Promotion Bureau, this organization was merged with the former Directorate General of Supply and Development in 1963. The resulting organization was named Department of Investment Promotion and Supplies, of which the Investment Promotion and Development sides were joined together to form a full-fledged wing. The main function of this wing is to attract foreign investment and to examine proposals for investment.

It sanctions proposals for the establishment of new industries involving foreign investment, provides guidance to industrialists and serves as a clearing house for the problems of foreign investors in pro-

curing land, building materials, water, power, railway sidings, and so forth. The main tasks entrusted to the Department are:

- i) to promote wider knowledge and understanding in the capital exporting countries of the world of conditions, policies and procedures pertaining to investment in Pakistan;
- ii) to advise and assist foreign business on matters pertaining to investment in Pakistan;
- iii) to advise and assist Pakistani industrialists on matters necessary to attract foreign private capital and/or techniques;
- iv) to review and study all investment proposals and enquiries made by foreign investors;
- v) to investigate the nature of hindrances regarding the adequate flow of foreign capital into Pakistan's industrial sector and channelling of domestic capital towards desirable industrial investment and to formulate policies for overcoming these hindrances;
- vi) to actively help the foreign and local investors in matters relating to acquiring of land, water, power and import licences.

To discharge its responsibilities effectively, the Investment Promotion Department maintains close liaison with the various governmental, semi-governmental, and non-governmental organizations connected with various aspects of industrial development. The Department also remains in close touch with Pakistan's embassies overseas, keeps them advised of the country's development programmes in the industrial sector and seek their assistance in exploring avenues for attracting foreign investment.

To discharge these functions effectively, the Department maintains active liaison with branch offices and counterparts set up in the headquarters of the two provincial governments at Dacca and Lahore.

High-powered Industrial Facilities Boards were set up in 1961 in Karachi and in the provinces to assist industrialists in the establishment of factories.

The main vehicle through which the Department promotes private investment is the Industrial Investment Schedule. The first Schedule was issued in 1960 and it was revised in 1963.

Since its creation up to June 1965, the Department of Investment Promotion and Supplies has accorded sanctions for the setting up of industrial undertakings in different parts of the country. These sanctions involve a total investment of 1934.5 million rupees with 1172.9 million rupees as foreign equity capital. Foreign investment has come to the country from as many as thirty countries of the world; the main participants being the United Kingdom, United States of America, Germany and Japan. The year-wise break-up of the foreign investment which has actually flowed in Pakistan during 1957-64 as follows:

(million rupees)								
1957	1958	1959	1960	1961	1962	1963	1964	
89.7	67.5	86.4	76.6	90.6	70.6	76.7	134.2	

The joint-ventures set up in Pakistan during the last seven years cover the whole range of industry from textiles to drugs and pharmaceuticals, electrical and engineering equipment, jute manufacturers, light and heavy chemicals, motor-vehicles, vegetable ghee, food, paper, bicycles, petroleum, oil refining and forest products. Though it is not possible to assess the contribution of each joint venture towards the industrial growth of the country it can be stated that these fruitful partnerships have yielded striking results in quickening the pace of industrialization in Pakistan. These ventures have not only contributed to a great increase in the volume and value of the country's production but have led to an increase in its exports and have created large employment avenues for its population. A happy corollary to the situation has been that though the regulations do not impose any restrictions on repatriation, foreign investors have generally found it to their advantage to retain investment in the country undisturbed and to plough back a substantial proportion of their profits into their enterprises.

(b) *West Pakistan Industrial Development Corporation*

The Pakistan Industrial Development Corporation (PIDC) was set up as a national organization in 1952. It was entrusted with the task of promoting and developing industries in fields where private capital was shy. Its charter included fourteen industries, later raised to sixteen, comprising jute, paper, board and newsprint, heavy engineering including iron and steel, shipbuilding, heavy chemicals, fertilizers, sugar, cement, textiles, pharmaceuticals, coal, marine fisheries, refractory and clay products, forest products industries and small industries.

The latter two are later additions to the charter. The PIDC was divided into the West and East Pakistan Industrial Development Corporations in 1962.

(c) *East Pakistan Industrial Development Corporation*

When the PIDC was divided in 1962, the East Pakistan organization inherited industries having an aggregate investment of 556.1 million rupees. Its charter is identical to that of the West PIDC.

The two provincial industrial development corporations plan, promote and organize joint ventures with the private sector, and subsequently transfer subscribed shares at the opportune moment to the private sector. Industries initially set up exclusively by the two PIDC's are also sold to the private sector at the opportune moment.

8. *Other organizations directly connected with industrial development*

(a) *Pakistan Council of Scientific and Industrial Research*

This council was established in April 1953. It controls the National Laboratories (Central, at

Karachi; West Regional, at Lahore; North Regional, at Peshawar and East Regional, at Dacca). Its research activities cover a wide range of scientific and industrial subjects in the pure and applied fields, followed by pilot plant studies, the industrial exploitation of new discoveries, the improvement of manufacturing processes and so on.

It is also in charge of PANSDOC, a scientific documentation centre.

(b) *Pakistan Industrial Technical Assistance Centre*

Set up in 1957, this centre was expanded and converted into an autonomous body in 1962. Its main functions are:

- 1) industrial training — upgrading of skills of industrial workers;
- 2) advice and consultation on overcoming technical and managerial day-to-day problems in industrial establishments;
- 3) assistance in the production of newly designed and sophisticated equipment, tools and parts;
- 4) dissemination of technical information, publications, and the like;
- 5) productivity drive through seminars, group discussions, documentation, audio-visual work, and so on.

(c) *Pakistan Standards Institute*

Established in 1951, this institute has undertaken pioneering work for the fixation of industrial standards. Over 350 standard specifications for various industrial products have been laid down.

In 1961, the Government promulgated the Certification Marks Ordinance, empowering the PSI to issue licences to manufacturers who are in a position to manufacture goods according to PSI specifications.

(d) *Central Testing Laboratories*

Since their inception in 1951, these laboratories at Karachi, Dacca and Lahore have played an important role in advancing indigenous industries by testing and inspecting industrial raw materials, finished products and particularly exportable products.

(e) *Swedish-Pakistani Institute of Technology*

Established in 1955/56 in Landhi, this institute provides training facilities in wood-working, ready-to-wear garments, electric and gas welding, mechanical maintenance and so on.

Another institute on similar lines started working in Kaptai, East Pakistan, in January 1964.

(f) *Patent Office*

Up to February 1964, the Patent Office granted more than 6000 patents for new inventions. New designs number more than 2040.

(g) *Investment Advisory Centre*

Set up in 1963, this centre provides the information required to attract foreign capital, to encourage optimum effectiveness in the use of local capital and to

ensure the sound programming of long-range development programmes.

(h) *National Investment Trust*

The National Investment Trust was established in 1962 with the objective of channelling savings and giving people a stake in the industrialization of the country, along with a share in industrial profits.

(i) *Credit agencies*

The Pakistan Industrial Credit and Investment Corporation (PICIC) and the Industrial Development Bank of Pakistan (IDBP) assist the private sector in the industrial development of the country. Details of these institutions are given in chapter VI.

II. INDUSTRIAL POTENTIAL

a. Industrial feasibility surveys

1. Introduction

In the early stages of Pakistan's development, the main consideration was the speedy establishment of industries; however, the feasibility aspect, as a prerequisite for investment decision, was always kept in view. Industrial surveys for various purposes (such as determining raw material requirements) were conducted from time to time and in these surveys the feasibility aspect was also generally included. In any case, feasibility studies have formed part of the surveys conducted in regard to industrial development as a whole. It is a common procedure everywhere to permit the erection of a factory only when it has been demonstrated from all known angles that it will be a productive enterprise.

The Planning Commission evolved certain criteria for the implementation of projects, and priority was given to the establishment of industries which were expected to make the largest net contribution to national income per unit of investment. In these terms, a feasibility study of all major industrial enterprises is implied.

Basically speaking, feasibility studies are undertaken by interests immediately concerned with a project. For its part, the Government has set up or assisted in the setting up of institutions capable of carrying out surveys and feasibility studies for prospective investors. So far as public-sector investments are concerned, technical appraisal of projects has invariably been made and their economic viability investigated, and the Government has permitted the establishment of industrial units only when satisfied that those entrusted with their operation (for example, WPIDC/EPIDC) have arrived at conclusions guaranteeing their productive progress and profitability. The Government has nevertheless taken upon itself the conduct of feasibility studies through local and foreign consultants in specific fields, wherever warranted by economic considerations. A notable example is the Karachi Steel Mill, the establishment of which is still being negotiated.

The two provincial governments have also conducted feasibility surveys by province and sector. The Government of East Pakistan, for example, engaged foreign consultants to conduct a feasibility survey of the province as a whole and the consultants' report is taken into consideration in formulating periodical industrial investment schedules.

Surveys on specific industries are also periodically conducted and commissions are appointed occasionally to assess the feasibility of further development in specific sectors.

In the field of minerals and other natural resources, because of their huge initial exploitation costs and also because natural resources accrue *ab initio* to the State, the Government has actively participated in investigations, surveys and feasibility studies. Notable examples are the investigations and studies being carried out on oil, natural gas, iron ore, coal and peat deposits. The two provincial governments also conduct similar investigations and studies within their jurisdiction in regard to minerals and forest products.

2. *Pakistan Industrial Credit and Investment Corporation*

Generally speaking, the organizations more intimately concerned with feasibility studies are the credit institutions. The foremost of these is the Pakistan Industrial Credit and Investment Corporation (PICIC). Industrial feasibility studies are an integral part of PICIC's operations as a development bank. PICIC attaches considerable importance to these studies in view of the need for sound development, the urgent need to save and earn foreign exchange, and the desirability of using domestic resources economically. Until now, the PICIC has been instrumental in the preparation of feasibility studies for a large number of industries, namely cement, paper, sugar by-product, newsprint, particle board from jute stalks, hardboard from cotton stalks, gypsum board, refractories, outboard engines, urea formaldehyde, sulphur from gypsum, synthetic rubber, staple fibre and china clay.

Foreign consultants are usually engaged for this purpose, though efforts are being made to develop local consultants. On a number of occasions in the past, PICIC has received valuable technical assistance from the World Bank, the Japan Consulting Institute, United States AID and the United Kingdom under the Colombo Plan. The scope of studies is quite comprehensive and every endeavour is made to define the terms of reference fully so as to obtain definite conclusions with regard to the financial, economic and technical soundness of the project studied.

Besides the above mentioned studies, two surveys of an agricultural character were recently sponsored by PICIC. They were (i) an exploratory survey to determine the climatic suitability of extending and

popularizing sugar beet cultivation in the northern and sub-northern areas of West Pakistan; (ii) a survey on the introduction of cultivation of "Jantar," a variety of wild grass, on a commercial scale in West Pakistan, to supplement the supply of pulp-making raw materials for the growing needs of the paper and board industries.

Feasibility surveys sponsored by PICIC have been fruitful in developing new avenues of investment in the country. Projects have materialized in the cement, paper, newsprint, particle board, urea formaldehyde and gypsum board industries and are in an advanced planning stage for the remainder of the industries surveyed.

3. *Industrial Development Bank of Pakistan*

In the Industrial Development Bank of Pakistan, the Department of Industries Promotion and Research is responsible for the engineering and market appraisal of loan applications. The professional staff also includes foreign advisers.

The task of these advisers is to improve the quality of appraisals, particularly regarding their engineering, financial and marketing aspects.

The processing of loans applications starts at the regional office of the IDBP and it is the duty of the regional office to appraise the project in some detail, including on-the-spot examinations, screening of plans and estimates and evaluation of the marketing, technical and profitability aspects of the projects.

4. *Industrial Development Corporations*

The two main provincial industrial development corporations also carry out investigations and conduct feasibility and other surveys in regard to the industries whose development is specifically assigned to them. Technical appraisal and economic viability assessment of the projects are generally carried out by foreign consultants or institutions, who undertake feasibility studies regarding soundness of projects, process of production, cost and marketing analysis etc. The feasibility reports are further progressed in the research cells.

(a) *West Pakistan Industrial Development Corporation*

The case of the WPIDC is an excellent example. Apart from the sixteen industries specifically entrusted to it under the charter, the WPIDC has been given the responsibility for creating heavy industry projects, consisting of a machine tools factory, a heavy machinery complex and a heavy electrical complex. In endeavouring to discharge this responsibility, the WPIDC engaged foreign consultants to conduct feasibility surveys regarding the whole complex. The feasibility report prepared by the consultants confirms the economic justification of the projects. The machine tools factory has since been approved. The heavy machinery complex would manufacture locomotives (frames, bogies and chassis), road-building

equipment, machinery for sugar and cement factories, equipment for fertilizer factories, refineries and petrochemical plants, boilers and heat exchangers etc. In regard to the heavy electrical complex, the WPIDC appointed three independent consultants from the United Kingdom, West Germany and Japan for feasibility studies on this complex. The reports have just been received and are under study. This complex would involve the production of high and low tension motors, generators and transformers, rectifiers, capacitors, frequency converters, high and low tension switch gears and electrical equipment and machinery for special duties.

(b) *East Pakistan Industrial Development Corporation*

A planning cell has been set up by the EPIDC to deal with all aspects of planning, from the formulation to implementation. Feasibility studies are undertaken for all projects. For example, thirty new projects which the EPIDC intends to take up during the third plan period (1965-1970) are being studied from the feasibility point of view. In addition, feasibility studies on a number of other schemes have been prepared and submitted to Government for approval.

5. *Small industries*

Feasibility studies are also carried out in the small-industry sector. Of special interest are the studies carried out for the establishment of small industrial estates with the help of the Batelle Group of German technicians. The Small Industries Division of the WPIDC and the East Pakistan Small Industries Corporation both have organizational arrangements for having feasibility studies conducted of new programmes of development. The planning cell of the EPSIC has a major responsibility for determining the soundness of development schemes, and the carrying out of feasibility studies is the first step in this direction.

The Small Industries Division of the WPIDC has currently engaged the services of Japanese technicians to survey the areas of integration possible between large and small-scale industries and ancillary operations. The anticipated moves resulting from the survey point in the direction of establishing one or two assembly industries.

There are also some private agencies which propose schemes and draw up feasibility reports and projects. These private agencies employ technical experts in various fields.

b. *Resources survey*

1. *Background*

The development of minerals and other natural resources has lagged far behind industry. Very little work was done in this direction before the advent of the first five-year plan (1955-1960). The first plan made an allocation of Rs. 474 million for the develop-

ment of mineral resources, of which nearly 88 per cent was utilized for investigations on oil and gas.

The main difficulty in developing minerals and other natural resources was that much of the country was not covered by detailed geological surveys, mapping and exploration. Another difficulty was that the principal natural deposits occurred in far-flung and remote areas. It was only toward the closing years of the first plan period (1955-1960) that encouraging success was achieved in the exploration and development of natural resources.

2. Geological Survey of Pakistan

The Geological Survey of Pakistan is an attached Department of the Ministry of Industries and Natural Resources (Natural Resources Division) of the Government of Pakistan, and its main functions are to conduct geological surveys of the country and to prepare maps showing the results of geological, geophysical and geochemical studies and research. During the second plan period (1960-1965) it expanded its activities and carried out more than 51 technical projects in the fields of mineral resources, geological mapping, stratigraphic and palaeontological investigations, geophysical investigations, chemical and mineralogical investigations and drilling operations.

3. Mineral resources

(a) Background

Pakistan's production and trade in mineral resources (excluding petroleum and gas) is so small that it is insignificant when compared to the other nations of the world. On surface evidence, Pakistan is not very rich in minerals. However, the fact cannot be overlooked that a number of minerals are being mined and fresh areas are continually being explored and exploited. The production of coal, gypsum, limestone, silica and marble, sulphur, barytes and many other minerals can be increased, provided additional industrial uses of these minerals can be developed.

Prospecting for minerals started in 1948 with the enactment of the Regulation of Mines and Oilfields and Mineral Development (Federal Control) Act, under which the Central Government assumed the responsibility for the development of mineral resources. In 1961, the Central Government created a Bureau of Mineral Resources, charged with the responsibility for survey, exploration, development and utilization of minerals. This arrangement continued until May 1962, when on the coming into force of the Constitution of 1962, the responsibility for mineral development was transferred to the two provincial governments. The government of West Pakistan has created a Directorate of Mineral Resources for the purpose, although in both wings much of the work relating to mineral development is undertaken by the two industrial development corporations.

The position regarding the principal minerals is described below.

(b) Coal

Coal is Pakistan's number one mineral. Substantial deposits occur in the Sor-Degari, Harnai and Mach ranges of the Quetta-Kalat Division, in the Trans-Indus and Salt ranges of the Sargodha-Rawalpindi Division and in the Hyderabad-Khairpur Division. The production of coal rose from 533,000 tons in 1955/56 to 775,000 tons in 1959/60 and exceeded the million ton mark in 1963. Production in 1964/65 is estimated at 1.5 million tons.

Following a slump in 1961 in the use of indigenous coal, the Government had to step in and take certain measures calculated to help the industry. These measures included the banning of coal imports and the conversion of coal into oil. A thermal power station is being set up in Quetta and, when completed, it will give a fillip to the production of coal in the Quetta-Kalat Division.

In East Pakistan, which has until recently totally depended upon imported coal, important developments have taken place. Thick seams of good quality coal have been discovered at a depth of 3000 ft in the Bogra District. Further drilling is taking place to evaluate the commercial possibilities.

In the third five-year plan (1965-1970), the target for coal production has been fixed at 3 million tons by 1970.

(c) Chromite

Chromite has been mined in the Hindu Bagh Area of Quetta Division for many years. Chromite-bearing rocks are also known to exist near Dalbandi in north-west Baluchistan and in north and south Waziristan; but because these occurrences are in remote and not easily accessible areas, exploitation has presented some difficulty.

Nevertheless, chromite production achieved the target of nearly 50,000 tons in the second plan period (1960-1965). Output slumped a little in 1963 owing to the dumping of low-priced chromite in world markets by the Soviet Union. The Government has announced liberal tax concessions and freight rates for low-grade chromite and raised the bonus rate on all grades of chromite exported to 40 per cent.

The third five-year plan (1965-1970) aims at increasing chromite production to 60,000 tons by 1970.

(d) Iron ore

Extensive surveys of the Kalabagh region showed the existence of large deposits of low-grade ore (30 to 35 per cent iron content). Further investigations and feasibility studies are being made on the probable uses of the Kalabagh ore and its economic mining and utilization.

Studies are also being made of iron ore deposits in northwest Baluchistan, Chitral and northwest Punjab. These deposits have a higher iron content (60 per cent) but the extent of the deposits has not yet

been established and moreover the areas are mostly inaccessible.

(e) *Other minerals*

Other minerals which occur in Pakistan and for which prospecting licences have been issued are bauxite, barytes, chalk, china clay, copper, graphite, gypsum, marble, silica sand, sulphur, rock salt, and so forth.

(f) *Oil*

The search for oil in areas now included in Pakistan began as far back as 1896 but it was only in 1915 that commercial production of oil began in West Pakistan. The search for oil has been going on in the East Pakistan area since 1914.

In 1947, when Pakistan came into being, the country was extremely deficient in fuel resources. The production of crude oil from oilfields in West Pakistan did not exceed 0.33 million barrels; this constituted a major handicap to industrialization.

As a result of the exploration carried out since 1948, the production of crude oil increased to 85 million IG in 1959/60 and to 130 million IG in 1963/64. In 1964/65, crude oil production was estimated at 140 million IG.

Despite these recent developments, the production of crude oil in Pakistan represents only 17 per cent of the country's demand. The Government is, therefore, very keenly engaged in the effort to intensify the search for oil in the country.

In order to supplement the efforts of foreign oil exploration companies, the Government of Pakistan created an Oil and Gas Development Corporation in 1961 and since its establishment, the Corporation has done considerable work in regard to geological, gravity, seismic and aeromagnetic surveys.

Both West and East Pakistan were areas of large-scale sedimentation in the remote geological past and hydrocarbons form an essential constituent of sediments. The basically important factors for the discovery of petroleum are therefore present in Pakistan.

(g) *Gas*

There was no commercial production of gas in 1948 but with the discovery of gas resources at Sui in West Pakistan in 1952, and with the resources at Sylhet in East Pakistan, gas production rose to nearly 50,000 million cubic feet in 1963.

4. *Forest product*

Pakistan's forest areas cover 8.7 million acres or about 3.7 per cent of the total land area. This substantial national asset has not yet been exploited fully. It was only in 1955 that the Government of Pakistan issued a policy resolution on the development of forests and the utilization of forest wealth. Two types of survey operation are considered essential to a forestry programme. The first is a multipurpose soil and water survey to serve as a basis for planning judicious

afforestation programmes and the second concerns the inventory of forest resources in both East and West Pakistan.

Timber extraction has increased substantially in recent years and is expected to go up to 600,000 tons a year in East Pakistan alone. Facilities for forest inventory surveys include the construction of serviceable roads and housing for forestry staff.

5. *Water resources*

The total cultivated area of Pakistan in 1955 was 58.8 million acres (25 million in East Pakistan and 33.8 million in West Pakistan). By 1960, it had increased by 1.1 million acres. In addition, about 170,000 acres were partially reclaimed.

By the end of 1965, the irrigated area is expected to increase by 1.6 million acres. About 3.5 million acres will be given protection against floods by improving river channels and constructing levees. In East Pakistan, a 1,600-mile coastal embankment is under construction for protection against tidal inundation.

A number of small dams, diversion works and irrigation channels constructed during the present decade will contribute to the welfare of the local populations in Quetta-Kalat and the Frontier Regions.

Several major multi-purpose projects for water supply and power development are being carried out. A master plan against water-logging and salinity has been initiated to reclaim twenty-six project areas in West Pakistan in ten years.

c. *Infrastructure*

1. *Transportation*

(a) *General situation*

Although considerable progress has taken place in this field since 1948, the growth of transportation facilities is still inadequate and is adversely affecting productivity and the growth of the economy.

With rapid industrialization and increasing urbanization, the traffic pattern is undergoing a change. The railways and inland water transport continue to bear the main burden in the movement of agricultural and industrial products. Nevertheless, the share of road transport, particularly in West Pakistan, has been increasing at a fast pace. Civil aviation has emerged as the main link between the two provinces for both passenger and goods traffic. Shipping and ports have also shown commendable progress.

The pattern of growth of the transportation sector can be gauged from the following figures showing the increase in traffic over a four-year period (1959/1960 to 1963/64) at annual mean rates:

Railways:

Passenger miles	2.8 per cent
Freight ton miles	6.25 per cent
Inland water transport (mechanized section)	13.75 per cent

Ports:	
Karachi, Chittagong,	10.5 per cent
Chalna	
Civil aviation:	
Air passengers	50 per cent

Figures regarding road transport are not available but expansion in this field has also been substantial.

(b) Railways

Pakistan has two government-owned railway networks. The Pakistan Western Railway (PWR) covers 5,326 route miles, of which 4,628 miles are broad-gauge (5'6"), 318 miles metre-gauge, and 380 miles narrow-gauge. Pakistan Eastern Railway (PER) has a route mileage of 1,712 miles, of which 1,147 miles are metre-gauge and 545 miles broad-gauge. Track maintenance is adequate.

Substantial modernization has been applied in both systems. Although diesel locomotives, new coaches and wagons are increasingly employed, the problem of replacing over-age rolling stock is acute owing to the growing traffic and goods haulage demands and the difficulty of effecting changes to cope with the demand owing to financial, technical and administrative factors. For example, the third plan (1965-1970) provisions for replacement and additional rolling stock include 217 locomotives, 1,014 passenger carriages, 389 other coaches and 8,929 wagons.

The passenger traffic demand on both railways is mainly for short distance movements. On the PWR, for example, in 1961/62, the average distance travelled per passenger was 46 miles, while on the PER it was 26 miles. By 1963/64, those figures had risen to 47.4 and 27.4 respectively. The large part of inter-city movements is over distances of less than hundred miles. This shows the great scope available for the development of bus transport.

Freight movements, which at present constitute 56.3 per cent of PWR's total earnings and 55.1 per cent of PER's are, by contrast, over longer distances. The average length of freight haul on PWR is currently 345 miles and on PER 155.2 miles. (These figures are for revenue-earning traffic.) There is sufficient evidence to show that there would have been more traffic, particularly in bulky low-value products, if the railways had had sufficient handling capacity.

During the third plan period (1965-1970) the over-all transport demand is expected to go up by about 60 to 70 per cent. Although the traffic pattern has been changing in favour of road transport, it is anticipated that the railways will carry about 40 to 50 per cent of the additional traffic, leaving the balance for other carriers. The additional traffic to be carried by the railways will represent an increase of about 30 to 35 per cent in freight traffic and about 15 to 20 per cent in passenger traffic.

On both railway systems, programmes are being evolved, and some are continuously being put into effect, according to planned targets, for the replacement

of plant and machinery, rehabilitation and construction of bridges, increasing of line and terminal capacities, execution of engineering and structural works, introduction of electric traction, coach building, training and research and so on.

Track renewal is also receiving priority. Of particular mention is the substitution of existing 90-lb rails with 100-lb ones on the main lines. Railway signalling and line capacity are also under constant improvement.

Pakistan Eastern Railway is the principal transportation system in the province of East Pakistan which has a population of nearly fifty-one million living in an area of about fifty-five thousand square miles. The railway has always played a vital role in the economic development of the country. It has now a route-mileage of 1,712.55 consisting of three gauges — the broad gauge, 5'6", 545.57 miles long; the metre gauge, 3'3.36", 1,147.23 miles long and the narrow gauge, 2'6", 19.75 miles long. With a stock of 483 locomotives, 1,295 passenger carriages, 495 other coaching vehicles, and 19,509 freight wagons, the railway carried 71.3 million passengers and 6.1 million tons of freight during the year 1964-65 yielding a revenue of 2.38 million of rupees.

During 1964-65, the number of passengers carried decreased by 2.5 per cent as compared with that of the previous year, from 73.1 million to 71.3 million, while passenger-miles decreased by 4.1 per cent from 2,003 million to 1,922 million. The greater decrease in passenger miles than that in the number of passengers carried was brought about by the decrease in average distance travelled by a passenger from 27.4 miles in 1963-64 to 26.9 miles 1964-65. In case of freight traffic, tons carried decreased from 6.78 million to 6.07 million or by 10.5 per cent, and ton-miles decreased from 1,053 million to 893 million, that is, a fall of 15.2 per cent. The decrease in ton-miles was higher than that in tons carried, and this was due to a fall in average length of haul of a ton of goods from 155.2 miles in 1963-64 to 147.0 miles in 1964-65.

Air-conditioned coaches and railcar services

The most significant development in the passenger services of the Pakistan Eastern Railway during the year was the introduction of air-conditioned coaches in practically all its major trains on the metre gauge sections. Railcar services were also introduced for short distance, lower class passenger traffic in the Chittagong area.

Improved signalling arrangements

Double-wire interlocking at eleven stations on Bhairab Bazar-Mymensingh section has been completed. The work of installation of relay interlocking with tokenless block working at forty-one stations on Chittagong Dacca section is still in progress. About 90 per cent materials have so far been procured

and field installation work has already been started by German engineers. Construction of extra running loops at five stations have been completed and are in progress at seven more stations. Remodelling of yards at Akhaura and Mymensingh have been carried out and those at Kulaura, Foujdarhat, Bonarpara, Darzana, Khulna, Ishurdi are in progress.

Electrification of thirty-seven stations has been completed during the current year while the work at forty-two stations is in progress. Seven new stations were opened during the year 1966 while the construction of eight more new stations has been or likely to be taken in hand during the year.

(c) *Roads and road transport*

As stated earlier, the structural changes in the economy are being accompanied by changes in the transport complex, with a comparatively vigorous development taking place in roads and road transport.

The pattern of road traffic is at present mixed and complex, with fast and slow moving vehicles using roads side by side. Because of the narrowness and generally poor condition of the roads, and the heterogenous traffic, movement is slow.

The country is lacking in research on road construction, but a beginning is being made with plans for the establishment of building and road laboratories in Lahore and Dacca. The need for revising existing road specifications is urgent.

By 1965, West Pakistan is expected to have a total road mileage of 11,400 (metalled surface) and East Pakistan 1900 (single-lane, 12-14 ft wide).

The Central Government and the two provincial governments have developed adequate programmes for road construction. Pakistan has joined other Asian countries in applying to the United Nations Special Fund for completion of missing links in the Asian Highway. This would include the cost of pre-investment surveys of nine bridges in East Pakistan.

The provincial governments are preparing detailed feasibility and engineering reports for foreign aid financing of certain important roads and bridges in the country (for example, Karachi-Hyderabad super highway, Dacca-Chittagong road). A Japanese Bridge Mission recently carried out a preliminary survey of three bridges over the rivers Karnaphuli, Rupsa and Buriganga. Construction of village roads under community development programmes is also under way.

Equipment is being obtained from the United Kingdom for the construction of a coastal highway in West Pakistan.

Road transport in the country is almost entirely financed by private enterprise, except for about one-third of the passenger bus service operating in West Pakistan. As private enterprise has been willing to invest in road transport, the policy has been to leave the industry to private financing to the maximum extent and not to extend the government-sponsored passenger service to new routes on a monopoly basis unless private enterprise is not attracted.

The West Pakistan Road Transport Board has programmes for the rehabilitation and expansion of its existing services in cities and large towns and also for a modest expansion of its inter-district routes.

By 1965, the number of commercial vehicles (buses and trucks) in East Pakistan is expected to reach 11,100, and in West Pakistan 41,000. The financial outlay for the development of commercial road transport in the third plan period (1965/1970) is 1,605 million rupees.

(d) *Shipping and ports*

In 1947, Pakistan had only three merchant ships. By 1965, the fleet will consist of fifty-six ships with a total dead-weight of over 416,000 tons. The entire inter-wing trade between East and West Pakistan is now carried on by Pakistani vessels.

The position, however, is not so satisfactory in the case of foreign routes, where Pakistani ships carry about 12.5 per cent of the total sea-borne trade of Pakistan. Because of this, the country spends about 500 million rupees annually in foreign exchange on freight charges.

The second plan (1960-65) provided for the acquisition of 35 additional ships, which after replacement, would take the total number to fifty-six. The third plan (1965-1970) provides for the acquisition of fifty ships — fourteen for replacement and thirty-six as additions.

The Government has set up a Mercantile Marine Academy in Chittagong to train Pakistanis in seamanship. It has also established the Karachi Shipyards under the WPIDC with facilities to construct ships up to 12,000 dwt.

Pakistan has at present, three major ports, at Karachi, Chittagong and Chalna (anchorage).

Karachi port has twenty-one berths and handling capacity has been increased by 35 per cent.

Chittagong port had only four worn-out berths in 1947 but it now has seventeen berths to handle twenty-four ships at a time.

Chalna anchorage, started experimentally in 1950, was made permanent in 1952 but as the behaviour of the river is not satisfactory, it is possible that the anchorage may be shifted about thirty miles down-stream and re-established at Mangla.

A feasibility study is being undertaken for the establishment of a second port on the Mekran Coast in West Pakistan.

(e) *Inland water transport*

Development of transportation and industrial growth go hand in hand in developing countries such as Pakistan, it is especially so in East Pakistan. For most areas of East Pakistan the waterways are the only means of communication, particularly in the rainy season. Apart from that, during the monsoon in some areas water-transport becomes the only means of transport.

At present more than 70 per cent of the communication is through the waterways and more

than 85 per cent of the merchandise-flow in the province is over water. Thus inland water transport is the major means of transportation in East Pakistan. But until the establishment of East Pakistan Inland Water Transport Authority (EPIWTA) in 1958, no concerted effort was made to improve the navigable channels or even to provide aid-to-navigation.

Prior to the establishment of the Authority the inland navigation system was in a state of chaos and confusion. One private foreign company viz Messrs. Joint Steamer Company, used to perform the functions of conservancy of the navigable channels on a limited scale for their own vessels and for government vessels on an annual payment basis but not for all operators. Otherwise, there existed no navigational charts worth the name. This is reflected in the fact that out of a total allocation of 83 million rupees in the first plan for development of inland water transport only 2.50 million rupees could be spent till 1958/59. The real planned effort for the development of this most important section of transportation in East Pakistan began with the creation of EPIWTA in November 1958. The Authority was created for development, maintenance and control of IWT and of inland navigable waterways in East Pakistan. It makes provision for essential common services, regulates traffic rates and gives guidance for the planned future development of inland water transport in East Pakistan.

Since the inception of the Authority to the end of April 1966, a total sum of 150.00 million rupees has been spent in the semi-public sector. The private sector of the IWT invested about 182.00 million rupees up to 30 June 1965. Of this, about 68.00 million rupees came from IWT operators' own resources. The balance was met out of foreign loans from the United Kingdom, Independent British Republic of Dominion, United States AID, German credit, Pakistan's own cash foreign exchange and rupee loans from PIF Company, and IDBP.

IWT semi-public sector

Aid-to-navigation

About 1,400 miles of navigable channels are provided with modern aid to navigation including marking, buoying, lighting, and charting and is opened up for day and night navigation. The Authority is now equipped with a buoy-laying vessel, a fleet of fourteen survey-cum-inspection launches, three diesel cruisers, one turbo craft and one hundred transistor sets.

In the second phase, order for procurement of more aids to navigational equipments and one survey launch would be placed. Preliminary works for safe day and night navigation in the route from Chittagong to Teknaf and St. Martin's Island via Cox's Bazar and Kutubdia Island would be taken up.

IWTA workshop and repair yard at Barisal

The IWTA has completed the establishment of a workshop for servicing its conservancy equipment and other electronic equipment for their efficient utilization and maintenance.

It has also undertaken the establishment of a major repair-yard for servicing the ferries and the coastal vessels. Both these projects are located at Barisal.

Provision for ferries and ferry terminals

Twelve ferries to connect the trunk road heads in East Pakistan were handed over to EPSC for operation. Seven movable and seven permanent pontoons and fourteen bridges were procured from West Germany. Installation of ferry terminals has been made at live places. These ferry links connect the entire highway system of East Pakistan.

Salvage craft and Decca-chain radio location system

A sixty-ton floating pontoon crane with a tug for towing and two sets of diving equipment have been provided for salvaging craft grounded or sunk due to accidents or natural calamities in the navigable waterways of East Pakistan.

For the operation of an electronic position fixing system for most modern and accurate hydrographic survey, a project named Decca-chain Radio Location System has been under erection. One master and three slave stations and a number of electronic receivers on board the survey launches for the continuous hydrographical survey of the condition of waterways of East Pakistan are included in this scheme.

Development of the major inland ports and landing stages

The Authority undertook a scheme for providing cargo and passenger handling facilities at five major inland river ports viz Dacca, Narayanganj, Chandpur, Barisal and Khulna which handles the bulk of IWT traffic along the main waterways of East Pakistan. Construction work of a terminal building at Narayanganj is complete and the works in other ports also are nearing completion.

There are about 1,500 launch landing stations which need to be developed in order to provide the bare minimum facilities for passenger embarkation and disembarkation. Out of these, 109 stations were selected for development. Fifty-nine launch-landing stations have already been completed and the rest are expected to be completed soon.

Development of port facilities and landing stages in coastal islands and acquisition of coastal vessels

The development of port facilities and landing stages in coastal islands for promoting inter-island and island-mainland communications are in progress. Twenty-two landing stages in cyclone affected coastal areas have been selected for providing port facilities.

For better and quick transport between the mainland and off-shore islands of East Pakistan, four coastal ships and two LCT vessels were procured from West Germany and handed over to EPSC for operation. Two more LCT vessels are being assembled at EPIDC dockyard and engineering works at Narayanganj. Ten MOT vessels also for a similar purpose are under construction in West Germany.

Maintenance and development of waterways

To keep the waterways open for continuous navigation, the development of important rivers is a continuous function of the Authority. In addition, special dredging operations were undertaken for improvement of the Bhairab, the Kushyara, the Surma; sections of the Arialkhan, the Padma, and the Madhumati rivers.

For the improvement of waterways reconnaissance survey of 3,000 miles, detailed hydrographic survey of 793 miles of navigable waterways were completed.

The development of a shorter route from Narayanganj to Chalna is an important scheme of the Authority. Originally initiated by the now defunct Irrigation Department in February 1958, dredging of a part viz Dabuldia-Bhadrahan Nulla and Arialkhan was done by EPWAPDA. In January 1963, without any appreciable progress it was transferred to EPIWTA. The scheme is under technical re-examination.

The IWTA is presently working on the preparation of a master plan for the development of waterways in East Pakistan. For this purpose the services of a specialist consulting firm, namely NEDECO of Holland have been engaged. The NEDECO in co-operation with the experts of the IWTA is formulating the master plan which includes feasibility study for the Narayanganj-Chalna route.

TABLE 2. INLAND WATERWAYS DEVELOPMENT, 1958 AND 1965

Item	Number up to 1958	Number in Feb. 65
Mechanically propelled vessels ..	772	1,213
Dumb craft	661	738
Route miles	2,882	4,948
Boat building yards	9	62
IWT operators	182	363
IWT routes	124	254
Cargo carrying capacity (tons) ..	132,947	181,346
Passenger, capacity	72,037	101,299
Aids to navigation (miles)	—	1,400
Powered ferries to connect the road heads	—	12
Coastal ships	—	4
LCT vessels	—	2 ^a
Pontoons for launch stations	—	39 ^b
Salvage units	—	1

^a Another two are under construction.

^b Another sixteen will be ready shortly.

In the third plan (1965-1970), the financial provision for the improvement and development of inland waterways amounts to Rupees 965 million.

(f) *Civil aviation*

In the decade covered by the first two plans, the airports in Pakistan experienced a rapid growth of air traffic especially in domestic operations. The total number of embarking passengers increased by 450 per cent with the domestic sector showing an increase of over 750 per cent.

At the same time, a pronounced change took place in the composition of the traffic in Pakistan, with domestic passenger share rising from 52 per cent to 83 per cent of the total. In June 1965, domestic services were operating to thirty-one locations, three times the number in 1955. These included twenty in East Pakistan and eleven in West Pakistan, served by eighteen conventional aerodromes and fourteen heliports.

In response to the urgent need of East Pakistan for speedy and reliable transportation, PIAC, in November 1963, launched their helicopter services. During 1964-65 this was extended to fifteen locations—thus becoming the largest commercial helicopter operation of its type in the world—and carried nearly 68,000 passengers.

The introduction of jet aircraft effected operations at all the main international airports. To meet this situation a new runway was provided at Karachi, while the runways at Dacca and Lahore were extended and re-surfaced. Short term improvements and expansion were also carried out to the Karachi and Dacca terminal buildings, and an interim terminal building was provided at Lahore.

The growing domestic air traffic also made it necessary to undertake improvements at all other airports; while a new domestic aerodrome was established at Ishurdi.

Instrument landing systems were commissioned at Karachi and Dacca. An airport surveillance radar was installed at Karachi. Work was also started on the establishment of an Air Route Traffic Control Centre at Karachi with a controlled airway between Karachi and Tehran, which necessitated the development of a control complex and aerodrome at Panjgur. Radioteletype operation replaced manual radiotelegraph on all important international and domestic fixed circuits. In air ground communication radiotelegraph operation was abandoned, and replaced by radiotelephone channels.

In financial terms, in the Department of Civil Aviation, development expenditure increased from 46 million rupees in first five year plan to 154 million rupees second five year plan.

PIA, the country's national airline, has completely modernized its fleet. Apart from flying modern jet (Boeing) and Fokker Friendship services. PIA operates regular helicopter services in East Pakistan.

PIA's capacity in ton-miles increased from 62 million in 1960/61 to 101 million in 1963/64. Revenue ton-miles increased from 37 million to about 66 million. Revenue passengers carried were 325,000 in

1960/61 and 712,000 in 1963/64. Cargo increased in the same period from 13,500 tons to over 21,000 tons.

In the third plan (1965-1970), a financial allocation of 725 million rupees for civil aviation including PIA is proposed. This will include improvements to and development of flying clubs and of existing and new airports.

2. Power

Soon after independence the power supply position in Pakistan was very acute. In order to meet the urgent requirements, several short-term projects were initiated in both East and West Pakistan. These consisted mostly of diesel and steam power stations which were costly to operate on account of imported fuels. As a result of these short-term measures, the installed generating capacity (in both public and private sectors) increased from about 112,000 kilowatt in 1948 to about 342,000 kilowatt in 1955. Pakistan had in 1955 its first national development plan which attached importance to large-scale power generation. Nearly 22 per cent of the total plan cost was allocated for the development of water and power resources. As a result, several large hydro-electric and thermal stations were installed and the establishment of province-wide power transmission grid systems was initiated in both the wings of Pakistan during this period. By the end of 1960, the total installed capacity (public and private) had increased to about 911,000 kilowatt (against 112,000 kilowatt in 1948) and energy production increased to about 2,160 million units compared to about 219 million units in 1948.

During the implementation of the first national plan it had become clear that apart from the question of funds, the largest single factor responsible for the rather slow progress on the projects—was the procedural inadequacies/limitations of the executing agencies. Hitherto, the provincial water and electricity departments had been handling all the major projects in the water and power sector. But with their long established and complicated procedures and methods they could not impart the speed and efficiency necessary for expeditious development, which was the need of the hour. With a view to overcome the above obstacles and to impart speed and to secure an over-all unified development of water and power resources, the Government established The Water and Power Development Authority (WAPDA) in West Pakistan in 1958 followed by a similar Authority in East Pakistan in 1959.

Pakistan began its second five year plan in 1960 and set apart nearly Rs. 4,390 million for the development of water and power resources. In contrast to the first plan, it laid more stress on the transmission and distribution of power rather than on generation in order to deliver the power produced to the ultimate centres of consumption. After the completion of the various power schemes during

the second plan period, the installed capacity of utilities in the public sector had reached a figure of 1,140,000 kilowatt by the end of 1965, and the length of the transmission and distribution lines (of various voltages) had increased to 35,400 miles (route mileage). The energy generation during 1965 had reached a figure of 3,830 million units.

During the third national plan period, it is proposed to make an addition of about 1,660,000 kilowatt in the installed generating capacity of the country and string transmission lines approximately 9,000 circuit miles. In view of the scanty indigenous resources of coal, oil and natural gas, consideration is also being given to the development of nuclear energy. At the moment Pakistan has embarked upon the setting up of a nuclear power station of 137,000 kilowatt at Karachi in West Pakistan while the setting up of another, of 140,000 kilowatt at Rooppur in East Pakistan is under consideration. With the progressive development of necessary infrastructure during the first and second plans, the pace of development has been generally promoted which is reflected in the provision of 8,930 million rupees for the development of water and power sector. This provision is nearly twice as large as that in the second plan.

It is the policy of the Government to keep the generating capacity ahead of the demand with a safe and comfortable margin as far as possible. With this purpose in view, reputed firms of consulting engineers have been engaged from time to time to carry out the power market surveys in both wings of Pakistan. These surveys continue to be reviewed periodically to bring them up to date. The expansion of power facilities is planned modified on the basis of the position revealed by such power market surveys.

The installed capacity of the generating stations reached 642 megawatt by the end of June 1965. The maximum demand recorded during 1964-65 was 452 megawatt. In order to extend power facilities from primary load centres to the distribution system, work which was provided under secondary transmission and distribution scheme reached its final stage. The length of transmission lines on 30 June 1965 were; 220 kilovolt lines 136 miles, 132 kilovolt lines 1,316 miles, 66 kilovolt lines 3,036 miles, 33 kilovolt lines 1,228 miles, and 11 kilovolt lines 11,903 miles. The number of consumers increased to 687,866 and the consumption per capita rose from 37 kilowatt-hour as last reported to 40.6 kilowatt-hour.

Power market survey cell of the Authority continued its activities in assessing the power needs of the area and completed the forecast up to 1969.

During the next five years it is expected that further 5,000,000 consumers will be added at an average rate of 1,000,000 every year.

The installed capacity in respect of generation has risen to 650 megawatt by the end of December

1965, due to the addition of 8 megawatt Borsie set at Hyderabad Thermal Station. In addition to that, work on Hyderabad Thermal Extension (15 megawatt), Gas Turbines at Lahore (26 megawatt), Sukkur Extension (25 megawatt), Natural Gas Power Station at Lyallpur (132 megawatt), and Mangla Hydro-electric Station (300 megawatt) are in progress and all these schemes are in an advance stage of construction. Further schemes to be taken up during the third five year plan are Mangla Hydro Extension (300 megawatt), additional four Gas Turbines at Lahore (52 megawatt), two Gas Turbines at Hyderabad (26 megawatt), Mari Thermal (132 megawatt) and Quetta Thermal Extension (15 megawatt). Transmission facilities to convey the additional power thus generated will be provided under northern and southern zone transmission schemes.

III. INDUSTRIAL POLICY

a. Investment laws and regulations

1. Basic legislation

The subject of industry comes under the purview of both the Central Government and the provincial governments. The Central Government is responsible for over-all planning and co-ordination of industrial development, fixing of targets and priorities, determination of the levels of production and prescription of standards and quotas for exports. In addition, the following industries are the exclusive responsibility of the Central Government:

- i) Industries connected with defence;
- ii) Manufacture of arms;
- iii) Industries owned wholly or partially by the Central Government or by a corporation set up by the Central Government;
- iv) Petroleum and mineral oil industries;
- v) Nuclear energy.

The provincial governments are responsible for implementing the industrial policy of the Central Government and exercising jurisdiction over all industries (other than those mentioned above) already established or to be established in the country.

There are at present three basic laws for the control and regulation of industries in Pakistan. They are:

- i) Development of Industries (Federal Control) Act, 1947;
- ii) East Pakistan Development of Industries (Control and Regulation) Act, 1957;
- iii) West Pakistan Industries (Control of Establishment and Enlargement) Ordinance, 1963.

The Development of Industries (Federal Control) Act, 1947, supplemented by the Development of Industries Rules, 1950, authorizes the Central Government to plan and regulate the establishment of any enterprise in twenty-seven specified industries. The Act and the Rules provide *inter alia* that, in respect

of the industries mentioned in the Schedule to the Act.

- i) all industries existing on the date the Rules came into force should be registered with the Central Government (Department of Investment Promotion and Supplies);
- ii) the setting up of new industries likely to employ more than fifty persons or the extension of existing undertakings so as to employ more than fifty persons will require the permission of the Central Government.

The East Pakistan Development of Industries (Control and Regulation) Act, 1957,

- i) provides for the registration of the industrial undertakings existing on the date of the commencement of the Act with the provincial government;
- ii) lays down that the permission of the provincial government will be necessary for the setting up, expansion and change of location of industrial undertakings in respect of industries mentioned in the Schedule to the Act.

The following industries have been excluded from the purview of the Act:

- i) Iron and steel;
- ii) Shipbuilding;
- iii) Anti-biotics, sulphur drugs and anti-T.B. vaccines;
- iv) Nuclear energy;
- v) Fishing and fisheries outside territorial waters;
- vi) Mineral oil or natural gas;
- vii) Industrial units owned wholly or partially by the Central Government or any Corporation set up by the Central Government.

The West Pakistan Industries (Control of Establishment and Enlargement) Ordinance, 1963, states that no person shall establish any industrial undertaking except with the previous permission of the provincial government in writing. The Government of West Pakistan has, however, exempted the units specifically sanctioned by the Central Government, the Pakistan Industrial Credit and Investment Corporation and the Industrial Development Bank of Pakistan from this provision.

2. Regulation of industries

It is considered essential that the setting up of new industrial units and the expansion of existing units be controlled and regulated so that:

- i) the development of industry in the country is in accordance with the industrial development plans;
- ii) there is no frittering away of the country's foreign exchange;
- iii) there is no overlapping;
- iv) it is possible to determine the location of new industrial units;
- v) the industrial resources of the country are not monopolized by a few.

In order to accelerate the pace of industrial development, the Government has from time to time announced development plans which *inter alia* make physical and monetary provisions for the industrial sector. Simultaneously, the Government has issued industrial investment schedules, specifying which industries should be developed in the private sector. The schedules also prescribe financial resources in terms of rupee finance and foreign exchange in capital outlay for various industries to be developed in East and West Pakistan. Monetary provision is, however, not made in the case of certain major industries which either require huge capital outlay or which are to be developed in either of the provinces on a country-wide basis (that is, to meet the demand of the entire country), or where the intention is not to develop any new capacity because of the limitations of the market.

At present, industrial control is exercised primarily through the mechanism of the procedure for the grant of foreign exchange. Though three pieces of industrial legislation are at present on the statute book, the need for their enforcement has not been felt as the aim has all along been more and more productive investment. Industrial units can be divided into two broad categories:

- i) those which do not require any foreign exchange for machinery and raw materials;
- ii) those which require foreign exchange for machinery, spares or raw materials.

As far as the first category is concerned, the cases are very few and far between. In such cases, it has already been provided that government permission is not necessary for the setting up of industries based on locally produced machinery, spares and raw materials. For industrial units of the second category, the foreign exchange component of plant and machinery is generally met from:

- i) loans from PICIC and IDBP;
- ii) loans from foreign nationals and international foreign institutions;
- iii) foreign investment;
- iv) deferred payment on the pattern of the "pay-as-you-earn" scheme";
- v) utilization of bonus vouchers;
- vi) the Government's own foreign exchange resources which are made available from time to time.

PICIC and IDBP control and regulate the industrial units which entrepreneurs may want to set up or expand through loans obtained from these institutions. Similarly, the Central Government exercises control over industries set up with plant and machinery imported through loans negotiated with foreign financial institutions, foreign investment or the "pay-as-you-earn" scheme. The provincial governments control and regulate industries set up against the Government's own foreign exchange allocation to the two provinces.

In sanctioning industries, the respective authorities keep the requirements and objectives of location, level of production, extent and use of imported raw materials, and such in view and make these a condition in granting foreign exchange allocations.

The spheres of operation of the various sanctioning agencies have been clearly defined as follows:

(a) *Industries for which monetary provision has been made in the industrial investment schedule*

i) *Foreign investment, direct loans by foreign institutions and pay-as-you-earn scheme* Permission of the vice-chairman, Investment Promotion and Supplies, is necessary. This permission is given after the schemes have been approved by the Central Investment Promotion and Co-ordination Committee (composed of the representatives of provincial governments, ministries of commerce and finance, the Planning Commission, PICIC, IDBP and the State Bank of Pakistan).

ii) *PICIC and IDBP* can sanction loans to industries without a reference to the Government. The representatives of the Central Government and provincial governments are associated on the boards of directors of these institutions. IDBP caters for loan requirements up to 2.5 million rupees including 1.5 million rupees in foreign exchange. PICIC gives loans above these limits.

iii) *Provincial governments* are free to issue sanctions out of cash placed at their disposal by the Central Government from time to time.

iv) *Bonus vouchers.* No permission is necessary. Clearance is given by the vice-chairman, Investment Promotion and Supplies, without technical scrutiny so as to ensure that the amount is covered under the schedule.

(b) *Items covered under the schedule for which specific permission of the Government is necessary under the investment schedule*

The sanctioning agencies (the vice-chairman, Investment Promotion and Supplies, PICIC, IDBP and the two provincial governments) can issue sanctions only after the individual schemes have been approved by the Central Investment Promotion and Co-ordination Committee. For important schemes involving a capital outlay of 10 million rupees or more, the Central Investment Promotion and Co-ordination Committee is supposed to associate the secretaries of the finance, industries and commerce ministries with the deliberations.

(c) *Schemes not covered by the industrial investment schedule or where schedule provision exhausted*

Sanctioning agencies can issue sanctions after the schemes (costing up to 2.5 million rupees) have been

cleared by the Central Investment Promotion and Co-ordination Committee. Schemes costing more than 2.5 million rupees require the approval of the Executive Committee of the National Economic Council before they are sanctioned by any of the sanctioning agencies.

3. *Other pertinent laws and regulations*

(a) *Capital issue control*

On May 17 1943, the Government of India under Defence of India Rule 94-A introduced control over capital issues to canalize the scarce resources of the capital market in government loans. The purpose of this control was to bring about "a judicious balance between government borrowing and industrial investment". It was to prevent utilization of investible funds, scarce materials and services for purposes which made little or no positive contribution to the prosecution of the war. It was brought about, in the first instance, under DIR 94-A which lapsed at the end of September 1946, but the control was continued under a Special Ordinance No. XX of 1946. In April 1947, Capital Issues (Continuance of Control) Act was passed with a view to preventing mushroom growth of companies especially in an atmosphere of undue optimism and prevailing boom. It intended to give a measure of protection to the unwary investor against the onslaught of unscrupulous company promoters. It was designed "to secure a balanced investment of the country's resources in industry, agriculture and the social services, and to ensure that the available capital resources are utilized on a balanced plan of agricultural, industrial, and other developments and to keep a balance between the manufacture of capital and consumer goods".

The Act prohibits:

- i) Without the prior consent of the Controller of Capital Issues:
 - (a) an issue of capital in Pakistan;
 - (b) any public offer of securities for sale in Pakistan (securities include instruments creating a charge or lien on the assets of the company);
 - (c) the renewal or (postponement of) repayment of any security maturing for payment in Pakistan.
- ii) Without the prior consent of the Controller of Capital Issues an issue of capital anywhere, whether within or without Pakistan by any company incorporated in Pakistan.
- iii) The issue in Pakistan of any prospectus or other document offering for subscription or publicly offering for sale any security which does not include a statement that the consent of the Central Government has been obtained to the issue or offer of the security.
- iv) Subscription for any securities issued by a company in respect of any issue of capital made in Pakistan or elsewhere unless such

issue has been made with the consent of the Controller of Capital Issues.

In a nutshell, under the Act without the permission of Controller of Capital Issues no person or company can either issue any capital prospectus or invest in shares security or raise a loan against the assets of a company not authorized by him.

The contravention of any of the provisions of the Act or any order made thereunder is punishable with imprisonment for a term which may extend to one year or with fine or with both. If the offender is a company or other body corporate, every director, manager, secretary or other officer of the company is punishable for the offence.

A rule framed under the Act permits the issue of capital without the approval of Controller of Capital Issues up to half a million rupees, one in the life of a company other than banking or insurance companies or a provident society incorporated as a company or a company in which foreign capital is associated wholly or partially for which prior permission is required even when the capital to be issued is less than half a million rupees. If the capital of the company does not exceed one million rupees, the permission for issue of capital can be given by the Finance Secretaries to the two provincial governments.

Loans raised by the Industrial Development Bank of Pakistan and Pakistan Industrial Credit and Investment Corporation Limited are exempt from the application of the Capital Issues Act.

Through the instrument of capital issues control, important policies such as broadening the base of share-holdings in joint stock companies are implemented. Companies with capital above two million rupees are persuaded to change their status to that of public companies. In public companies, effort is made to secure at least 60 per cent of local capital to be issued to the general public including 20 per cent to the National Investment Trust Limited. It has now been decided that the condition of public distribution will not be imposed on companies which qualify as public companies under section 23-A of the Income Tax Act whether or not at the time of the original issue of capital, a prescribed percentage of shares was offered to the general public. Such companies will also be free to issue right shares to their existing shareholders. Managing agency terms have been rationalized and brought in accordance with the Government's economic policies by regulating that the period of managing agencies should be confined to ten years only instead of the usual period of twenty years permissible under the Companies Act. Private companies are, as a rule, not permitted to appoint managing agents. In the case of companies managed by managing agents, the managing agents often enjoy their fixed commissions and other benefits from the managed companies without the share-holders receiving their share of the profits. Such practice vitiates the entire investment climate, particularly for the

small investor. To remedy the situation, it has been decided that the managing agency commission and other remuneration payable to the managing agents should be related to the yield passed on to the shareholders in the form of dividends. Accordingly imposed is a new condition that the total percentage of profits payable as managing agency commission and as remuneration for making sales and purchases by the managing agent shall not, in any year, exceed the percentage of dividends distributed to the shareholders for that year.

A significant development in the issue of capital has been the introduction of telescoping basis for issue of shares when offering shares to the general public. Shares to the general public are now allotted on the following basis:

- (a) The applicants of and up to hundred shares should be accommodated fully if the capital to be issued to the general public is sufficient for the purpose, if the capital applied for, is in excess of the capital to be issued to the general public, the distribution may be made in such a manner as may be determined by the Controller of Capital Issues.
- (b) Any capital left after allotment to applicants mentioned in (a) above should be distributed to persons who apply for more than hundred shares on a flat rate basis.

This arrangement would result in lower and middle class investors getting larger number of shares applied for by them in preference to capitalists who previously used to get shares in lot.

With regard to non-industrial companies, permission to issue capital is refused if it is felt that the field is overcrowded, permission is also refused (i) to companies whose financial position is unsatisfactory in order to protect the interests of small investors (ii) speculative concerns (iii) to the issue of bonus shares which are sought to be issued either on the re-valuation of assets or by companies not having adequate genuine reserves. Bonus issue applications are also refused where the companies concerned are adequately capitalized or where the issue is otherwise considered not in the public interest or where such issue would affect the soundness of a company by leaving insufficient free reserves.

The Government has a vital concern in the health and well-being of the stock exchange market. The capital issues control provides the means to ensure the growth and development of the stock market on sound lines and protects it from undesirable speculative pressure. In short, control on capital issues is an important device in implementing government policies and canalizing the limited amount of capital available in the country into desired channels.

(b) Imports of capital goods

Licences for imports of capital goods are issued under the relevant provisions of Import Control. According to the Manual of Export and Import Control,

"industrial consumers" are separately categorized and licences issued to industrial consumers are stamped "industrial consumers". Licences for capital machinery, including balancing and modernization equipment, spare parts and raw materials are issued separately.

Licences to industrial consumers are issued against foreign exchange available from the following sources:

- i) the Governments' own foreign exchange resources, as available from time to time;
- ii) loans from credit agencies such as the Pakistan Industrial Credit and Investment Corporation and the Industrial Development Bank of Pakistan;
- iii) loans from foreign financial institutions such as the United States Development Loan Fund, the World Bank, the Export Import Bank and the International Finance Corporation;
- iv) credits from foreign countries;
- v) foreign investment;
- vi) bonus vouchers.

Industrial licences are not interchangeable; a licence for the import of capital goods is not valid for the import of raw material; a licence for spare parts cannot be used to import raw material nor can a licence for the import of raw material be used for machinery or spare parts.

Industrial licences are not transferable; they cannot be sold, purchased or otherwise transferred. Similarly, goods imported under industrial licences cannot be transferred or used for any purpose other than that specified in the licence.

Recognized industrial consumers have to submit licence forms (automatic licensing) through a nominated bank. In the case of consumers applying for the first time, applications have to be made on forms prescribed for:

- i) Capital machinery,
- ii) Spares for machinery,
- iii) Raw materials.

(c) Location of industrial enterprises

There are no laws governing the location of industrial enterprises as such, but the establishment of industries in under-developed areas of the country is encouraged by incentives such as tax holidays. This is done under the provisions of the Income-Tax Exemption of Industrial Undertakings Rules, 1959. Under these rules, industrial undertakings established between the 1 April 1959 and the 30 June 1970 are entitled to tax holidays for periods of six, four and two years, depending upon the areas where they are located, as indicated below:

- (i) *Areas eligible for the tax holiday for six years*
 - 1) The whole of East Pakistan excluding the cities of Dacca, Narayanganj, Chittagong and Khulna and areas within a radius of ten miles of the municipal limits of these cities.

- 2) All areas of West Pakistan lying to the west of the line represented by the river Jhelum to the point of its confluence with the Chenab, the river Chenab from this point to the point of its confluence with the Panjnad, the Panjnad to the point of its confluence with the Indus and the river Indus thereafter, but excluding the Tehsils of Peshawar, Nowshera, Mardan and Rawalpindi and also excluding Karachi.

(ii) *Areas eligible for the tax holiday for four years*

- 1) The cities of Dacca, Narayanganj, Chittagong and Khulna and the areas within a radius of ten miles of the municipal limits of these cities.
- 2) The whole of West Pakistan excluding the areas eligible for the tax holiday for eight and four years.

(iii) *Areas eligible for the tax holiday for two years*

The Tehsils of Nowshera, Mardan, Rawalpindi, Jhelum, Sialkot, Gujranwala, Lahore, Lyallpur and Multan and the Talukas of Sukkur and Hyderabad and Karachi.

Industries generally tend to gravitate round big industrial towns where infrastructure facilities of power, land, water, trained labour and means of communications are readily available.

The Government is fully conscious of the fact that clustering of industries around a few towns entails many additional costs inherent in rapid urbanization besides the numerous social problems in the long run. Considerations determining the location of industries differ from industry to industry. For some industries such as cement and steel, proximity to raw materials is essential. While for others, factors such as availability of skilled labour, or easy access to markets are more important. Export industries are more competitive if located near port towns but this factor has to be weighed against possible advantage from proximity to raw material such as natural gas or power supply. Subject to these considerations the Government would continue to sanction industries for locations where they would maximize contribution to economic growth subject to exceptional consideration of intra-regional disparities. The Government has already taken a number of measures designed to ensure dispersal of industrial activity in the backward and rural area. These include higher tax holidays for industries set up in under-developed regions and setting up of industrial estates in under-developed regions.

(d) *Exemption from income-tax and other taxation facilities*

- i) Industries based on indigenous raw material and those specified by the CBR (Central Board of Revenue) enjoy complete exemp-

tion from income-tax for a period of two to six years depending upon the areas in which these industries have been set up provided the requisite conditions are satisfied.

- ii) The benefit of tax holiday has also been extended to hotels which may be established in Pakistan on or after the 1 January 1960 and which fulfil certain conditions laid down by the Government in its behalf.

- iii) A company is liable to income tax at the rate of 30 per cent and super-tax at 30 per cent. Rebates of super-tax are, however, allowed as shown below:

- 1) a rebate of five per cent is allowed in the case of every company, declaring dividends in Pakistan;

- 2) if such a company is a public company (technically known as a company in which the public are substantially interested) a further rebate of ten per cent is allowed;

- 3) if such a company is not a public company as indicated above but has given an undertaking to convert itself into such a company by the end of June 1970, a rebate of five per cent is allowed;

- 4) if the total income of company which satisfies the condition mentioned at iii(1) and its income exceeds Rs. 50,000, a further rebate of five per cent is allowed;

- 5) if such a company's total income does not exceed 100,000 rupees and it derives income from industrial undertakings, a rebate of five per cent is allowed on such income;

- 6) if such a company derives income for the exploration and extraction of approved mineral deposits, or from the processing or canning of food, vegetable, fruit, and similar items, a rebate of 10 per cent is allowed.

All companies incorporated in Pakistan are assessed for tax at company rates. Foreign corporations or associations of persons do not *ipso facto* qualify for assessment as 'companies', and have to apply to the Central Board of Revenue for permission, which is readily granted in all appropriate cases.

- iv) Liberal rates of depreciation allowance have been provided for new industries.

- v) Exemption from tax is allowed in respect of investments in initial or fresh issue of share capital of approved industrial companies (including transport, finance and insurance business) which provides an

incentive for industrialization and capital formation.

- vi) Special concessions have also been provided to industries engaged in the exploration and extraction of oil, gas and other mineral deposits in Pakistan. All expenditure incurred by business enterprises on scientific research and contributions or grants made by it to an approved association, college, polytechnic or similar institution engaged in scientific research or technical training, is allowed as a deduction from taxable profit like any other current business expenditure. In addition, exemptions for a period of three years is available to foreign technicians who are engaged in undertakings established in Pakistan. Further, tax-on-tax is also foregone in the case of these technicians for a period of five years if the employer undertakes to pay the tax after the period of exemption.
- vii) Interest payable to foreign lenders by industrial undertakings in Pakistan in respect of approved loans receive from abroad either in cash or in the shape of capital, equipment, plant or machinery is exempt from Pakistan tax provided the country from which the loan has emanated exempts such interests from its own tax or agrees to give credit in the home assessment of the lender for the tax normally payable on this income in Pakistan. Where a foreign country levies any tax on such interest income in the home assessment of the lender, the rate of Pakistan tax on this income is reduced to the same level.
- viii) Relief from double taxation is available for foreign investors from countries with which Pakistan has an agreement on double taxation relief.
- ix) Foreign investment is encouraged by the exclusion of foreign companies' holdings for determining whether a company is a company in which the public is substantially interested or not.

(c) *Licensing of factory establishments*

The Factories Act, 1934, regulates the conditions of operation of industrial undertakings. All new industrial undertakings employing twenty persons or more and using power are required to register under Clause 2(J) of the Act, by making an application to the Chief Inspector of Factories.

(i) *Control of raw materials*

Industrial consumers are those actual users who import machinery, accessories, spare parts and raw material for use in their own manufacturing process. They include a person, group of persons, proprietary/partnership firm or limited company. Industrial con-

sumers or units manufacturing similar products which are close substitutes of each other fall under one industry. Some examples of this are the soap industry, textile industry, cycle industry, and diesel engine industry. For import control and the issue of licences, industrial units are treated according to the basis applicable to their industry.

Classification of units. Units under an industry may be:

- a) Recognized;
- b) Unrecognized;
- c) New units;
- d) Units set up by public corporations.

Recognized units are those which have been set up under proper government sanction and have already been admitted to licensing. These units are issued with licences according to the import policy in force on the basis of their entitlements.

Unrecognized units are those which have been set up without proper government sanction and which are not registered. These units are not admitted to normal industrial licensing.

New units sanctioned by the Government are given licences for the import of machinery and plant on the recommendation of the appropriate authority. New units which are ready to go into production are considered for the issue of licences for raw material on the recommendation of the sponsoring authority.

Units set up or controlled by public corporations (e.g. EPIDC, IWTA, WAPDA) are issued with licences according to recommendations made by the public corporations concerned against their own allocations of foreign exchange. When any of the units set up or controlled by public corporations are handed over to the private sector, they will be licensed according to the procedure applicable to recognized industrial units of the industry concerned.

Small-scale industrial units. Industrial units which qualify for assistance from small-scale industries corporations are not generally granted direct licences. Bulk licences are, however, issued to corporations to cater for the requirements of smaller units.

Industrial licences. Licences issued to industrial consumers are stamped "industrial consumer." Licences for capital machinery (including balancing and modernization), spare parts and accessories, and raw material are issued separately.

Approved entitlements of industrial consumers. Approved entitlement means the half-yearly assessed requirement of an industrial unit, recognized by the licensing authority for the issue of licences for imports of raw material and spare parts.

Industrial pass books. Pass books are issued to industrial consumers showing items of maintenance spares, ITC classification and value of entitlement. They may also show the entitlement of raw material. These books help banks in opening letters of credit for maintenance spares and also for raw material.

(g) Laws governing control of power supply

The development of electric power facilities in the country is generally controlled by the two water and power development authority acts namely the West Pakistan Water and Power Development Authority Act 1958 in West Pakistan and a similar Act of 1958 in East Pakistan. The electricity supply industry as a whole, is governed by the Electricity Act 1910 as amended from time to time and the electricity rules framed thereunder.

Under the above Act, the Government may grant a licence to any person for a specified period of time in any declared area and the licensee has then to carry out his business according to the rules and regulations contained in the Act and the Rules.

The Water and Power Development Authority, for the purposes of the Electricity Act of 1910, is deemed to be a licensee and has all the powers and discharges all the obligations of licensee under the Act.

Subject to the provisions of the above law, the Authority derives its powers of control over water and power houses and grids under West and East Pakistan Water and Power Development Authority Acts, 1958. Under this Act, the Authority has control over the operation of all power houses and grids including ancillary works.

(h) Control of import of technical know-how

There are no laws governing the import of technical know-how as such but industrial establishments in the country are encouraged to acquire technical know-how through relevant provisions relating to royalties, patents, copyrights, trade marks and the employment of foreign materials in specified jobs for which Pakistani talent is lacking. Generally speaking, technical know-how is encouraged through foreign investments, joint ventures and counterpart training in Pakistan and abroad.

(i) Company law administration

Business in Pakistan may be organized as a sole proprietorship or partnership, or as an unincorporated or incorporated association.

Foreign investors establishing enterprises in Pakistan ordinarily form corporations or 'companies,' as corporate enterprises are known in Pakistan. The basic legislation governing the establishment and operation of incorporated enterprises is the Companies Act, 1931, and that pertaining to partnerships is the Partnership Act, 1932.

Foreign investors may organize a Pakistani company or participate in a Pakistani company already formed, subject to the same company regulations as are applicable to Pakistani investors. They may also establish a branch or a subsidiary of a foreign company in Pakistan by registering the branch or the subsidiary under the Indian Companies Act, 1913 (as amended for Pakistan).

Companies formed in Pakistan

A company may be formed in Pakistan by registration with the Registrar of Joint Stock Companies of the memorandum and articles of association. The memorandum, which is the constitution of the company, describes the name, address, and objectives of the company. The articles of association contain the rules which are to govern the company's operations. Before any issue of public shares may be made, a prospectus, or a statement in lieu of a prospectus, may be filed with the Registrar. The Companies Act, 1913, lays down the details regarding the information which a prospectus must contain.

Companies incorporated abroad

Special provisions relating to companies incorporated in foreign countries are contained in Section 277 of the Indian Companies Act, 1913 (as amended for Pakistan). A business established in Pakistan by a foreign company is required to register in the province in which it is to be located and to place on file the following:

- 1) the charter and articles or other instrument defining the constitution of the company;
- 2) list of the company directors and managers;
- 3) address of the principal office of the company (in the country of origin);
- 4) names and addresses of one or more persons resident in Pakistan, authorized to accept any legal notice served on the company;
- 5) the full address of that office of the company which is to be deemed as the principal place of business of the company in Pakistan.

A business established in Pakistan by a foreign company is also required annually to file three copies of a detailed balance sheet with the Registrar of the province in which it is located.

b. Conditions governing public and private investment**1. Fields of investment open to different types of investor**

According to the industrial policy of the Government, the whole field of industry is open to the private sector with the exception of certain strategic industries and industries of national importance. The only reservations (which exclude the private sector) are:

- i) arms and ammunition of war;
- ii) railways, air transport and telecommunications;
- iii) atomic energy.

Public sector investments in fields other than these have only been in projects for which private capital has not been forthcoming or which have been capital-intensive and technologically complex. Public-sector industries have been entrusted to the two provincial industrial development corporations, which are willing to disinvest and transfer ownership to the private sector.

should the latter be inclined to take over any project at present under their control.

Private investments can be made either wholly of local capital or in collaboration with foreign capital.

Foreign investment is particularly welcome in the following industries:

- Special steel;
- Ferro-chrome;
- Modern agricultural machinery and implements including plant protection equipment and appliances;
- Stationery and marine diesel engines;
- Textile machinery and spares (cotton, jute, wool len and rayon textiles, ginning and processing);
- Pumps;
- Machine tools;
- Manufacture and assembly of tractors and spare parts;
- Manufacture and assembly of mechanically propelled vehicles and spare parts;
- Light engineering workshops and manufacture of miscellaneous machinery;
- Heavy chemicals;
- Basic manufacture of drugs and pharmaceuticals;
- Basic manufacture of insecticides and pesticides;
- Cellulose and other special paints (including pigments, dry paints, etc.);
- Coal carbonization;
- Carbon black;
- Glass (including neutral scientific laboratory glass, bulbs, shells, ampoules and vials);
- Asbestos cement products;
- Agricultural and industrial wastes;
- Oil and gas prospecting and development;
- Natural gas transmission;
- Natural gas distribution;
- Fertilizers;
- Synthetic rubber.

This list is illustrative only and by no means exhaustive.

2. *Investment services: the Investment Advisory Centre*

To provide the information required to attract foreign capital, and to ensure sound programming of long-range development programmes, the Government of Pakistan established an Investment Advisory Centre in collaboration with the United States AID. The Centre was incorporated under the Companies Act on the 16 January 1963 and commenced operation in September 1963. An office of the Centre has also been opened in Dacca (East Pakistan).

The Centre is made up of the departments of economics, engineering, finance, and marketing, which serve industry at every level of development. Briefly, the economics department evaluates the factors which will affect an industry, evolving statistics and data. The engineering department supervises the facilities and

methods employed by the Centre's clients. The finance department counsels the clients on money matters. The marketing department provides the client with data regarding his market, and recommends suitable marketing policies.

3. *Procedure to be followed by an entrepreneur in establishing a new industry*

All applications for establishing new industrial undertakings in Pakistan in which foreign investment is involved are to be made on a prescribed form in quadruplicate to the vice-chairman, Department of Investment Promotion and Supplies, Government of Pakistan.

Along with the prescribed form, the applicant should furnish the terms and conditions of any agreement between the foreign investor and the Pakistani participant and a copy of the draft agreement, if possible. Any other information not covered by the prescribed form which the applicant desires to supply to explain or justify the feasibility of the project, may be given in a covering letter which should be sent in quadruplicate along with the forms.

The Department of Investment Promotion and Supplies will have the technical and financial aspects of the scheme examined in consultation with the appropriate departments and ministries of the Government of Pakistan.

After registering with the Registrar of Joint Stock Companies [see section A. 3(h) above] and obtaining consent to issue capital [see section A. 3(a) above], the investor has to apply to the Chief Controller of Imports and Exports for licences.

An investor in possession of permission from the Government to set up an industry is required to submit an application for the issue of an import licence for plant and machinery.

In cases where foreign investment is involved, the import application should be sent to the Director General, Department of Investment Promotion and Supplies, Ministry of Industries, Government of Pakistan, Karachi, who will act as the sponsoring authority and forward the application to the Chief Controller of Imports and Exports, Karachi, for issue of the necessary "investment import licence."

All import applications must be accompanied by the suppliers' original quotations for machinery, and a photostat copy of the Government's permission letter for the establishment of the undertaking. The amount of the machinery to be imported should in no case exceed the amount originally applied for on the prescribed application submitted and approved by the Department of Investment Promotion and Supplies.

Applications for licences to import raw materials and spares by industrial undertakings, whether foreign or local, established in Pakistan, are made to the Director of Industries in East or West Pakistan, at Dacca or Lahore as the case may be. The issue of licences for

raw materials rests with the government of the province where the industrial unit is located.

On receipt of permission from the Government, investors, foreign or local, should contact the Director of Industries in East or West Pakistan, at Dacca or Lahore as the case may be, for any assistance they may require for such facilities as land, power, water, railway sidings and building materials. A monthly progress report must also be submitted to the Department of Investment Promotion and Supplies and to the Director of Industries in the Province where the enterprise is to be located until the plant starts operating.

c. Customs duties and taxes

1. Customs duties on raw materials and components

The tariff policy regarding raw materials and semi-finished *vis-à-vis* fully manufactured articles is that rates are graduated according to the degree of manufacture with raw materials paying lowest and completely finished articles paying the highest rate of customs duty.

The tariff policy regarding components is that they should be taxed at the rate of the complete unit provided it can be established that the components in question are exclusively usable with or as a part of the complete unit.

No sales tax is charged on the raw materials if imported by a licensed manufacturer.

The average rate of customs duty on industrial goods are as follows:

(a) Machinery and other capital goods at 25 per cent *ad val.* (The Government has provided the following incentives for industrial development:

- i) duty on machinery to be installed in the under-developed areas of the country is realized at 20 per cent only;
- ii) duty at the time of import of machinery is realized at 15 per cent in cash and the balance becomes payable in six yearly instalments after a grace period of two years [interest is charged on the deferred payment];
- iii) full duty payable on machinery is deferred for export industries and producer goods industries and becomes payable in the manner indicated at (ii) above;
- iv) five per cent reduction is granted to industrialists whose machinery component does not exceed half a million rupees in value if such machinery is imported for the initial setting up of a complete unit. This measure helps the small investors).

(b) Raw materials for producer goods industries at 20 per cent *ad val.*

(c) Raw materials for consumer goods industries at 30 per cent *ad val.*

Certain industries such as radio assembly, pharmaceutical industry are refunded a part of the duties paid by them on raw material after the manufacture of goods therefrom has been completed.

2. Taxes affecting industry

(a) Corporate taxation

The present rate of corporate taxation is basically 50 per cent for public companies and 55 per cent for private companies — that is, companies in which the public are not substantially interested. A rebate of five per cent is admissible to industrial companies with an income of up to 50,000 rupees in any year.

(b) Excise duty

The commodities which contribute the major share of central excise are tobacco, petroleum products, motor spirits and kerosene oil, textiles, sugar, tea, cement, matches, salt, vegetable products, mild steel products, soap, beverages, jute manufactures, cosmetics, paints and varnishes, tyres and tubes, electric bulbs and boot polish.

Excise duties are used as a tool of fiscal policy to ensure balanced development of the country. Excise duties in 1964/65 were as follows:

Cotton fabrics

Fine cotton fabrics	31 paisa per square yard
Medium cotton fabrics	19 paisa per square yard
Coarse cotton fabrics	6 paisa per square yard

Tobacco

One rupee per pound for tobacco used in cigarettes and sixty paisa per pound for all other tobacco.

Cigarettes

Cigarettes if value per thousand:

i) does not exceed Rs. 10/-	Rs. 1/- per thousand ^a
ii) exceed Rs. 10/- but does not exceed Rs. 14/-	Rs. 4/- per thousand ^a
iii) exceeds Rs. 14/- but does not exceed Rs. 20/-	Rs. 12/- per thousand ^a
iv) exceeds Rs. 20/- but does not exceed Rs. 26/-	Rs. 22/- per thousand
v) exceeds Rs. 26/- but does not exceed Rs. 35/-	Rs. 34/- per thousand
vi) exceeds Rs. 35/- but does not exceed Rs. 45/-	Rs. 45/- per thousand
vii) exceeds Rs. 45/-	Rs. 56/- per thousand

^a +25% surcharge

Non-essential vegetable oils

Seven rupees per hundred-weight on all power-produced non-essential vegetable oils; cottage industry is exempt.

Tyres and tubes

30 per cent *ad valorem* on tyres and tubes for motor vehicles and 15 per cent *ad valorem* on all others.

(c) Sales tax

Under the Sales Tax Act, 1951, sales tax is payable:

- i) on goods imported into Pakistan, by importers;
- ii) on goods produced/manufactured in Pakistan by producers/manufacturers;
- iii) on goods sold by a licenced wholesaler;
- iv) on goods exported, by the exporter (only in respect of a few specified items).

The tax is payable at a standard rate of 15 per cent *ad valorem*. Special rates exist for certain specified categories and some items are exempted altogether as given below:

- i) machinery of all sorts, not otherwise specified operated by power of any description (including tractors) such as is used in any industrial process, including the generation, transmission and distribution of power, or used in processes directly connected with the extraction of minerals and timber, construction of buildings, roads, dams, bridges and similar structures, and the manufacture of goods;
- ii) component parts, including spare parts of machinery as defined in item(i), which have been given some special shape, size and quality essential for their being used as such;
- iii) apparatus and appliances not otherwise mentioned, specially adapted for use in conjunction with machinery as defined in item(i);
- iv) mechanical and electrical control and transmission gear adapted for use in conjunction with machinery as defined in item(i), including belting of all types designed for use with machinery as defined in item(i), driving chains, switch boards, switches or fuses assembled in iron clad cases, copper wire and cables insulated with impregnated paper, electrical, earthen-ware and porcelain, not otherwise specified;
- v) component parts including spare parts of goods enumerated in item (iv).

This exemption shall not effect the tax payable on the raw materials from which such goods are produced or manufactured.

All goods (other than ginned cotton) as are manufactured or produced in Pakistan (including raw materials used in their manufacture or production), are sold for delivery outside Pakistan and are actually so delivered are exempted.

Where such tax has already been paid by a person not licensed under Section 9 of the said Act to a licensed manufacturer or a licensed wholesaler on any goods to which this notification applies, the amount of the tax so paid shall be refunded to such a person in accordance with the provisions of the

said Act and in such manner and to such extent as may be prescribed.

(d) Wealth tax

This tax was levied for the first time in 1963/64 under the Wealth Tax Act, 1963, as a measure to discourage the concentration of wealth in a few hands.

Tax rates were:

	On first Rs. 400,000	On next Rs. 1 million	On the balance
Individual	Nil	1%	1½%
Public companies	Nil	Nil	Nil
Private companies	Nil	1%	1%

Partnerships were exempt but the share of each partner was assessable along with his other assets.

In 1964/65 this was revised. The tax was removed from private companies and the rate for individuals was increased from 1½ to 2 per cent on slab or net wealth exceeding 3.4 million rupees, subject to a maximum of 15 per cent of total income.

(e) Capital gains tax

This tax was also levied for the first time in 1963/64. Where a capital asset is disposed of within six months, the gain is treated as income and taxed accordingly. If it is disposed of after six months to five years, it is taxed at the current capital gains tax rate. Gain from the sale of assets after five years is taxed at half the present rates.

(f) Other features of taxation

Tax holidays for six, four and two years are granted to industries [see section A.3(c) above]. Apart from the industries specified above, 31 industries based on indigenous raw materials will also qualify for the tax holiday.

The mining industry will be given a 10 per cent rebate in addition to existing concessions (as a tax holiday).

A tax rebate of 15 per cent is allowed to Pakistani enterprises in respect of income from foreign operations remitted to Pakistan.

Foreign technicians enjoy tax exemption for three years.

IV. MARKET ANALYSIS AND SURVEYS

Market analyses and surveys in the industrial field are generally understood to be a function of private undertakings. Where public-sector undertakings are concerned, separate information on market analyses and surveys is difficult to obtain, as aspects related to markets are invariably covered by the feasibility studies undertaken in respect of selected industries. For example, the Pakistan Industrial Credit and Investment Corporation (PICIC) has had feasibility studies conducted of over twelve major industrial projects and most of these have included marketing aspects. A few studies are mentioned below.

PICIC studies

Three studies, two by foreign experts and one by PICIC staff, were made on the cement industry. The scope was limited to determining the size of the market, and the need for and location of additional capacity.

As a result of these studies, two large projects have already been established while a third project is nearing completion. All these projects have been sponsored in the private sector. More projects are under development.

Two studies, one by foreign experts and one by PICIC staff, were prepared on the paper industry. The reports assessed the present and potential market and recommended the size of additional capacity. The studies were instrumental in the sanctioning of loans for one large-sized paper mill and two small-sized fine paper mills.

A feasibility study was prepared by foreign consultants to determine the feasibility of manufacturing hardboard from cotton stalks, and the market for the same. On the recommendation of this report, a loan was sanctioned to a private party for the manufacture of hardboard from cotton stalks.

A study was made by Japanese consultants to determine the market prospects of gypsum board in Pakistan and to recommend the economic size of a plant. On the basis of this study, a loan for the manufacture of gypsum board is under active consideration.

A study was made by foreign experts to determine the market prospects for the local manufacture of outboard engines for propelling country-boats in East Pakistan waterways. The report is under examination.

PICIC has also conducted market analyses on (a) scooters and motor-cycles; and (b) on refrigerators and air-conditioners. Also a market study was jointly carried out by IACP and PICIC in 1964 on "Commercial vehicles (trucks and buses)".

Investment Advisory Centre surveys

The Pakistan Investment Advisory Centre provides services for the conduct of market analyses and surveys. In the eighteen months it has been working, it has conducted the following surveys:

1) *Preliminary report on essential oils and essences*

A helpful study giving technical and chemical information plus names of foreign manufactures, exporters, Pakistani agents, bibliography, and so on.

2) *Export potential for fresh fruits*

A preliminary report on export potential only.

3) *Fruit-juice market appraisal*

A survey of West Pakistan fruit processing industries.

4) *Cement export prices*

A study of cement export prices.

5) *Survey of paper containers for milk*

A true picture of the market potential for "Tetra Pak" milk containers (a Swedish process).

6) *Market survey for tube-well and irrigation sduund*

A survey of tube-well and irrigation pumps for East and West Pakistan.

7) *Survey of the market for non-woven fabrics*

Present and anticipated market in Pakistan for specialized non-woven fabrics (manufactured from jute, cotton and the like).

8) *Chicken feed industry survey*

Present sources of chicken feed and the prospects for developing the chicken feed industry using indigenous raw materials.

9) *Poultry and egg market*

Market for broilers and eggs in the Karachi area.

10) *Survey of truck and bus requirements in Pakistan*

Development of a work plan and supervision of a survey report prepared by a development bank.

11) *Insulation tape project*

A complete market study for insulation tape in West Pakistan.

12) *Cement plant for Kohat area*

Evaluation of a feasibility study for a cement plant in Kohat.

13) *Survey for a proposed biscuit factory*

Present biscuit production capacity in West Pakistan and the nature and extent of the market which additional facilities might expect to capture.

14) *Bakery (bread) market survey*

A pre-investment survey for bread in the Rawalpindi-Islamabad sector.

15) *Cattle feed survey*

A survey of the domestic and export market for locally manufactured balanced cattle feeds.

16) *Glassine and grease-proof paper*

Evaluation of the marketing aspect of a feasibility report prepared for a proposed plant.

17) *Ball-point pens and refills*

Evaluation of a feasibility report prepared by an engineering firm on this project.

18) *Cardboard market in Pakistan*

Market for cardboard in Pakistan and the need for additional production capacity.

- 19) *Dry-cell batteries*
Confirmed yearly consumption and increase in Pakistan.
- 20) *Automobile and truck assembly in Pakistan*
Number of buses, trucks, jeeps and passenger cars assembled in Pakistan.
- 21) *Opinion on cement project of Shaiqan Industries*
- 22) *Opinion on marketability of spark plugs*

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. Rate of capital investment in industry

1. Background

Partly because of Government patronage and incentives and partly because of its own initiative, private enterprise in Pakistan has played an active role in accelerating the industrial development of the country. It is, however, extremely difficult to describe adequately and precisely the role of private enterprise in industrializing the country at such a fast rate. There are several indicators of such progress. First, there is the rate of capital issue (although it includes other economic sectors also). In 1947 (14 August to 31 December), consents to capital issue amounted to no more than 56.8 million rupees (13 companies), but in 1959 the volume had increased to 746.8 million, the highest recorded so far. The statement of consents by year is given in table 3.

TABLE 3. CAPITAL ISSUES SANCTIONED, 1947-1964

Year	Number of companies	Amount sanctioned (million Rs.)
1947	13	56.8
1948	122	197.6
1949	103	110.8
1950	54	76.9
1951	91	136.7
1952	129	325.2
1953	105	291.5
1954	73	296.0
1955	104	354.2
1956	92	371.8
1957	82	212.2
1958	97	312.6
1959	138	746.8
1960	107	392.0
1961	133	521.1
1962	137	473.0
1963	129	491.9
1964 (June)	70	198.6

The second indicator is the rate of investment in the industrial sector by private enterprise. Reasonably accurate data on investment are available from 1960 onwards. This year marks the announcement of the Industrial Investment Schedule, a policy measure adopted by the Government of Pakistan to accelerate industrial development. Prior to 1960, which also

marked the commencement of the second five-year plan (1960-1965), an indication of investment in industries is obtained from the provisions made in the first five-year plan.

2. First five-year plan (1955-1960)

The first plan (1955-1960) allocated 3,215 million rupees for investment in industries, of which 1,735 million rupees was to be in the private sector and 1,480 million rupees in the public sector. Planned public investment in large-scale industry, with the association of private investment in some cases, for the period April 1955 to March 1960 is shown in table 4.

TABLE 4. PLANNED PUBLIC INVESTMENT IN LARGE-SCALE INDUSTRIES, 1955-1960 (million Rs.)

Industry	Private investment	Public investment	Total investment
Sugar	100.9	182.4	283.3
Woollen textiles	—	2.3	2.3
Jute goods	50.0	150.0	200.0
Newsprint	—	115.0	115.0
Card and strawboard	—	49.8	49.8
Hardboard	—	19.2	19.2
Caustic soda	—	3.5	3.5
Fertilizers	—	332.0	332.0
Animal feed	—	5.0	5.0
Pharmaceuticals and fine chemicals	—	10.4	10.4
Penicillin and streptomycin	—	24.1	24.1
Dyes	1.5	9.6	11.1
Rosin and turpentine	0.6	1.0	1.6
DDT	—	4.3	4.3
Power alcohol	4.0	2.0	6.0
Cement	—	54.4	54.4
Asbestos cement sheets	1.4	0.6	2.0
Iron and steel, and rerolling	—	130.0	130.0
Shipyards	—	109.5	109.5
Gas transmission	54.0	160.0	214.0
Gas distribution	36.0	18.0	54.0
Productivity Centre	—	1.6	1.6
Industries trading estates	—	7.4	7.4
	248.4	1,392.1	1,640.5

The following additional public investment in the small industry sector was intended:

Research and advice

Research on markets, product designs, materials, equipment, production techniques; study of particular industry problems; advice to small industries 3.0 million rupees

State trading

Import of raw materials and their distribution to small industries; purchase of small industry products, and export of products 25.0 million rupees
Provision of credit 20.0 million rupees

Promotion, education and common facilities

Promotion of co-operatives; promotion of hand-looms; establishment of model units; demonstra-

tion and training centres; common facilities centres; small power units; small industries estates	38.5 million rupees
Total	86.5 million rupees

Detailed and complete statistics regarding capital invested and physical targets achieved in individual enterprises are not available but on the basis of computed data, it is estimated that private investment during the first plan period (1955-1960) was 1,100 million rupees and public investment, 770 million rupees. There was thus a shortfall of about 635 million rupees in the private sector and about 710 million rupees in the public sector.

An account of investment in a few major industries in the first plan period is given below.

Cotton textiles

In 1955, there were ninety-seven cotton textile mills with an installed capacity of 1.6 million spindles and 20,000 looms, having invested productive capital of 530 million rupees. The first plan envisaged an increase of 0.6 million spindles and 18,695 looms at an estimated capital investment of 382.2 million rupees. A sum of 45 million rupees was also provided for the modernization of existing units. Thus the total estimated investment was 427.2 million rupees, inclusive of a foreign exchange component of 274.5 million rupees.

The expansion provided for did not fully take place owing to the shortage of foreign exchange. Figures for private investment are not available, but public investment was only 375 million rupees. Against the plan target of 2.2 million spindles and 38,695 looms, there were only 1.93 million spindles and 29,755 looms in 1960.

Jute products

In 1955, there were eleven jute mills with a productive capital of 185.6 million rupees. The first plan (1955-1960) proposed an increase in invested capital of 200 million rupees (150 million public and 50 million private). In addition, a sum of 12 million rupees was provided for modernization. However, the actual total investment in the plan period was only 63.2 million rupees (52.2 million public and 11.0 million private).

Fertilizers

Investment in this industry has been wholly public. The total investment in the first plan period (1955-1960) was 202.3 million rupees on four units, two of which were completed and in production by 1960, and the other two were still under construction. The shortfall of investment amounted to 129.7 million rupees.

Sugar

In 1955, there were ten sugar mills in Pakistan with a capital investment of 86 million rupees. The first plan envisaged an increase in investment of 283.3 million rupees (182.4 million in the public sector and 100.9 million in the private sector). In addition, a

provision of 12 million rupees was made for balancing, modernization and so on. The shortfall in the public sector amounted to 103.0 million. Private investment figures are not known.

Paper and board

In 1955, one paper mill, one cardboard mill and one strawboard mill were in operation, with a total investment of 96.4 million rupees. In the first plan period, the following mills were to be set up:

A newsprint mill at a cost of 115.0 million rupees, a hardboard mill at a cost of 19.2 million rupees, and a card and strawboard mill at a cost of 46.0 million rupees, all in East Pakistan.

The latter two projects were not taken up, however, and therefore out of a provision of 184.0 million, only 148.8 million were utilized.

Cement

In 1955, there were five cement factories, of which two were in the public sector. Much of the work in the public sector related to expansion of the two units on which an investment of 36.5 million rupees was made during the first plan period.

Chemicals and pharmaceuticals

In the public sector, five units were set up (one sulphuric acid or superphosphate, one rosin and turpentine, one dyes and chemicals, one penicillin and one pharmaceuticals) at a total investment cost of 14.7 million rupees. Plans for a caustic soda plant and a DDT plant could not be taken up.

Iron and steel

There was no iron and steel production capacity before 1955. A proposal for an iron and steel plant in the public sector at a cost of 170 million rupees (foreign components 115 million rupees) was approved and preliminary work was undertaken in the first plan period, a sum of 30 million rupees being provided. Actual investment in investigations and testing amounted to 8.2 million rupees.

Shipyards

In 1955, there were twelve shipbuilding yards, dry docks and repair yards in the country, representing an investment of 35.3 million rupees. The first plan provided for an investment of 109.5 million rupees in the public and 6.1 million rupees in the private sector. Actual investment on Karachi and Narranganj shipyards amounted to 97.5 million rupees.

Natural gas transmission

By 1959, the Sui-Karachi pipe line had been completed at a cost of 84 million rupees. The first plan proposed an investment of 214 million rupees for pipe-lines from Karachi to Lahore and from Sylhet to Dacca.

The performance of the private sector in industrial development has been spectacular in both the first (1955-1960) and second plan (1960-1965) periods. By 1961, total private investment sanctioned by the Government amounted to about 3,183 million

rupees. Foreign investment in that year stood at 886 million rupees.

3. Second five-year plan (1960-1965)

A general idea of the industrial development planned from 1960 to 1965 can be gathered from table 5.

TABLE 5. PLANNED INVESTMENT IN INDUSTRIES, 1960-1965
(million Rs.)

Industry	Private investment	Public Investment	Total
Foods products manufacturing (including sugar)	315	58	373
Beverages	4	—	4
Tobacco manufactures	20	—	20
Textile manufactures	628	115	743
Footwear and apparel	10	—	10
Manufactures of wood and cork	8	—	8
Furniture	2	—	2
Pulp, paper and paper products	22	50	72
Printing and publishing	25	6.3	31.3
Leather and leather goods	25	—	25
Rubber products	12	—	12
Chemicals	181	447.57	628.57
Petrochemicals	218	40	258
Non-metallic mineral products	239	46.1	285.1
Basic metal industries	179	213.53	392.53
Metal products	48	5.75	53.75
Machinery	89	6.9	95.9
Electrical machinery	62	—	62
Transport equipment	51	49.25	100.25
Miscellaneous industries	82	11.9	93.9
Industrial estates	—	100	100
Small industries (Public facilities)	—	284	284
Working capital	700	—	700
Revolving fund	228	—	228
	3,660	1,460	5,120

The breakdown of the total planned development expenditure by regions was 2,282 million rupees for East Pakistan and 2,838.5 million rupees for West Pakistan, inclusive of Karachi.

4. Third five-year plan (1965-1970)

In the third plan, 13,000 million rupees, or 28 per cent of the total investment, has been earmarked for industrial development. This will be a little less than two and a half times larger than the estimated actual investment of about 5,800 million rupees during the second plan. The target for Government-financed investment is 4,750 million rupees. This will be largely invested through the Industrial Development Corporations of the two provinces. A total investment of 8,300 million rupees is expected in the private sector. Particular attention has been paid to the needs of East Pakistan. Of the government investment of 4,750 million rupees, the allocation for East Pakistan is 3,000 million rupees. This is more than three times

the estimated investment during the second plan and is larger than the allocation for West Pakistan in the third plan.

5. Industrial Investment Schedules

The main instrument of industrial sanction is the Industrial Investment Schedule, which is intended to accelerate industrial development. Three Schedules have been announced so far. The first Schedule was announced in 1960 and was intended to cover the second plan period (1960-1965). Within two years it was over-fulfilled. It had 107 items covering almost all industrial fields and envisaging an investment of 2,844 million rupees, of which about 1,700 million rupees represented the foreign component and 1,140 million rupees internal capital. Within two years, sanctions accorded amounted to 3,760 million rupees, exceeding the provision by about 40 per cent. To keep up the buoyancy of the private sector, the Government had to announce a Revised Schedule in February 1963, envisaging an investment of 1,520 million rupees; of this, 890 million rupees represented the foreign component and 630 million rupees internal capital. The Revised Schedule listed 114 items.

The position of sanctions covering both the schedules for the period July 1960 to December 1964 is given in table 6.

TABLE 6. INDUSTRIAL INVESTMENTS SANCTIONED,
JULY 1960 TO DECEMBER 1964
(million Rs.)

	Internal	External	Total
West Pakistan			
New capacity	1,468.9	2,105.1	3,574.0
Balancing and modernization	271.8	335.4	607.2
East Pakistan			
New capacity	656.5	885.4	1,541.9
Balancing and modernization	72.9	86.8	159.7
	2,470.2	3,412.7	5,883.0

The share of the public and private sectors underwent a change during the period 1949/50 to 1964/65. The share of the public sector in total investment increased from 30 per cent in 1949/50 to about 55 per cent in 1964/65. Much of the public sector investment went into infrastructure, laying the basis for greater opportunities in the private sector in the coming years. The estimate of total private investment in the second plan (1960-1965) was 8,380 million rupees, of which the provision for investment in industries was 2,732 million rupees. Against this sanctions have exceeded 5,880 million rupees, as shown in table 6.

Industrial Investment Schedule for the third five-year plan:

The third five-year plan (July 1965-June 1970) envisages an investment of 12,880 million rupees in the

industries sector of which 8,300 million rupees have been earmarked for the private sector. This implies more than 300 per cent increase over the investment programme laid down in the second plan. The break-up of the third five-year plan provisions for the government financing and private sector and for the two wings of the country is as follows:

Provinces	(million rupees)		
	Private sector	Public sector	Total
East Pakistan	3,800	3,000	6,800
West Pakistan	4,500	1,330	5,830
Centre	—	250	250
Grand Total	8,300	4,580	12,880

On account of certain unforeseeable circumstances, the Government did not think it wise to immediately announce the complete investment schedule for the third five-year plan. It was thought better that until the resource position could be gleaned more clearly, the full programme for the third plan may not be offered for implementation. The first phase of the schedule was announced in November 1965. The first phase comprised sixty-three industries in the large and medium-sized sector and sixty-six industries in the small-scale sector and envisaged a total investment programme of about 3,790 million rupees. The experience of the first three months of the operation of the first phase showed that a number of investment proposals could not be processed by various sanctioning agencies either because the monetary targets were inadequate or had been exhausted or because certain sectors in respect of which there was considerable enthusiasm amongst entrepreneurs did not figure in the so-called hard-core programme. To allow the private sector to exploit the maximum investment opportunities, the Government reviewed the position and released the Comprehensive Industrial Investment Schedule in April 1966. The new Schedule covered 200 industries with an investment target of 10,880 million rupees. Regional break-up of the total investment is as follows:

Provinces	(million rupees)		
	Large/medium	Small	Total
East Pakistan	4,556.4	468.1	5,024.5
West Pakistan	5,607.1	253.6	5,860.7
Total	10,163.5	721.7	10,885.2

The relative provisions for two wings of the country are in accordance with plan provision which is roughly 46 per cent for East Pakistan and 54 per cent for West Pakistan in the private sector.

Of 10,885.2 million rupees, the engineering and electrical sector would take up 3,171.1 million rupees, chemicals 2,290.1 million rupees, textiles 3,271.5 million rupees and miscellaneous 2,153.5 million rupees.

The break-up of the total investment provided in the Schedule according to three broad categories of goods produced is as follows:

i) consumer goods industries 4,545.6 million rupees;

- ii) intermediate goods industries 4,740.3 million rupees;
- iii) investment goods industries 1,423.5 million rupees.

The comprehensive schedule provides separately for the large/medium sector on the one hand and for the small sector on the other.

The criteria adopted in selecting industries for inclusion in the Schedule and their priority are the same as contained in the third plan, namely, import substitution, export earning and utilization of indigenous raw materials. Within the field of import substitution, emphasis has been given to producer-goods industries in order to meet the country's growing requirements of capital goods and machinery by domestic production of those which are still being imported in the country in bulk either because of inadequacy of local manufacturing capacity or because the quality of the local products is not according to requirements and specifications. In this context, defence requirements of imported non-war-like stores have also been kept in view. Industries catering to the requirements of essential consumer goods and services for domestic consumption have also been given priority so as to ensure competition and fair prices to domestic consumers. Care has also been taken to make substantial provisions for various labour-intensive industries so as to provide maximum employment opportunities consistent with economic production. Separate provisions for the two provinces are intended to reduce the existing disparity in the development of the two wings (with a large emphasis on public sector development in East Pakistan). It has not been possible to make separate provisions for less developed areas in each province but removal of intra-regional disparities must continue to be the objective of all sanctioning agencies.

Some of the salient features of the Schedule are as follows:

- a) Production targets of various industries have been taken as the basis of planning investment requirements in foreign exchange as well as local currency. Sanctions for investment and capacities will exceed the financial and physical targets in order to:
 - i) allow for the gap between capacity and actual production;
 - ii) ensure adequate supplies in the home market;
 - iii) fulfil export targets;
 - iv) allow for setting up of competitive industries and avoiding monopolistic trends;
 - v) take care of the rising costs.
- b) The physical targets laid down in the plan are based on estimates of existing production capacities as on June 1965, and the capacities proposed to be developed by

June 1970. The additional capacities proposed to be developed during the third plan period take into account the sanctions which have not yet been implemented and the additional demands which will arise during the plan period.

In determining the production targets for 1970, the plan takes into account, amongst other factors, the production estimates for 1964-65. In many of these fields sanctioned capacity is far in excess of estimated production figures for 1964-65. This is because all capacities sanctioned have not yet been established and in some cases there is a large spillover from the second plan into the third plan. It is obvious that there will be a similar carry-over from the third plan into the fourth plan. The sanctioned capacities have been taken as the criterion for laying down the financial provisions and fiscal targets. Accordingly the provisions in the Schedule are in excess of the planned production targets to allow for time lags between sanctions and implementations.

- e) The Schedule covers twenty-three groups of industries which have been sub-divided into 200 individual industries. The groupings and their sub-divisions largely follow the international industrial classification.
- d) The Schedule sets out the monetary and physical targets for both large- medium- and small- scale industries. A 'small industry' has been defined to be one having an investment of up to half a million rupees excluding cost of land.
- e) The Schedule spells out the industrial capacities which have already been developed or sanctioned in the country both in the public and private sectors. Needless to mention that one of the difficulties facing the intending investors, both foreign as well as local, has been the non-availability of data relating to sanctioned, installed and effective capacities.
- f) The Schedule sets out the import figures of various major items in the country. The data where available should help an intending entrepreneur in determining the extent of import substitution.
- g) The Schedule indicates the export targets for a few major industries in which the country has either a known export potential or can build up exports. In laying down these targets, the country's natural or acquired advantages in the export market have been carefully analysed.

Sanctioning procedure

The most notable feature of the Industrial Investment Schedule for the third plan has been to exempt as much of the investment in industry as possible from the requirements of prior sanctions by governmental agencies. No sanction of any

agency or institution is now necessary for industries based exclusively on locally available plant and machinery and indigenous raw materials. Prior approval of any government authority is also not required in cases where the foreign exchange component of the investment can be found by the financing institutions viz PICIC and IDBP and the proposed investment is covered by the Industrial Investment Schedule. It is only in respect of industries which are envisaged to be set up against foreign investment or under pay-as-you-earn scheme or bonus vouchers that permission of the Central Investment Promotion and Co-ordination Committee is necessary.

6. Foreign economic assistance

Pakistan, like many other developing countries, relies considerably on foreign assistance for the attainment of self-sustaining growth. Since its inception twelve years ago, foreign aid has grown manifold in volume. The total commitments from July 1960 to 31 March 1964, excluding the assistance received under the United States PL 480 Title I and the contributions for the Indus Basin Replacement Works, were \$1,480 million. Of this, \$305 million was on a grant basis and the balance of \$1,175 million on a loan basis. The sources of the commitments from 1 July 1960 to 31 March 1964 are shown in table 7.

TABLE 7. SOURCES OF COMMITMENTS OF ECONOMIC ASSISTANCE, JULY 1960 TO MARCH 1964
(million US dollars)

Country/Agency	Grants	Loans	Total
Australia	6	—	6
Canada	68	12	80
France	—	7	7
Germany, Federal Republic	3	182	185
Italy	—	6	6
Japan	—	108	108
New Zealand	1	—	1
Sweden	3	—	3
United Kingdom	3	93	96
United States:			
i) DLF	—	30	30
ii) AID	194	470	664
iii) Eximbank	—	48	48
iv) Suppliers' credit	—	8	8
Soviet Union	—	30	30
Yugoslavia	—	15	15
IBRD/IDA	—	163	163
IFC	—	4	4
Ford Foundation	13	—	13
United Nations and specialized agencies	4	—	4
United Nations Special Fund	11	—	11
	305	1,175	1,480

During 1963/64, the members of the Aid-to-Pakistan Consortium pledged \$431 million excluding some technical assistance grants. In addition, West Germany and the United Kingdom agreed to provide special credits totalling \$13 million and \$6 million respectively for the purchase of ships. Projects are

under negotiation with Switzerland to use that country's offer of \$10 million. The total aid committed from 1 July 1963 to 31 March 1964 came to \$435 million. Of this, \$241 million was for projects, including technical assistance, and \$194 million for commodities. The breakdown is given in table 8.

TABLE 8. AID COMMITMENTS, JULY 1963 TO MARCH 1964
(million US dollars)

Country/Agency	Grants	Loans	Total
Australia	1	—	1
Canada	16	—	16
France	—	7	7
Germany, Federal Republic of	—	24	24
Italy	—	6	6
Japan	—	30	30
Sweden	1	—	1
United Kingdom	—	23	23
United States:			
i) AID	12	220	232
ii) Eximbank	—	13	13
IBRD/IDA	—	72	72
Yugoslavia	—	9	9
United Nations and specialized agencies	1	—	1
	31	404	435

These commitments are against the consortium pledges for 1963/64 and the uncommitted balance of the amounts pledged for the first three years of the second plan, and also include technical assistance grants and contracts concluded against \$25 million credits provided by Yugoslavia.

The over-all position of aid pledged, committed and disbursed for the first four years of the second plan is shown in table 9.

TABLE 9. AID PLEDGED, COMMITTED AND DISBURSED, 1960-1964
(million US dollars)

Year	Pledges	Commitments	Disbursements
1960/61	219	219	181
1961/62	380	228	210
1962/63	700	478	273
1963/64	441	435	264
	1,740	1,360	928

Table 9 shows the continuing improvement in the capacity of the country to utilize foreign aid effectively.

b. Structure of the capital market

The capital market in Pakistan consists of stock exchanges, insurance companies, specialized credit institutions, a National Investment Trust and a postal savings scheme. A brief discussion of those constituents is given below.

1. Stock exchanges

There are two registered stock exchanges in the country, one at Karachi and the other at Dacca;

however, the Karachi Stock Exchange is the only broad-based market. The Karachi Stock Exchange was registered in 1949, and it provides a market place for gilt-edged securities, equity issues of public limited companies, bonus vouchers and the units of the National Investment (Unit) Trust. The total paid-up capital of companies quoted on the Karachi Stock Exchange increased from 107.85 million rupees in 1949 to 20,694.66 million rupees in 1964.

2. Insurance companies

Considerable expansion has been recorded in the volume of insurance business in Pakistan since Independence. To encourage the registration of companies in Pakistan, the Insurance Act was amended in 1948 reducing the deposits required by 50 per cent. In 1953, a further amendment to the Act was made with a view to treating all insurance companies uniformly, regardless of their country of origin. The Government, in order to safeguard and provide a broad base for the insurance business, established the Pakistan Insurance Corporation in 1952. The Corporation is a government organization with an authorized capital of 10 million rupees, of which 5 million rupees is issued capital. The equity capital held by the Government amounts to 51 per cent covering shares worth 2.55 million rupees. The balance has been subscribed by the general public. The Corporation has been given power to transact all forms of re-insurance business, to assist in the promotion of new insurance companies and to underwrite the issues of the stocks, shares, bonds or debentures of insurance companies. All insurance companies are required by law to re-insure 10 per cent of their fire, marine and miscellaneous business with the Corporation.

3. Specialized credit institutions

(a) Pakistan Industrial Credit and Investment Corporation

The Pakistan Industrial Credit and Investment Corporation was established in October 1957 to further the development of industries by providing financial assistance to the new and existing industries in the private sector. PICIC has an authorized share capital of 150 million rupees of which 40 million rupees are paid up. Sixty per cent of the capital has been subscribed by private Pakistani investors and the remaining forty per cent is held by private interests in the United States, the United Kingdom and the International Finance Corporation. The Corporation is authorized to provide long- and medium-term loans in foreign and local currencies in addition to making equity participation. In the case of bigger projects, it shares financing with other institutions abroad. It underwrites any public issues of shares and debentures and furnishes managerial, technical and administrative advice to the private sector of industry. The provision of short-term working capital loans is outside the scope of its activities.

(b) Industrial Development Bank of Pakistan

The Industrial Development Bank of Pakistan started functioning on the 1 August 1961, replacing the Pakistan Industrial Finance Corporation, which had been set up in 1949 to provide medium- and long-term credit facilities to industrial concerns engaged in the manufacture, preservation or processing of goods, mining or power generation. The authorized, issued and subscribed capital of the Bank is 30 million rupees. The Corporation was reorganized as the IDBP with the primary object of catering to the credit requirements of medium- and small-scale industries, both existing and new. The lending limit in respect of limited companies, subject to certain reservations, in the first instance, was fixed at 1 million rupees. As a result of the increase in the cost of machinery and other factors of production, this limit was subsequently raised to 2.5 million rupees, including a foreign exchange component not exceeding 1.5 million rupees.

(c) Agricultural Development Bank of Pakistan

The Agricultural Development Bank of Pakistan was established in February 1961 by merging the former Agricultural Development Finance Corporation and the Agricultural Bank of Pakistan. The authorized share capital of the Bank is 200 million rupees divided into one million shares. Of this, 100 million rupees is paid-up capital subscribed by the Central Government and provincial governments. The Bank advances loans to individuals engaged in agriculture and also to persons engaged in cottage industries in rural areas. The loans are advanced for short, medium and long periods. Short-term loans are generally given for eighteen months to five years, and long-term loans for periods exceeding five years. Short- and medium-term loans carry a rate of interest of 7 per cent, while a rate of 6 per cent is charged on long-term loans. The total loans sanctioned by the Corporation including those advanced by the former Agricultural Development Finance Corporation amounted to 453.8 million rupees up to the 30 June 1964.

(d) House-Building Finance Corporation

The House-Building Finance Corporation was established in 1952. It is entrusted with the function of advancing loans for the construction of houses and for the purchase of land for house construction in urban areas. The authorized share capital of the Corporation is 50 million rupees, and has been fully subscribed by the Government. The loan facilities were first restricted to Karachi but were subsequently extended to other cities and towns in both wings of the country. At present, the maximum loan given by the Corporation to individuals is 40,000 rupees and to co-operative societies 1.5 million rupees. The Corporation provides loans to the extent of 75 to 80 per cent of the estimated cost of land and building.

The rate of interest charged on loans has been fixed at 6¼ per cent and the loans are normally granted for a maximum period of fifteen years. From its inception up to the 30 June 1964, the Corporation sanctioned loans amounting to 245.5 million rupees.

4. National Investment Trust

The National Investment (Unit) Trust was set up in 1962 with the support of the Central Government to encourage savings and investment by people of modest means. It aims at broadening the share ownership in the country by enabling people of small means to pool their resources for investment in shares and securities. Investors can participate in the scheme by purchasing the Units of the Trust which are in some respects similar to shares. The Trust started functioning on the 1 January 1963. The sale and repurchase prices of units were originally fixed at 10 rupees per unit. These prices are, however, being raised gradually and now stand at 11.50 rupees and 11.30 rupees per unit respectively. At the end of 1964, the funds of the Trust were spread in eighty-three equities. The Trust purchases new shares and also underwrites new issues quoted on the Karachi Stock Exchange.

5. Postal savings

A small-savings scheme, the National Development Savings Certificates scheme, is operated through the post office. These certificates mature in ten years from the date of purchase. Under special circumstances, certificates can be encashed before the expiry of one year but no interest then accrues. The surrender value of the certificates currently issued with a denomination of 100 rupees rises from 102.5 rupees after one year from the date of purchase to 160 rupees on the completion of the full ten years of investment. The certificates are sold with the following denominations:

Rupees 5, 10, 50, 100, 500, 1,000 and 5,000.

c. Measures taken to promote savings

The savings of an economic unit can be defined as the net change in earned surplus or as the net change in earned net worth during a given period. The entire economy can broadly be divided into three sectors: individuals, corporations and government.

1. Government savings

Government savings are made up of the difference between the revenue receipts and the revenue expenditure during any given year. In recent years, the Government has broadened the base of the taxation structure in order to increase revenue receipts, and at the same time it has taken steps to reduce non-development expenditure. During the period 1960/61 to 1964/65, revenue surplus totalled 3,726 million rupees as against the Plan target of 3,670 million rupees.

2. *Business savings or corporate savings*

The Government has been taking fiscal measures with a view to promoting business savings. The following are some of the measures so far taken:

- (a) The business profits tax, which had existed since pre-partition days, was abolished in 1959/60.
- (b) The 1964/65 budget extended the five per cent tax rebate to industrial companies having a total income of up to 50,000 rupees. Previously this concession had been allowed to companies with an income of up to 25,000 rupees.
- (c) The wealth tax, which was introduced in the budget for 1963/64, was withdrawn from private limited companies in the 1964/65 budget.
- (d) A tax holiday for periods ranging from two to six years is granted to industries based primarily on indigenous raw materials. This concession was first granted in April 1959 and is scheduled to continue until the 30 June 1970. The budget for 1964/65 extended this concession to some industries not based on indigenous raw materials.
- (e) A 15 per cent tax rebate was announced in the budget for 1964/65 for Pakistani enterprises in respect of their incomes from foreign operations.

3. *Personal savings*

Some of the measures taken to promote personal savings are outlined below.

- (a) An investment allowance is allowed at the rate of 30 per cent of the gross income of the tax-payer during a single year subject to a maximum of 12,000 rupees. It covers contributions to provident funds, insurance premia, and investment in government securities and approved industrial undertakings, provided that at least 10 per cent of the investment allowance is utilized solely for the purpose of paying life insurance premia.
- (b) Dividend income up to 2,000 rupees is tax free.
- (c) Interest earned on Post Office Savings Bank deposits is tax free but, under the existing regulations, the outstanding balance in the name of any person, exclusive of interest credit in the current year, should not exceed 15,000 rupees. Interest earned on other saving banks deposits is also exempt from tax up to 500 rupees.
- (d) Unearned income relief to salaried persons is admissible at the rate of 25 per cent of the total income subject to a maximum of 6,000 rupees. However, in the case of non-salaried persons, the relief is admissible at the rate of 20 per cent subject to a maximum of 4,000 rupees.

- (e) The income earned from the units of the National Investment (Unit) Trust is not subject to taxation.
- (f) The interest earned on National Development Savings Certificates is tax free. The maximum permissible holding of certificates by an individual at a time is fixed at 30,000 rupees.

d. *Mobilization of private capital*

When Pakistan came into being, it had a very low rate of capital formation and had no industrial base worth the name. With a view to providing a nucleus of self-sustaining growth, the Government stepped in to augment the capital formation in the private sector and to attract it to the industrial sector by providing fiscal and other incentives.

The Government gave generous tax concessions such as investment allowances, tax rebates, reduction in marginal rate of personal taxes, and tax holidays, with a view to attracting private capital to the industrial sector. In addition to the fiscal concessions, the Government set up a Tariff Commission in January 1950 to review the cases for granting protection to indigenous industries. Since then, the Government has granted protection to numerous industries on the recommendation of the Commission. Also, with a view to help private enterprise in industrial ventures such as paper, jute, heavy engineering and chemicals, the Government established the Pakistan Industrial Development Corporation to undertake investment in these fields with or without the participation of private capital. The PIDC was then split into two autonomous bodies, the East Pakistan Industrial Development Corporation and the West Pakistan Industrial Development Corporation on the 1 July 1962, to accelerate the process of industrialization in both wings of the country. Moreover, the establishment of specialized credit institutions such as the Pakistan Industrial Finance Corporation in 1949, later converted into the Industrial Development Bank of Pakistan, and the Pakistan Industrial Credit and Investment Corporation in 1957, was another measure to assist the private sector in securing cheap and liberal credit facilities.

The measures taken by the Government were largely responsible for attracting substantial private capital to the industrial sector. From 1951/52 to 1954/55, private investment totalled nearly 2,340 million rupees, of which a substantial amount was invested in the industrial sector, while during the first plan period, private investment in industry amounted to 1,100 million rupees. The tempo of private investment has accelerated further, and in the second plan period it is expected to be 4,304 million rupees as against the plan target of 3,660 million rupees. Largely as a result of this encouraging response from the private sector, it is pertinent to mention here that the capacity sanctioned by the Government has

already exceeded the second plan targets in the case of cotton textiles, jute manufactures, synthetic fibres, cement, paper and newsprint, soda ash and caustic soda, oil refining, electric bulbs and tubes, bicycles and sewing machines.

The encouraging response from private capital notwithstanding, difficulties have been faced in attracting it toward capital-intensive industries such as heavy engineering including iron and steel, ship building, and heavy chemicals. This can be attributed to the heavy investment outlay involved in these projects and delayed returns from them. This difficulty will be removed if the two Industrial Development Corporations are successful in associating private sector in these projects on a larger scale. Generous fiscal concessions and greater credit facilities by the specialized credit institutions to these industries could also help to eliminate the difficulty.

Private capital is also reluctant to go into certain manufacturing industries due to the scarcity of spare parts and raw materials. A part of the requirements of these industries for raw materials and spare parts is being met through the assistance of friendly countries in the form of aid and loans, however, to meet their full requirements, the industries have to depend heavily upon bonus vouchers with the result that the cost of production becomes prohibitive. Although, with a view to solving this problem, the Government has been following a liberal import policy for some time past, the problem can be fully tackled only if the Government continues to give a liberal twist to import policy.

Private capital has generally been concentrated in certain regions only and is shy to move to other regions where the advantages of localization are available for certain kinds of industries. The Government has already given fiscal concessions in the form of tax holidays to mobilize private capital in these underdeveloped regions. These concessions should, however, be supplemented by other measures such as the provision of credit at concessional rates and the establishment of industrial estates.

e. Inflow of foreign capital

On the 31 December 1962, the private sector was indebted to the extent of 1,984.1 million rupees as compared with 1,748.5 million rupees and 1,655.0 million on the 31 December 1960 and the 31 December 1959 respectively. The rise of 235.6 million rupees or 13.47 per cent during the two years 1961 and 1962 was due mostly to Pakistani joint-stock companies, whose net foreign liabilities increased from 659.5 million rupees to 822.0 million rupees. The branches of foreign firms and companies exhibited relatively little change and the rate of increase of indebtedness on their account remained almost constant. The liability on account of deferred payment arrangements showed an increase of 43.2 million

rupees during this period. The position of the different constituents is shown in table 10.

TABLE 10. BREAKDOWN OF PRIVATE SECTOR FOREIGN DEBT 1959-1962 (million Rs.)

Source of foreign debt	1959	1960	1962
Firms and companies registered or incorporated outside Pakistan	957.0	1,007.7	1,053.6
Pakistani joint stock companies having foreign participation	574.9	659.5	822.0
Partnerships having foreign participation	29.2	25.8	25.1
Holdings of foreign securities and shares by resident individuals	(-) 48.3	(-) 49.2	(-) 60.1
Pakistani firms or companies operating abroad	3.3	3.3	(-) 1.2
Deferred payments	138.9	101.4	144.6
Total	1,655.0	1,748.5	1,984.1

The classification according to the nature of business of "persons" reveals that the "manufacturing" group, which had previously ranked next to "commerce" in order of importance, has now come to occupy the first position. At the end of 1962, the net liability on account of "manufacturing", "commerce" and "mining and quarrying" stood at 620.5 million rupees, 615.8 million rupees and 288.7 million rupees respectively as compared with 505.9 million rupees, 555.6 million rupees and 240.4 million rupees at the end of 1960, and 472.2 million rupees, 513.1 million rupees and 211.4 million rupees on the 31 December 1959. Although less important in absolute terms, the increase of indebtedness on account of "mining and quarrying" was the largest in relative terms, rising by 36.37 per cent over the three-year period 1959 to 1962. The liability in the manufacturing sector rose from 472.2 million rupees to 620.5 million rupees over the same period, an increase of 148.3 million rupees or 31.64 per cent. This indicates the popularity of this sector with the foreign investor. The net liability of the commercial sector also showed an increase of 102.7 million rupees or 20.02 per cent during this period. The comparative position of the various sectors is shown in table 11.

TABLE 11. PRIVATE SECTOR FOREIGN DEBT, BY SECTORS, 1959-1962 (million Rs.)

Sector	1959	1960	1962
Manufacturing	472.2	505.9	620.5
Commerce	513.1	555.6	615.8
Mining and quarrying	211.4	240.4	288.7
Utilities	158.6	162.1	170.8
Others	299.7	284.5	288.2
Total	1,655.0	1,748.5	1,984.1

The United Kingdom continues to be the largest creditor country, and at the end of 1962 the private sector in Pakistan was indebted to that country to the extent of 939.8 million rupees, or 47.37 per cent of the total net liability. This level represented an increase of 64.4 million rupees or 7.36 per cent over the end-1960 level and 169.9 million rupees over the end-1959 level. The predominance of the United Kingdom in this field is the result of traditional channels existing since pre-Independence days. The net liability to the United States, which stood at 152.1 million rupees at the end of 1960, rose to 266.9 million rupees by the end of 1962, an increase of 75.48 per cent. The claims of other countries taken together amounted to 777.4 million rupees at the end of 1962 as compared with 757.2 million rupees three years previously. The rate of increase in the case of the United States was far more rapid than for the United Kingdom. The position is summarized in table 12.

TABLE 12. PRIVATE SECTOR FOREIGN DEBT, BY CREDITOR COUNTRIES, 1959-1962 (million Rs.)

Creditor country	1959	1960	1961	1962
United Kingdom	769.9	875.4	939.8	
United States of America	127.9	152.1	266.9	
Others	757.2	721.0	777.4	
	1,655.0	1,748.5	1,984.1	

Of the three forms of foreign investment, cash, capital equipment and re-invested earnings, the cash component is recorded by the exchange control. In this connexion, however, the possibility of misclassification cannot be entirely ruled out. It is possible that a part of inward remittances for purposes of investment may be covered under miscellaneous receipts. Moreover, the figures for 'cash brought in' as reported by firms and companies for this survey do not, in many cases, relate to calendar years and the aggregate position worked out on their basis will therefore differ from the corresponding balance of payments figures. Subject to this limitation, the components of investment work out as shown in table 13.

TABLE 13. FOREIGN INVESTMENT, BY COMPONENTS, 1959-1962 (million Rs.)

Component	1959	1960	1961	1962
Cash brought in	15.1	17.3	23.3	8.8
Capital equipment brought in	45.5	20.7	23.7	23.6
Re-invested earnings	25.8	38.7	44.2	32.4
	86.4	76.7	91.2	64.8

As regards the flow of foreign investment classified by major economic groups from 1959 to 1962, manufacturing was the main field of attraction for foreign investors, followed closely by commerce (See table 14.)

TABLE 14. FOREIGN INVESTMENT, BY ECONOMIC GROUPS, 1959-1962 (million Rs.)

Economic group	1959	1960	1961	1962
Manufacturing	7.1	26.8	39.5	36.0
Commerce	14.9	21.5	14.2	17.8
Mining and quarrying	51.9	23.2	17.7	7.7
Others	12.5	5.2	19.2	3.3
	86.4	76.7	91.2	64.8

The classification by country highlights the traditional predominance of the United Kingdom, which accounted for over 52 per cent of the total foreign investment during 1962. The corresponding share of the United States stood at about 23 per cent. (See table 15.)

TABLE 15. FOREIGN INVESTMENT, BY COUNTRY OF ORIGIN, 1959-1962 (million Rs.)

Country of origin	1959	1960	1961	1962
United Kingdom	69.0	48.4	49.5	33.6
United States of America	5.6	10.8	31.9	15.2
Others	11.8	17.4	9.8	16.0
	86.4	76.7	91.2	64.8

f. Measures for servicing external public debts

The increased flow of foreign assistance during the second plan period has naturally resulted in increasing debt liability. The total of foreign loans disbursed and outstanding on 31 December 1963 stood at 3,760 million rupees. Of this, a sum of 2,550 million rupees (\$545 million) represents loans repayable in foreign exchange and the balance of 1,210 million rupees repayable in rupees. The bulk of the loans repayable in foreign exchange are soft loans from United States AID and the International Development Association and they carry only a service charge of 3/4 per cent. The above figures of external debt outstanding include an amount of \$6.17 million on account of loans for the Indus Basin Replacement Works.

The increase in foreign indebtedness has resulted in increasing debt-service liability. Table 16 indicates the payments made in foreign exchange on account of external debt service charges during the first three years of the second plan, and estimates for 1963/64.

TABLE 16. FOREIGN CURRENCY PAYMENTS ON EXTERNAL LOANS, 1960/61-1963/64 (million Rs.)

Year	Principal	Interest	Total	Total as percentage of foreign exchange earnings
1960/61	58.1	28.6	86.7	3.82
1961/62	97.1	48.7	145.8	6.07
1962/63	167.5	59.1	226.6	8.15
1963/64 (revised est.)	203.4	89.7	293.1	

The amounts paid in rupees on account of foreign currency loans repayable in rupees are shown in table 17.

TABLE 17. RUPEE PAYMENTS ON FOREIGN CURRENCY LOANS
(million Rs.)

Year	Principal	Interest	Total
1961	13.6	14.5	28.1
1961/62	26.4	29.7	56.1
1962/63	39.0	40.6	79.6
1963/64 (revised est.)	46.6	44.0	90.6

Table 18 shows additional rupees payments that have been made on account of rupee loans out of counterpart funds.

TABLE 18. RUPEE PAYMENTS ON RUPEE LOANS OUT OF
COUNTERPART FUNDS
(million Rs.)

Year	Principal	Interest	Total
1960/61	—	10.6	10.6
1961/62	—	14.1	14.1
1962/63	—	23.5	23.5
1963/64	0.3	30.5	30.8

In spite of the fact that Pakistan has to depend quite heavily on foreign aid to finance the present level of development efforts, the country cannot hope to depend on external assistance for an indefinite period. The need for foreign assistance in the development programmes has constantly been under review so as to curtail it gradually. The progress of the second plan presents a heartening picture in this regard. The plan anticipated that the total development outlay of 23,000 million rupees would be financed to the extent of about 50 per cent (11,550 million rupees) through foreign assistance, but current expectations are that the share of foreign assistance in financing the plan will be about 9,470 million rupees, or less than 40 per cent. Pakistan's own contribution during the period is expected to increase accordingly. The country has thus been able to rely much more on its own efforts than was originally expected. The proportion of foreign aid in subsequent plans is expected to go down progressively.

g. Measures for attracting foreign investment

The Government recognizes the vital role of foreign investment in promoting the economic development of under-developed countries, where capital formation is generally slow, technical know-how limited, and trained personnel not always available. Aware of the importance of foreign investment to the country, the Government welcomes foreign private capital with open arms. The whole field of the private sector of industry is open to foreign enterprise without any rigidity in regard to local participation.

In pursuance of this policy, the Government offers the following facilities, concessions and safeguards to foreign private investment in industries

1. Remittance of profits

There is no restriction on the remittance of current profits to the country from which the investment came.

2. Repatriation of capital

- Foreign capital in approved industries established after 1 September 1954 may be repatriated at any time thereafter to the extent of the original investment, to the country from which the investment came.
- Any part of the profits derived from investment and ploughed back into approved industrial projects with the approval of the Government of Pakistan may be treated as investment for the purpose of repatriation.
- Appreciation of any capital investment under (a) and (b) may also be treated as investment for repatriation purposes. Such repatriation facilities will be subject to the exchange control regulations in force from time to time and will not apply (i) to the purchase of shares on the stock exchange, unless it is an integral part of an approved investment project, and (ii) to capital investment in Pakistan before 1 September 1954.

3. Capital participation

- There will be no rigidity about the participation of Pakistani capital in any industry where foreign investment is approved by the Government.
- Normally, the Government will expect that the required local expenditure will be met from local equity capital.
- In the case of oil refining, the Government will expect substantial participation of Pakistani capital in equity.

4. Double taxation avoidance

Pakistan has entered into double taxation avoidance agreements with a number of countries such as the United States, the United Kingdom, Sweden, Japan, the Federal Republic of Germany, India, Switzerland and Denmark, with a view to encouraging investors from these countries.

5. Compensation guarantees

- The Government has no intention of nationalizing industries. Should circumstances or any emergency necessitate nationalization in any particular case, just and fair compensation will be paid in the currency of the country of origin of the investment involved.
- An investment guarantee agreement is in force between the United States and Pakistan, under which the United States Government guarantees investments by private American investors in business enterprises in Pakistan against losses arising from inconvertibility of foreign currency earnings into dollars or against expropriation.

6. *Protection of investments*

In order to encourage greater inflow of foreign private capital, Pakistan is endeavouring to negotiate agreements with other countries for the protection of foreign investments. A treaty of friendship, commerce and navigation has recently been signed with the United States, and Pakistan has also entered into an investment treaty with the Federal Republic of Germany.

7. *Opportunities for foreign investment*

Practically the whole range of industries in Pakistan is open to private enterprise, foreign and local, the only exceptions being (i) the manufacture of arms and ammunition of war; (ii) the production of atomic energy and (iii) railways, air transport, and telecommunications. A more detailed review in the context of the second five-year plan has, however, been carried out by the Department of Investment Promotion and Supplies, and a list of projects particularly suitable for foreign investment has been drawn up. This list is given in chapter III. C. 1 above. It is merely illustrative and does not by any means exhaust the opportunities for foreign investment in the country, which are unlimited.

8. *Issue of pre-sanction letter of intent to potential investors*

The Government has recently taken a major decision designed to attract foreign investment to Pakistan. In the Government's view it is a matter of utmost importance that prospective foreign investors know as early as possible whether, subject to fulfilment of certain conditions, the Government would be prepared to consider their investment proposals favourably. The Government has decided to introduce a system of issuing pre-sanctioned letters of intent to foreign investors interested in the establishment of industries in Pakistan. The pre-sanctioned letters of intent are likely to create some confidence in the minds of prospective investors so as to encourage them to undertake preliminary work and to incur preliminary expenditure for carrying out detailed feasibility studies on their investment proposals. The letters of intent would broadly indicate the conditions subject to which the Government would be prepared to favourably consider the grant of an industrial sanction and would also indicate that within a specified period varying from six to nine months depending on the nature of the industry, the prospective investors must finalize all the preliminaries and come up with some definite proposals. If the party fails to submit a definite proposal within the stipulated time-limit, the letters of intent shall automatically be deemed to have become inoperative. A letter of intent would not, however, in any case constitute a commitment on the part of the Government to sanction an industry.

9. *Publicity and promotion of foreign investment*

Government also realizes that more enactment of liberal legislations governing foreign investment

would not serve the desired purpose unless, of course, all potential foreign investors are told what these concessions are and the opportunities for a profitable return which exist in Pakistan. It is the job of the Investment Promotion Department to publicize and sell these concessions both within and outside Pakistan. To accomplish this task, the Department programmes a series of publications which are widely distributed throughout the world free of cost. To date, the Department has published four brochures entitled "Investment Opportunities in Pakistan", "Pakistan Invites Investment", "Guide to Investment in Pakistan", "Tax Concessions for Industries". Recently the Department has undertaken the commissioning of a comprehensive brochure which would provide specific and detailed information on taxation, labour, power, transportation, financial facilities and a variety of other factors to the economies of profitability of doing business in Pakistan.

10. *Streamling of sanctioning procedure*

The achievements of Pakistan economy during the last few years are not something that are merely the accidental results of fortuitous circumstances. They are the result of pre-meditated liberal economic policy which have been consistently and conscientiously followed. In the industrial field, the objective has been and would continue to be to exempt as much of the investment as possible from the requirement of prior government control. Steps in this direction have already been taken. Where the foreign exchange component of the investment can be found by the financing institution viz PICIC and IDBP and the investment proposed is covered by the Industrial Investment Schedule, prior approval of any government authority would henceforth not be necessary. Cases involving foreign investment and direct foreign loans from abroad would however continue to require prior governmental approval. This appears to be necessary as even from the point of view of foreign investors, specific government approval gives them certain guaranteed rights in regard to repatriation and a greater sense of security.

11. *Investment Advisory Centre of Pakistan*

The Government fully realizes that mere publication of investment schedules is not enough. Prospective investors both local and foreign, have to be guided and encouraged to invest in projects considered vital to the country's economy. With this object, the Government has recently set up an Investment Advisory Centre in Karachi with regional offices at Dacca and Lahore. The Centre is manned by foreign experts who are training their Pakistani counterparts. The Centre assists private parties and financing agencies in the preparation and appraisal of industrial projects. It also carries out market surveys and identifies fields in which investment should be encouraged. With a view to determining the shortages of technicians in various fields so that remedial

measures could be taken, it has also undertaken a survey of technical manpower available in Pakistan. The Centre has also undertaken the task of preparation of forty to fifty model pre-investment project reports and feasibility studies in respect of various small- and medium-sized industries. The studies would be made available to the new and merging entrepreneurial class and the Centre would continue to actively assist the investors up to the point of 'take off'.

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

a. Description of existing organizations

Background

The industrial progress made in Pakistan during the past seventeen years has been the result of both private enterprise and public effort, the latter largely through the industrial development corporations.

The Pakistan Industrial Development Corporation (PIDC) was set up in January 1952 as a Central Government institution, but on the coming into force of the new Constitution of Pakistan in 1962, which transferred responsibility for industrial development to the provinces, the PIDC was divided into the West Pakistan Industrial Development Corporation (WPIDC) and the East Pakistan Industrial Development Corporation (EPIDC), with effect from 1 July 1962.

Up to June 1962, the PIDC had established fifty-four industrial units either on its own account or in partnership with private enterprise.

1. *West Pakistan Industrial Development Corporation (WPIDC)*

The aims of the WPIDC continue to be the same as those stipulated for the PIDC, namely, the promotion and development of essential industries which private enterprise finds unattractive either on account of technological complexities or uncertain profitability.

The Corporation is responsible for:

- a) planning, promoting, organizing and implementing programmes for the establishment of industries listed in the Schedule (see below) and for the exploitation of forests and fisheries;
- b) exploration, exploitation and development of minerals and mines thereof;
- c) exploration, exploitation and development of any material which the Government may entrust to it, subject to such conditions as the Government may specify.

The Corporation has to submit proposals and schemes to the Government for approval and to give effect to them after government approval has been given.

A salient feature of the Corporation's activities is its emphasis on the promotion of industrial projects

with the ultimate aim of diverting the ownership to private hands. Efforts are made to associate private capital with the projects sponsored by WPIDC. Where private participation is not available initially, the projects are completed by WPIDC from its own finances and thereafter private enterprise is again offered participation in the projects. If this again brings no success, the projects are converted into public limited companies and shares are offered to the general public for subscription with WPIDC working as managing agents.

The Schedule of the WPIDC includes sixteen industries as shown below:

- 1) Jute;
- 2) Paper, board and newsprint;
- 3) Heavy engineering, including iron and steel;
- 4) Shipbuilding;
- 5) Heavy chemicals;
- 6) Fertilizers;
- 7) Sugar;
- 8) Cement;
- 9) Textiles;
- 10) Chemicals, pharmaceuticals and dyestuffs;
- 11) Coal and peat;
- 12) Marine fisheries;
- 13) Small industries;
- 14) Forest products;
- 15) Refractories;
- 16) Clay.

The Corporation is also engaged in the transmission and distribution of natural gas, as an agent of the Central Government.

In July 1962, the National and West Pakistan Small Industries Corporations and the Salt Mines Organization were merged into the WPIDC.

The Institute of Management Development, an organization devoted to training top administration of business and industry in the subject of modern industrial arrangement, is also under the control of WPIDC.

WPIDC has been entrusted with the task of setting up a heavy industry complex in West Pakistan. It has already engaged German consultants to prepare feasibility reports on machine tools and equipment, ferro-alloys, special steels and a heavy electrical industries complex. Their reports are under examination.

2. *East Pakistan Industrial Development Corporation (EPIDC)*

The aims and functional characteristics of EPIDC are almost identical with those of WPIDC. The industrial complex which EPIDC is managing includes eighteen jute mills, eight sugar mills, two shipbuilding and repair yards, a newsprint mill, three fertilizer factories, pharmaceutical streptomycin and DDT plants and two cotton mills, two cement mills, and machine tool and diesel plants.

EPIDC is also entrusted with the responsibility of setting up heavy industries and the chairman of

EPIDC is a member of the Heavy Industries Board of East Pakistan.

3. *Pakistan Industrial Credit and Investment Corporation (PICIC)*

PICIC was formed in October 1957, to help the industrial development of the country by providing financial assistance to new and existing industries in the private sector.

PICIC has an authorized share capital of 150 million rupees, of which 40 million rupees is paid up. Sixty per cent of the capital has been subscribed by private Pakistani investors while the remaining 40 per cent is held by the International Finance Corporation and private interests in the United Kingdom, the United States, Japan and West Germany.

The Corporation is authorized to provide long- and medium-term loans (generally seven to twelve years' maturity) in foreign and local currencies, in addition to direct equity participation. In the case of large projects, it shares financing with other institutions abroad wherever possible. It does not normally take direct part in the management of industries but it may in special cases seek to appoint a director to represent its interests. The Corporation also engages in underwriting shares as part of its programmes to assist in the development of the capital market.

PICIC has two regional offices, one at Dacca for East Pakistan and the other at Lahore for West Pakistan. It also maintains a liaison office at Rawalpindi.

4. *Industrial Development Bank of Pakistan (IDBP)*

IDBP was created in 1961 to provide medium- and long-term loans and guarantees to medium and small industrial enterprises. It inherited the assets and liabilities of the Pakistan Industrial Finance Corporation, which had been in existence for twelve years and was reorganized to form IDBP on the recommendation of the Credit Enquiry Commission. Of its share capital of 30 million rupees, 51 per cent is owned by the Government.

Through the large volume of its operations, IDBP is fast becoming a powerful factor in the industrial development of Pakistan. Its role has been particularly important for East Pakistan and for small-scale enterprises.

IDBP's fields of activity include:

- a) long- and medium-term loans to industrial units whose range is wide and covers such activities as the development of tourist facilities, exhibition of films and newspapers and so on;
- b) advances towards working capital also, provided it does not exceed 25 per cent of the total;
- c) it may engage in commercial banking activities (it may accept deposits, keep cash accounts, make inter-bank call loans, and so forth);

- d) it may guarantee loans provided the period does not exceed twenty years;
- e) it may underwrite capital issues (assets thus acquired should be disposed of in seven years);
- f) it may also subscribe to equity capital with government approval.

5. *Small industries institutions*

The development of cottage and small industries side by side with larger industries has been a major feature of the Government's industrial policy since 1948, and the Government has taken several administrative measures to implement this policy.

Following the recommendation of the All-Pakistan Cottage and Small-Scale Industries Conference held in 1952, the Government set up a National Small Industries Corporation in 1955, with the responsibility of developing cottage and small-scale industries through the provision of raw materials, credit, technical assistance and marketing (local and export). In order to give greater attention to this sector, the Government appointed a Director-General, Small Industries in 1959, to co-ordinate central and provincial policies and programmes and to draw up a comprehensive future development plan for small industries to be included in the country's second five-year plan (1960-1965). In 1957, the Government of East Pakistan established the East Pakistan Small Industries Corporation.

In July 1962, with the decentralization of matters relating to industrial development, the Directorate-General, Small Industries was abolished and the National Small Industries Corporation was merged with WPIDC. Work connected with exports and exhibitions was, however, transferred to the Department of Trade Promotion (which has now been transformed into the Export Promotion Bureau).

The organizational position at present is that, in West Pakistan, the Small Industries Division of WPIDC looks after the development of cottage and small-scale industries, while in East Pakistan, the East Pakistan Small Industries Corporation (EPSIC) has been established as a separate entity and looks after the development of small industries in East Pakistan.

Small Industries Division of WPIDC

As successor to the former central institutions, the Small Industries Division of WPIDC is responsible for the over all development of cottage (including rural) and small-scale industries in West Pakistan. Under the control of a general manager appointed by the Government of West Pakistan, the Small-Industries Division has established forty-three institutional projects throughout West Pakistan, which actively assist in the development of this important industrial sector. These projects include eight small-industry estates, nine cottage-industries development centres, rural-industries extension services, a small-industries institute, a na-

tional design centre, training institutes for staff and entrepreneurs, and several sales and display centres.

The Division's programmes under the third plan (1965-1970) include the setting up of nineteen institutional projects at a cost of 107 million rupees. Provision of technical and managerial services is among the major projects planned.

East Pakistan Small Industries Corporation (EPSIC)

After its inception in 1957, the Corporation's activities were mostly confined to commercial fields. With the implementation of the second five-year plan (1960-1965), however, the need for a planning department was felt, and a regular planning cell was created in 1961 under the orders of the Government of East Pakistan.

Implementation of projects approved by the planning cell is the responsibility of the Development Department.

Evaluation of projects after completion is done by a team of senior officers pooled from the Planning, Development and Budget Departments. The team includes economists, technologists and cost accountants.

The whole field of small industries in East Pakistan is conveniently divided into nine sectors, (1) agricultural and food products; (2) cane, bamboo and wood products; (3) glass and ceramics; (4) leather, rubber and plastic products; (5) paper and paper products; (6) metal work; (7) pharmaceutical and chemical products including cosmetics; (8) textiles; (9) miscellaneous.

As in the case of the Small-Industries Division of WPIDC, EPSIC has also established institutional projects which include small industry estates, common facility centres, rural industries extension services, training institutes and marketing (sales) depots.

6. Pakistan Council of Scientific and Industrial Research (PCSIR)

Scientific and industrial research is an important contributor to economic development. Following the report of the Scientific Commission, which was set up by the President in 1959 in recognition of the growing importance of science and technology for the development of Pakistan, the Government created a Scientific and Technological Research Division in the President's Secretariat, having the following organizations under its administrative control:

- a) Pakistan Council of Scientific and Industrial Research
- b) Atomic Energy Commission,
- c) National Science Council.

The National Science Council was given advisory and co-ordinating functions to avoid unnecessary duplication of scientific effort under the various research councils.

The greater emphasis laid on applied research is reflected in the pattern of the various multifunctional

laboratories of the PCSIR. Laboratories have been established at Karachi, Dacca, Lahore and Peshawar, providing between them 21 research divisions covering a broad spectrum of scientific disciplines.

Central Laboratories, Karachi

Physical Research Division
Chemical Research Division
Biochemical Research Division
Pharmaceutical and Pest Infestation Division
Building Materials Research Division
Fuel Research Division
Engineering Division

East Regional Laboratories, Dacca

Natural Products Division
Fuel Research Division
Food and Fruit Products Division
Leather Products Division
Glass and Ceramic Products Division

West Regional Laboratories, Lahore

Metallurgical Research Division
Industrial Fermentation Division
Oils and Fats Research Division
Glass and Ceramics Research Division
Food Technology Research Division

North Regional Laboratories, Pakistan

Indigenous Drugs Research Division
Fruit and Vegetables Technology Division
Mineralogical Research Division
Wool Research Division

PCSIR maintains active collaboration with government departments (such as the Geological Survey) and the universities in its research work. Advantage is also taken of the private research facilities available in the country.

In the general field of scientific information, PCSIR has established, with UNESCO assistance, the Pakistan National Scientific and Technical Documentation Centre (PANSDOC) which brings the world library services to the benefit of Pakistani scientists and technologists.

Starting in 1953 (the year it was established as an autonomous body) with only twenty members, the PCSIR has gradually built up a total strength of over 1800 workers, of whom over 700 are scientists. Over 300 research papers have been published and over seventy-five patents obtained, some with international coverage.

In the third plan period (1965-1970), PCSIR intends to set up eleven additional laboratories/institutes (drugs research and development, fuel technology, catering technology and nutrition, textile research, oceanographic research and so on).

7. Pakistan Industrial Technical Assistance Centre (PITAC)

The Pakistan Industrial Productivity Services (Karachi) and the Pakistan Industrial Development Services (Lahore) were set up in collaboration with

the United States AID Mission in 1957. These institutions were merged into the Pakistan Industrial Technical Assistance Centre (PITAC) in 1961 and PITAC was converted into an autonomous body on 1 July 1962.

The objectives of PITAC are:

- a) to train and upgrade the skills of industrial personnel in technological fields;
- b) in conjunction with training, to demonstrate modern manufacturing techniques and production methods and at the same time produce newly designed tools and products (prototypes) which contribute to industrial development;
- c) to extend advisory services to industries;
- d) to disseminate modern industrial technical know-how to industries through publications, seminars, conferences and the like.

PITAC offers training facilities to industrial personnel by organizing, on a continuous basis, a twelve-week advanced training course in nine major (metal) trades. The training courses are conducted in PITAC's well-equipped workshops in Lahore. A similar workshop is planned for Dacca.

To assist industries to improve their productivity, PITAC offers a field advisory service. Under this service, PITAC engineers make extensive tours of the country rendering in-plant advice for solving problems of industries in production and related matters, studying areas of low efficiency and avoidable waste, and suggesting effective remedies. PITAC's advisory service is based at Karachi and Dacca but operates on a country-wide basis.

In the field of tooling, PITAC assists industries by developing, designing and manufacturing precision tools such as production dies, moulds, jigs, fixtures and gauges, to enable them to improve and maintain the quality of their products, and reduce wastage and production costs.

PITAC's information services are rendered through its journal and through the periodical organization of seminars and the like.

A recent addition to PITAC is the Textile Productivity Unit, designed to assist textile industries to improve their productivity.

8. *Investment Advisory Centre of Pakistan*

Recently established (1963) with assistance from United States AID, the Centre's objective is to prepare sound and feasible schemes for, and to render technical assistance and advice to, PICIC and IDBP in the analysis and appraisal of applications for loans, and to help private enterprise secure foreign investment by preparing feasibility reports and projects. The Centre works in a purely advisory capacity.

9. *Pakistan Standards Institution (PSI)*

PSI was set up as a government department in 1951 and converted into an autonomous body in

1958, with a view to preparing and promoting the general adoption of standards relating to structures, commodities, materials, practices, operations etc. on a national and international basis.

The work of the Institution is divided among the following councils:

- a) Mechanical Engineering Divisional Council;
- b) Building Materials Divisional Council;
- c) Textile Divisional Council;
- d) Chemical Divisional Council;
- e) Agricultural and Food Products Divisional Council;
- f) Electro-technical Divisional Council.

Divisional councils are formed of representatives of the respective interests of users, manufacturers and other persons or bodies concerned in, or associated with, industries included in the division, on the one hand, and of the Government, ministry or department particularly interested in such industries, on the other hand.

Sectional committees are appointed by the divisional councils for the preparation of a particular standard or group of standards referred to them by the divisional councils.

Realizing the importance of the certification mark system to control the quality of indigenous products having an export potential or relating to the health and safety of consumers, the Government promulgated the Certification Marks Ordinance in 1961, empowering the PSI to administer the Certification Mark and to issue licences, levy fees and so on.

10. *Swedish-Pakistani Institute of Technology*

The Swedish-Pakistani Institute of Technology was set up in Landhi (Karachi) in 1955 to assist the development of small industries by training foremen, instructors and small-scale entrepreneurs in selected fields such as woodworking, ready-to-wear garments, electric and gas welding and electrical technology. The Institute embarked upon its production programme in July 1961 and has been providing more specialized training to diploma holders, giving opportunities for training within industry, providing employment to ex-trainees and meeting the need for quality products at a cheaper cost by providing competition to other manufacturers.

In view of the success achieved by the Landhi institute, two similar institutes are being set up, one at Kaptai (East Pakistan) and the other at Gujrat (West Pakistan).

11. *Office of Patents and Designs*

The Patents Office has been playing a useful role in the industrial progress of the country by granting patents to new inventions and registering new industrial designs. During the past five years, the Patents Office has granted over 5,600 patents and registered over 2,300 new designs.

12. *Institute of Management Development*

This Institute, which is under the administrative control of WPIDC, was set up in 1954. Since 1963, it has become part of the second five-year plan (1960-1965) and operates a greatly enlarged national programme of management development for business and industry in West Pakistan. The objective of the programme is to help stimulate productivity through the use of sound business practices.

The Institute is staffed by selected foreign and local personnel.

The training and counselling activities of the Institute have been divided into six main sections, related to six management functions:

- 1) Management development;
- 2) Industrial engineering;
- 3) Financial management;
- 4) Marketing and sales;
- 5) Labour management relations;
- 6) Supervisory training.

b. *Achievements of existing organizations*

1. *West Pakistan Industrial Development Corporation*

WPIDC has so far completed seventy projects, forty-three in the large industry sector and twenty-seven in small industry. The total capital outlay on these completed projects amounts to about 860 million rupees.

WPIDC has so far converted twenty-four of its large industry projects into companies. The total paid-up capital of these twenty-four companies amounts to 560 million rupees, of which public subscription accounts for 170 million rupees or a little over 30 per cent. In addition, private capital is associated in certain projects which have not yet been converted into companies.

Of the forty-three large industries set up by WPIDC, nineteen are now under private management.

At present, twenty-six projects are being implemented in the large industry sector and forty-three projects in the small industry sector, a total sixty-nine projects in all. These involve a total capital investment of 860 million rupees.

WPIDC has created considerable production capacity both for consumer goods such as textiles, salt and sugar, and for intermediary basic products such as chemicals, pharmaceuticals, cement, fertilizers, coal, paperboard, sugar machinery parts and diesel engines, and shipbuilding and repairs. The extent of the Corporation's contribution to the industrial production of the country can be judged from the fact that, during 1964, the value of the goods produced by WPIDC-managed projects amounted to over 230 million rupees. This does not include the production figures of those projects which were initially set up by WPIDC but were subsequently transferred to private management, such as sugar mills, paper and board mills, heavy chemical projects

and textile mills, whose annual output is estimated to be about 120 million rupees.

WPIDC projects are also earning foreign exchange by virtue of their export activities. Export earnings are now of the order of 4 million rupees per annum. These are on account of the export of gypsum from the WPIDC-managed quarries, Santonin, ships repairs to foreign vessels visiting Karachi shipyard, and Wilton carpets from the Qaidabad Woollen Mills.

WPIDC will increase its concentration on the development of heavy and basic industries during the third plan period (1965-1970). Its future activities as embodied in the third plan programme will centre around the creation of capacity for steel, aluminium, copper, petrochemicals and fertilizer, specialized refractories, industrial dyes, and what not. The Corporation also plans to increase coal production by opening up new mines and to extend the natural gas supply facilities to many more cities and towns. WPIDC has refrained from entering into fields where private initiative had been anticipated. Even for an important industry like cement, the Corporation has restricted its plans merely to setting up extension units to existing factories.

In the field of small industries, the scope of technical and management services is to be extended by setting up small-industries institutes, service centres, promotion centres and pilot projects. In addition, production facilities will be expanded by setting up common facility centres, model production units and small industry estates. Special emphasis will also be laid on the development of special and backward areas of West Pakistan.

An allocation of 1,453.5 million rupees has been made for WPIDC's third plan programme, of which 1,228.5 million rupees is for the large industry programme, 100 million rupees for the mineral development programme, and the balance of 125 million rupees for the development of small industries.

While much is said about the inadequacies of the agencies responsible for implementing development projects, fuller appreciation of the problems and handicaps faced by such agencies is at times lacking.

The problems and difficulties that were faced by WPIDC during the planning, execution and operation of the industrial projects, and that hampered the pace of industrial development, may be summarized as follows:

- a) Delays in securing foreign credits/loans of an untied nature for different projects;
- b) Desire of aid-giving countries to have the feasibility reports prepared by consultants from their own respective countries;
- c) Difficulties in obtaining the right type of equipment/machinery from countries from which credits/loans were available.

The various remedies for efficiency of WPIDC's operations are as follows:

- a) The aid-giving countries should untie at least part, if not the whole, of their credits.
- b) The credit arrangement for a particular project should be obtained from several countries, to provide a scale of preferences regarding the utilization of foreign loans.
- c) The aid-giving countries should be persuaded not to insist on feasibility studies being prepared by their own consultants for those projects for which aid is sought. On the other hand, the survey scheme and the main scheme should be treated separately. The reports should always be prepared by the best consultants available.
- d) A separate allocation both in local and foreign currencies should be made available to WPIDC to execute a well laid out technical training programme both within and outside the country.

Review for the year 1965-66

During the year 1965 the scope of the WPIDC's operations underwent a change with the deletion of small industries from within the charter of the Corporation, restricting it to fifteen industrial fields. This came about as a result of the creation of a separate Small Industries Corporation in West Pakistan in October 1965.

Another important event of the year which would have its bearing on the operations of the WPIDC, related to the decision of the Government to charge interest on the funds advanced by it to the Corporation for investment in different projects. The funds had so far been treated as investment on behalf of the Government, eligible for dividends, which were all paid back in the Treasury. But from the year 1965-66, all the funds received by the Corporation would be treated as loans and would bear an interest of 2 per cent initially. The Corporation would henceforth retain all the dividend income and other revenues received from its projects and companies and would pay interest to the Government irrespective of the extent of profits.

The year 1965 also witnessed the beginning of the third plan period (from July), and the Corporation took urgent steps to put its third plan programme under implementation. The programme which totals to 1,140 million rupees (excluding small industries) mostly centres round the creation of capacities in capital goods industry. Basic industry projects like heavy mechanical complex, heavy electrical complex, iron and steel plant, copper plant, specialized refractory plant and the development of related minerals are proposed to be taken up during the current plan period. A major achievement of the year had been the Corporation's success in giving a definite shape to its heavy industry programme. Not only the feasibility studies of most of the basic industry projects

such as heavy mechanical complex, heavy electrical complex and iron and steel plant, were successfully completed but also preliminary steps to start implementation of these projects were taken in hand.

Simultaneously, the Corporation alive to the problems of the country's agriculture, planned to raise the fertilizer production by working out proposals of extending and balancing the Multan Natural Gas Fertilizer Factory and putting up another extension unit of the Daudkhel Fertilizer Plant.

WPIDC completed three more projects including a balancing unit, during the year under review. These were the two sugar mills at Bannu and Badin and the extension unit of the woollen mill at Qaidabad. This brings the total number of projects completed by the Corporation so far to forty-three, involving an outlay of about 877 million rupees. Of these, nine projects involving an investment of about 43 million rupees and comprising of two paper/board mills, two chemical plants, a woollen mill and four cotton ginning factories have been totally dis-invested to private enterprise. In addition, private investment has been associated in fifteen other projects to the extent of 160 million rupees. On the over-all basis, the investment from the private sector in WPIDC's forty-three completed projects comes to about 23 per cent.

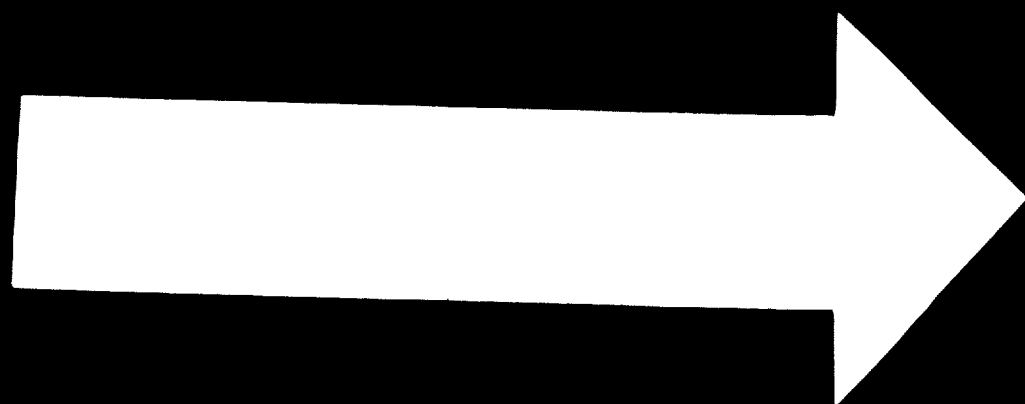
WPIDC prepared and submitted thirteen more schemes to the Government during 1965/66 bringing the total schemes sponsored to forty-four, involving a cost of 8,010 million rupees, since July 1962. Of these, government approval has been received for twenty-one schemes involving 372.52 million rupees.

In addition the WPIDC submitted five survey schemes to the Government to establish the feasibility of the iron and steel plant, forest industries projects and mineral development schemes. Survey schemes regarding iron and steel plant and most of the forest industries like fuel briquetting plant, moulded particle boards and prefabricated housing project had already been completed.

The Corporation had under execution twenty-two projects at a cost of 2,209.10 million rupees as at March 1966. The major share of the development expenditure relate to heavy industry projects viz Kalabagh Steel Mill, heavy mechanical complex, heavy electrical complex, Pakistan Machine Tool Factory and extension of the Karachi Shipyard (phase-II, part-I). These projects would be completed during the third plan period.

2. East Pakistan Industrial Development Corporation

At the time the former PIDC was divided into two on the 1 July 1962, the total cost of its completed projects in East Pakistan amounted to 832.7 million rupees. Investments of the EPIDC amounted to 482.2 million rupees and the investment in projects under way came to 62.8 million rupees. In addition, taking into consideration the amount of advances to associates/projects as on 30 June 1962, which stood at 13.2 million rupees, the assets



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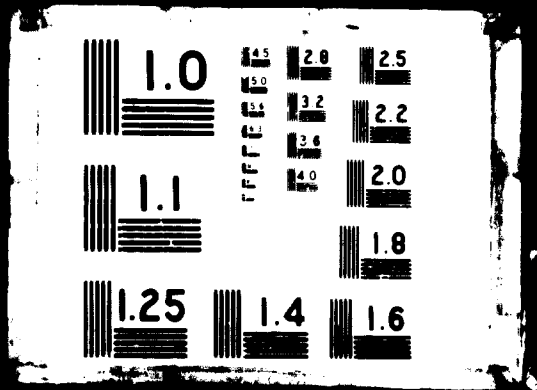
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taken over by EPIDC on 1 July 1962 had a total value of 558.1 million rupees.

In the year 1960/61, the former PIDC had made investments totalling 49.4 million rupees, and in 1961/62, 69.9 million rupees. By comparison, EPIDC made investments of 113.6 million rupees in its first year, 1962/63, and 166 million rupees in its second year, 1963/64. Since its inception, EPIDC has completed six projects with a total investment of 97 million rupees.

Performance during the Second Plan Period

During the second five-year plan which commenced on 1 July 1960 and ended on 30 June 1965, PIDC/EPIDC completed twenty-one projects at an estimated cost of 560.46 million rupees which included twelve jute mills (nine new and three expansion), four sugar mills (three new and one expansion), one fertilizer factory at Fenchuganj, one pharmaceutical industry at Tongi, expansion of Khulna Newsprint, balancing of Muslim Cotton Mills and a transit depot at Khulna.

Up to 31 May 1966 on jute mill (Messrs. Afil Jute Mills with the capacity of 250 looms), hardboard mills at Khulna, one polythene bag manufacturing unit have gone into trial production.

Against the second plan allocation for 652.00 million rupees for EPIDC (including 18.00 million rupees for fuels and minerals), the total plan outlay of the Corporation as approved in the ADP was 639.37 million rupees out of which EPIDC utilized 615.99 million rupees up to 30 June 1965. Thus expenditure of the second plan was approximately 96 per cent of the total sanctioned outlay. Industry-wise details of allocations.

Industry	(million rupees)		
	Second plan allocation	Second plan approved outlay	Second plan expenditure
Sugar	58.00	92.29	84.02
Jute	115.00	76.23	76.09
Paper and hardboard	50.00	66.15	57.64
Chemical and pharmaceuticals	244.40	175.90	168.93
Non-metallic (cement)	23.00	00.89	0.10
Basic metal	109.85	185.35	192.87
Shipbuilding and repairs	21.85	19.50	14.97
Fuels and minerals	18.00	6.81	5.54
Miscellaneous (including cotton)	11.90	16.25	15.83
	652.00	639.37	615.99

Against the second plan target of 6,750 looms in the public sector, EPIDC has completed twelve units during the second plan period with 3,000 looms which have already gone into production. Another unit (Messrs. Afil Jute Mills) with the capacity of 250 looms has also gone into trial production recently. Ten units with the production capacity of 2,500 looms are under various stages of implementation, the balance of 1,000 looms has been carried over to the third plan programme.

With regard to sugar, the plan target was first fixed at 115,000 tons which was later increased to 179,000 tons. Out of this 179,000 tons, the public sector, through EPIDC was to achieve the target of 140,000 tons. With this target of 140,000 tons, former PIDC completed three mills with a total capacity of 35,000 tons and EPIDC completed, during the second plan period, four mills (including one expansion) with a total production capacity of 35,000 tons. Eight units with the balance of a total capacity of 70,000 tons, are under different stages of completion.

EPIDC's tentative programme for third five-year plan

EPIDC has an ambitious but selective programme of public sector development in East Pakistan. Composed of on-going and planned new projects, EPIDC expects to invest about 2,350.00 million rupees during the third plan period (1965-70). Excluding 100.00 million rupees included in the above figure for fuels and mineral development, the remaining outlay of 2,250.00 million rupees (foreign exchange component 1,165.00 million rupees) would be spread over some eighty projects including sugar (fifteen), jute (seventeen) chemicals and fertilizers (seventeen), engineering including machine tools (six), electrical machinery (three) basic metal (five), paper and board (six), petrochemicals (one) and so forth.

3. Pakistan Industrial Credit Investment Corporation

PICIC seeks to spread the benefits of industrialization as widely as possible. In pursuit of that goal, projects lying in backward areas, particularly in East Pakistan, are given preference to those lying in more developed areas.

Some important features of PICIC financing are as follows:

- a) Of the projects financed, seventeen are joint ventures resulting in an inflow of foreign capital of over 43 million rupees as well as valuable technical know-how and co-operation.
- b) As many as 208 are new projects, and in seventy-four of these, the entrepreneurs are entering the industrial field for the first time.
- c) PICIC endeavours to broaden the base of industrial ownership by requiring that larger enterprises issue a certain percentage of their shares to the general public. As a result, fifty enterprises have been established as joint stock companies, of which twenty-four are listed on the stock exchange.

One of the significant activities of PICIC was the sanctioning of loans in foreign exchange to the Inland Water Transport Authority in East Pakistan. As a result of these loans, the annual cargo- and passenger-carrying capacity in East Pakistan is expected to increase to 700,000 tons and 1,200,000 passengers by 1965.

PICIC also investigates the possibilities of investment in new and untapped fields. A notable example is the survey of paper and cement industries, as a result of which four projects have been developed.

In the period from January 1958 to December 1964, PICIC financed 405 projects representing an investment of 775.1 million rupees. The regional distribution of these projects is shown in table 19. This, together with the assistance in other forms and the entrepreneurs' own contribution, is expected to result in a total investment of over 2,500 million rupees in the private industrial sector. When completed, PICIC-aided projects are expected to contribute 661 million rupees in the shape of value added by manufacture. The impact in terms of foreign exchange earnings/savings is forecast at over 760 million rupees. Also, PICIC-aided projects are expected to create about 50,000 new jobs. On the stock exchange, PICIC stock is now being quoted at a premium of 56 per cent.

TABLE 19. REGIONAL DISTRIBUTION OF TOTAL PICIC LOANS IN PERIOD JANUARY 1958 TO DECEMBER 1964 (million Rs.)

Region	No. of projects	('000 Rs.) Loans sanctioned		
		Local	Foreign	Total
Karachi	139	6,111	197,529	203,640
Rest of West Pakistan	201	8,823	536,971	545,794
East Pakistan	106	21,232	162,613	183,845
Total	446	36,166	897,113	933,279

Total assistance by PICIC

	Karachi	('000 Rs.)		Total
		Rest of West Pakistan	East Pakistan	
Loans in foreign currencies	197,529	536,971	162,613	897,113
Loans in local currencies	6,111	8,823	21,232	36,166
Direct participation in equity	1,370	10,357	1,975	13,627
Under-writing of share issues	9,690	38,920	1,975	50,585
Direct loans from abroad for PICIC projects	26,190	47,106	98,552	171,848
Foreign equity participation in PICIC financed projects	1,300	28,557	23,496	53,353
Total	242,190	670,734	309,768	1,222,692

Economic impact of PICIC financing

Total projects	446
New projects	227
Entrepreneurs entering the industrial field for the first time	74
Projects completed	267
Enterprises converted/to be converted into joint stock companies	56
Companies listed on the stock exchange through PICIC financing	32
	(Rs. in million)
I — PICIC loans	933.28
Other assistance	289.41
Entrepreneurs' investment	1,777.31
	3,000.00

II — Net value added by manufacture	
Net sales	1,890.00
Less:	
Raw and auxiliary materials	805.5
Manufacturing overhead	192.6
Annual depreciation	150.0
	1,148.1
Net value added by manufacture	741.9
III — Net foreign exchange savings/earnings	
Gross foreign exchange savings/earnings	788.0
Less:	
Annual requirement of imported materials and other expenses	260.3
Interest on foreign loans	66.2
Depreciation on foreign machinery	115.0
	441.5
	346.5
IV — Employment opportunities created	
Skilled	33,820
Unskilled	24,970
Office workers	5,260
	64,050

Significant ratios

i) Value added in manufacture	Rs. 741.9 million
ii) Capital-output ratio	3.34:1
iii) Mobilization of capital ratio	1.45:1
iv) Capital expenditure per worker	Rs. 43,900
v) Total raw and auxiliary materials	Rs. 805.5 million
vi) Imported material as the percentage of total materials	Rs. 805.5 million 32.3 per cent
vii) Net foreign exchange savings/earnings	Rs. 346.5 million

NOTE: (a) Capital-output ratio indicates the relation between total cost of the project and the value added in manufacture.

(b) Mobilization of capital ratio indicates the relationship of PICIC loans to sponsor's investment. The sum of the two represents total cost of the project.

4. Industrial Development Bank of Pakistan (IDBP)

Industrial development is a major objective of Pakistan's industrial policy. The IDBP has assisted in the implementation of this objective by bringing into the industrial area a large number of new entrants from the medium and small entrepreneurs, particularly in the under-developed regions. In pursuance of its policy, it aims at a wide diffusion of credit and broad-based ownership so as to augment the process of creating a medium class of industrial entrepreneurs.

The Bank is committed to finance projects in the private sector which have potential for increasing general productivity. In doing so, the productivity of industrial projects per unit of investment is also taken into consideration. Emphasis is placed on industries which:

- a) lead to the use of Pakistan's surplus factors of products;
- b) possess foreign exchange earning/saving potential.

The Bank can finance the establishment of new industries as well as the modernization and balancing of existing units.

The Bank began its operations in August 1961. From the beginning it gained momentum and up to 30 June 1962 the Bank had sanctioned 261 loans involving 168.9 million rupees of which 113.2 million rupees were in foreign currencies. Since then the progress of the Bank has been phenomenal and at the end of December 1965, the over-all number of loans sanctioned stood at 2,458 involving 987.5 million rupees, of which 665.0 million rupees were in foreign currencies.

Some important features of the Bank's operation on 31 December 1965, are:

1. Of the 1,164 local currency loans advanced, 87 per cent were up to .5-million rupees only, and 65 per cent were for establishment of new units.
2. Of the 1,294 foreign currency loans advanced, about 79 per cent were up to .5-million rupees and 50 per cent were for new units.

The Bank also administered fifteen foreign currency loans on behalf of the Government, involving 373.7 million rupees. It also issued local currency guarantees for about 30.7 million rupees and participated in equity investments to the extent of about 1.924 million rupees.

In advancing loans, the Bank has been guided by the policy of distributing its loans and investments fairly widely among different types of industry as well as among different regions. Such a policy -- apart from minimizing risks -- also fosters the balanced development of industries and regions, which is important from the stand-point of long-term economic growth in a developing country such as Pakistan.

The phenomenal progress made by the Bank has not been without problems. In making efforts to develop small and medium-scale industries, two main problems are encountered: (1) the entrepreneurs are relatively inexperienced, and (2) reliable statistics relating to imports, capacities etc. are not available.

Another problem is that the provision of credit by the Bank is not in itself sufficient in the case of small industries. The other prerequisites for industrial development, such as agencies for drawing up well-conceived schemes, particularly those that can meet the requirements of foreign aid bodies, are lacking. The problem of land acquisition for small industries has also to be simplified.

5. *Small industries institutions*

Small Industries Division of WPIDC

The impact of small industries development has been substantial. Due to intensified promotional efforts, the performance in the small industry sector has been extremely creditable, resulting in the establishment of a large number of units, an increase in the tempo of production, and more substantial contributions to the national exchequer.

In West Pakistan, the share of small industries in the national income has risen by 5.6 per cent from 1,337 million rupees to 1,420 million rupees. Private investment in these industries has been over 1,750 million rupees.

In 1947, there were only 1,451 small industrial units throughout West Pakistan. By 1960, the number had risen to nearly 55,000 units, excluding Karachi and the tribal areas of the northwest. This rate of progress is being maintained. These units are wholly in the private sector and the function of the Small Industries Division of WPIDC is to render technical advice, arrange for the import of necessary raw materials and secure financial assistance through the specialized and ordinary commercial credit agencies in the country.

The small industries include carpet weaving, sports goods, engineering and metal work, handicrafts, sericulture, pottery work and ceramics.

Handicrafts development has also been tremendous. The present value of handicrafts sales is over 1 million rupees compared with 0.2 million rupees in 1961, an increase of about 500 per cent.

The private sector in small industries has made a notable contribution to the country's economy, but the role of the Small-Industries Division of WPIDC has also been remarkable. An ambitious scheme to set up nine small-industry estates throughout West Pakistan is well under way and several other institutions dealing with designs, training, common facilities, development and so forth have been established.

An analysis of the working of small industries in West Pakistan shows that there has been a sharp trend from handicrafts to small factory-type units. Mechanization of the various units is increasing day by day. Moreover, there has been a change in the organizational pattern of the industries, individual ownership giving way to either partnerships or limited companies.

The small-industry development programme has contributed to the diversion of talents, energies and investment to mechanized units and the selection of specialized fields of operation. It has also provided skill and experience for a swift change-over to medium- and large-scale industries.

The important fields of development in small industries at the moment are the small industries estates, service and common facility centres, handicrafts development centres and training centres.

The nine small-industry estates being established in West Pakistan will provide entrepreneurs with such amenities as roads, power, water, sewerage, banks and post offices. The estates will be located at Gujranwala, Sialkot, Gujrat, Peshawar, Larkana Sukkur, Bahawalpur, Quetta and Lahore, and will involve a total outlay of 25.28 million rupees. Land for all the estates has been acquired and the construction work on buildings, roads and sewerage has been completed up to about 80 per cent at all the sites. On account of some delay in the possession of land for these estates, the construction work could not be started on schedule. Industrial units in the private sector are being sanctioned for these estates.

WPIDC is setting up eight service and common facility centres for ceramics, cutlery and small tools, light engineering, sports goods, textile and woollen industries, leather and footwear, and metal industries. These centres are to be located in places such as Gujrat, Gujranwals, Nizamabad, Sialkot, Multan, Shikarpur and Karachi according to the nature of the industry developed in those areas. The main functions of these centres will be to conduct techno-economic surveys of industry, to carry out research on problems of production management, to impart training to foremen and master craftsmen in order to improve their technical efficiency, and to provide certain facilities and services in developing factory-type industry.

The centres for light engineering, cutlery and sports goods are being financed with IDA credit. The total estimated cost of the above centres will be 11.65 million rupees. The construction work on these centres is in progress and machinery is being imported from abroad.

One of the major problems with which small industries are at present confronted is the non-availability of imported raw material of standard quality and the lack of training facilities in local crafts. With this in mind, ten cottage industries development centres are being established at Peshawar, Rawalpindi, Hyderabad, Dera Ismail Khan, Multan, Bahawalpur, Khairpur, Quetta, Murree and Kalat to provide raw materials to small industrialists and training facilities to local craftsmen. These institutions will also provide apprenticeship facilities after completion of training. At present, there are over 120 trainees working in these centres and receiving training in local handicrafts.

Another important feature of the small-industries programme is the development of sericulture. There has been a noticeable increase in the quantity of both silk seed distribution to the rearers and the green cocoons produced by them over the past two or three years. Aside from the already established mulberry farms, silk grainage centre and incubation centres, more are planned and will be set up during 1965-1970. Training classes are also being conducted in the sericulture centres at Peshawar, Rawalpindi, and Mastung.

East Pakistan Small Industries Corporation

The activities of EPSIC have generated tremendous growth in the small industry sector in East Pakistan. The EPSIC development programme includes the establishment of nineteen small industry estates by 1965, at a total cost of 32 million rupees. These estates together provide for 4,000 small industry units.

The public investment programme for small industries in East Pakistan for the period 1960-1965 is 273 million rupees. This investment includes 160 million rupees for supply and marketing services, 35 million rupees for credit services, 44 million rupees for recurring expenditures, and 134 million rupees for direct investment by the Government. The direct investment is allocated to the various agencies of the Government for implementation of the small industries programme as follows:

EPSIC	Rs. 94.4 million
Co-operative Department	Rs. 34.3 million
FIDC	Rs. 5.2 million
	Rs. 133.9 million

With regard to EPSIC's allocation in the public sector, fifty-seven projects have been taken up for execution during 1960-1963 at an estimated cost of 63.2 million rupees and it is proposed that forty-four more projects be taken up at an estimated cost of 31.2 million rupees during the rest of the plan period.

In the industries sector, small industries have been given priority due to their capital intensiveness and employment potential, and for the dispersal of economic activities.

Out of the 94.4 million rupees earmarked for the EPSIC small industries programme, 50.1 million rupees has already been utilized in implementing 57 projects. Thirteen of these projects are now operational and 50 per cent of the remaining projects have been completed. The necessary schemes and ground work have been prepared, to utilize the full amount earmarked for the small industries programme of EPSIC.

The total cost of the small-industries programme envisaged in the second five-year plan for the private sector in East Pakistan was 125 million rupees. During the plan period, EPSIC was provided with only 2.5 million rupees in foreign exchange for the setting up of small industries in the private sector. Out of this amount, EPSIC could sponsor only 111 units at a total investment of 5.6 million rupees, of which 2.25 million rupees was in foreign exchange. It may also be mentioned that in the Small-Industries Investment Schedule, an investment of 88 million rupees was anticipated up to 1963, with a foreign exchange component of 56 million rupees.

The second five-year programme for small industries has in general been a success. In addition to an appreciable volume of private investment, elaborate basic promotional and development facilities for small industries have been established all over East Pakistan.

There has been a significant improvement in the climate for the growth of small industries. About 2000 applications were received for the setting up of small industries against foreign credit for an amount of 85 million rupees. Of these, 1200 were considered acceptable from the point of view of credit worthiness, technical know-how and so on involving an investment of 56 million rupees.

The small industries sector is now capable of developing a more ambitious programme.

A small industries programme involving 30 million rupees will have to be carried over to the third five-year plan (1965-1970) to complete projects already under way. Apart from this, 20 million rupees will be required during the third plan to cover the recurring operational cost of the 101 projects taken up in the second five-year plan.

An analysis of small-industry development in East Pakistan shows that each of the above sectors has shown steady progress over the last decade and there have not been any cases of failure. The future prospects are extremely bright.

6. *Pakistan Council of Scientific and Industrial Research*

The more important aspects of the Council's activities are concerned with long-range research on problems of vital national importance. Some of the problems are as follows:

- a) utilization of low-grade iron ores for the iron and steel industry;
- b) economic utilization of jute sticks;
- c) desulphurization and unranking of low-grade sulphurous coals of West Pakistan;
- d) production of insecticides and fungicides from indigenous raw material resources;
- e) research on indigenous medicinal plants.

The research activities of the Council naturally cover a wide range of problems and comprise laboratory investigations in many fields, followed in most cases by pilot plant studies to establish the economics and optimum working conditions of each new process developed in the laboratory. The pilot plant studies probably constitute the most exacting and time-consuming phase in developing a new industrial process to a stage where it can be leased out for commercial exploitation. Without such studies, the industrial exploitation of a new discovery or even the improvement of an existing process is very unlikely, particularly in the present stage of Pakistan's industrial development with all its shortcomings in respect of technical know-how and background experience in the production of goods acceptable to consumers.

During the past ten years, the Council has leased out fifteen processes to industries.

Organization of the Council

The Pakistan Council of Scientific and Industrial Research is an autonomous body. It is responsible

for the administration of the research fund made available as grant-in-aid by the Government of Pakistan from year to year.

The Council enjoys full freedom in the planning of its research programme, under the administration control of the Scientific and Technological Research Division, President's Secretariat.

Governing Body

The management of the affairs, funds and revenues of the Council is vested in the Governing Body, subject to such general directions in respect of expenditure as the Central Government may issue from time to time. All decisions on matters of policy, budget allocations, sanctioning grants for specific research schemes and other matters falling within the scope of the activities of the Council are taken by the Governing Body.

The Governing Body in turn is responsible to the Council, composed of representatives of the Central and provincial governments, eminent scientists, industrialists and educationists.

The term of office of the members of the Governing Body, as well as the Council, is three years.

Advisory Bodies

The Governing Body has also constituted six research advisory committees. The Chairman of Scientific and Industrial Research is an *ex-officio* member of each of these committees. All research schemes submitted to the Council by universities or other research institutions for grant-in-aid are referred to the appropriate research committee for scrutiny and recommendations. The six research committees are: (1) Chemical Research Committee; (2) Drugs, Pharmaceuticals and Pest Infestation Research Committee; (3) Industrial Fermentation and Biological Products Research Committee; (4) Building Research Committee; (5) Fuel Research Committee; and (6) Physical Research Committee.

Administration

The Chairman of Scientific and Industrial Research is the principal executive officer of the Council. He is responsible for the day-to-day administration of the Council, and exercises supervisory control over its technical and research activities, including the work of the central and the regional laboratories and research under the grant-in-aid schemes. He is a member of the Council and also of the Governing Body, the Advisory Bodies, and the Council's Selection Board (which is responsible for making higher appointments), and is chairman of the Council's Selection Committee.

Regional laboratories

The direction of scientific research and the day-to-day administration of the regional laboratories is vested in the directors of the respective laboratories. The scientific work of the laboratories is carried out in the various divisions under the guidance of the heads

of divisions. The registrars or administrative officers look after routine administrative and financial matters.

Functions of regional laboratories

- I. *Central laboratories*
 1. Physical Research and Testing Division.
 2. Chemical Research Division, including paints and plastics.
 3. Biochemical Research Division.
 4. Drugs and Pharmaceuticals Research Division.
 5. Building Materials Research Division.
 6. Fuel Research Division.
 7. Engineering Division with workshop and pilot plant section.
- II. *East regional laboratories*
 1. Natural Products Research Division (covering work on minor forest products and biological, agricultural and industrial wastes).
 2. Fuel Research Division.
 3. Food and Fruit Technology Division.
 4. Leather Research Division (principally providing facilities for investigations in the tanning material resources of the region).
 5. Glass and Ceramics Division.
- III. *West regional laboratories*
 1. Metallurgical Research Division (including ore dressing and testing of minerals).
 2. Industrial Fermentation Research Division.
 3. Oils, Fats and Waxes Research Division.
 4. Glass and Ceramics Research Division.
 5. Food Technology Research Division.
- IV. *North regional laboratories*
 1. Indigenous Drugs Research Division.
 2. Fruit Technology Research Division.
 3. Mineralogical Research Division.
 4. Wool Research Division.

The broad object in establishing the Council was to initiate, promote and guide scientific and industrial research, primarily directed towards the utilization of the indigenous raw materials and the development of industries based on them. The specific means of achieving this aim, as laid down in the constitution of the Council, included a wide range of activities such as financially assisting research in universities and other research institutions, awarding research fellowships, encouraging industry to contribute to the research effort and collecting and disseminating scientific and technical information. The most important means laid down for prosecuting the aims of the Council, however, consisted in the establishment and development of its own natural research laboratories, in which research and development work could be carried out with the stated object of 'utilizing the economic resources of the country in the best possible manner'.

Progress of research work

In the early stages of a research organization, one cannot, in the nature of things, expect direct financial

returns, and although the establishment of the new industries to which reference has been made may well have increased the industrial potential of the country by a few millions of rupees in terms of annual production, it cannot be claimed to have made an impact on the industrial development of the country on the pattern of the Industrial Development Corporation. In fact, the more important aspect of the activities of the Council is concerned with long range research on problems of vital national importance, in which its laboratories have been engaged over the years. Some of these problems are given below:

1. utilization of low-grade iron ores for the iron and steel industry;
2. economic utilization of jute-sticks;
3. the Desulphurization and up-ranking of low-grade sulphuraceous coals of West Pakistan;
4. production of insecticides and fungicides from indigenous raw material resources;
5. research on indigenous medicinal plants.

On the fundamental side of research which has engaged the attention of the Council's laboratories, it will be of interest to refer to studies in the theory of the liquid state and intermolecular forces. This work actually started with an applied investigation on the influence of long-chain phenolic compounds and their derivatives on the viscosity of mineral oils, used as lubricants, and then ultimately led to the study of a wide range of related fundamental problems, including temperature variation of the viscosities and activation energies of hydroxylic liquids, like the mono and polyhydric alcohols. For this fundamental work carried out in the laboratories of the Council, Dr. M. M. Qureshi, the head of the Physics Division, who has recently joined the Ministry of Defence as its Chief Scientist, was awarded the D.Sc. degree from the University of Manchester.

To this category of research would also belong studies in the chemical structure of chaksine and a number of other alkaloids and non-alkaloidal plant constituents, the contributions of the Council which have gained international interest. This may also be said of the systematic studies carried out on the correlation of cardiac action with chemical structure in the ajmaline series of bases, which have led to the formulation of what has been termed as a cardiophoric grouping in their molecules. Whatever may be the ultimate fate of this hypothesis, there is little doubt that it opens up a new field of study in alkaloidal bases carrying cardiac activity, and also for the synthesis of simpler substances modelled on the structure of the ajmaline.

The foregoing account of the long-range research of the Council brings up the perennial problem of the balance individual countries, with their varying backgrounds and present capabilities, should strike between pure and applied research.

There is hardly a scientific conference on national or international level where this issue is not discussed

and deliberated upon at length. But these discussions invariably lead on to a restatement of the fact that no hard and fast line can be drawn between pure and applied research. As a matter of fact, if science is to get a chance of effectively promoting the development of a country, both these aspects of research at the laboratory level, and pilot plant or field investigations, will have to come under the purview of its national research organizations. What is more, no applied research laboratory, if wholly bereft of atmosphere in which fundamental research can take root and prosper, is likely to develop into an effective research centre of any kind. As a matter of fact, these two aspects of research keep constantly turning up problems for each other, and this process serves to invigorate and vitalize both.

There is yet another point which needs careful attention in this context. In the so called under-developed countries like Pakistan, it is pure and not applied research that strikes the imagination of the younger scientists, and it may be only in the wake of enthusiasm generated by a basic approach to scientific research, that we can hope ultimately to make a mark in the advancement of science and technology, and their application to the economic development of the country.

The application of research

The utilization of results of research is a subject of such vital significance to the developing countries that it was discussed at great length at the recent United Nations Conference on the Application of Science and Technology for the Benefit of Less-Developed Areas. In the application of science to industry and the promotion of agricultural productivity, the most important factor relates to the resolution of bottle necks between scientific research and the actual utilization of its results. Successful research on the fundamental side can be a matter of satisfaction quite irrespective of its bearing on practical applications, but applied research is pointless and a source of galling frustration among workers, if it fails to get closely integrated with the relevant sectors of economic development.

The research activities of the Council naturally cover a wide range of problems and comprise laboratory investigations in many fields, followed in most cases by pilot plant studies carried out for establishing the economic and optimum working conditions of each new process developed in the laboratory. The pilot plant studies probably constitute the most exacting and time-consuming phase in the proper development of a new industrial process to a stage where it can be leased out for commercial exploitation. Without such studies, the industrial exploitation of a new discovery or even an improvement in an existing process is very unlikely, particularly in the present stage of the industrial development with all its short-comings in respect of technical know-how and background experience in production of goods acceptable to consumers.

One of the natural consequences of these short comings is that there is a more or less general proclivity for what are known as 'turn-key' jobs in the schemes for industrial development of the country. It is of course true that this approach has proved to be of considerable importance in the first phase of building up the industrial potential of the country, as can be seen from the extensive chain of factories set up by the PIDC and by private industries, including cement, paper, fertilizer, heavy chemicals and even penicillin. However, organizations such as the Pakistan Council of Scientific and Industrial Research can not go along with this approach because, from a long-range point of view, the mere importation of technical know-how tends to remain a relatively barren process. For the continuous and proper development of the scientific and technological potential of the country, it is necessary that considerable stress be laid on the development of new industrial processes having a bearing upon the economic utilization of indigenous raw materials. During the ten years of its existence, the Council has gained considerable experience in evolving effective methods for the utilization of the results of the research directed towards this end. One of the salient feature of these methods is that inventors of the process are actively connected with pilot plant studies and in most cases they are actually associated with the establishment and operation of the commercial unit. Where-ever possible, semi-scale production units have been constructed in the CSIR laboratories for supplying at cost large quantities of products for consumer testing and approval.

This process of building up a demand for new products is by no means simple. One has to train the personnel, persuade the consumers to the benefits, and in many cases introduce certain changes in the process to accomodate their difficulties. All in all, it is a time-consuming process.

Procedure for leasing out new processes

The Council obtains patent coverage on its new processes, meanwhile carrying out pilot-experiments and consumer surveys. The ultimate results of these research programmes are available to industry by publishing short plain-language descriptions of the relevant processes in the form of non-technical notes. Each such note is designed to give the industrialists or the potential manufacturer a practical account of the process, of the materials required, of the plant needed and the costs involved in operating the process. On the basis of this information and in response to advertisements by the Council in leading newspapers of the country (inviting applications for commercial exploitation of the processes completed), the interested parties submit their application for one or more process. The Research Utilization Committee, a body constituted by the Council and composed of representatives of the Ministries of Industries, Finance and Commerce, the Director of the Council's laboratories and the Director General of Supply and Development,

interview the candidates (selected after a preliminary examination of applications by a sub-committee) and recommends the most suitable candidate for each process. It may be mentioned that in Pakistan the function of this Committee is confined only to the selection of the parties and is quite unlike those of Research Utilization Boards as constituted in the United Kingdom and India, where such bodies decide on the feasibility of the process and actually finance their development. The Council has been of the opinion that the consequent absence of close association and collaboration between the laboratory and pilot plant workers is not conducive to successful utilization of the laboratory results.

As an instance of advantages that generally result from such a procedure in the field of technological research and development, reference may be made to a series of important new building materials, particularly 'Jutoid', 'Cemto', foam concrete and 'Fixempero', evolved in the laboratories of the Council, which have been fully accepted by the Pakistan Public Works Department and by private construction companies.

The success of the policy of the Council may further be judged from the fact that in this short period of ten years, and in spite of all the difficulties which an organization has to face in its formative years, fifteen processes have been leased out, of which some are either already in production, and the others are all likely to be in production shortly.

From the above account of the progress of the industrial processes developed by PCSIR and comparing the success achieved in taking the processes to commercial level with some of the comparable organizations in other countries, it will be seen that PCSIR has made a significant contribution towards a sound utilization of indigenous raw materials with a considerable saving of foreign exchange for the country. This saving will be of the order of 75 million rupees, when the processes already leased out are in full production. These achievements have been made in spite of bottle-necks in respect of purchase of pilot plant and laboratory equipment from abroad and are largely attributable to the co-ordinated effort of the various research and development divisions of these laboratories.

General industrial liaison

In Pakistan, long-range industrial research is at present being carried out largely by the Pakistan Council of Scientific and Industrial Research, and is primarily directed towards the best utilization of the indigenous raw materials and the development of industries based on them. The great proportion of short-range applied industrial research in this age of technology is best carried out by private industrial research themselves, mainly by large firms or combines, and the general policy in more advanced countries is that the more the research industry can do for itself, the better. To help effect this in countries

with less developed economics, and where there exist a large number of small- and medium-sized firms, the formation of co-operative research associations had been encouraged so as to serve directly to the need of the particular industry.

The Industrial Advisory Council held in Dacca in December 1961, resolved that the Government should levy a cess on industrial production for supporting, among other things research activities in various fields at the laboratories of the Council of Scientific and Industrial Research. This is a laudable appreciation on the part of industry of the value of research and a step in the right direction, since the formation of independent laboratories of research associations on the British pattern is rather premature in Pakistan, particularly because of the paucity of scientific personnel at the present stage of its development. The funds collected from the cess would serve to strengthen greatly the activities of the Council and would ensure a more active participation of industry in the results of applied research in its various laboratories.

Realizing the need to fill the gap between laboratory research and its industrial application in Pakistan, the Council decided to maintain a close liaison with industry to help them through research and to advise them in the solution of their operational problems. With this end in view, an Industrial Liaison Cell has been established in the Council Secretariat, and it is proposed to have such an unit added to the regional laboratories.

Industries economics research cell

This cell has been created in Council Secretariat: for the purpose of assessing the economic and commercial values of the processes developed by the Council. The scope of activities has been expanding gradually and it includes economic appraisal of the existing and new research projects in the central and regional laboratories. Pre-research inquiries in respect of supply position of raw materials and potential demand of the research products have been included in the activities of this cell. Operational research with a view to increase the productive efficiency of industrial units or to economize the per unit cost of the production also falls within the purview of the activities of this cell.

Functional advisory committees

The Council has recently formed a number of committees to assess the requirements on a priority basis, in the various fields of research and to guide the various research divisions of the central and regional laboratories to shape their programme of research accordingly.

PANSDOC

This centre which was established in 1957, with the technical assistance of the UNESCO, provides facilities for documentation, reproduction in the form

of films and photo-copies of scientific references, and translations from various languages into English. PANSDOC is in touch with 600 libraries and information centres of the world, and these contacts are gradually on the increase. PANSDOC has now reached a stage of development where it has been recognised by UNESCO as a training centre for future heads of documentation of many south-east Asian countries.

A comprehensive scheme has since been drawn up for the establishment of a central science library in Karachi with a branch at Dacca. The scheme envisages a total outlay of approximately 96,000,000 rupees spread over a period of four years. The draft scheme has been circulated to leading scientists in the country and also to library experts abroad for their comments. In the meanwhile, the UNESCO has offered to help in the implementation of the project, and they are assigning an expert to make an on-the-spot feasibility survey for it some time in 1965. The scheme is, at the same time, being submitted to the Planning Commission for incorporation in the third five-year plan. Of the two, the Dacca sub-office went into commission in March 1963 and is now providing necessary services to the scientists in the eastern wing.

Due to financial difficulties the Lahore centre is yet to go into commission.

The Document procurement section handled 1,725 orders for various services during the period under review. The division of their services is as follows:

1. microfilms	320
2. photo copies	1,246
3. bibliographies	41
4. translations	118

Engineering section of PCSIR

The construction work of the central laboratories of PCSIR in Karachi is progressing satisfactorily. The construction of the Pak-Swiss Institute is also nearing completion.

Publications

The quarterlies "Pakistan Journal of Scientific and Industrial Research", and "Science and Industry" and the monthly popular science magazine "Science Chronicle" continues to enlarge their scope as good, useful information media.

The inaugural issues of the two popular science Magazines in Bengali and Urdu viz "Puragami Bigyan" and "Karawan-e-science", brought out during this period have been well received.

The second biennial report covering the period 1961-62 and a booklet "Ten years of PCSIR" (1953-63) have also been published.

Patents

During the period under review, fifteen patent applications have been filed of which eight have been filed in Pakistan and seven in foreign countries. Of the applications filed so far, six patents have been

obtained during the period, of which five have been obtained in Pakistan and one in the United Kingdom.

Training

During the period under review, fifty-eight employees of this Council have been sent abroad for training under the various technical assistance programmes in operation including study leave and so on and twenty-one employees have returned after obtaining training in their field of activities.

In addition to the above, two scientists who proceeded to avail of the International Atomic Energy Award Fellowships and Canadian Research Council's Fellowships, respectively have also returned to Pakistan.

Special technical committee

Three meetings of the Special Technical Committee were held during the period under review and taking in view the feasibility of inventions of the applicants, cash awards were given to seven persons.

The Council has further taken steps towards establishing industrial information services to provide effective contact with industries through the dissemination of scientific and technical information. Facilities are, moreover, extended to industries for solving many industrial problems faced by them. Over a hundred such problems have so far been referred to the Council many of which have been successfully handled in its laboratories. It may be mentioned that these problems mostly involve the application of available knowledge, or the replacement of imported raw materials by locally available substitutes, and that such work is likely to interfere with long-range research under-takings of the laboratories of the Council. It is, however, realized that in the present stage of industrial development in the country, and in the absence of research associations relating to the various sectors of industry, it has to shoulder this additional responsibility. The Council, therefore, has taken necessary steps for strengthening this activity by instituting industrial liaison sections in its central and regional laboratories. The Industrial Liaison Division of the Council will study the economics of the processes, and have direct contact with industry to ensure the exchange of views of industrialists on the one hand and scientists on the other.

SOME IMPORTANT INDUSTRIAL PROCESSES

Insecticides

Pakistan imports about forty million rupees worth of insecticides but this can hardly take care of even 10 per cent of its plant protection requirements. Promising results in the research on insecticides from indigenous raw materials have been obtained in the central Laboratories of PCSIR.

The wasted gasoline from the Daudkhel Fertilizer Factory has been used to produce a powerful insecticide called Makrolin, this has properties superior to DDT in certain cases. It is also a good fungicide. The process has been successfully tested on pilot plant

scale but an industry based on this process would have a limited capacity since the available quantity of gasoline from the Daudkhel plant hardly exceeds two to three tons per day.

The Council, therefore started research on different lines. Work was started on evolving a process to get powerful insecticides from petroleum cuts obtainable from the Attock Oil Company. A new and as good an insecticide as Makrolin named Petkolin was thus obtained, but it has little fungicidal action.

Yet another and more effective insecticide, called Petkolin 'M' has thereafter been developed with the help of certain additives.

Preliminary findings of effectiveness of the insecticides based on field tests carried out in co-operation with the West Pakistan Department of Agriculture are quite promising. Some of the foreign firms have also been interested in these developments and samples have been given to them for pesticidal evaluation. A semi-commercial plant to manufacture them has been imported from West Germany and is being installed. While side by side with this, large-scale field trials are also in progress.

Marbolite

On the industrial side a process for making synthetic marble called 'Marbolite' was advertized and a party selected. This acid and alkali resistant artificial marble has many advantages over natural marble. It is made from locally available minerals and has good shielding properties against gamma radiation, and this property itself should in the near future make markets for it both inside and outside the country. This process is being leased out to the party selected on the basis of a project drawn up by the Council at an estimated cost of six million rupees. The party has been advised to get the financial clearance from PICIC in respect of the economic feasibility of the project and the requirements of foreign exchange for the import of machinery valued at about 3.5 million rupees.

Paper and hardboard

A process with great possibilities has already been developed for making good paper grade and also hardboard grade pulp from the jute-sticks in East Pakistan.

Fish flour

A process for making fish flour from dried fish when leased out should be able to serve as cheap source of protein for fortifying the protein-deficient diet of the common people.

Canal lining material

The report from the Irrigation Laboratories based on their two years trial on 'Jutoid' (waterproof) matting, already in the market, established it as a suitable material for canal lining and as such this product is expected to have an extensive market in its use in addition to the existing use of this material as waterproof matting.

Water filter

A water filter made from indigenous material which can effectively purify polluted water for drinking purposes has been evolved in the Central Laboratories and is ready to be leased out.

Bidi wrappers

Leaves from various common trees available both in East as well as West Pakistan on treatment have given good quality leaves acceptable to consumers for use as *bidi* wrapper and the process is expected to be given away to manufacturers of *bidis* on a cottage industry basis to meet the demand of the common people.

Pakcem

'Pakcem' is a composition based on accelerated setting on pozzuolanic type of cement. The new product is superior to the portland cement based paints in respect of its rub-resistance and application properties.

The following account gives a brief summary of some of the research work going on in the various divisions of the laboratories of the Council.

CENTRAL LABORATORIES

1. *Studies on indigenous drugs and their chemical constituents*

A new alkaloid, marckine has been isolated from *Alangium lamarkii* (Bagh-Ankura) and its pharmacology is being studied. Isochaksine prepared from chaksine, an alkaloid obtained from 'Chaksu' has been found to be a hypotensive agent.

The other soluble portion of the alkaloids of *Rhazya stricta decaisne* showed a definite leucopenic activity and hence may prove useful in cancer therapy.

A crystalline material named dewasterol has been isolated from *Cedrus deodara* (Dear wood) together with a viscous 'Diol' named dewardiol.

The smooth muscle relaxant factor from *Lavandula stoechs* has been isolated and identified as 7-methoxy coumarin. Detailed pharmacology is being carried out with synthetic 7-methoxy coumarin.

The chemical nature of the active principle present in the organo-metallic complex named 'Karellin' isolated earlier from karella (*Momordica charantia*) is being studied.

2. *Chemical of alkaloids and some other chemical studies*

On the chemical research side, efforts are being directed to reveal the structure of various crystalline and other chemically homogenous compounds isolated from plants. This includes work on certain important projects including alkaloids such as harmindine, ajmaline, isochaksine and marchine from *Alangium lamarkii*. The best method for obtaining isochaksine from chaksine has been established and the alkaloid thus obtained is homogeneous, because different fractions of the base give a hydrochloride having some optical rotations.

3. Physics of liquids

An important project relating to the physics of liquids has given some very interesting results. The earlier observations subsequently published on the activation energy jumps in aqueous ethyl alcohol have led to more detailed study of this process in other pure hydroxylic liquids namely ethylene glycol glycerol and water, together with non-hydroxylic solvents like benzene and nheptane. Experiments have already been carried out to note the temperature dependence of refractive index of water and these results also suggest a cyclic variation.

4. Biological studies

A study of the blood cholesterol, sugar and haemoglobin level of normal male adults between ages of twenty-one to fifty years has revealed a correlation between the cholesterol on the one hand and physical activity on the other.

Studies on the micro-organisms in locust, *Schistocerca gregaria* (firskal) revealed the presence of staphylococci, proteins morganic and candida. The toxin produced by the micro-organisms may have some injurious effect on the people who consume them. Some pathogenic micro-organisms have been isolated from the locust and experiments with regard to the methods in which these organisms can best be used for biological control of this pest are in progress.

5. Applied research

X-ray examination of the manganese ores, asbestos-type materials and the chichali iron ores are being continued. Detailed studies are being made to obtain iron from the chichali iron ores.

"Balcrete" initially developed as a liquid forming agent has been successfully prepared in dry powder form on laboratory scale. Cotton seed fatty acid's betulinol (extracted from bhoj putter) condensation product has been found to be suitable as a varnishing agent. Evaluation of indigenous linseed oil for the production of stand oil has been completed. A red clay from jurute salt range of Jhelum has been found to be useful as a partial replacement of portland cement. Laboratory work on artificial facing stones and also the formulations of a substitute for white portland cement based paints have now been completed. The suitability of a process developed for the manufacture of sodium metasilicate, an industrial detergent, is being investigated.

The traditional tanning process for buffalo and cow hides with babul and mimosa barks takes about two to three months. This has now been cut down to four weeks by a modified procedure. A leather of good colour, substance and feel has been prepared from shark skins. Pilot plant production will soon be undertaken.

EAST REGIONAL LABORATORIES

(i) Plant products research

Cinchona bark alkaloid

Studies on the picrate of alkaloid 'X' have re-

vealed it to be isomeric with quinamine and conquinamine as a result of which it was concluded to be a different compound. The findings have been published.

The initial results have shown tinosporide to be possessing a ketonic carbonyl group.

Analysis of tinosporide hydrolyzed product

On analysis, it was found that the hydrolyzed product contains a molecule of water, verified by the dehydration experiments.

Further crystallization of the mother liquor has yielded a new compound tinosporide B. The melting point was found to remain constant after ten crystallizations. It is different from tinosporide and has characteristic infra-red peaks.

Active principles of Cephalandra indica

A crude alkaloid was obtained from the extract of the roots and their picrates were made. The picrate of the other soluble alkaloid was purified and found to possess characteristic infra-red peaks.

Active principles of datura fastuosa

328 gramme of crude alkaloids and 567 gramme of oily substance were extracted from datura seeds. Work on the purification of the crude alkaloid is in hand.

Exceocaria agalocha

Investigations for the active principle from *Exceocaria agullocha* have led to the isolation of two crystalline compounds, the semi-solid waxy substance obtained from the alcohol portion was chromatographed. The first few fractions gave an oily and solid crystalline mass, soluble in almost all the organic solvents except water. OH group was detected by the infra-red spectras. Other solids were also obtained from other fractions. Their identification is in hand.

Recovery of caffen from tea waste

On further improvement, the process gave much higher yield of caffen, about 2.9 per cent as against 3 per cent actual caffen content. Semi-pilot plant studies have succeeded to give yield upto 2 per cent.

(ii) Fibre research

Studies in jute sticks

Investigations have revealed that vanillin and syringaldehyde are obtainable from the lignin components of jute-sticks, irrespective of the conditions of alkaline nitrophenzene. The molecular ratio was determined as 1:2.

Analyses from ash, lignin, alcohol and benzene solubility, water solubility, ether solubility, 1 per cent Naoh solubility, holo-cellulose, Norman and Jenkin cellulose, pentosan and X-cellulose have been completed.

Paper pulp from jute wastes

A patent giving details of the alkaline nitrobenzene pulping process has been worked out for preparation of quality paper pulp from jute wastes.

Rayon pulp from jute stick and wastes

Suitable combinations have been worked out to prepare pulp of rayon specifications and excellent acetate rayon sheets were prepared using rayon grade pulps.

(iii) *Essential oil*

The work on the extraction of essential oil from *Eupatorium odoratum* has yielded a pale yellow oil. The yield of crude oil is ranged between 15 to 20 per cent based on the weight of the fresh leaves. The black gummy mass obtained from the aqueous residue was further studied. The methanol triturated solution yielded inorganic material giving positive test of Na, K, and et ions. The benzene and chloroform triturated solution yield negligible amount of heavy oil.

(iv) *Fats and oils*

A simple method for preparation of erucic acid and derivatives has been evolved. Methods for detecting lenoleic acid in hydrogenated fats have also been devised through combination of alkali isomerization and spectrographs. An efficient method of detecting nickle in hydrogenated fats is under investigation.

Studies in respect of sesame oil fatty acids for preparation of lenoleic acid, study of mesta and titgila oils, evaluation of basna, gourd and dhaincha under the oilseed survey programme are in different stages of investigation.

(v) *Physical studies*

Investigations in this section have been carried out under two heads. (a) measurement and fundamental studies, (b) developmental work, under (a) four items of studies are in progress. These are (i) a transformer ratio-arm bridge for the measurement of dielectric constant and power factor. The investigation so far carried out has shown that measurements on low loss mica sheets have established the accuracy of the bridge over the frequency range from 5 Kc/s to 30 Kc/s. For good contacts between sample and electrode surface, mercury has been used with convenient holder jigs. (ii) A system for the determination of sound absorption in building materials has been proposed and construction of important parts have been completed. (iii) A simple method has been developed for determination of physical parameters of transistors requiring difficult frequency dependent measurements. (iv) The fabrication of an apparatus for rapid measurement of thermal conductivity and diffusivity of insulating materials was undertaken. Under (b) development work, two items, viz design consideration of dry batteries and a solid state battery charging unit are in progress.

(vi) *Industrial microbiological research*

In the surface culture method relationship between the sugar concentration in the medium of fermentation during the fermentation of oxalic acid has been worked out. The initial findings are promising.

The optimum concentration of molasses has been determined from the surface method of fermentation. This has been in connection with the lactic acid fermentation of molasses. The recovery of the activity of used charcoal has been considerable. The partially decolourized molasses solution with other necessary ingredients has been fermented and brownish coloured vinegar has been obtained.

(vii) *Botanical research*

The fungi isolated from infected *Aquillaria agallocha* were studied and found to belong to "*fungi imperfecti*". Experimental study by treating the plants differently with different nutrients has shown that the groups treated with nitrogenous fertilizers were less susceptible to wilting. With the increase in water supply, the rate of wilt attack also increased. The rise of soil and atmospheric temperature has a similar effect, and at 20°C rise of temperature, the attack becomes more common. Application of potassium nitrate showed more resistance to attack.

Macroscopic and microscopic studies have revealed that when attacked by bacteria, the vascular tissues turned to brown and the leaves of the vessels are clogged with thick suspension of bacterial cells. The twenty strains of bacteria isolated so far are not responsible for wilting.

2. *Food and fruit research*

Work on the following research projects is in different stages of completion. (1) The assessment of nutritive quality of fish flour and fish macerol; (2) fish storage in relation to cottage and mysin contents; (3) the structural changes of protein due to heat treatment and prevention; (4) the utilization of 'stick water' of fish; (5) the distribution of total nitrogen and N-PN under different conditions of treatment and storage of fish; (6) the mustard oil controversy, fish spoilage in relation to nutritive value; (7) the utilization of fish protein by different age groups; (8) the comparative study of the utilization of fish protein by mustard and ground-nut oil at different levels of protein caloric and fat caloric and so on.

Investigations on eight projects — cereals and cereal products, peanut, sugar-cane juice, fruit and fruit products, vegetables, fish and fish products, protein products and balanced protein food are in progress.

A process for preparing fully fortified artificial milk with peanut, enforced better keeping quality, emulsion stability has been completed. A mixture of balanced protein food has been adjusted to incorporate deodorized fish meals, resume meals, ground-nut meals, coconut and safflower meals. The protein contents of the mixture was high containing all essential amino acids.

3. *Glass and ceramics research*

When Mirpur black clay is mixed with Bijapur clay in the ratio of 1:4, it makes a better composition

for porcelain and earthenware. Experiments on a semi-pilot plant for extraction of alumina from Bijapur clay has been conducted and the extent of alumina in the leached solution has been determined. The economics of the process is under study.

A low temperature porcelain glaze has been developed for Bijapur clay. A comparative study is being done by using local and British quartz, flint, feldspar, calcium carbonate in glazing the wares.

A complete procedure for the analysis of Pakistani chromite ore has been developed. Initial findings have shown this method more advantageous and rapid as compared to other analytical processes.

A maximum removal of 95 per cent of iron has been obtained from Mirpur clay. Analytical work on eleven samples of the clay has also been done.

4. Fuel research

The analysis of Sylhet gas condensate has shown that the heavier fraction of the oil boils in the range 80°C-24°C. The infra-red studies of the crude oil as well as the subfractions have established the absence of aromatics. The fractions were confirmed to be seven to eleven cycle-paraffins.

The high temperature cracking was continued around 800°C at atmospheric pressure, yielding a complete series of aromatic from benzene to the most polycyclic system; the composition of the products, liquid and gaseous, was also determined.

The calorific value of charcoal obtained by destructive distillation of jute-stick was determined to be 13105 BTU/lb. With the yield up to 33 per cent. The gas has a low calorific value because of a higher percentage of gaseous carbon dioxide. The composition of the gas has been determined and so also the pyrolytic liquor and the soluble tar. The total acid is found to be 2.5 per cent.

An apparatus assembly has been designed and set out to study absorption of different gases on different activated charcoals under sub-atmospheric pressure. Further work is in progress.

A laboratory plant has been designed and fabricated for the production of vetone. The percentage yield of glacial acetic acid and pyridine has been taken as absorbing mediums for ketene separately. In both cases, the yield has been 50 per cent of the theoretical details.

5. Leather research division

Preparation of transparent leather has been standardized. It is found that the raw sheep skins used for this purpose give better results.

Dry tannin extract of the Sundri bark has been prepared under different room temperatures. Samples of dry tannin were employed to tan leather. The results have been classified in five groups, according to the quality and colour of the leather.

The blend of myrobalans extract with three parts of goran has produced a very good quality of leather.

Comparative studies have revealed that goat skins give better suede leather as compared to sheep skins.

WEST REGIONAL LABORATORIES

1. Biological evaluation and fermentation

The growing population of Pakistan and the corresponding protein deficit have led the scientists to study other sources of amino acids. Soil micro-organisms capable of synthesizing amino-acids have been isolated and their capacity to produce amino-acids is being studied. Another protein for human consumption has been prepared from mustard-seed cake.

A further source of protein is in the leaves which are generally fed to the animals and are converted into animal protein. Rate of this conversion varies from 20 to 30 per cent. The waste could be eliminated if the protein from the leaves are consumed by human beings. An economical process has been evolved for isolating the protein from the leaves. The products have been approved by a taste panel. A small unit for extracting protein from 200-300 pounds of leaves is being designed.

2. Food technology section

The work under this head covers a wide range of problems. The preparation of pectin from citrus wastes, starch phosphate from maize starch for the food industry and insulating material which may find to be of use in cold storage, freezers and ice boxes are some of the problems being attacked. A hair darkening cream has been formulated. It is comparable with the famous polycolor generally imported from Switzerland and sold at 9.00 rupees to 15.00 rupees per tube. A very simple apparatus has been developed for the circular thin-layer chromatography. The technique will be used for essential and non-essential amino acids. Various analytical techniques have also been developed. They include the colorimetric determination of cobalt and bromate. Specific spot test for aldehyde developed in these laboratories set aside interference of ketones and other organic compounds. The work on food preservation by sun-drying is being done on a solar drier previously developed in these laboratories.

On a request from general headquarter certain preservatives have been found which are suitable for keeping *chapatis* fresh, soft and unaffected for four days. Dries 'Haleem' prepared is a rich source of dietary protein. When mixed with wheat, it forms a very useful dietary supplement for adolescents and lactating mothers.

3. Oils, fats and waxes

The problems studied in this context include investigation into the chemistry of *Euphorbium antiquorum* Linn, *Clerodendron inerme*, wild rose-hip seed oils, gums from (i) *Cordia oblique* (Lasura); (ii) *Cordia mysa* (Lasuri); (iii) *Cordia rothii* (Goondi), rice lipids and others, and the synthesis of

clovene, diphenyl acrylic acids, alkylaryl substances among other things.

4. Glass and ceramics

In the applied field, synthesis has been carried out of the possible hypoglycemic agents such as thiazolyl ureas and aryl sulph onyl thiazolyl ureas, 2-phenyl-i, 3-indane d-ione which is a reputed anti-coagulant, vitamin B₁, diphenyl oxide, diphenyl acrylic acids and alkylaryl compounds. In addition, a plastic material for the protection of electrical installations calcium lactate from molasses, epoxy resin from surplus acetone and terpineol from turpentine oil have been produced on the laboratory scale, with a view to assessing their economic and commercial feasibility. The sand from Peze areas has been found to be suitable for the manufacture of colourless glass after purification from iron content. Refractories including production on insulation bricks, clay pipe triangles, and asbestos wire gauge are being made from Mianwali fireclay.

Enamel powder has been successfully made from the indigenous raw materials. A special staining material for glass has also been developed; its pilot production is being done. Steel has been successfully anodized with aluminium and also the chromizing of steel surface has been achieved to make cooking possible on steel as one of its special use.

A mercury cell, sealed carbon resistances, ink for ball point pens, effective soldering flux and a solar fish dehydrator have also been developed. These are ready for commercial exploitation.

6. Metallurgy

Work on the preparation of electrical brushes or current collector brushes, self-lubricant or porous bearings is progressing satisfactorily. For the preparation of the first two, metal powders like copper, lead and iron have been electrolytically prepared for obtaining definite particle size. Battery plates for lead-acid storage-battery have been prepared. These plates compare very well with the imported ones. Lead and lead-oxide are required for the preparation of the plates. These salts have been obtained by leaching and electrolytic process.

Chromium salts have been prepared from chromite. Successful attempts have been made to prepare chrome salts at a comparatively lower temperature. This process can easily replace the soda process which works at a temperature of 1200°C to 1300°C, copper has been extracted from copper ore containing 4-5 per cent of the metal. The process has been leased out to a party.

7. Physics and electronics

Apparatus for experiments on solar energy utilization have been designed. Their construction is underway. Studies on the "inherent" limitation of solar energy utilization in under-developed areas is nearing completion.

The Electronic Section has designed a practical circuit using transistors for generating saw-toothed wave form. It is a derivation of Millers' integrator and has been made regenerative by the addition of transistors and diodes.

NORTH REGIONAL LABORATORIES

1. Drug and medicinal plants

Four alkaloids have been obtained from *Carvudalis stewartii*, bitter principles as benzoyl derivative have been obtained in the solid form. The yield of chloral by the chlorination of alcohol and subsequent treatment has increased sufficiently. A simple method is being devised for expressing oil from wild olive fruit. An essential oil has been obtained from the root of *Scirpus maritimus*. Preliminary studies indicate that it consists of seven fractions. Re-examination of *adhatoda vasica* (fresh material) has yielded a new alkaloid, provisionally named 'vasicine' with a molecular formula C₁₁ H₁₂ O₂ N₂ having one oxygen atom more than vasicine. The fixed oil and essential oil fractions isolated from *Scirpus maritimus* are being chemically examined.

On the fundamental side, quinoline has been iodinated for the first time. Five and eight monodoquinolines and 5:8-diiodoquinoline have been obtained; purified and characterized. The alkaloids from fraction B and fraction C obtained from *Sarcococca saligna* were found to have atropine like properties, but weaker than it. Further pharmacological studies are in progress.

2. Mineral research

A process has been developed to extract alumina for aluminium-metallurgy. It has been found that aluminium oxide contents in low-grade laterites containing 7.76 to 16.0 per cent silica could be upgraded from 90.0 per cent-95.0 per cent. The results are being evaluated.

Haematites, laterites of Peshawar Hazara, Chitral and Sargodha regions were completely analyzed. The investigations are in progress for their utilization as red paint materials and in metallurgy.

A method has been developed for micro determination of copper by complexometric EDTA titration. Conditions of Ph, concentration of various re-agents and effects of interference are under detailed study.

Attempts have been made to utilize activated magnesite for refining of raw sugar and vegetable oils. A paper on utilization of laterite residues for purification of factory gases has been prepared. Recovery of sulphur from spent oxide, lying as a waste in Daudhel Fertilizer Factory is under study.

Experiments have been carried out to increase the yield of chloral used along with mono-chloro benzene to produce DDT. Success has been achieved to obtain 61 per cent of the theoretical yield calculated on alcohol basis.

Processes for manufacturing general grinding wheel, floor grinding blocks and coated abrasives from Kabul River sand have been evolved.

3. Fruit technology

The following products have been evolved during the period under review:

1. Norela, a national fruit beverage;
2. lemon barley water;
3. lemon butter;
4. strawberry cordial;
5. strawberry milk shake;
6. ready-to-serve instant tea mix.

The seasonal vegetables which are abundantly available were successfully preserved in the form of fermented pickles, without impairing their nutritive value. Cheap carbonated orange drink has been prepared from the juice of bitter oranges which grow abundantly in the north west region of Pakistan. It is found to have necessary nutritive constituents. Bitter orange peels were utilized for the preparation of crystallized peels having good storage life. Maturity tests on some varieties of sweet oranges were carried out with a view to find a right stage of maturity for processing, so that the final bottled drink retains maximum flavour, good taste and necessary nutrients. Maturity ratios of hallin, pineapple, ruby red, red hood and late valentia have been determined.

4. Wool research

Studies have been made on some of the physical and chemical characteristics of Kaghani wool wax and its purified form "lanoline" widely used in the cosmetic industry. It was found that the wool wax index has gone up to 10 to 12 per cent while previously it was only 3 to 4 per cent in indigenous Kaghani wool.

Certain amino acids have been determined to correlate them with the spinning qualities of different Pakistani wool. Some of the physical contents such as nitrogen, sulphur, moisture, vegetable matters of the Hashtagri and Kaghani wool were estimated and the fibre diameters have been found. It was observed that finer fibres contained higher percentage of these constituents.

7. Institute of cotton research and technology cotton manufacture

Cotton manufacture is the eventual purpose for which cotton is grown and marketed. The Institute's reports on the technological properties of cotton are therefore of direct use to the manufacturing industry. Industrial surveys on the problems of mill productivity and efficiency have also been undertaken by the Institute. To the manufacturers requesting consultation and assistance in problems relating to their specific operations, the Institute provides facilities for pilot scale spinning operations in its own spinning division and reports on the yarn spun under optimum conditions of operation.

With the Government's drive for promoting export of manufactured goods, a great deal of testing work is undertaken at the Institute on specimens of cotton yarn and cloth at various stages of manufacture. Institute's work thus helps foster quality in the produce of Pakistan textile mills and establishes the nation as an exporter of cotton goods of internationally acceptable quality standards.

Research investigations

A great deal of research work and investigation on problems of topical interest in the fields of cotton growing, marketing and manufacture of cotton is essential to any organization engaged in technological work on cotton. This is necessitated by the changing trends in patterns of raw cotton production, methods and machinery used in manufacturing and the consumers' tastes in wearing apparel.

The Institute is comprised of well-equipped and staffed divisions in cotton spinning, testing and quality control, textile physics, textile chemistry and cottonseed chemistry. Research investigations are pursued in each of the divisions to which the problems relate. The results of the investigations are published from time to time, and new problems are taken up as the existing ones are concluded and their results published.

8. Central testing laboratories

There is no arrangement for industrial research in the laboratories. These laboratories serve the purpose of ascertaining the quality and standard of various materials subjecting them to necessary physical, chemical, mechanical and electrical tests. These materials include raw materials produced in the country or imported from abroad for various industrial purposes, raw materials and finished products meant for export, finished products imported from abroad viz steel and steel products, ores and minerals, fuel oils, lubricants, paints and varnishes, chemicals of all descriptions, insecticides, building materials, cement and cement products, textile of all makes and quality. All the materials are tested and analyzed in the laboratories and necessary certificates are issued to the parties concerned which help them in utilizing the right type of materials in their industries, to import the right type of materials, to export the materials of standard quality and also these certificates help the government organizations in selecting right type of products for various development work in the country.

9. Pakistan Atomic Energy Commission

The Pakistan Atomic Energy Commission has since its inception examined the possibility of the application of atomic energy in the field of industry, medicine and agriculture. With this end in view, the research in the laboratories of the Commission is being directed to discover methods and processes that can help the industrial development of Pakistan. The Commission has also undertaken the establishment

of two nuclear power stations, one in each wing of Pakistan. In East Pakistan, the plant will have a generating capacity of 140,000 kilowatt and is proposed to be established at Rooppur near Ishurdi in the Pabna District. The plant is expected to come into operation in 1970 and will cost about 347.8 million rupees. In West Pakistan a nuclear power plant having a generating capacity of 137,000 kilowatt is being established at Paradise Point on the Bulieji coast, fifteen miles west of the city of Karachi. The plan, complete in all respects, will approximately cost 316 million rupees and is scheduled to be completed some time in 1969. Preliminary works on both the nuclear power projects is proceeding according to schedule. With the establishment of these two power projects, the pace of industrial development in the country will increase manifold. The Commission has also arranged the facilities for production of radio isotopes at the Pakistan Institute of Nuclear Science and Technology, Islamabad which has a five megawatt swimming pool type reactor as its central facility. The Commission's establishments have also conducted studies on the sterilization of surgical catguts and instruments which are manufactured in the country and can be improved upon with the help of atomic energy. Similarly, production of radiation survey metres has also been undertaken.

The techniques of industrial radiography and applications of level thickness and density gauges using radioisotopes are also being developed with a view to improve the quality control of industrial products.

10. *Pakistan Industrial Technical Assistance Centre*

The training imparted by PITAC has proved extremely useful. Responses by industrial units (to which the trainees belonged) to a PITAC questionnaire revealed that in 87.5 per cent of the cases the trainees had acquired higher knowledge and skill; in 50 per cent of the cases, the trainees had contributed to improvements in an equal percentage of cases, the products made had shown quality improvements of up to 30 per cent and a decrease in rejects of 10 per cent; in 62.4 per cent of the cases, trainees had been instrumental in carrying out training programmes in their respective factories.

PITAC's advisory services have yielded results which are extremely encouraging. Some of them are listed below:

- 1) A unit manufacturing bicycle parts saved 16 per cent on material and 70 per cent on labour through PITAC advice.
- 2) A metal-drum manufacturing plant saved 15 per cent on material and 80 per cent on labour as a result of adopting a multicavity die design given by PITAC. Their production increased six-fold.
- 3) A shoe-polish manufacturing plant saved 3,750 rupees/per day through PITAC advice.

- 4) Many foundry establishments saved up to 37.5 per cent on coal per ton of iron melted. Their melting time also improved from 45 minutes to only eight minutes. Their molten production rose by a factor of four.

The impact of PITAC's tooling services is shown by the following examples:

- 1) An electric instrument manufacturer is saving 30 per cent in foreign exchange on components by manufacturing them locally, through the use of tools and dies designed, developed and manufactured by PITAC.
- 2) A motor car assembly unit saved foreign exchange worth 20,000 rupees through PITAC's help by the manufacture of a complete body assembly fixture.
- 3) Production tools developed by PITAC have enabled several industries to save up to 30 per cent on raw materials, eliminated interruptions in production owing to tool breakdowns, saved man hours by up to 50 per cent, and increased production by up to 600 per cent.

A distinguishing feature of PITAC's training programme for 1964-65 was that it was required to give advanced training in metal trade practices to ten graduate engineers of WPIDC who were hitherto being trained abroad. These engineers will form the nucleus for the machine tool factory proposed to be established in the third five-year plan in Karachi. This effectively demonstrates the utility of the organization and the place given to it in the technical field.

In order to determine the usefulness of PITAC's training programme and their impact on industrial productivity, the "Training Evaluation System" was developed in which questionnaires are circulated to each sponsoring unit and to individual participant trainee, three months after the trainees' return to the parent organization. The following is the analysis of the replies received, which reveal some very interesting and encouraging results:

Opinion of the sponsors

87.5 per cent have reported that PITAC's training has added considerable skill and knowledge to their personnel.

50 per cent have reported that their trainees after obtaining PITAC's training have offered concrete suggestions for adoption in their factories for improving quality, increasing production and reducing cost.

50 per cent have reported that they have adopted the improvements suggested by PITAC trained personnel.

As a result of the adoption of suggestions proposed by PITAC trained personnel:

50.5 per cent have reported that the quality of their products has improved by 30 per cent.

25 per cent have reported decrease in rejects by 10 per cent. 12.5 per cent have reported reduction of raw material wastage.

37.5 per cent have reported 10 per cent reduction in tool costs.

37.5 per cent have reported increase in equipment utilization up to 25 per cent.

62.4 per cent have reported that PITAC's trained personnel are able to train others.

On an average each PITAC trained person has in turn upgraded four technicians in improved production techniques in his parent factory.

Engineering universities and polytechnic institutes have reported that PITAC's training has enabled their instructors to impart training to the students more effectively and in equipping them with better techniques thereby resulting in considerable improvement of skills and knowledge of the students.

Tooling and process development activities

The impact of PITAC's production facilities by way of assisting industries in developing, designing and manufacturing precision tools, like production dies, moulds, jigs, fixtures, gauges and so on, enabled them to improve and maintain quality of their products, reduce wastage and production cost. Besides the tooling facilities, PITAC has also been assisting industries by extending common facilities to units that require high precision finish to their products and components, or those who are not able to obtain high quality patterns, castings, and components of intricate design and finish. In other cases, PITAC demonstrates improved processes to enable the industries to adopt these for increased productivity.

The amount of foreign exchange saving to the country through the production of tools, dies and fixtures manufactured by PITAC for industries does not exceed beyond a small amount a year, but the indirect benefits and savings as a result of PITAC's services to industries easily amount to much more. As the determination of the value of the indirect benefits and savings is physically not possible, a few factors indicative of these benefits are quoted below:

- (a) reduction and elimination of breakdown time of industrial plants which has in turn increased production considerably;
- (b) improvement of quality of products together with production increase enabled industries to replace more imported goods to conserve foreign exchange;
- (c) reduction of imported coke consumption has helped the foundry industry to reduce cost of manufacture and produce more from the same amount of imported coke;
- (d) reduction of wastage of imported raw material and substitution of cheaper raw material in place of expensive ones, without effecting the quality has enabled the indus-

tries to produce more from the same amount of foreign exchange on imported material, resulting in higher production without additional foreign exchange expenditure;

- (e) as a result of increased production, improvement of quality and reduction of production costs the industries are able to export more and earn more foreign exchange for the country.

To inculcate creative thinking in the engineers and technicians, and to encourage indigenous manufacture of essential precision equipment and machine aids, which are not thus far made in the country for import substitution, PITAC has taken upon itself the task of design and manufacture of such equipment.

Some of the equipment facilities at PITAC are new to the country and unique in Pakistan. Such facilities cannot be economically afforded by individual industries, nor are such facilities justified in every industrial unit using dies, jigs and fixtures. These facilities provided by PITAC are increasingly being adopted by the industries, year after year, to improve their product standards, as competition becomes more and more pronounced.

PITAC's advisory and consultation services are provided to private industries for the solution of their production problems that arise in their day-to-day operations.

During 1964-65, 1,061 industrial visits in both wings of the country were made by PITAC engineers for rendering in-plant advice.

II Investment Advisory Centre of Pakistan

The Centre came into operation in October 1963. Since then it has undertaken and completed several studies for local entrepreneurs and development banks. The demand for the Centre's consulting services has increased. Positive steps have been taken by the Centre to broaden the base of the professional assistance that it might give to government bodies within Pakistan. It concluded arrangements with the Ministry of Food and Agriculture for conducting a technological audit of the country's existing and potential agricultural resources that could be used to create new agriculture-based industries. Similarly the Centre has made arrangements to assist the Pakistan Council of Scientific and Industrial Research in the commercialization of its applied research.

The Centre's record of studies and surveys is quite impressive. A brief review of some of the projects completed and in hand is given below:

Projects completed

Market survey of truck and bus requirements in Pakistan; development of a study survey work plan, supervision of the survey and editing of a report prepared by a development bank;

Insulation tape project: a complete pre-investment study of a proposed plant;

Cement plant for Kohat area: evaluation of a feasibility study prepared by a client for a cement plant in Kohat;

Cotton linters: analysis of possible uses for second-cut cotton linters;

Chicken feed study: a project to determine whether acceptable chicken feed can be manufactured from local products;

Broiler and egg market study: assessment of the market for broilers and eggs in the Karachi area;

Market survey for a proposed biscuit factory: determination of the present biscuit production capacity in West Pakistan and the nature and extent of the market which additional facilities might expect to capture;

Glassine and grease-proof paper: evaluation of the marketing, engineering, and financial aspects of a feasibility report prepared for a proposed plant;

Manufacture of spiral welded pipe: appraisal of the technical suitability of spiral welded pipe for a specific market in Pakistan;

Agricultural and hand tool plant: a complete pre-investment study for hand and agricultural tool manufacture.

Projects in hand

Power line poles and accessories: appraisal of predicted electrification programme in order to recommend possible new industries based on components;

Cost of production of processed and canned fruits: study to investigate the possibility of reducing the costs of processing and canning fruit, in order to increase exports;

Hardboard, chipboard and Formica: analysis of the present and future market for these products;

Pre-investment study of chipboard and Formica sheets: complete pre-investment study of a proposed plant to manufacture these items;

Automobile industry survey: a study to determine the existing and 1980 market for automobiles and to recommend one out of numerous proposals received;

Domestic production and industrial imports: economic survey of Pakistan's domestic production and industrial imports;

Export markets: economic survey of potential export markets;

Pre-investment study for a glass bottle industry: study to provide assistance in processing a loan application;

Pre-investment study for a sheet glass industry: pre-investment study preliminary to loan application;

Industries based on agricultural products or wastes: review of industries which could be based on agricultural products or wastes.

12. *Pakistan Standard Institute*

Realizing the supreme importance of standardization, the Government of Pakistan established the Pakistan Standards Institution in 1951. For various reasons, there was not much progress in the work until 1958. However, during the last seven years, the PSI has been able to lay down more than 576 national standards on various industrial products including some agriculture produces and food products.

The real purpose of laying down standard specifications is to implement them for the benefit of the country. Realising this, the Government in 1961 promulgated the Certification Marks Ordinance, empowering the PSI to issue licences to industries capable of manufacturing products in conformity with PSI standards.

The response from industrialists to the use of the Certification Mark is slow but is expected to grow when the benefits begin to show. A few industrialists in Karachi and Gujranwala have started using the Marks.

The major difficulty in the adoption of standards is ignorance on the part of industrialists about the technical aspects of product quality.

13. *National Investment Trust*

The National Investment (Unit) Trust completed the second year of its operation on the 31 December 1964. The progress during the year set the Trust well on the way to fulfilling its role of channelling savings and giving them a stake in the industrialization of the country along with a share in industrial profits.

The year was marked by the first income distribution at the rate of fifty paise per unit. The total amount to be distributed by the Trust will be 3,327,000 rupees. This sum represents income from dividends, interest and an element of income realized in the sale price of units.

The sale and repurchase prices of units stood at 11.50 rupees and 11.30 rupees at the end of 1964 as compared with the first issue price of 10.00 rupees per unit.

There was a steady increase in the number of units held by the public during the year. The net sale of units during the year amounted to 2,569,616. Units outstanding on the 31 December 1964 were 6,654,726 and the proceeds of sales amounted to 69,813,078 rupees. The rate of repurchase, which had been 27 per cent in the previous year, came down to 10 per cent in 1964 showing growing interest on the part of investors.

A gratifying feature was the increase in the number of unit-holders from 6,392 at the end of 1963 to 10,148 at the end of 1964. The introduction of one-unit certificates along with the publicity campaign has

awakened the interest of industrial workers and other small investors in the low income group. Thus, the source of the Trust funds is increasingly spread out among a large number of beneficiaries.

In order to popularize the units, the management company entered upon a widespread publicity campaign and opened regional offices during 1964. Units of the Trust are now regularly quoted on the stock exchange.

The funds were spread over eighty-three equities at the end of 1964 compared with twenty-five at the end of 1963. The Trust portfolio now covers most of the important industrial shares. It is weighted somewhat on the side of new issues which are constantly appearing and are attractive from the point of view of sound investment over a period of years. New issues have brought capital appreciation but would yield dividends only after the respective projects operate successfully for some time.

A stabilizing influence has been felt on the stock market as a result of the operations of the Trust which is by now one of the most significant investors on the stock exchange. Despite bearish factors which appeared during the second half of 1964, the units of the Trust held their own. Its buying and selling policy has very often cramped speculative swings which might otherwise have appeared on the stock exchange.

14. WPIDC Institute of Management Development General

The West Pakistan Institute of Management (previously known as the Institute of Personnel Training) was set up in 1954 under the aegis of the PIDC. Technical and financial assistance was provided by the Ford Foundation for an initial period of three years. In 1963, the Institute embarked on a greatly enlarged programme of management training and development as a result of an agreement reached between the Government of Pakistan, the United Nations Special Fund and the ILO. The Scheme was approved by the executive committee of the National Economic Council in April 1963, and was called the West Pakistan Management Development and Industrial Training Scheme. This is the only institution of its kind operating in West Pakistan and providing an essential service to improve performance of executives at all levels of management in order to achieve optimum productivity.

The Institute's assignment is to develop a management training and counselling service for the industrial and business establishments of West Pakistan. The long-term objective is to help stimulate productivity and the use of sound business practices. The expectation is that this will contribute to the developing economy in a sound and practical way and help raise the standard of living throughout the country.

It is recognized that, to obtain the objectives as stated, the Institute's programmes must be practical and directed towards the recognized needs of industry and business. Full co-operation between the two

parties is essential. This will ensure that the Institute will concentrate on those matters that are of urgent concern and that industrial and business managers will work in a climate that encourages the application of sound, advanced methods or those that will give the greatest assurance of results in line with high objectives.

It is important to keep in mind that the expanding economy will put not only enlarged but new and different demands on the industrial and business leaders. It is reasonable to expect that the more successful are those who adapt most fully to the changing needs and demands of the situations as they arise. This calls for increasing knowledge, personal insight, flexibility and preparation to assure practical, effective action to guarantee sound progress. It is with this aim in view, that the Industrial and Business Management and the West Pakistan Institute of Management can work together, in the years ahead, to give the most beneficial results.

Training activities

Over 12,000 business executives and supervisors from about 500 organizations in East and West Pakistan have participated in the Institute sponsored training programmes during the past twelve years. The activities of the Institute have been divided into six areas mentioned below:

- a) General Management
- b) Financial Management
- c) Labour-management Relations
- d) Production Management Relations
- e) Sales/Marketing
- f) Supervisory Training

There is also a case research and development programme designed to develop indigenous case material for use in the Institute's various training programme on the pattern of Harvard Case Method of Instruction. This activity is considered particularly important as the Institute is working towards institutionalizing the Advanced Management Programme for senior executives, presently conducted by professors from the Harvard Business School, so that the teaching staff of the Institute will be in a position to undertake this work on their own after some time.

The training programmes conducted in 1965 are shown below:

Month	Programme	No. of participants
January 65	Development Course for Managers	14
	Financial Management Seminar ..	19
	Trainer Training in Job Relations	6
February 65	Textile Cost Accounting Seminar	17
	Industrial Productivity Course ..	14
March 65	Management Course for Junior Executives	24
	Marketing Management Seminar	12
	Trainer Training in Job Safety ..	9
	Management Course for Junior Executives	36
April 65	Work Study Training Course ...	17
	Trainer Training in Job Methods	8
May 65		

June 65	Development Course for Managers	23
July 65	Financial Management Seminar ..	18
	Basic Office Supervision	12
August 65	Advanced Management Programme	41
	Personnel Management Seminar ..	19
	O and M Course	31
	Basic Office Supervision	14
October 65	Basic Office Supervision	13
	Industrial Relations Seminar	15
	Accounting for Non-Accountants	10
November 65	Management Course for Junior Executives	28
	Textile Cost Accounting Seminar	9
	Work Study Training Course ...	11
	Industrial Productivity Course ...	10
December 65	Personnel Management Seminar ..	16
	Marketing Management Seminar	18
	Trainer Training in Job Relations	13

It is expected that in the current year fifty courses will be organized as against twenty-eight held in 1965.

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT

a. Manpower surveys conducted

The Department of Manpower and Employment of the Labour and Social Welfare Division (now abolished) conducted three comprehensive manpower surveys in the country in 1955, 1957 and 1959. These surveys were carried out to fill the large gaps in the existing manpower information, which had been rendered out of date because of the large influx of refugees into the country. Each round of the comprehensive survey comprised the following four enquiries.

- 1) Sample labour force survey based on household enquiries provided data on:
 - a) composition of the household by size;
 - b) age and sex distribution;
 - c) industrial and occupational structure;
 - d) employment status and position;
 - e) estimates of employment, under-employment and unemployment.
- 2) Establishment enquiry covered all known establishments employing twenty or more workers, irrespective of their economic activities. The enquiry provided information on:
 - a) trends of employment by area and economic activity;
 - b) skilled labour shortages;
 - c) reasons for hindrances to expansion of employment;
 - d) structure of employment by levels of skills.
- 3) Enquiry similar to the one mentioned in section 2 above covering small establishments engaged in manufacturing activities, employing fewer than twenty persons and located in large towns only.

- 4) Enquiry into technical, professional and vocational training institutions to assess:
 - a) existing training facilities by trade;
 - b) maximum training capacities;
 - c) hindrances to expansion of the training programme.

The 1955 survey revealed that the labour force was 26.1 million or 31.8 per cent of the population (the estimated mid-1955 population being 83 million). This proportion was slightly higher than that determined in the 1951 census, which placed it at 30.7 per cent or 23.2 million in a population of 75.84 million.

The 1955 survey report showed that women formed only 4.5 per cent of the labour force.

The population of Pakistan was estimated at 93.7 million in the 1961 census. If the 1955 ratio is applied to this figure, the labour force in 1961 would be 29.8 million. An estimate of the population in 1965 is 113 million, of which the labour force constitutes 37.2 million, giving a percentage of 32.92. Table 20 shows the percentage distribution of the labour force by economic groups in 1951, 1955 and 1959 in West and East Pakistan.

TABLE 20. PERCENTAGE DISTRIBUTION OF LABOUR FORCE BY ECONOMIC GROUPS, 1951, 1955 AND 1959

Economic group	1951		1955		1959	
	West Pakistan	East Pakistan	West Pakistan	East Pakistan	West Pakistan	East Pakistan
Agriculture	66	84.7	54.5	73	55.9	78.0
Manufacturing	9.5	3.9	15.1	7.1	13.9	6.0
Construction	0.7	1.1	4.3	0.5	3.0	0.9
Trade and commerce	6.7	3.9	8.3	5.7	10.6	4.5
Transport and communications ..	1.2	1.6	2.3	1.8	2.6	1.2
Services	8.4	3.8	13.9	9.7	12.0	7.9
Unclassified	7.3	1.0	1.2	2.1	1.8	1.4
Mining/public utilities	0.2	—	0.4	0.1	0.2	—
	100	100	100	100	100	100

Tables 21 and 22 show the results of the 1959 survey for the whole of Pakistan.

TABLE 21. PERCENTAGE DISTRIBUTION OF LABOUR FORCE BY INDUSTRIAL GROUPS, 1959

Industrial group	Large towns	Small urban areas	Villages
Agriculture, forestry, fishing and hunting	2.1	22.4	67.2
Mining and quarrying	0.1	0.2	—
Manufacturing	29.7	21.3	10.9
Construction	4.0	4.2	2.6
Public utility services (gas, water and sanitary services)	1.0	0.4	0.1
Trade and commerce	25.2	23.5	7.1
Transport, storage and communications	9.1	4.7	1.4
Services	26.3	21.7	8.9
Unclassified	2.5	1.6	1.8
	100.0	100.0	100.0

TABLE 22. PERCENTAGE DISTRIBUTION OF LABOUR FORCE BY OCCUPATIONAL GROUPS, 1959

Occupational group	Large towns	Small urban areas	Villages
Professional, technical and related	5.7	5.0	2.1
Managerial, administrative, clerical and related	15.7	7.1	1.4
Sales and related	21.5	18.5	5.4
Farming, hunting, fishing and forestry	2.4	20.2	66.4
Mining and quarrying	—	—	—
Transport operations	3.9	2.3	0.8
Crafts, production processes and related	35.6	31.5	16.9
Services	13.0	12.0	5.4
Unclassified	2.2	3.4	1.6
	100.0	100.0	100.0

b. Needs for various categories of personnel

Lack of representative data on present utilization and requirements of professional and technical personnel at various levels and in different industries makes it difficult to predict the future demand for such personnel. However, the second five-year plan (1960-1965) contained rough estimates of needs on the basis of proposed physical and investment targets, as follows:

Graduate engineers	4,400.
Graduate scientists	800.
Technicians (diploma level)	13,700.
Craftsmen	200,000.

The National Manpower Council has prepared estimates of population, labour force, employment and trained manpower requirements for the next four successive plan periods, as shown in table 23.

c. Training programme

Two training centres for skilled labour, one in Karachi and the other in Dacca, have been constructed

with the assistance of SEATO and United States AID. Each of these centres has an annual intake capacity of 450 trainees and impart training in mechanical, electrical and wood working trades besides providing facilities for training fifty instructors per year. Substantial progress has been made on the project relating to management development and the training of supervisors and instructors in East Pakistan; it has been undertaken with the assistance of the United Nations Special Fund and the International Labour Organisation and includes the Instructor Training Centre at Chittagong, the Management Development Centre at Dacca and the Marine Diesel Training Centre at Narayanganj. The project aims at raising the standards of industrial management and improving the efficiency of industrial operations by supplying a trained labour force.

The construction of buildings for the Instructor Training Centre at Chittagong and the Management Development Centre at Dacca has been completed. The Instructor Training Centre at Chittagong has started functioning in the newly constructed building with 100 trainees on the roll, but ultimately it will provide training facilities for 330 workers from mechanical industries, besides conducting courses for fifty instructors every year. Several successful courses have been organized by the Management Development Centre at Dacca on management development (including productivity improvement), training of managers and supervisors, and labour-management relations. An increasing number of industries are showing interest in the training programmes and are sending their managers and supervisors to participate.

The Marine Diesel Training Centre at Narayanganj has started regular courses at different levels to meet the increasing demand, mainly of the inland water transport services, for trained drivers, mechanics, diesel artificers, instructors and supervisors. The Centre is designed to provide courses for 380 trainees annually.

TABLE 23. ESTIMATED MANPOWER REQUIREMENTS BY THE END OF 1970, 1975, 1980 AND 1985

	Third plan period 1960-1970	Fourth plan period 1971-1975	Fifth plan period 1976-1980	Sixth plan period 1981-1985	Total
<i>Professional or high-level manpower</i>					
Agricultural Scientists	4,400	6,100	7,500	8,700	26,700
Physical scientists	1,900	2,600	3,200	3,800	11,500
Social scientists	1,500	2,100	2,600	3,000	9,000
Architects and engineers	9,400	12,900	16,100	18,600	57,000
Doctors	3,500	4,800	6,000	6,900	21,200
Educationalists (college and university level)	6,000	8,300	10,300	11,900	36,500
Technical educationalists	1,000	1,400	1,700	2,000	6,100
<i>Sub-professional or middle-level manpower</i>					
Agricultural technicians	24,500	33,800	42,000	48,000	148,300
Science and manufacturing technologists	25,000	34,400	43,000	49,000	150,400
Educationalists (secondary schools)	40,000	55,100	68,000	79,000	242,000
Social service workers	1,000	1,300	1,700	2,000	6,000
Technical educationalists	1,100	1,500	1,900	2,200	6,700
Nurses and health visitors	7,000	9,600	12,000	14,000	42,600
<i>Skilled craftsmen or low-level manpower</i>					
Skilled craftsmen	336,000	463,000	575,000	663,000	2,037,000
Primary teachers	116,000	146,000	198,500	229,500	689,500
Technical teachers	4,000	5,500	6,800	74,900	24,200

The Government of the Federal Republic of Germany has agreed to provide 2.5 million rupees in foreign exchange to meet the cost of tools and equipment for establishing two technical training centres for skilled workers with a capacity of 240, one each at Lahore (Moghalpura) and Dacca. The centres would, in particular, meet the requirements of skilled tradesmen for the railways and heavy industry. Construction of these centres has not yet been started. The United Nations Special Fund has agreed to provide 600,000 rupees in foreign exchange for the West Pakistan Management Development and Instructor Training Centre at Hyderabad, and the Management Development Centre and the Apprenticeship Training unit at Karachi. The scheme envisages an integrated programme of training in management, productivity improvement, labour relations and industrial training. The project has not made any headway because of delay in making the final arrangements for foreign assistance.

A training institute established at Karachi to provide training facilities to persons seeking employment as seamen has started functioning with its first batch of 60 trainees.

Negotiations were commenced in 1960/61 to obtain technical assistance from the United Nations Special Fund and ILO for a manpower planning project to undertake a broad programme for the development and utilization of human resources in relation to the economic development programme, as recommended in the plan, and to assist the National Manpower Council, constituted in February 1962, in developing the work programme of its related bodies and supporting directorate and in establishing an effective manpower assessment and planning organization in the Planning Commission. These negotiations have now been concluded.

d. Evaluation of success in mobilizing manpower resources

Like all other countries in the course of development, Pakistan is short of highly trained technical operatives, supervisors and managers in almost all fields. This shortage sometimes causes delay in the implementation of projects, but such instances are infrequent. In addition to the training potential mentioned above, a large number of operatives are being trained under conditions which cannot be called satisfactory. Nevertheless, because of the urgent need for trained hands over a large field of occupations, even indifferently trained persons in many instances are being employed in the absence of trained persons.

The implementation of schemes has generally been slow because of the lack of adequate initiative and drive on the part of the executing agencies and also because of delays arising out of the transfer of certain schemes from the Central Government to the provincial governments. Some schemes have not made progress because of delay in the finalization of agreements with the aid-giving agencies, as in the case

of the Pakistan — German skilled labour training Centres and the management development centres.

e. Future programme of manpower development

The measures taken to promote employment in organized industries in urban areas will continue, and will include fuller utilization of existing industrial capacity by introducing multiple shifts and removing handicaps such as the non-availability of raw materials and spare parts. Other measures will be the development of handicrafts, cottage and small-scale industries and feeder industries, suburban activities to meet the expanding demand for meat, eggs and vegetables, and the expansion of health, education and training programmes.

The critical shortage of high-level manpower will be met by undertaking the following specific measures:

- 1) Registration of high-level manpower will be undertaken with the assistance of educational, scientific and professional bodies to provide central information on the availability and qualifications of such manpower and to utilize and develop it.
- 2) The National Employment Bureau will be strengthened to undertake comprehensive registration of highly qualified Pakistanis living abroad, to disseminate details about them and to furnish information on suitable job opportunities in the country.
- 3) University placement bureaux will be set up in all the universities to give vocational guidance and employment counselling, to provide part-time employment to students and full-time employment to graduates, and to furnish particulars of high-level manpower.

There is a need to retrain the released defence personnel for civilian employment, to train self-employed artisans and craftsmen, and to develop construction skills for rural works programmes. The training capacity of the existing skilled labour and instructor training centres will be doubled. In addition, four new centres each with a capacity of 350 trainees and a marine diesel training centre for 250 trainees will be established in East Pakistan and six new centres for 350 trainees each will be set up in West Pakistan. In order to enforce the Apprenticeship Training Ordinance, 1962, the existing four Regional Apprenticeship Directorates at East Pakistan and West Pakistan will be improved and expanded; four new Regional Directorates will be provided in East Pakistan and seven in West Pakistan.

For the benefit of self-employed artisans and craftsmen, information on intermediate technology relating to various trades and crafts will be assembled at one place and will be disseminated through mobile training and demonstration workshops in rural areas, and by arranging evening classes in existing training institutions in urban areas. Audio-visual aids can play

a particularly important role in this type of training programme. Four pilot mobile demonstration and training workshops will be organized in East Pakistan and six in West Pakistan on industrial rather than classroom lines, and will be partially self-supporting since they will also perform services to the community on a semi-commercial basis.

There is an acute shortage of elementary construction skills in the country, particularly in rural areas, due to works programmes. It is therefore necessary to undertake the training of masons, bricklayers, blacksmiths, carpenters, plumbers, fitters and welders in rural areas. These construction skills can be provided under a co-ordinated training programme in co-operation with the Basic Democracies through mobile demonstration-cum-training workshops, training-cum-development corps, labour co-operatives on a voluntary basis, and on-the-job training by constructors.

The existing Management Development Centre in East Pakistan and the WPIDC Institute of Management in West Pakistan will be expanded in scope, particularly in regard to management functions and the improvement of production techniques. The Centre at Dacca may be attached to EPIDC, so that it can have a measure of autonomy and effectiveness and exert a creative influence over industrial enterprises.

One industrial productivity centre may be established in each province to train productivity specialists and organize programmes, such as work study production planning and control, and quality control, and to give practical demonstrations in industrial undertakings.

The two existing trades union institutes run by the Pakistan Workers' Educational Society suffer from a lack of finance. Substantial grants may be provided to assist them in their activities. Other national trades union organizations can be associated with them and they may be encouraged to set up a third institute in the northern region of West Pakistan. The existing National Institute of Labour Administration Training in Karachi, the Industrial Relations Institute in East Pakistan and a similar institute currently being set up in West Pakistan may be further improved and expanded. There is also need for a new institute of industrial relations in the southern region of West Pakistan.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

a. Existing industries

1. Background

At the time of Independence, in 1947, Pakistan had no more than 35 proper factories. Of those, 17 were cotton textile mills. Industries started to grow initially on the basis of the *ad hoc* sanction of schemes and it was only after the constitution of the Planning Board (Planning Commission) in 1951 that the scientific planning and execution of schemes came into evidence.

In keeping with the Government's policy of giving maximum scope to private enterprise, a good deal of

flexibility was provided in the investment and production targets, as it was realized that the movement of demand and supply cannot be accurately predicted. The actual determination of the number and size of units in individual industries was left largely to private enterprise.

At the time of Independence, Pakistan had no facilities for the domestic production of fertilizers, paper, newsprint, wire and cables, steel or any other heavy industries. A beginning has already been made in all these fields. By the middle of 1965, fertilizer production is expected to be 550 thousand tons, which will meet almost 55 per cent of the requirements of nitrogen fertilizers. An anticipated production of 30,000 tons of paper will meet almost the entire demand for writing paper, while the newsprint and mechanical paper production of 56,000 tons will leave a surplus of at least 10,000 tons for export. The domestic production of certain chemicals such as soda ash, caustic soda, and sulphuric acid has also been started. Capacity has also been expanded and developed for the manufacture of pipes and fittings, re-rolled steel products, bicycles, sewing machines, razor blades, pumps, engines, pharmaceuticals, electric motors, wires and cables and the like, and for ship building and repair. As a result of this high rate of production, imports of consumer goods declined from 63 per cent in 1951 to 37.5 per cent in 1963, and the share of manufactured goods in the export field increased from 9 per cent to 28 per cent. Plans for the production of heavy engineering equipment, electrical equipment, machine tools and petrochemicals in the country are in an advanced state and implementation is to be taken up on a substantial scale shortly.

The industrial sector of Pakistan's economy has been the most dynamic and rapidly growing. Production has been increasing spectacularly at an annual rate of 15 per cent which is one of the highest rates of industrial growth in the world. Pakistan's economy has, over a short period of 18 years, been transformed from a predominantly agricultural one to a semi-agricultural one. Self-sufficiency has been attained in a host of consumer goods industries, and attention is being focussed on the development of heavy and more sophisticated industrial units such as steel mills, a machine tool plant, petrochemical and fertilizer factories, and so on.

Table 24 shows the increase in production of some of the major industries during the second plan period.

2. Cotton textiles

This industry occupies the pride of place in the industrial development of Pakistan; it is the largest single industry.

In 1947, Pakistan had only seventeen textile mills with an aggregate installed capacity of 177,418 spindles and 4,824 looms. In that year the production of cloth did not exceed seventy-four million yards, which provided less than one yard of cloth to every Pakistani in a year.

TABLE 24. PRODUCTION OF SOME MAJOR INDUSTRIES, 1960-1964

Item	1960	1961	1962	1963	1964	% increase 1964/1963
Sugar ('000 tons)	145.4	123.4	190.8	243.0	338.6	39
Vegetable oil ('000 tons)	34.3	45.2	62.7	77.1	91.0	18
Tobacco manufactures, cigarettes (million)	9,946	12,065	13,696	16,172	18,070	12
Cotton yarn (million yards)	408.7	412.6	432.2	471.6	501.5	6
Cotton cloth (million yards)	628.8	699.0	725.2	730.8	747.7	2
Jute goods ('000 tons)	264.7	250.4	286.4	315.2	315.2	—
Rubber manufactures (tyres and tubes) ('000)	2,951	3,982	4,590	4,651	5,556	19
Chemicals and chemical fertilizers ('000 tons)	88.4	100.9	200.9	204.5	291.8	42
Matches (gross boxes)	9,790	9,831	10,199	11,590	10,880	—
Paper ('000 tons)	53.9	64.1	66.2	60.4	71	18
Board ('000 tons)	14.2	27.9	17.8	18.5	22	19
Cement ('000 tons)	1,120	1,223	1,373	1,474	1,538	4
Steel ingots ('000 tons)	11	12	10	12	12	—
Steel re-rolling	101	177	191	200	317	585
Kerosene oil	5,732	6,672	7,667	54,134	62,102	15

Production/Items	Unit	Actual production in 1965	Production Target — 1969/70		
			ALL Pak	E. Pak	W. Pak
Textiles					
Cotton yarn	million	504,506	720	234	486
Jutes					
Hossain/sacking/other	tons	373,620	800	768	32
Paper and boards					
Writing and printing paper	tons	35,039	100	65	35
Board (hard)/particle/chip etc.)	tons	24,161	100	30	70
Newprint	tons	37,360	100	65	35
Chemical industries					
Nitrogenous fertilizers (in terms of ammonium sulphate)	tons	37,931	2,500	1,300	1,200
Phosphatic fertilizers (in terms of superphosphate)	tons	8,940	500	350	200
Ammonium nitrate	tons	58,145 +			
Urea	tons	130,144			
Soda ash	tons	33,015	172	36	136
Caustic soda	tons	11,140	90	36	55
Sulphuric acid	tons	22,161	600	280	320
Petrochemicals	tons	—	329	151	178
Non-metallic minerals					
Steel	thousand ingot tons	—	1,200	300	900
Food manufacturing					
White sugar	tons	273,055	640	230	410
Vegetable ghee	tons	100,544	140	25	115
Cigarettes	millions	22,009	30,000	11,500	18,500
Tea	millions lbs.	55,826*	74	74	—
Electrical machinery					
Wires and cables	thousand tons	na	10	4	6
Heavy electric equipment	million rupees	na	120	30	90
Machinery					
Machinery tool and heavy machinery (complex)	million rupees	na	262	102	160

* Fig. for 11 months only, that is January to November.

Production/Item	Unit	Actual production					Percentage increase over previous year
		1960-61	1961-62	1962-63	1963-64	1964-65	
Agriculture tractors (45 HP and 55 HP) (diesel-air-cooled)	number	—	—	—	—	—	675 nos.
Motor vehicles							
(a) Motor cars						1,751 nos.	2,114 nos. 20.7%
(b) Commercial vehicles (trucks and buses and others)	number	—	—	—	—	4,263 nos.	4,161 nos.

With the helpful climate provided by the Government, private enterprise took to this industry with considerable enthusiasm and by 1955 the installed capacity had exceeded that planned under the six-year (1951-1957) development plan [which was eventually replaced by the first five-year plan (1955-1960)]. In 1955, the actual installed capacity was 1.68 million spindles and 26,000 looms. Consumption of cloth rose to 12.2 yards per capita.

Capital investment in 1955 stood at 536 million rupees. The labour force employed in 1955 was slightly over 80,000. The first five-year plan envisaged additional investment of 427 million rupees during the plan period (1955-1960) and the increase in capacity was expected to be 2.2 million spindles and nearly 38,695 looms. Actually, by the middle of 1960, the number of spindles and looms sanctioned was 1,928,222 and 29,755 respectively.

The number of textile mills rose from 17 in 1949 to 193 in 1960, the distribution being 32 (17 per cent) in East Pakistan, 63 (32 per cent) in Karachi and 98 (51 per cent) in West Pakistan. The employment level stood at 154,732 in 1960, representing 34 per cent of the total labour force. The output of the cotton textile industry accounted for nearly 22 per cent of the total industrial output.

The second five-year plan targets of 2.5 million spindles and 40,000 looms having been exceeded, further growth of the cotton textile industry remained stalled in 1965. Further development was thus subject to the effectuation of the third five-year plan and the enunciation of targets in the relevant Industrial Investment Schedule. The capacity at the end of 1964 stood at 2,567,144 spindles and 34,593 looms and this increased to 2,699,686 spindles and 35,963 looms by 1965. The distribution of capacity of East Pakistan and West Pakistan is as follows:

	1964 Spindles	Looms	1965 Spindles	Looms
East Pakistan	616,800	4,151	654,200	5,178
West Pakistan	1,951,344	30,442	2,045,486	30,785
Total	2,568,144	34,593	2,699,686	35,963

The production of cotton cloth and yarn during 1965 was of the order of 719.8 million yards and 498.7 million pounds respectively as against 758.4 million yards and 506.8 million pounds in 1964. The fall in production in 1965 is due to the fact that a number of mills could not keep up the performance at the requisite level of efficiency during the war. A number of mills in West Pakistan had to work below the capacity due to low productivity.

The export of cotton yarn and cloth during 1965 was of 54.03 million pounds and 159.0 million yards valued at 216.6 million rupees. The tempo of exports is being maintained at a satisfactory level.

During 1962, sanctions for new units and for modernizing and balancing totalled an additional 381,200 spindles and 7,575 looms.

In 1962, the production of cotton yarn amounted to 432 million pounds, cotton cloth 725 million yards and silk and rayon fabrics 25 million yards. The actual installed capacity in December 1963 was 2.42 million spindles and 33,970 looms. This had increased by December 1964 to 2.57 million spindles and 34,593 looms. Production of cotton yarn in 1964 amounted to 506.8 million pounds and the production of cloth by mills was 758.8 million yards. Cloth produced by the decentralized sector amounted to about 790 million yards. Exports of cotton yarn in 1964 were 53.7 million pounds, and of cloth 116.9 million yards valued at 168.8 million rupees.

Handlooms

Production of cotton fabrics by handlooms (and small power-loom units which do not qualify as factory units) is substantial but unfortunately no accurate statistics of the handloom sector are available. In 1954, the Government appointed a fact-finding committee on handlooms to carry out a comprehensive survey of the handloom industry; its report was published in 1956. No national survey of the handloom sector has been conducted since then.

The fact-finding committee, basing its calculations on the statistics made available to it, estimated the production of cotton cloth by the handloom sector at 456 million yards in 1955. However, in 1961, the Government appointed a Textile Engineering Commission, which found that, of every 1,500 million yards of cotton cloth produced in the country, 900 million yards were produced by the mills and 600 million yards by the decentralized sector including handlooms and small power loom units.

On this basis, the third plan (1965-1970) provides for a production of 2,600 million yards, of which it apportions 1,654 million yards to the mills and 946 million yards to the decentralized sector.

Special textiles

Prior to 1954, there was no capacity in the country for the manufacture of handkerchiefs, Turkish towels, round mesh netting and velvet. Against

sanctions, the installed capacity in 1959 was as follows:

a) Handkerchiefs	32 looms	} All in West Pakistan
b) Turkish towels	30 looms	
c) Netting	60 looms	
d) Velvet	2 looms	

With the issuing of the industrial investment schedule in November 1960, sanctions were given for:

a) Handkerchiefs	120 looms (20 in East Pakistan)
b) Turkish towels	65 looms (20 in East Pakistan)
c) Netting	84 looms (50 in East Pakistan)
d) Velvet	120 looms (Nil in East Pakistan)

In 1961, sanctions were given for fifty-seven embroidery units, but by 1962 only seventeen had been installed (all in West Pakistan).

Future prospects

The market situation at present is quite easy. Domestic demand for cotton textiles, particularly coarse cloth, is being fully met. This sufficiency may be attributed to the withdrawal of yarn from exports, which fell from 7.6 million pounds in 1960 to 0.55 million pounds in 1962; however, owing to the revival of the 10 per cent bonus (now 15 per cent), yarn exports increased to 50 million pounds in 1964. The increase directly affected the domestic price level, which rose by 0.2 rupees per pound. It will be necessary to provide additional capacity to meet the domestic demand, particularly in view of the increase in population. It is estimated that by 1970, the domestic production of cotton cloth will need to be increased by 850 million yards to provide for a per capita consumption of eighteen yards.

Estimates in the third five-year plan (1965-1970) place yarn output at 720 million pounds and cloth at about 2,600 million yards. Coupled with higher consumption of finer varieties, the demand position by 1970 is expected to be:

	Yarn (million lb)	Cloth (million yd)
Domestic consumption	570	2,340
Exports	100	250
Ancillary industry	50	—
	<hr style="width: 50px; margin: 0 auto;"/> 720	<hr style="width: 50px; margin: 0 auto;"/> 2,590

2. Jute manufactures

Unlike the cotton textile industry, which had a promising home market, the jute industry had to be planned to meet world market demands. In 1947, Pakistan did not have a single jute manufacturing unit, although it produced roughly about 85 per cent of the world's jute, but within a period of thirteen years the jute industry has grown a lot. Pakistan is now consuming more than 25 per cent of its jute crop and is making hessian, sacking and carpets, gunny

bags and similar products. All these items used to be imported, prior to 1951.

The total sanctioned capacity of the jute industry in the financial year 1965-66 is given as under:

	<i>Conventional looms</i>	<i>Broad looms</i>
East Pakistan	18,137	845
West Pakistan	681 (including ten tussor looms).	

Besides hessian, sacking and carpet backing cloth, sanction were also issued for the manufacture of twines and ropes for a capacity of 1,800 tons increasing over-all capacity of 7,262 tons to 9,062 tons. The jute industry has fixed assets of about 320 million rupees, employs 66,000 workers daily, pays 80 million rupees annually in wages, and turns out products valued at over 350 million rupees. The jute industry has thus created gainful employment and has helped to increase purchasing power in the poor areas of the country. Its greatest contribution, however, lies in the stabilization of jute prices on the domestic as well as the international market.

The second five-year plan (1960-1965) envisaged increasing the number of looms from 8,000 to 12,000.

An important development is the establishment of two jute factories in West Pakistan, with a total of 681 looms. These factories will produce jute specialities.

The emphasis on production of hessian and sacking does not imply that Pakistan's jute industry is oblivious of technological developments in the other parts of the world. The first step towards utilization of long jute for specialities was taken with the production of tufted carpets. The popularity of the carpets both in home and foreign markets has resulted in the manufacture of twelve feet width carpets (compared with 3 feet width earlier).

The second plan target for broad looms was 1,200 and the number of broad looms in use or being installed is now 437.

Increasing demand from abroad for carpet-backing cloth led to the establishment of a unit with special looms. Another important project is the manufacture of particle board with jute sticks which are otherwise usually wasted. Similarly, jute waste is now being utilized for the manufacture of belting, PVC-coated floor coverings and corrugated and plain boards. Another mill has taken up the manufacture of laminated bags lined with polythene.

Sanctions have also been granted for the manufacture of jute ropes and twine and the capacity is expected to be 7,262 tons.

The third plan (1965-1970) envisages an increase in the production of jute goods from 380,000 tons in 1965 to 800,000 tons by 1970.

Jute machinery

Considerable headway has been made in this field and the Government has sanctioned the establishment of two industrial undertakings in East Pakistan, for the production of jute machinery and

its spare parts and the other for the manufacture of accessories, as jute manufacturing units are mostly situated therein.

3. Woollen and worsted textiles

The existing sanctioned capacity in the various sectors of the woollen industry is as under:

Items	East Pakistan	West Pakistan
1. Woollen taps	Nil	103 million lbs.
2. Woollen spinning	Nil	26,644 Spindles
3. Worsted spinning	3,500	33,618 Spindles
4. Carpet yarn	Nil	414.6 million lbs.
5. Woollen weaving	Nil	178 looms
6. Worsted weaving	Nil	344 looms

Exports during the 1964-65 of woollen textiles amounted to 1.66 million rupees approximately.

4. Cement

When Pakistan came into existence there were five cement factories in the country, four in West Pakistan and one in East Pakistan, with respective annual production capacities of 550,000 tons and 50,000 tons. The statistical position is given in table 25.

It is expected that, during the fiscal year 1964/65, production will rise to about 2,070,000 tons. Surveys are being carried out to determine the feasibility of developing additional capacity in East Pakistan on the basis of the limestone deposits of Sunmgunj Sub-Division.

5. Sugar

In 1947, there were seven sugar mills in Pakistan (five in East and two in West Pakistan) with a production capacity of 52,000 tons per year. In the first plan period (1955-1960) the number of sugar mills was expected to increase to fourteen (eight in East Pakistan and six in West Pakistan) and the production of sugar in 1955/56 amounted to 102,175 tons (representing 8.53 per cent sugar recovery). By the end of the second plan period ten new units were sanctioned in West Pakistan raising the existing and installed capacity to .35 million tons, thereby exceeding the target of .32 million tons for West Pakistan by 29,000 tons. Similarly in East Pakistan, the total of existing and sanctioned capacity was raised to 1,79,000 tons thereby fully meeting the second plan targets.

The production of sugar was 190,000 tons in 1961/62, increasing to 238,000 tons in 1963/64. The target of .55 million tons in the second plan period has been enhanced to .70 million tons in respect of the third plan period. The additional capacity will be developed equally in East and West Pakistan.

The above figures indicate a per capita consumption of sugar of ten pounds by 1965. With continued urbanization and the consequent rise in living standards, the consumption of sugar is expected to increase substantially in the third plan period (1965-1970). Accordingly, the third plan target is

700,000 tons, giving a per capita consumption of twelve pounds per year.

TABLE 25. CEMENT PRODUCTION AND CAPACITY, 1948 TO 1964

Year	Number of factories		Capacity (tons)		Total production (tons)
	East Pakistan	West Pakistan	East Pakistan	West Pakistan	
1948	1	4	50,000	550,000	320,000
1955	1	5	50,000	820,000	680,000
1960	1	6	50,000	1,170,000	1,120,000
1964	1	9	488,000	2,560,000	1,448,000 (1963/64)
(installed and sanctioned)			(inclusive of new mill in Ctg. based on imported clinkers from West Pakistan)	(inclusive of 6th kiln of Zeal Pak Cement Co.)	
1966	1	9	570,000	4,390,000	4,960,000

By-products of the sugar industry are also being utilized. In 1963, five projects were sanctioned for the production of industrial alcohol from molasses. Another plant has installed equipment for producing cattle-feed from beet pulp. Feasibility studies conducted show that the commercial utilization of molasses is possible for the production of yeast, citric acid, and so forth, and of bagasse for the manufacture of paper, newsprint, hardboard and so on.

About 70 per cent of Pakistan's sugar cane is used for the production of Khandsari sugar.

Pakistan's sugar is the most expensive in the world, for the following reasons:

- 1) high cost of sugar cane;
- 2) high taxes;
- 3) high cost of imported goods;
- 4) high cost of labour;
- 5) low recovery of sugar;
- 6) low efficiency.

6. Chemicals

In 1947, Pakistan had virtually no industrial activity in chemicals. The only chemical being produced in the country at the time was soda ash (18,000 tons per annum).

Starting from this position, Pakistan built up its industries swiftly and today is self-sufficient in the manufacture of paints, mineral acids, sulphur, aluminium sulphate, acetone, sodium bicarbonate, and so on. Adequate capacity exists for the manufacture of chemical fertilizers, insecticides and other important chemicals.

Items included in this group are soda ash, caustic soda, sulphuric acid, calcium carbide, hydrogen peroxide, aluminium sulphate, oxygen, acetylene, hydrochloric acid, nitric acid, alcohol, sodium bichromate, sodium hydrosulphite, ammonium chloride, sodium sulphate, alum, magnesium sulphate, ferrous sulphate, textile auxiliaries, sulphur, zinc oxide, calcium carbonate (precipitated) and iron

oxide colours. The quality conforms to commercial grades. Specifications are not available.

The installed and sanctioned capacity for various chemical products as of 31 December 1964 is shown in table 26.

7. Fertilizers

The annual requirement of fertilizers is estimated at 889,000 tons by the end of 1965.

Installed/Sanctioned capacity	East Pakistan	West Pakistan
Ammonium sulphate	—	.10 million tons
Single super-phosphate	—	.05 million tons
Ammonium nitrate	—	.10 million tons
Urea	.11 million tons	.23 million tons

In addition, the following capacities are to be developed in the third plan period:

- (i) a fertilizer plant in West Pakistan in the private sector situated at a gas well-head based on production of 1,000 tons of ammonia per day producing over half of a million tons of urea per annum;
- (ii) a triple superphosphate factory in Karachi with a capacity of 150,000 tons per annum in the private sector;
- (iii) one ammonium sulphate nitrate plant at Daudkhel with an annual capacity of 600,000 tons in the public sector;
- (iv) a fertilizer plant at Ghorasal in East Pakistan which would produce 340,000 tons urea utilizing the full output of 600 tons of ammonia per day;
- (v) two triple superphosphate factories, each with a capacity of 120,000 tons — the first one at Chittagong and the next one at Khulna;
- (vi) balancing of Multan Fertilizer factory to make the optimum use of the existing production units providing an additional 16,500 tons of urea and 20,700 tons of ammonium nitrate.

Two urea fertilizer factories one each in East and West Pakistan would be established in the private sector mainly for exporting the products.

8. Paints and varnishes

The present total requirements for the whole country are estimated at 10,000 tons per annum. Installed capacity stands at 13,500 tons per annum. Additional capacity of 3,000 tons per annum has been sanctioned for the production of special types of paints such as aircraft finishes, automotive nitro-cellulose based paints, iron printing lacquers, and so on. The demand is expected to rise by 50 per cent by 1970.

9. Petrochemicals

An oil refinery constructed in Karachi with a total capacity of 1.5 million tons was expanded to 2.1 million tons in 1964. A similar refinery with a capacity of one million tons has been sanctioned for Chittagong. Another refinery for the production of asphalt and lubricants has been sanctioned for Karachi.

TABLE 26. CHEMICALS: INSTALLED AND SANCTIONED CAPACITY, 31 DECEMBER 1964

Chemical product	Production capacity (tons per year)	Remarks
Soda ash	82,000	In addition to this, two soda ash plants will have conversion capacity up to 25,000 tons.
Sulphuric acid	177,000	
Caustic soda	39,000	
Calcium carbide	12,000	Exclusive of captive capacity sanctioned for petrochemical plants etc. More can be produced from by-product chlorine. Excluding captive capacity of fertilizer plant.
Hydrogen peroxide	600	
Aluminium sulphate	7,200	
Oxygen (million cu ft)	117	
Acetylene (million cu ft)	30	
Hydrochloric acid	2,400	
Nitric acid	9,700	Excluding an almost equivalent quantity which will be available as by-product from the viscose rayon plant.
Sodium bichromate	1,200	
Sodium hydrosulphite	1,300	
Ammonium chloride	61,500	
Sodium sulphate	4,000	
Alum	1,500	
Magnesium sulphate	1,000	
Ferrous sulphate	1,000	
Textile auxiliaries	2,300	
Sulphur	9,600	
Zinc oxide	1,200	
Calcium carbonate (precipitated)	4,500	Excluding capacity in fertilizer plants etc.
Iron oxide colours	600	
Glycerine	1,600	
Lithopone	5,000	
Carbon dioxide (million lb)	1.7	

The development of the petrochemical and synthetic fibre industries is considered essential for the economic future of Pakistan. There is great scope in the country for the development of petrochemicals because of the existence of vast resources of natural gas. The following sanctions have been issued:

- a) An acetylene plant with a capacity of 5,280 metric tons per annum at a cost of 40.8 million rupees. This plant will feed the PVC and PAN plants (see below).
- b) A PVC (polyvinyl chloride) plant with a capacity of 4,950 tons per annum at a cost of 26.9 million rupees. This plant will

save foreign exchange of about 2.24 million rupees and will export almost 1000 tons of finished PVC goods, valued at 5 million rupees.

- c) A PAN (polyacrylonitrile) plant with a capacity of 4,950 tons per annum at a cost of 124.5 million rupees. This will save foreign exchange of 13.7 million rupees and earn foreign exchange of 31.5 million rupees.
- d) Two urea formaldehyde resin plants have been established in East Pakistan with a capacity of 3,200 tons per annum.

In West Pakistan, capacities have been developed as under:

Urea formaldehyde	2,000 tons per annum
Methanol	3,000 tons per annum
Formaldehyde	5,000 tons per annum
Synthetic rubber (polybutadiene)	10,000 tons per annum
LPG	16,000 tons per annum
Viscose staple fibre	6,000 tons per annum
Hexamine	1,000 tons per annum

- e) A polyester fibre plant is under consideration, to produce 1,750 tons of staple fibres and 1,750 tons of filament. It would cost 112.8 million rupees and would be based on waste gas from the oil refinery in Karachi.
- f) A polyethylene plant in Karachi with a capacity of 5,000 tons per annum at a cost of 85.64 million rupees. Production is due to commence in 1966. Additional capacity to the extent of 10,000 per annum based on naphtha crackers is sanctioned.

10. Cellulose fibre

Two units for manufacture of viscose staple fibre each with a capacity of 3,000 tons per annum has also been approved for West Pakistan. In addition, a linter pulp making unit with a capacity of 30,000 tons per annum has been sanctioned in West Pakistan.

11. Pharmaceuticals

In 1947, there were six pharmaceutical units in Pakistan, of which only two were of some standing. One was engaged in the manufacture of galenicals and tablets and the other in the manufacture of santonin, ephedrine and some other products.

An expert mission under the Colombo Plan surveyed the pharmaceutical industry in Pakistan in 1952. The industry was able to get under way in 1954. By 1955, there were twenty-eight pharmaceutical units in the country, producing goods worth over 1.4 million rupees.

The first five-year plan (1955-1960) envisaged increasing the production of drugs and pharmaceuticals to 3 million rupees. The actual increase registered by 1960 was 4.4 million rupees. In 1960, there were sixty units engaged in this industry.

In the second plan (1960-1965) an investment of 3.5 million rupees was envisaged and sanctions were issued for the manufacture of tablets, liquid prepara-

tions, injectables, liver extracts etc. There are at present over 160 units in the industry with a capacity of over 67 million rupees.

The country's present requirements of pharmaceuticals are placed at 300 million rupees, giving a per capita consumption of three rupees per annum.

Considerable capacity for processing of various pharmaceutical products has been developed in both wings of the country. Basic manufacture has, however, been limited particularly in East Pakistan where toward the end of the second plan, a production of fifteen tons streptomycin per annum was expected. In case of West Pakistan, the picture is more encouraging in as much as the following capacities would be developed by the end of 1966.

Vit. B-12	4 kg
Hydrochlorothiazine	50 kg
Cortisone	70 kg
Aspirin	120 tons
Meprobamate	20 tons
Chloromphenicol	6,000 kg
Chloroquin disphosphate	8,000 kg
Phenacitin	8,000 kg
INH and PAS	25,000 kg
Vitamin A	2 million mega units
Pencillin	7 million mega units
Nitrofurazone	710 kg
Furazolidone	315 kg
Nitrofurantine	30 kg
Santonin	8,000 kg
Ephidrine	24,000 kg lb

12. Edible oils and vegetable ghee

Most of the well-organized large oil mills have come into existence since Independence. There is a large number of small and medium-sized oil mills in both East and West Pakistan. The production of edible vegetable oils is in the neighbourhood of 150,000 tons.

The present availability of oils in the country is, however, not sufficient to meet the country's requirements, which are estimated at 250,000 tons for 1965. The reason for this is the insufficient availability of indigenous oilseeds. Steps are being taken to increase the production of oilseeds in the country. Efforts are also being made to increase the production of coconut oil in East Pakistan by planting a better type of coconut and setting up copra drying and processing units. The actual production of oilseeds in Pakistan was 934,000 tons in 1959/60. The target suggested in the second five-year plan was to raise production by 32 per cent by 1965. According to the third plan, the production of oilseeds is to be increased by a further 31 per cent by 1970.

13. Glass

In 1947, the glass industry was limited to two small units in West Pakistan and two in East Pakistan. This industry has since made considerable advances and there are now fourteen units in West

Pakistan with a total annual capacity of 25,850 tons. In addition to these, capacities of 9,000 tons per annum in East Pakistan and 5,700 tons per annum in West Pakistan have been sanctioned. The quality of products has also considerably improved and some of the manufacturers are now producing colourless glass which compares favourably with the imported products. The present production of glassware is estimated at about 20,000 to 25,000 tons, valued at nearly 20 million rupees per annum.

Permission has also been given for the manufacture of glass ampoules and vials, which are required by the pharmaceutical industry. In West Pakistan, one more firm was also given permission recently to establish a factory for the manufacture of scientific glass at a cost of 4.7 million rupees. It will have a production capacity of 800 tons per annum of scientific glass and 1,300 tons per annum of tubes and soft glass.

Production of sheet glass is an entirely post-Independence development. The country has now two factories, one in West Pakistan and the other in East Pakistan, with respective annual capacities of 10 million and 8 million square feet. The East Pakistan factory has commenced production of unpolished plate glass, plain sheet glass and ornamental sheet glass, and ground glass (frosted glass).

14. *Light engineering*

There are altogether about 111 firms (136 production units) engaged in steel re-rolling in West Pakistan. Their total capacity is estimated at about 460,000 tons per year. In East Pakistan the number of steel rolling firms is twenty-four with a total installed and sanctioned rolling capacity 311,700 tons per year.

The installed and sanctioned capacity in the country for galvanized iron pipe is 73,900 tons per annum. In 1960, there were only two units manufacturing such pipes, one in East Pakistan and one in West Pakistan, with a total capacity of about 15,000 tons. During the second plan period, three new units in East Pakistan and six in West Pakistan were sanctioned, raising the capacity to 18,300 tons and 55,600 tons in East and West Pakistan respectively.

Sufficient capacity has been sanctioned for the manufacture of nuts, bolts and screws.

The sanctioned and installed capacity for the manufacture of centrifugal pumps is 14,600 pumps and that for deep well turbine pumps is 720. Pumps valued at 7,975,000 rupees were produced in 1962 as against 4,520,000 rupees in 1961.

The installed capacity (1964) for the assembly and manufacture of sewing machines is 296,000 machines. The production of sewing machines in 1962 was 57,942. Capacity also exists for the manufacture of sewing machine parts worth 5.2 million rupees.

The existing annual capacity for marine engines up to 70 hp is 700, for stationary diesel engines up

to 50 hp 25,000, and for vertical light-speed diesel engines up to 30 hp 5,700.

The installed and sanctioned capacity for the manufacture of cycles in the country is 325,000 units per annum. The production of cycles increased from 66,000 in 1961 to 105,000 in 1962. Capacity for the production of bicycle parts is 42.7 million rupees per annum.

Production of Alloy Steels

With the progress of industrialization in the country, the import of special steel for tools and similar implements has been increasing. With this in view, efforts were made to develop the production of special steel in the country. Approval has now been given for establishing a special steel producing plant in Karachi under a PICIC loan with Japanese collaboration. It will produce stainless steel, tool steel, high speed steel and other alloy steels. Its capacity would be 20,000 tons per year with provision to expand up to 27,500 tons.

15. *Heavy engineering*

The projects for the Karachi and Chittagong steel mills with installed capacities of 500,000 ingot tons and 150,000 tons respectively have been approved. The estimated cost of the Karachi steel mill is likely to reach 884 million rupees (620 million rupees in foreign exchange). The mill is expected to produce billets, medium sections, rails, black and galvanized sheets, tubestrips and tin plates. It will use imported pig iron and scrap. The annual net saving in foreign exchange is estimated at 100 million rupees. The estimated cost of the Chittagong plant is 270 million rupees (170 million rupees in foreign exchange). It will also use imported pig iron and scrap. It is expected to produce bars and shapes, plates and castings, and forgings. On normal operation, it will effect an annual foreign exchange saving of 26.5 million rupees.

When in full production it is expected to save 26.5 million rupees per year in foreign exchange and would provide employment to about 2,217 persons.

Experiments have been successfully carried out for smelting of Kalabagh iron ores. A feasibility report for organizing a plant with a capacity of .50 million tons based on this ore has been prepared. Before embarking on the project, however, large scale experiments under actual operating conditions were carried out in Germany under the auspices of WPIDC and have proved successful.

16. *Machine tools*

In Pakistan, the production of machine tools of smaller and simpler types is registering a steady growth. Existing capacities for some of the important small tools are:

Lathes	over 2200
Drills	1500
Power-presses	182
Shapers	138
Planers	68

All the above are in the private sector. In the public sector, the production capacity for all items is worth about 50 million rupees annually.

It is time that the country undertook the manufacture of more complex machine tools so as to meet the growing requirements of the industry. Such a project is not likely to be undertaken by the private sector because of the highly complex technical know-how and insufficient demand for newer types of machine tools.

Accordingly the possibility of setting up a machine tool industry was examined by foreign consultants and two projects for location in East and West Pakistan have been duly approved. The capacity of the units in terms of value will be over 65 million rupees per annum. The unit will manufacture such machine tools as milling machines, boring machines, grinding machines, lathes, shapers, and die-casting and gear-cutting machinery. The total cost of the two factories is estimated at over 200 million rupees, including over 50 per cent expenditure in foreign exchange.

17. Heavy machinery

The West Pakistan Industrial Development Corporation has drawn up a project for a heavy machinery equipment manufacturing factory which involves an investment of 215 million rupees. The project is based on the feasibility report prepared by Messrs. Salzgitter Industriebau Gesellschaft mbH, Salzgitter, Drutte 1.

The project involves the establishment of a heavy machinery complex for the production of the following types of machinery and equipment:

- a) locomotive frames, bogies and chassis for main lines and shunting purposes;
- b) road-building equipment such as scrapers, tippers and road rollers, including their mechanical driving gear;
- c) sugar and cement factories including conveyor equipment;
- d) large and heavy containers for fertilizer factories and refineries and for storing liquids;
- e) boilers and heat exchangers including appurtenances for nuclear reactors and power plants.

The existing capacity in Pakistan for the production of heavy machinery is very limited. Present imports of heavy machinery amount to about 1,000 million rupees per annum and amply justify the establishment of a heavy machinery complex, especially in view of the fact that the demand for such machinery is increasing at a very rapid pace. Initially, the complex would have to restrict its scope to those items of machinery for which the domestic demand is sufficient to permit economic production. The proposed factory is expected to produce goods worth about 120 million rupees per annum when it is in full operation, and it would save foreign exchange to the extent of 49 million rupees per annum.

18. Heavy electrical equipment

The project to manufacture heavy electrical equipment is based on the feasibility report prepared by Messrs. Salzgitter Industriebau, and it calls for an investment of 113 million rupees.

The proposed project is designed to produce:

- a) i) High-voltage transformers,
ii) High-voltage switchgear,
iii) High-voltage insulators,
iv) High-voltage open-air transmission,
v) High-voltage steel structure (towers);
- b) Low-voltage wire, cables, transformers, insulators, switchgear, motors and condensers;
- c) Home installation materials, such as meters, switches and wires.

Wires and cables

Copper apart from being a strategic metal, is in short supply in the world and therefore its price is rising. Aluminium is comparatively cheap and can be substituted for electricity transmission in wires and cables. With this in view and to save foreign exchange, efforts were made to develop ACSR (aluminium conductor steel reinforced) and AAC (all aluminium conductors), and thermoplastic insulated aluminium cables industry in Pakistan. Permission has now been given for production of these types of wires and cables in West Pakistan. An application from a private entrepreneur has been received for establishing a wire and cable plant in East Pakistan with Japanese technical and financial collaboration. This project has since been approved. The East Pakistan Industrial Development Corporation has also prepared a feasibility report for installing a wire and cable plant in East Pakistan.

19. Mechanically propelled vehicles

Motor Vehicles

During the second plan period, sanctions were given to set up plants for the progressive manufacture of a total of 10,200 commercial vehicles per annum. Present requirements are assessed at 7,000 vehicles per annum, and this figure is likely to be higher by the end of the third plan, in line with the all-round developmental activity. The number of commercial vehicles in operation in the country is likely to be more than 50,000 in 1964/65. The number of passenger cars was 50,000 in 1959/60 and the annual increase is estimated at 5,000.

A project for the progressive manufacture of 3,500 Jeeps, (2,500 in West Pakistan and 1,000 in East Pakistan) has been sanctioned. Sanction has also been accorded for the assembly and manufacture of three-wheelers and motorcycles at the rate of 1,200 vehicles per annum. A plant for the assembly of passenger motorcars has a capacity of 2,400 cars per annum.

The industry made a beginning in 1955 and since then has been steadily expanding. At present a number of units are in operation, assembling cars,

and undertaking progressive manufacture of trucks buses, pick-ups and so on, and also of motor cycles scooters and tri-wheelers. The total investment exceeds seventy million rupees, the installed/sanctioned capacity for commercial vehicles is 13,000, for assembly of cars is 3,600, for jeeps 3,500, and for scooters motor cycles and tri-wheelers it is 14,000. The production figures for 1965 are (a) for commercial vehicles 5,000, (b) for passenger cars 1,800, (c) for jeeps 1,500, (d) for two-wheelers and three-wheelers 7,000. A significant percentage of local manufacture has already been introduced in commercial vehicles which according to the stipulations in the sanction is to rise to 60-75 per cent by stages. Even in the assembly of passenger cars, the local content has attained the figure of 24 per cent in some cases.

Over eighteen schemes for the progressive manufacture of passenger cars covering various reputed makes of different countries, received some time ago, have been under active consideration and it is expected that a capacity for over 10,000 cars be sanctioned shortly.

Agricultural machinery and equipment

A unit is being installed for the progressive manufacture of tractors at a total cost of 4.8 million rupees, of which 2.1 million rupees is in foreign exchange. This unit will also utilize the production facilities available at Wah. When in full production, the unit will produce 1,500 tractors per annum. In the first stage, the unit will produce 5 per cent of the components, and this will be raised to 55 per cent in five years. The establishment of a garden type tractor unit in East Pakistan is under examination. The Pakistan Industrial Credit and Investment Corporation is also considering a project for the manufacture of power tillers. Tractors worth 47 million rupees were imported during 1961/62. When the sanctioned units come into production the import figures will be reduced considerably.

In consideration of the importance of agricultural development programmes, it has been decided to set up additional capacity for the manufacture of agriculture tractors. New capacity is also proposed to be established for the manufacture of power-tillers/garden type tractors as these types of small tractor have been considered to be more suitable for East Pakistan. According to initial thinking it is proposed to have at least two to three units spread over in both the wings so as to provide competition and diversified availability.

In the meantime, the Agricultural Development Corporation has been allowed to import tractors from Eastern European Countries and the ADC will also develop capacity for assembly and manufacture of these tractors in due course. Similar steps will also be taken in the case of East Pakistan, for establishing capacity for power tillers and/or garden type tractors,

for which trials are presently being carried out in that wing.

A number of schemes which have been invited for assembly manufacture of tractors are presently under consideration of the Government.

As regards agricultural implements particularly those used with the tractors and for which imports have had to be allowed in huge quantities, instructions have already been issued to the financing agencies and also to the provincial industries departments, to encourage development of capacities for the manufacture of requisite type of agricultural implements and agricultural equipment. In West Pakistan, in addition to the existing sizeable unit, two new units have also been sanctioned which are expected to go into operation by the end of 1967.

Air-Craft

The Government has decided to sanction a unit for assembly of light aircraft in the country to serve as a nucleus for the future aircraft industry in Pakistan. The unit is expected to go into operation by end of 1967 and for the present the unit will be for the manufacture of light aircraft with a capacity of twenty-four units per annum.

20. *Shipbuilding*

The Karachi Shipyard has both shipbuilding and ship repair facilities. The shipyard is designed to construct ships of up to 12,800 cwt. It can complete one ship every year. Proposals for the expansion, balancing and modernization of the Karachi Shipyard are under active consideration. A scheme consisting of two parts with a total cost of 97.4 million rupees has been prepared. The first part of the scheme, which has been taken up, aims at the establishment of another dry dock and the development of capacity for the manufacture of 2,500 tons of general steel, 300 cylinders of marine diesel engines of 50 to 500 hp, and iron and steel and non-ferrous castings, at a total cost of 32.6 million rupees. The Khulna Shipyard offers facilities for building vessels up to 300 feet in length and for repairs. The yard is at present constructing barges, tugs and launches, and is undertaking repair work for concerns such as East Pakistan River Steamers Limited and East Pakistan WAPDA. The shipyard at Narayanganj is being modernized and expanded so that it can undertake all kinds of repairs to machinery and hulls, including the under-water parts of small and medium-size vessels. The yard can also undertake the construction of small craft. The yards at Karachi and Khulna and the dockyard at Narayanganj continue to work on the construction of barges and tugs, ship repairs and other miscellaneous jobs.

In addition to the above shipyards Pakistan has over half a dozen smaller ship repairers who carry out urgent and immediate repair work on ships calling at Karachi. These shipyards are doing fairly well.

An industry by the patent name of "Metalock" is in operation in Pakistan and repairs cracks in cast-

ings whether engine, pumps or otherwise installed on ships.

21. *Electrical equipment*

The installed and sanctioned capacity for electric fans is 457,000 units per annum. The production of fans increased from 133,500 in 1961 to 146,100 in 1962. The total installed and sanctioned capacity is sufficient to meet the country's requirements and also effect some exports.

The installed and sanctioned capacity for electric motors is 391,000 units per annum.

Industrial-type power switch gears are now being manufactured by five units in the country. The production of high- and low-tension switch gears is now 1,250 per annum and of small gears 490,000 per annum while the capacity for pannels is 500 per annum. The value of switch gears produced in 1962 was 8.55 million rupees as against 5.85 million rupees in 1961.

The production of 15- to 300-watt electric lamps and train lighting lamps increased from 4.1 million in 1961 to 4.139 million in 1962. The production of fluorescent tubes increased from 11,476 in 1961 to 40,549 in 1962.

The existing capacity for production of electric motors is 391,600 units of which capacity for 60,000 is in East Pakistan.

The annual installed capacity in the country for the manufacture of transformers of 5 to 19,600 kilo voltampere at 33 kilovolt is 10,260,000 kilo volt-ampere. Three units, one in West Pakistan and two in East Pakistan, have been sanctioned.

There are at the moment thirteen units engaged in the production of accumulators with a capacity of 183,000 per annum, and seven units engaged in the production of dry batteries, with a capacity of 560,000 per annum. Capacity exists for the production of 235,000 electric kWh meters per annum.

The present installed capacity for the manufacture of wires and cables is 4,000 tons. A unit was sanctioned for the manufacture of 6,440 tons of wires and cables at the beginning of third plan but it has not yet been constructed.

The sanctioned annual capacity for air conditioners is 19,000 units, for refrigerators 22,000 units and for water coolers 3,000 units. The production capacity for other electrical appliances (record-players, grinding and extracting machines, toasters, kitchen equipment) is valued at 1.25 million rupees.

Existing capacity for the assembly of transistor radios is 313,000 sets per annum. Capacity for the assembly of power sets is 14,200 sets per annum. Plants have also been installed for the manufacture of basic components of radios such as transistors (3 million), resistors (16.1 million), condensers (3 million) and so forth.

Television receivers

Permission for the manufacture/assembly of television receiving sets and parts thereof has been issued to nine recognized units, which were already engaged in the assembly and manufacture of radio components in East and West Pakistan. These firms will manufacture 30 per cent television components in the initial stage rising to 70 per cent in the final stage within a period of not more than three years.

22. *Paper*

Capacity exists in the country for the production of 50,600 tons of newsprint, 99,750 tons of writing, printing and packing paper, and about 150,000 tons of paper, straw and corrugated boards. Capacity for duplex board is 12,400 tons. A large project for the manufacture of paper from bagasse with a capacity of 18,000 tons per annum has been sanctioned at Mardan.

23. *Rubber and leather products*

The sanctioned and installed capacity for rubber and leather products is as follows:

Cycle tyres and tubes	3,456,000 per annum
Motorcycle and scooter tyres	111,000 per annum
Motorcycle and scooter tubes	138,000 per annum
Car and heavy vehicle tyres	168,000 per annum
Car and heavy vehicle tubes	177,000 per annum
Chrome leather	79,293,000 sq ft
Tanned leather including	
sole leathers	74,054,000 lb
Technical leathers	20,000 kg
Kips leathers	2,500,000 lb

Pakistan still exports the bulk of its hides and skins in raw form. At the beginning of the second five-year plan period, the tanning industry in Pakistan comprised eighty large- and medium-scale tanneries with an annual capacity of 30 million square feet of upper leather and 16 million pounds of sole leather. This, with the capacity of numerous small units, was sufficient to meet the internal demand. Sanctions valued at 9.8 million rupees have been issued for tanning and leather curing. When the sanctioned units are in operation, the internal production of tanned leather will rise and this should lead to an increase in export earnings.

There are at present about hundred cottage-scale factories, which produce over 10 million pounds of leather valued at 25 million rupees.

24. *Food products*

The large fish resources in the country provide a substantial potential for the development of the fish freezing and canning industry. A large number of fish freezing and canning units have recently been sanctioned, and when in production they will effect substantial exports. The value of fish exports during 1961/62 was 73 million rupees.

The sanctioned and installed capacities of a few important food industries are given below:

Canning and preservation of fish and seafood	57,850	tons
Fruit and vegetables	15,298	tons
Potato and nut processing	585,000	lb
Fruit juices and concentrates	24,621.5	tons
	and 164,000	gallons
Citrus oil	10,000	gallons
Bakery products	38,990	tons
Confectionery	9,635	tons
Biscuits	13,142	tons

25. Small industries

The most striking feature of the second five-year plan (1960-1965) was the provision for setting up twenty-four small-industry estates (sixteen in East and eight in West Pakistan) at a total cost of 36 million rupees. Of these, eighteen are under way, twelve in East Pakistan and six in West Pakistan.

A few important small industries are described below:

Leather goods. There are at present over 200 shoe factories (165 in West and 35 in East Pakistan) with an estimated production of 45 million pairs of footwear per annum. Domestic consumption is about 32 million pairs, leaving a sizable surplus for exports, which is showing an increasing trend.

Electric fans. There are sixteen firms in this industry with a capacity of 150,000 fans per annum. Production, however, is limited to 50,000 fans per year, of which about 20,000 are exported.

Cutlery. Centred in Nizamabad, Wazirabad and Sialkot (within a radius of forty miles) this industry produces goods worth over 8 million rupees per year. Exports touched the 1.7 million rupees mark in 1963.

Surgical instruments. Present production is nearly 4 million rupees, of which about 3 million rupees worth is exported.

Sports goods. This is one of the principal small industries that Pakistan inherited in 1947 as a going venture. After the Second World War, the sports goods of Sialkot began to obtain access to international markets. According to a recent industrial survey, this industry employs about 20,000 craftsmen; 85 per cent of its production is exported and, in 1962, the value of exports amounted to 14,400,000 rupees.

Carpets. Displaying traditional craft, this industry has recently gained a valuable hold in foreign markets, and exports in 1963 amounted to over 9 million rupees.

b. New industries being planned

1. Introduction

As has already been stated, the main instrument through which industrial progress is maintained is the Industrial Investment Schedule, whose preparation and implementation is the responsibility of the Department of Investment Promotion. The Schedule provides the guidelines in terms of investment and phy-

sical targets, and the actual mechanics of size, financial outlay, production capacity and so on are left to be decided by the sponsors of each industrial unit, to the satisfaction of the sanctioning authority. This authority is the Central Investment Promotion and Co-ordination Committee, which is composed of the vice-chairman, Department of Investment Promotion, as Chairman, and representatives of the two provincial governments, PICIC, and IDBP as members.

A general review of the major new industrial activity to be generated in the third plan period (1965-1970) is given below:

2. Food manufactures (except beverages)

(a) Canning and preservation of fruits and vegetables

The third plan target is for eight units, three in West and five in East Pakistan. In addition, the capacity target in the small industry sector is twenty units (East Pakistan only). (Small industry refers to establishments having fixed assets of up to 250,000 rupees.)

The investment provided for is 24 million rupees (8.9 million rupees internal and 15.1 million rupees external) in the large industry sector and 6.6 million rupees in the small industry sector (2.4 million rupees internal and 4.2 million rupees external). Of the total provision, 17.5 million rupees is for new capacity and 6.5 million rupees for balancing, modernizing and replacement (BMR) in the large-industry sector, and in the small-industry sector 4.5 million rupees is allocated for new capacity and 2.1 million rupees for BMR.

Exports of canned fruits and vegetables in 1963/64 amounted to 3.4 million rupees, and the export target is 10 million rupees by 1970.

(b) Canning and preservation of fish and other seafood

The capacity target in the third plan is for fourteen units with an aggregate capacity of 20,000 tons in West Pakistan and eighteen units with a total capacity of 25,000 tons in East Pakistan.

The investment provided for is 28.9 million rupees (10.8 million rupees internal and 18.1 million rupees external) in the large industry sector, and 2.9 million rupees (1.0 million rupees internal and 1.9 million rupees external) in the small industry sector. Of the total provision for large industries, 22.5 million rupees is for new capacity and 600,000 rupees for BMR.

Exports of canned fish and seafood amounted to 50 million rupees in 1963/64, and the target for 1969/70 is 150 million rupees.

(c) Sugar

Capacity target in the third plan period has been fixed for .10 million tons each for West and East Pakistan. The investment provided for the expansion is 350.00 million rupees (157.50 million internal and 192.50 million external) of this, each wing has

170.00 million rupees (76.50 internal and 92.50 external) for new capacity and 5.00 million rupees (2.25 internal and 2.75 external) for balancing modernization and replacement in the large/medium sector only.

(d) *Edible oils and vegetable ghee*

Existing and sanctioned capacity is .63 million tons divided almost equally between the two provinces of the country. Target for new capacity during the third plan period is 80,000 tons in East Pakistan and 240,000 tons in West Pakistan. It has been decided to intensify the grow-more-seed campaign to meet the shortage of oilseeds to achieve the targets.

The physical target of 129,000 tons for vegetable ghee industry by the end of the third plan period has already been achieved and slightly exceeded in West Pakistan as existing and sanctioned capacity in West Pakistan is 129,500 tons.

In East Pakistan, people prefer to use vegetable oil, but vegetable ghee is slowly gaining favour. As such the existing capacity for vegetable ghee, about 9,000 tons per year is planned to be raised to 16,000 tons by setting up more units during the third plan period.

3. *Textiles*

(a) *Cotton textiles (weaving)*

The capacity targets in the third plan are 8,000 looms in West Pakistan and 7,000 looms in East Pakistan in the large-industry sector. In the small-industry sector, ten preparatory units and 2,000 power looms are planned in West Pakistan.

The investment provided for is 200.5 million rupees (51.5 million rupees internal and 149 million rupees external) in the large-industry sector. Of this, 140.5 million rupees is for new capacity and 60 million rupees for BMR. In the small-industry sector, 20.8 million rupees is provided (6.1 million rupees internal and 14.7 million rupees external), of which 17 million rupees is for new capacity and 3.8 million rupees for BMR.

Exports of mill-made cloth and handloom products amounted in 1963/64 to 75 million rupees and 2 million rupees respectively. The export target for 1969/70 is 180 million rupees of mill-made cloth and 40 million rupees of handloom cloth.

(b) *Jute manufactures*

The capacity target in the third plan is 4,250 tons (1,500 tons in West Pakistan and 2,750 tons in East Pakistan) and 1,000 broadlooms (200 in West Pakistan and 800 in East Pakistan).

The investment provided for is 532 million rupees (152 million rupees internal and 380 million rupees external), of which 477 million rupees is for new capacity and 55 million rupees for BMR. Investment in the small-industry sector is also provided for to the extent of 4 million rupees (1.3 million rupees internal and 2.7 million rupees external), of which 3 million

rupees will be used for new capacity (East Pakistan only) and 1.0 million rupees for BMR (East Pakistan only).

Exports of jute products in 1963/64 amounted to 341 million rupees and the export target for 1969/70 is 800 million rupees.

4. *Paper and paper products*

(a) *Writing, printing and packing paper*

The second plan target of production of 43,500 tons has been met with existing rated capacity of about 43,000 tons. Production in 1964 was 37,353 tons. Keeping in view the educational and industrial programmes envisaged in the third plan a production target of 100,000 tons of writing, printing and packing paper has been set up to 1969-70; 65,000 tons in East Pakistan and 35,000 tons in West Pakistan. Against this target, a capacity of about 67,500 tons has already been sanctioned.

In addition to the above, a further capacity of 9,000 tons is under approval and feasibility study and scrutiny for another capacity of about 90,000 tons is under consideration.

Provision for the third plan is for a total of 42.5 million rupees out of which 23.37 million rupees is in foreign exchange.

(b) *Newsprint and mechanical paper*

The second plan production target of 50,600 tons has not been fully achieved. Production in 1963-64 was 30,395 tons. Keeping in view the substantial educational programme in the third plan period and the export prospects, a production target of 100,000 tons of newsprint and mechanical paper has been set up to 1969-70; 65,000 tons in East Pakistan and 35,000 tons in West Pakistan. Provision in the third plan is for a total of 85 million rupees. Out of which 46.75 million rupees is in foreign exchange.

(c) *Paper board, duplex board and straw board*

The second plan proposed a production target of 27,400 tons of various kinds of board against which actual production in 1964 was 19,368 tons. Existing and sanctioned capacity is about 65,700 tons and in addition to this, target to be achieved during the third plan period is 35,000 tons. Out of this 20,000 tons will be in West Pakistan using bagasse and other waste materials. Financial provision in the third plan for this industry is for 29 million rupees. Out of which 15.95 million rupees is in foreign exchange.

(d) *Hardboard, particle board, chip board*

Existing and sanctioned capacity for hardboard is a total of 57,700 tons. Target for the third plan period is an additional 60,000 tons to be divided equally between East and West Pakistan. Financial provision for this industry during the third plan is 24 million rupees, out of this 13.2 million rupees is in foreign exchange.

5. Rubber products (except footwear)

The capacity targets in the third plan period are as follows:

Cycle tyres and tubes	500,000 per annum
Motorcycle and scooter tyres	1,650,000 per annum
Car and heavy vehicle tyres	
Car and heavy vehicle tubes	
Motorcycle and scooter tubes	1,050,000 per annum
Retrading of tyres	630,000 per annum

Investment provision is 56 million rupees (17.8 million rupees internal and 38.2 million rupees external) in the private large industry sector. Of this, 52 million rupees is for new capacity.

Exports in 1963/64 amounted to 1.5 million rupees and the export target for 1969/70 is 10 million rupees.

6. Chemicals and chemical products

(a) Drugs and pharmaceuticals

These include a variety of oral and injectible preparations, covering a wide range of medicinal and clinical uses.

The capacity targets in the third plan are for production to the value of 64 million rupees in West Pakistan and 31.8 million rupees in East Pakistan in the large-industry sector and 18 million rupees in the small-industry sector. Production is entirely in the private sector except for the manufacture of penicillin.

The investment provided for is 87.5 million rupees (32.5 million rupees internal and 55 million rupees external), of which 70 million rupees is for new capacity in the large-industry sector. In the small-industry sector, the provision is for 8.4 million rupees (3 million rupees internal and 5.4 million rupees external) of which 6.5 million rupees is for new capacity.

(b) Fertilizers

The capacity target in the third plan is for a production of 285,000 tons of urea and 245,000 tons of triple superphosphate.

Investment will be sanctioned against specific projects.

(c) Cellulose fibres

The capacity target in the third plan is 10,000 tons.

The investment provision is 145 million rupees (37 million rupees internal and 108 million rupees external), all for new capacity.

(d) Industrial chemicals (some thirty-one items)

The investment provision in the third plan is 49 million rupees (12.5 million rupees internal and 36.5

million rupees external) in the large-industry sector and 7.5 million rupees in the small-industry sector (2.8 million rupees internal and 4.7 million rupees external). Of this, 37 million rupees in large industry and 6.5 million rupees in small industry are for new capacity.

(e) Petrochemicals

This category includes carbon black, plastics, synthetic fibres, aromatics, synthetic resins, and so on.

The capacity target in the third plan is a total of about 30,000 tons.

Investment will be sanctioned against specific projects.

7. Non-metallic mineral products

(a) Cement

The capacity target in the third plan is eight units for grey cement (six in West Pakistan and two in East Pakistan) and one unit in West Pakistan for clinker, with a capacity of 2.22 million tons of grey cement.

The investment provision is 420.5 million rupees (171.5 million rupees internal and 249 million rupees external). Of this 379 million rupees is for new capacity.

The export target by 1969/70 is 50 million rupees.

(b) Refractory products

A high demand exists in both wings for these products. The capacity target in the third plan is for a production of 35,000 tons, for which the investment provision is 42.5 million rupees (18 million rupees internal and 24.5 million rupees external). Of this, 38.5 million rupees is for new capacity.

(c) Ceramics

This category includes earthenware, porcelain, insulators and other products.

The capacity targets in the third plan are as follows:

Earthenware and porcelain	15,000 tons
Insulators	5,500 tons
Other products	2,000 tons

The small industry sector capacity target is 5,500 tons, of all products.

The investment provision is 22 million rupees (8.3 million rupees internal and 13.7 million rupees external) in the large-industry sector and 5.7 million rupees in the small-industry sector.

8. Basic metal industries

(a) Steel

The third plan target capacities are largely in the public sector, though efforts are being made to establish smelting units in the private sector as well.

(b) Steel re-rolling

There is a total installed capacity of 741,600 tons in the two wings of the country. Further capacity for

rolling of wire rod for high carbon wires and baling hoops 10,000 and 3,000 tons has been provided for third plan targets. In addition, some provision was also made for the production of galvanized and corrugated sheets.

The total provision for all the above in the third period is as under:

<i>East Pakistan</i>			<i>West Pakistan</i>		
Internal	External	Total	Internal	External	Total
95	300	395	40	70	110

(c) *Production of Non-Ferrous Metals*

With a view to make non-ferrous metals available from indigenous sources, a provision of 100 million rupees has been made in the third five-year plan, and it is expected that the copper and brass units, with facilities to produce copper from imported sinters or mate will be in production.

9. *Metal products*

(a) *Structural steels*

The capacity target in the third plan is a production of 200,000 tons, equally divided between East and West Pakistan.

The investment provision is 26 million rupees (10 million rupees internal and 16 million rupees external).

(b) *Galvanized iron pipes and fittings*

The third plan target is a production of 5,500 tons of four-inch to six-inch pipes in West Pakistan and 20,000 tons of pipes of all sizes in East Pakistan.

The fittings target is 15.5 million rupees in West Pakistan and 17.5 million rupees in East Pakistan.

The investment provision is 54.5 million rupees (16.1 million rupees internal and 38.4 million rupees external). Of this, 49 million rupees is for new capacity.

(c) *Cast iron foundries*

The third plan capacity target is a production to the value of 130 million rupees in the large-industry sector and 23.5 million rupees in the small-industry sector.

The investment provision is 75 million rupees (22.5 million rupees internal and 52.5 million rupees external) in the large-industry sector and 15.7 million rupees (5.3 million rupees internal and 10.4 million rupees external) in the small-industry sector.

10. *Machinery*

(a) *Machine tools and ancillary equipment*

This category includes lathes, drills, shapers, planers and power presses.

This third plan target is a production value of 160 million rupees.

The investment provision is 73.9 million rupees (33.8 million rupees internal and 40.1 million rupees external). Of this, 68.9 million rupees is for new capacity.

Exports anticipated in 1969/70 amount to 5 million rupees.

(b) *Stationary and marine diesel engines*

Marine	up to 70 hp
Stationary	up to 50 hp
Vertical air-cooled	up to 30 hp

The third plan capacity target is 16,000 engines of all types, and high speed engines will be specially developed.

The investment provision is 70.5 million rupees (20.5 million rupees internal and 50 million rupees external).

Exports planned for 1969/70 are to a value of 10 million rupees.

(c) *Textile machinery, parts and accessories*

This category includes spindles, bobbins, shuttles, reeds and finishing equipment.

The third plan capacity target is a production of 22 million rupees in value.

The investment provision is 79.5 million rupees (28 million rupees internal and 57.5 million rupees external).

11. *Electrical equipment, apparatus, etc.*

(a) *Accumulators*

New capacity is to be developed for heavy duty and light duty accumulators with containers.

The investment provided for is 24.6 million rupees (9.2 million rupees internal and 15.4 million rupees external).

(b) *Electrical appliances*

The new capacity to be developed should give a production worth 22 million rupees.

The investment provided for is 21.5 million rupees (6.5 million rupees internal and 15 million rupees external) in the large-industry sector and 6.5 million rupees (2.2 million rupees internal and 4.3 million rupees external) in the small-industry sector.

Exports planned for 1969/70 amount to 5 million rupees.

(c) *Electric motors, generating sets, etc.*

New capacity is to be developed for electric motors and generating sets.

The investment provided for is 21.5 million rupees (7 million rupees internal and 14.5 million rupees external).

(d) *Fans*

The new capacity to be developed is for 223,000 fans in the large-industry sector and 40,000 in the small-industry sector.

The investment provided for is 26.5 million rupees (7.3 million rupees internal and 19.2 million rupees external) in the large-industry sector and 4 million rupees (one million rupees internal and 3 million rupees external) in the small-industry sector.

(e) Radios and components

The new capacity to be developed is for 400,000 sets, for progressive manufacture.

The investment provided for is 38 million rupees (11.5 million rupees internal and 26.5 million rupees external).

(f) Insulated wire and cables

The new capacity to be developed totals 87.5 million yards in the large-industry sector and 30 million yards in the small-industry sector.

The investment provision is 25 million rupees (7.2 million rupees internal and 17.8 million rupees external) in the large-industry sector and 6 million rupees (2 million rupees internal and 4 million rupees external) in the small-industry sector.

12. Transport equipment**(a) Mechanically propelled vehicles and components**

The new capacity to be developed is as follows:

Cars, jeeps, station wagons	14,700
Buses, trucks	10,700
Motoreycles, scooters, three-wheelers	11,000
Components (value)	Rs. 26,000,000
Body-work	16,000

The total investment provision is 250.5 million rupees (69.1 million rupees internal and 181.4 million rupees external). Of this, 238 million rupees is for new capacity.

The provision in the small-industry sector amounts to 6 million rupees (2 million rupees internal and 4 million rupees external).

IX. EXPORT OF MANUFACTURED GOODS AND SEMI-MANUFACTURES**Present balance of trade****1. Terms of trade**

Table 27 gives the historical background of the

country's terms of trade, foreign trade and external reserves.

Before commenting on table 27, it may be stated that great caution must be taken in arriving at definite conclusions on Pakistan's terms of trade. First, computation is made only in commodity terms of trade, and second, the base period is no longer appropriate since in that period the country's internal and external economic situation was subjected to the consequences of partition. Moreover, the significance of primary products in the export trade of the country diminished between 1948/49 and 1960/61. The composition of imports also shifted from consumer goods to capital goods, industrial raw materials and the like, following the import substitution effects of Pakistan's industrial development. These developments suggest that a new index of the terms of trade should be constructed.

However, it is a fact that the country's balance of payments position has been very difficult in the past decade, and this was due in considerable measure to the deterioration in the terms of trade. The index of terms of trade declined from eighty-five in the first quarter of 1955 to fifty-two in the last quarter of 1959. This was caused by a steep rise in the price of imported goods up to 1957 and the decline in export prices of jute and cotton thereafter. The net effect has been to reduce the volume of imports the country can pay for by about 40 per cent, reducing the resources available for development every year. It has been estimated that the loss to the economy during the first plan period (1955-1960) due to deterioration in the terms of trade after 1954/55 was of the order of 2,000 million rupees.

As a matter of fact, after 1957, export prices of jute and cotton decreased and at the same time the exportable surplus of those two commodities also decreased, so that the combined effect of the two on total export earnings was considerable. One redeeming feature with regard to the commodity terms of trade is

TABLE 27. TERMS OF TRADE, BALANCE OF PAYMENTS AND EXTERNAL RESERVES 1948/49-1962/63

Year (July-June)	Trade indices (April-March)			Foreign trade (million Rs.)		Balance of payments, current accounts (million Rs.)	Gold, dollar and sterling reserves (end-June) (million Rs.)
	Terms of trade	Imports	Exports	Imports	Exports		
1948/49	—	—	—	1,459	957	-455	1,655
1949/50	126.1	73.2	93.2	1,297	1,194	-349	958
1950/51	123.7	88.0	109.0	1,620	2,553	+578	1,531
1951/52	116.6	93.2	108.5	2,237	2,008	-440	1,046
1952/53	77.6	82.7	64.2	1,384	1,510	-467	669
1953/54	74.8	90.8	67.9	1,118	1,286	-60	630
1954/55	85.5	82.1	70.2	1,103	1,223	+10	696
1955/56	65.6	127.7	83.8	1,325	1,784	+362	1,395
1956/57	63.5	152.3	96.7	2,334	1,607	-269	1,200
1957/58	58.6	158.6	93.0	2,050	1,422	-336	880
1958/59	56.0	150.0	83.9	1,578	1,325	+35	1,043
1959/60	51.0	156.6	79.6	2,461	1,843	+118	1,170
1960/61	91.5	168.1	153.8	3,188	1,799	-90	1,225
1961/62	67.5	158.5	106.7	3,109	1,843	-	1,128
1962/63	59.5	159.5	94.9	4,430	2,000	-	1,235

Note: For terms of trade, base year April 1948 to March 1949 = 100. The Pakistan rupee was devalued in August 1955.

that jute and cotton manufactures now form 25 per cent of total commodity export earnings as against one per cent in 1954/55. To the extent, therefore, that world terms of trade are tending to be adverse to primary products or favourable to manufactures, Pakistan is in a more favourable position now than it was a few years ago.

It can be seen from table 27 that Pakistan's balance of payments has been sharply fluctuating. In 1950/51, the year of the Korean conflict boom, the current account surplus was 578 million rupees (which has not been exceeded so far) but in the following year there was a deficit of 440 million rupees. A substantial surplus was again recorded in 1955/1956 (in which year Pakistan devalued the rupee) amounting to 362 million rupees but again in the following year, that is, 1956/57, there was a deficit of 260 million rupees. In 1959/60, there was a surplus of 118 million rupees but in 1960/61 there was a deficit of 90 million rupees. The Korean conflict boom, devaluation and the export bonus scheme all had a favourable impact on Pakistan's export earnings and the last two factors also helped to improve Pakistan's competitive position in regard to manufactured goods in world markets. However, the benefits of increased exports that should have resulted from devaluation were not realised, as the deterioration in terms of trade continued (the index fell from 65.6 in 1955/56 to 51.0 in 1959/60). This adverse effect was cushioned by United States commodity aid. In fact, foreign aid became crucially important for Pakistan at that stage; its contribution can be judged from the volume in 1960, which was 1,128.7 million rupees as against private account imports from Pakistan's own resources of 1,180.8 million rupees.

Apart from the demands created by an intensive industrialization programme, the factors that have been exerting pressure on Pakistan's balance of payments position are food-grain imports, defence requirements, servicing of foreign loans, internal inflationary situation etc. However, the fiscal measures taken by the Government in recent years have been extremely constructive and have helped place a definite check on the monetary imbalance. Because of the unfavourable trend in its terms of trade, Pakistan has had to cut down its imports, and import needs have been met increasingly by commodity aid.

With effect from 1 July 1964, the balance of payments statistics are being presented in a revised form. The concept of surplus/deficit has also undergone a change. The new concept is broader than that of the current account as it covers the capital transactions as well. The balance of payments recorded an over-all deficit of 63.6 million rupees during 1964-65. The deficit of 3012.1 million rupees on goods and services account was largely offset by receipts under the heads transfer payments and capital transactions. While net receipts under transfer payments stood at 1429.5 million rupees during 1964-65, net capital inflow amounted to 1519 million rupees.

As against the over-all deficit of 63.6 million rupees, the gold, dollar and sterling reserves showed a decline of 283.6 million rupees to 951.7 million rupees and other monetary movements denoted a deterioration of 4.7 million rupees during the year under review, resulting in a balancing item of 224.6 million rupees. The decline in reserves, which occurred notwithstanding a drawing of 76.2 million rupees from the International Monetary Fund in January 1965 against the gold tranche, mainly reflected the sizable increase in imports following a further liberalization in the import policy. The terms of trade index (1954-55=100) which stood at 88.59 in 1963-64 improved substantially during the year and was provisionally estimated at 111.65.

* The balance of payments statement for the year 1963-64 showed a deficit of 1487.5 million rupees on merchandise account. The figure, however, is not strictly comparable with the figure of deficit in the balance of payments statement for 1964-65 on account of the differences in the coverage of the two statements.

The deficit on merchandise account amounted to 2,255.4 million rupees during the year under review. The increase in deficit compared to the preceding year* was due largely to increase in imports as export earnings recorded a rise in 1964-65. Exports (f.o.b.) rose from 2,215.1 million rupees in 1963-64 to 2,403.6 million rupees during 1964-65. While earnings from raw jute, and other exports including rice, and cotton manufactures rose appreciably during 1964-65, receipts from raw cotton, wool, jute manufactures and hides and skins recorded declines. Export earnings from raw jute rose sharply by 150.2 million rupees over 1963-64 to 925.8 million rupees during the year under review. The increase was despite a fall in the volume of exports and was attributable entirely to a marked increase in export prices. Earnings from cotton manufactures increased from 115.3 million rupees in 1963-64 to 188.3 million rupees during 1964-65. The marked increase in receipts reflected mainly the expansion in export volume, both of cotton yarn and cotton piecegoods, although their prices also rose to some extent. Earnings from other exports (including rice), increased further by 113.3 million rupees over 1963-64 to 562.0 million rupees during 1964-65. At this level they represented about 23 per cent of the total export earnings. A substantial part of the increase in miscellaneous exports, appeared to have occurred under manufactured goods. This could be attributed to increase utilization of industrial capacity following enlarged imports of raw materials and spares under the free import list. Earnings from rice also rose from 102.5 million rupees in 1963-64 to 115.7 million rupees during 1964-65. With the removal of ban on tea exports in September 1964 and the fixation of an export quota of six million pounds, tea appeared again on the export list. Its contribution during 1964-65 was about 10.0 million rupees. Receipts from raw cotton declined by 112.2 million rupees to 330.5 million rupees during 1964-65. This was attributable entirely to the re-

duced volume of exports as export price of cotton showed a rise. Other items which recorded declines during the year were: wool (24.6 million rupees to 73.0 million rupees), jute manufactures (21.2 million rupees to 320.0 million rupees) and hides and skins (14.7 million rupees to 61.3 million rupees).

Imports (f.o.b.), including aid-financed imports, at 4,659.0 million rupees* during 1964-65 were substantially higher compared to the preceding year. Of the total imports during the year under review, imports from the country's own resources accounted for 2,203.8 million rupees while imports financed by foreign loans** and transfer payments** amounted to 1,174.4 million rupees and 796.0 million rupees respectively. The remainder represented largely imports relating to the Indus-Basin Expenditure, and to a small extent, of capital goods under private direct foreign investment. The increase in imports was the result mainly of the import liberalization measures.

The deficit on service transactions (excluding transfer payments) widened from 404.5 million rupees in 1963-64 to 756.7 million rupees during 1964-65 due to a larger increase in payments than in receipt.† The increase in payments occurred under all the items but was most pronounced in the case of transportation and insurance which recorded an increase of 249.6 million rupees to 635.6 million rupees reflecting mainly a marked increase in merchandise imports.

Transfer payments

Receipts under the head "Private", which represent mainly the remittances by Pakistanis working abroad, increased by 18.7 million rupees to 129.2 million rupees during 1964-65 while payments showed an increase of 3.3 million rupees to 33.2 million rupees. Receipts under the head "Central Government" during the year amounted to 1,334.0 million rupees.

2. Imports and exports

In 1947/48, the level of imports (359 million rupees) was low as compared to exports (703 million rupees). In 1948/49, the import policy was completely liberalized, so much so that there was an abundance of consumer goods in the country. In the following year, however, the non-devaluation of the Pakistan rupee caused a commercial stir and the imports on private account were reduced to 1,297 million rupees in 1949/50 against 1,459 million rupees in 1948/49. In 1951/52, with the Korean conflict boom, all restrictions on imports were removed, and the import bill went up to 2,237 million rupees. In November 1952,

import licencing was introduced in view of the recession in world trade and by 1954/55, imports had declined to 1,103 million rupees. From that year, imports of capital goods and industrial raw materials were allowed to expand while imports of consumer goods were drastically curtailed. This was the most crucial year in the process of industrialization in Pakistan. There was an increasing volume of indigenous products on sale in local markets and industrial production gathered momentum under the protective umbrella. Imports of capital goods increased from 230 million rupees in 1955 to 314 million rupees in 1958 and to 680 million rupees in 1960.

3. Import liberalization

Since 1959, the import policies of the Government have become increasingly liberal. The number of items on the import list has been raised and other measures designed to help selected industries adopted. These liberal policies have had a very healthy effect on industrial production and exports. As a result, the country's economic progress became rapid in the years 1959 to 1963. The success of the Government's policies can be judged from the following:

- a) Domestic production expanded as a result of the curbs on imports of consumer goods.
- b) Greater imports of 'balancing' and 'modernization' equipment helped industries work at full capacity.
- c) Imports were to some extent linked with export performance, so that exports received a boost.
- d) It was possible to divert external resources to important welfare sectors.

4. Export incentives

To increase the volume of exports, the Government introduced the Export Incentive Scheme in 1954. The Scheme entitled exporters to claim a 30 per cent bonus on export earnings. In 1954, as a direct result of this incentive, exports rose to 20 million rupees (in nine months) as against 8 million rupees in 1952/53.

The Scheme was extended from time to time, and a review made in September 1956 revealed that the over-all results were quite satisfactory. There had been an increase of 46 per cent in exports of minor commodities. In order to give greater stability to the Scheme, it was enlarged into the Export Promotion Scheme in October 1956, which covered sixty-seven primary and fifty-eight manufactured goods. Bonus entitlements for primary commodities were fixed at 15 per cent and for manufactured goods at 25 to 40 per cent.

In October 1958, the country's foreign exchange reserves fell to 726.2 million rupees as against 1,271.3 million rupees in 1956. This necessitated a review of policies in order to increase the volume of exports considerably. Accordingly, the Export Bonus Scheme was constituted and put into effect on 15 January 1959. This scheme is continuing.

* Imports including aid-financed imports amounted to Rs. 3702.5 million during 1963-64. This figure is, however, not strictly comparable with that for 1964-65 as it did not include imports financed by the Indus-Basin Expenditure and the flow of capital goods in the form of private direct foreign investment.

** Excluding Indus-Basin transactions.

† The figures relating to service transaction for 1964-65 are not strictly comparable with those of 1963-64 as some procedural changes have been made in the components to correspond with the revised form of the balance of payments statement.

The importance of the Export Bonus Scheme lies in its transferability. It has accordingly become a perennial item on the stock market. The Scheme has contributed in great measure to expanding the country's exports, as may be seen from table 28.

TABLE 28. EXPORTS OF SELECTED ITEMS, 1958-1960
(million Rs.)

Export items	1958	1959	1960
Cotton manufactures	4.39	26.68	54.54
Jute yarn and manufactures	108.35	212.58	245.43
Woollen yarn and manufactures	.46	3.09	3.22
Cotton yarn and thread	13.52	124.59	137.32
Leather (including hides and skins)	3.24	7.06	13.98

The increases in 1959 and 1960 have been quite impressive. Export earnings of bonus items were 20 per cent of total export earnings in 1959 and they increased to 37 per cent in 1960.

The Export Bonus Scheme has had an extremely favourable effect on domestic industrial production and has acted as a powerful incentive for exports. Many new items have been added to the export list.

5. Projections

The first five-year plan (1955-1960) anticipated an annual average income from exports of 1,912 million rupees, but in view of the good performance of exports in 1958 and 1959, the actual estimate of earnings in 1959/60 was 1,970 million rupees. In the second plan (1960-1965), an annual average of 2,120 million rupees was anticipated, with a total of 10,600 million rupees. The over-all increase anticipated was 15 per cent. Of this increase, 75 per cent was expected from manufactured goods and 23 per cent from primary commodities.

The increase was based on the expectation that the demand for jute goods would expand by about 2 per cent per annum and raw cotton and cotton manufactures by 10-15 per cent. Other products expected to make significant contributions to increasing export revenue were wool, hides and skins, tea, superior rice, newsprint, petroleum products, and so on.

Actually, the second plan (1960-1965) recorded a six per cent average annual increase in exports, which was far in excess of the three per cent originally anticipated.

In the third plan (1965-1970), the 1970 target for total export earnings has been fixed at 4,250 million rupees. This target is based on the planned expansion in the production of exportable surpluses and an assessment of market outlets. The projections are based on conservative price assumptions. On the other hand, if international prices for jute and cotton show some improvement, the chances are that the target may be exceeded.

Earnings from raw jute are expected to be maintained at the existing level of 800 million rupees while

earnings from jute manufactured are expected to go up from 360 million rupees in 1964/65 to 840 million rupees by 1970.

These assumptions are based on conclusions that the world consumption of jute manufactures will go up and that Pakistan will supply 20 per cent of the demand, as compared with 10 per cent in the past.

Earnings from raw cotton are expected to be 500 million rupees by 1970 and from cotton manufactures 300 million rupees as against 400 million rupees and 150 million rupees in 1964/65. These assumptions are based on expectations that some relaxation in imports will be in evidence in world markets. Table 29 shows the third plan projections for export earnings.

TABLE 29. ACTUAL AND PROJECTED EXPORT EARNINGS,
1962/63-1969/70
(million Rs.)

	1962/63 (Actual)	1964/65 (Estimate)	1969/70 (Target)
Raw jute	480	800	800
Jute manufactures	320	360	840
Raw cotton	390	400	500
Cotton manufactures	90	150	300
Hides and skins	80	70	80
Wool	90	90	90
Rice	120	150	250
Fish	100	90	200
Newsprint and paper	10	10	50
Other exports	210	280	500
Invisibles	500	550	640
	2,750	2,950	4,250

The liberal trend of import policies will be continued but, with the rapidly changing composition of the industrial programme, a review of the tariff structure may be made to provide increasing protection to the capital goods industry without increasing the cost of imports in fields where domestic production constitutes a small proportion of total imports.

It is assumed that imports of consumer goods will increase at a slower rate than the increase in national income.

Exports of manufactured goods are expected to account for 45 per cent of total exports by 1969/70 (as against 30 per cent in 1964/65). The export performance planned during 1965/1970 will require a shift from import substitution to export industries in the industrial programme.

The changing composition of exports will also necessitate a change in the destinations of the country's exports. In 1962/63, about 52 per cent of total exports went to Western countries. An expansion in the direction of Afro-Asian countries and centrally planned economies is predicted. In this context, the regional co-operation between Iran, Turkey and Pakistan is deemed significant.

The Export Bonus Scheme will be continued but its impact on different items will be carefully watched.

b. Principal manufactured goods and semi-manufactures exported

About a decade ago, exports of manufactured goods formed a negligible part of Pakistan's total exports. In 1951/52, earnings from the export of manufactured goods amounted to only one per cent of the total. Exports of jute yarn and its manufactures during that year were value at less than 25,000 rupees; exports of cotton yarn and manufactures amounted to 50,000 rupees, and the total exports of "artificially manufactured" stood at 150 million rupees.

However, in more recent years, manufactured goods have started taking an increasing share in the country's export trade, though their share is still far below that of primary commodities. Table 30 shows the change in the composition of Pakistan's export trade since 1957/58.

TABLE 30. COMPOSITION OF PAKISTAN'S EXPORT TRADE, 1957/58-1963/64

Year (Jan-June)	Share of primary commodities (%)	Share of manufactured goods (%)
1957/58	88.9	11.1
1958/59	82.1	17.9
1959/60	71.3	28.7
1960/61	71.7	28.3
1961/62	74.4	25.6
1962/63	76.0	24.0
1963/64	66.6	33.4

Earning from the export of primary and manufactured commodities since 1957/58 are shown separately in table 31.

TABLE 31. EXPORT EARNINGS FROM PRIMARY COMMODITIES AND MANUFACTURES, 1957/58-1963/64 (million Rs.)

Year	Earnings from exports of primary commodities	Earnings from exports of manufactured goods	Total
1957/58	1,264	158	1,422
1958/59	1,087	238	1,325
1959/60	1,324	519	1,843
1960/61	1,291	508	1,799
1961/62	1,371	472	1,843
1962/63	1,547	487	2,034
1963/64	1,524	746	2,270

c. Export-potential industries

The third five-year plan of Pakistan sets a target of 4,250 million rupees for foreign exchange earnings, to be reached in the final year (1969/70) of the plan. This includes 2,150 million rupees to be realized from the export of manufactured and processed goods. This target could be exceeded and a figure of 2,457 million rupees reached under suitable conditions. In other words, it can be expected that more than 50 per cent of Pakistan's foreign exchange earnings will be derived from the export of processed or manufactured goods.

Table 32 shows the targets tentatively worked out by the Export Promotion Board for the export of manufactured and processed goods by 1969/70.

TABLE 32. PROPOSED TARGETS FOR THE EXPORT OF MANUFACTURED AND PROCESSED GOODS, 1969/70 (million rupees)

Item	Proposed target to be reached by 1969/70
Jute manufactures	850
Cotton textiles	350
Handloom cloth	40
Ready-made garments	50
Hosiery	50
Woollen textiles	20
Art Silk fabrics	40
Carpets	80
Pharmaceuticals and herbal extracts	30
Surgical dressings	10
Urea and nitrogenous fertilizers	100
Electric appliances	40
Surgical goods and cutlery	35
Vegetable ghee	20
Shoes	20
Leather, uppers and soles	30
Leather goods	10
Tyres and tubes	10
Soaps and cosmetics	29
Sports goods	30
Cement	50
Newsprint and paper	40
Cuar gum	20
Minerals other than gypsum and rock salt— marble, chrome ore, manganese ore etc.	20
Handicrafts	20
Fish, processed, including prawns	150
Petrochemicals	20
Miscellaneous chemicals	50
Miscellaneous	252
Total	2,457

As far as primary commodities are concerned, the planned targets to be achieved by 1969/70 are as follows:

	Million Rupees
Jute, raw	800
Cotton, raw	500
Rice	400
Wool, raw	90
Hides and skins	80
Fish, fresh	60
Miscellaneous	170
Total	2,100

d. Standardization

1. Laws and regulations

Realizing the supreme importance of standardization in industry, the Pakistan Industrial Conference held in December 1947 recommended to the Government the establishment of a central standards organization in Pakistan. The Central Government accordingly prepared a scheme and circulated it to all the ministries and divisions of the Central Government

and provincial governments, chambers of commerce and other important industrial and technical organizations for their comments. The scheme met with general acceptance.

The Government of Pakistan, therefore, in 1951 set up the Pakistan Standards Institution as a Government department. Experience of its operation over a number of years convinced the Government that a departure from normal procedure had to be made. In October 1958, the Institution was reorganized as an autonomous body. The terms of the memorandum of association and the rules and regulations of the PSI were filed with the Registrar of Joint Stock Companies, and the Institution was registered in December 1958 as a society under the Registration of Societies Act XXI of 1860. The PSI started functioning as an autonomous organization on 21 November 1959, the date on which the first meeting of its General Council (Governing Body) was held.

Laws and regulations have been promulgated for the enforcement of standardization and quality control in the country including inspection for exports.

In order to enforce the standards laid down by the PSI for different articles and processes, the Government of Pakistan, in December 1961, promulgated the Pakistan Standards Ordinance No. XLVIII of 1961. The Pakistan Standards Institution (Certification Marks) Rules and Regulations framed under the Ordinance were published for general information in the Official Gazette in July/August 1962.

2. Preparation of standards

Standards are prepared in accordance with the needs of industry to fulfil a generally recognized want; the interests of both the producer and consumer are considered and a periodic review of them is undertaken.

The work of standardization on any specific subject is only undertaken when the Divisional Council concerned is satisfied, as a result of its own deliberations or of an investigation and consultation with producer and consumer interests, that the necessity for standardization has been established.

When the subject has been so investigated and the need established, the Divisional Council concerned refers the work to the appropriate Sectional Committee of the Division or appoints a new committee for the purpose.

At present there are six Divisional Councils:

- 1) Agricultural and Food Products Divisional Council;
- 2) Building and Building Materials Divisional Council;
- 3) Chemical Divisional Council;
- 4) Electrotechnical Divisional Council;
- 5) Mechanical Divisional Council;
- 6) Textile Divisional Council.

3. Implementation of standards

The application of standards in industries is done through certification marking. The certification marks are nothing but standard marks to indicate that the goods bearing such marks have been manufactured and found to conform to related Pakistan standards after the necessary inspection and testing. These certification marks are used by the industries under licence from the Pakistan Standards Institution.

At present both voluntary and compulsory certification markings have been introduced in the country. Under the voluntary scheme any manufacturer can apply for grant of licence to use standard mark if his product conforms to the relevant Pakistan standard and he can operate the routine scheme of testing and inspection furnished by this institution. Under the compulsory scheme the Government has banned the export of the five items from 1 June 1966 namely:

- (1) electric fans
- (2) induction motors
- (3) dry cells and batteries
- (4) storage batteries
- (5) cement

unless they bear the PSI certification marks. More and more export goods are intended to be brought under this scheme to ensure the export of goods of standard quality.

4. Organizational structure

(a) General Council

The affairs of the Institution are managed by a General Council which is appointed by the Central Government from time to time. The principal officers of the General Council are:

- a) The President, who is the Minister in charge of the Ministry dealing with the subject, now the Ministry of Industries and Natural Resources;
- b) Two vice-presidents, one of them being elected from among the members of the General Council every year and the other being the Joint Secretary of the Ministry dealing with the subject, now the Ministry of Industries and Natural Resources;
- c) The Director of the Institution, who is the Secretary to the General Council and *ex officio* member of all councils and committees set up by the General Council.

The functions of the General Council are detailed in paragraph 11 of the rules and regulations of the PSI constitution.

(b) Executive Committee

The General Council appoints an Executive Committee with powers to direct and manage the affairs of the Institution, subject to the approval of the General Council, to keep the activities of the Institution under review, and to report to the General

Council from time to time. The Committee is generally presided over by one of the two Vice-Presidents of the General Council. The Director of the Institution is the Secretary to the Committee.

(c) *Sectional committees*

To help the Divisional Councils, 90 sectional committees have been appointed by them. The sectional committees are made up of representatives of such interests as the Divisional Council may decide and are concerned with the standard or group of standards referred to the committee. All interests are adequately represented including scientists and technicians, but the consumer's interests predominate.

(d) *Sub-committees panels*

A sectional committee may, if it wishes, appoint sub-committees and panels from amongst its own members and others and may invite interests to nominate representatives on such sub-committees and panels. At present there are twelve such committees functioning under sectional committees.

(e) *Priority sub-committee*

In order to prepare Pakistan standards for exportable commodities on a priority basis, the Executive Committee appointed a priority sub-committee to make out a priority list every year from the items selected by the Divisional Councils for standardization.

(f) *Certification marks sub-committee*

After the promulgation of the Certification Marks Ordinance, the Executive Committee of the PSI appointed a certification marks sub-committee, with the Director-General of the Export Promotion Bureau as its chairman. In pursuance of the recommendation of the sub-committee, the PSI has sent circular letters to more than 1,000 manufacturing units in the country in order to procure information regarding the production, control and testing facilities available with them, in connexion with the testing of samples of certification marks.

5. *Organizations collaborating with the Government in maintaining standards*

The certification marks system is new to the country. As a result of a publicity drive conducted by the PSI, manufacturers are gradually recognizing the importance of standardization and certification marks. The Textile Manufacturers' Association, the Oil-Cakes Manufacturers' Association and other organizations have requested their members to adopt the PSI certification marks voluntarily. The government purchasing agencies are also being persuaded to purchase their stores, as far as practicable, according to PSI standards. These measures are gradually drawing the manufacturers toward using the PSI certification marks.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING, AND PROMOTING EXPORTS OF MANUFACTURED PRODUCTS

a. Broad strategy of action

1. *Background*

In order to outline the strategy of future industrial development, it is necessary to review the progress of planned development that has taken place so far. If the growth rate of GNP is analysed, it can be seen that the annual growth rate of large-scale industry over the past fifteen years has been as high as 15 per cent. The rate has come down to about 12 per cent per annum in the past five years, however. This contrasted sharply with the slow rate of growth in agriculture (1.6 per cent annually). The widely divergent growth rate in agriculture and industry over the past fifteen years have made economic growth less harmonious and have had an adverse effect on the over-all growth rate. After some of the early import-substitution possibilities for consumer goods had been exhausted, the pace of industrial development had to depend on the expansion of the domestic market, particularly in rural areas, which was restricted by the slow growth of agriculture. Fortunately, the growth rate in agriculture has improved recently (1964/65) to 3.1 per cent per annum. However, the divergent rates between agriculture and industry have led to a structural change in the economy. The contribution of agriculture to GNP is expected to decline from 60 per cent in 1949/50 to about 48 per cent in 1964/65, whereas that of manufacturing is expected to increase from 7 per cent to 13 per cent. The most decisive increase has been in the contribution of the large-scale industrial sector; its share has increased from 1.5 per cent to 7.4 per cent in the past 15 years. The economy is becoming progressively industrialized and its preponderant dependence on agriculture is diminishing.

The structural change in the economy has profound implications for future growth rates. As the relative weight of large-scale industry increases, its high rate of growth is likely to have a decisive influence on the aggregate rate of growth. Moreover, a certain degree of firmness is being imparted to the growth rates, as the share of the non-agricultural sectors is increasing in the economy and their growth rates are more stable than that of agriculture.

There has been a remarkable acceleration in gross investment in the last 15 years; it was about four times as high in 1964/65 as in 1949/50 in terms of constant prices. Most of the investment was, however, used for the creation of social and economic overheads. In fact, as much as 60 per cent of the total investment was devoted to the expansion of water and power facilities, transport and communication, housing, education, health and other social services. The full impact of these investments will be visible after some time, although an improvement in the framework of development is already apparent.

Domestic savings have also increased appreciably during the last fifteen years, growing at the rate of 6 per cent annually. By the end of 1965, the rate is expected to increase to 9.5 per cent. The marginal rate of savings up to 1964/65 is expected to be about 15 per cent. The acceleration in the rate of savings was sharp during the period 1960-1965 because of the textile boom in the earlier periods and the introduction of liberal import policies.

2. Future strategy

The third plan (1965-1970) aims at achieving an increase of 30 per cent in GNP, which works out at an annual compound rate of 5.4 per cent. Industry is likely to continue to be the leading sector and the projection is for an annual growth rate of 10 per cent. However, the investment effort required is to be determined on the basis of experience regarding the over-all capital-output ratio during 1960-1965 is tentatively estimated at 2:8, whereas in the third plan it is postulated at 3:5. It seems quite probable that the capital-output ratio will rise, since the emphasis in the third plan is on heavy industries and on the creation of infrastructure in East Pakistan that would accelerate industrialization. It should be possible therefore to attain a rate of economic growth in the next five years averaging a little higher than 5.4 per cent.

Investment during 1965-1970 is expected to increase by about 53 per cent, which implies an annual compound rate of increase of about 9 per cent. There may be little change in the share of the public and private sectors, because in both wings of the country a considerable outlay on infrastructure is still unavoidable. This is particularly important in East Pakistan. The share of the public sector in East Pakistan is likely to be 63 per cent of total investment and in West Pakistan 57 per cent. Moreover, the emphasis will be on heavy industries in which private capital is likely to be shy for some more years.

In regard to domestic savings, the third plan postulates a target of 23 per cent for the marginal rate of saving, which is rather ambitious but which seems possible in view of the experience of second plan. In the past, large-scale industry saved and re-invested 75 per cent of its profits and was able to generate a growth rate of 12 per cent per annum. This means that, as long as large-scale industry is the leading sector in the economy, there will automatically be a higher marginal saving rate than the average. Another helpful factor is likely to be the emphasis on heavy industry and the limitation of expansion in the consumer goods industry. A high marginal rate of saving is implicit in the targets set for additional exports and imports. About 62 per cent of the additional imports in 1965-1970 will be of capital goods and raw materials, thereby ensuring that the additional exports of about 5,000 million rupees proposed in the third plan be mainly transferred to investment through the balance of payments mechanism.

As far as the balance of payments is concerned, the Government's aim is to increase exports to the extent that their rate grows faster than the rate of growth of GNP. During 1965-1970, the rate of growth of GNP is planned at 5.4 per cent but that of exports is planned at 7.5 per cent per annum. The increase in exports is expected to be mainly in manufactured goods. This means that particular emphasis will be placed on the efficiency of the industrial sector, so that adequate increases in output and exportable surpluses are obtained. New industries to be set up will be geared to the export market. Import substitution will be intensified in the field of capital goods and in the supply of finished materials such as iron and steel products, and fertilizers. Investment in the exploration and exploitation of fuels and minerals will be intensified.

The Government will continue its fiscal policies designed to increase the availability of goods in the country through maximum industrial and commercial activity, and to create a climate attractive to foreign and local investors.

In pursuit of this policy, the Government has taken measures which are helpful to industrialization. Among these are:

- a) Raising of the bank rate to increase bank deposits and savings;
- b) Institution of the National Prize Bonds Scheme, to stimulate national savings;
- c) Establishment of the National Investment Trust, to channel savings into investments;
- d) Establishment of a liberal tax structure.

From the above, it follows that greater attention and priority will be given to the development of the industrial sector, in order to achieve the following results:

- a) Acceleration of the economic growth rate to 5.4 per cent per annum;
- b) Attainment of a high marginal rate of saving;
- c) Increase in exports of manufactured goods;
- d) Import substitution of capital goods;
- e) Diversification of employment opportunities for rural workers.

In the third plan (1965-1970), as much as 27 per cent of the total allocation will be earmarked for industry, of which over 66 per cent will be spent on capital goods.

Barring any specific constraints that may be necessary to prevent undue concentration of wealth and means of production and distribution in the hands of a few, to the detriment of the interests of the common man, the policy of fostering private enterprise and avoiding public enterprise except wherever necessary will be continued. Foreign private investment will be welcomed as before and the growth of a number of regional complexes will be encouraged. A network of small-industry service centres will be set up, supplemented by suitable extension services. Techniques of industrial productivity will be applied

in co-operation with private industry. Fundamental and applied research by the PCSIR will be directed toward development of new products, processes and techniques, and so on.

The major emphasis, as already stated, will be on a programme which will make a decisive shift from the consumer goods industry to the establishment of a basic capital and producer goods industry to reduce the country's dependence on foreign assistance for the import of capital goods. These industries include steel, heavy machinery, transport equipment and heavy chemicals. Export potential industries, such as fertilizers, petrochemicals, paper, sugar and cement will be given priority.

3. *Promotion of exports of industrial products*

(a) *Standardization and pre-shipment inspection of exports*

In order to assess the adequacy of existing arrangements for the specification of standards, and the setting up of pre-shipment inspection agencies, the Export Promotion Bureau engaged a team of Japanese experts to survey various manufacturing units, testing laboratories and the like. The survey has been completed and action is being taken to implement the recommendations of the team to the extent feasible.

(b) *Fiscal measures*

A study is in hand to assess the quantum of taxation which becomes directly or indirectly a part of the costs of production of goods for export.

(c) *Establishment of export assistance and design centres*

The Export Promotion Bureau is setting up these centres at various places in the country, to assist the smaller-business men with a 'trade clinic' service.

(d) *Establishment of Pakistan House International Limited*

The Export Promotion Bureau has sponsored a joint stock venture under the above name. Its activities will include the sale of Pakistani products, maintenance of Pakistani warehouses abroad, representation of Pakistani interests abroad, running of Pakistani restaurants abroad, and so forth.

(e) *Establishment of institute of foreign trade*

A step toward establishing an institute of foreign trade has been made by starting a two-month training course for business executives, in collaboration with the Institute of Business Administration.

(f) *Market surveys*

The Export Promotion Bureau will conduct or collaborate in surveys in foreign countries in respect of articles of export interest to Pakistan.

(g) *Survey of problems related to production and export prospects of Pakistani products*

The Export Promotion Bureau has set up a cost-of-production committee to examine and suggest ways of bringing down the cost of production of a number

of industrial products such as jute manufactures, cotton textiles and machine tools.

(h) *Export corporations for certain commodities*

The formation of export corporations will be encouraged, with a view to evolving efficient business organizations of an economic size for export trade in selected products.

(i) *Export Promotion Council*

A council with sixteen standing committees has been set up to deal with various commodities and aspects of export trade.

(j) *Publication of export guides*

These guides describe export procedures and the incentives and facilities available, and provide guidance for exporters.

(k) *Export bonus scheme*

Exports of manufactured goods will be allowed a 30 per-cent foreign exchange bonus on the f.o.b value earned.

(l) *Pay-as-you-earn scheme*

Imports of plant and equipment for approved industrial projects will be allowed from countries which are prepared to accept payment in the products of those industries. Such payments with interest, if any, will be allowed over a period of eight years.

(m) *Licensing*

Import policies are highly oriented towards production and export. The system of 'repeat' licensing (and similar incentives) is extended to help achieve this end.

(n) *Export system*

Measures have been taken to simplify export procedures, diversify export trade, intensify publicity for the export trade, and reorient and streamline organizations connected with the promotion of exports.

(o) *Advance licensing scheme*

Licenees are granted for the import of raw materials needed by a wide range of industries for the manufacture of goods exclusively for exports.

(p) *Export credits guarantee scheme*

The percentage of loss which may be made good under this scheme is 75 for commercial risks and 85 for political risks, the balance remaining the liability of the importer.

(q) *Rebate of customs and excise duty*

Exporters of manufactured goods can obtain refund of import duty on the raw material used in the goods exported.

(r) *Licences for bonded warehouses*

Excisable goods such as jute manufactures, cloth, matches and paints may be purchased by commercial exporters without payment of excise duties and held in bonded warehouses until exported.

(s) *Inland freight rates committees*

These committees consider applications for the

reduction of inland rail and other freight charges for the transportation of goods to ports of export.

The above measures are in addition to such routine measures as trade agreements, trade delegations, fairs and exhibitions abroad, trade offices abroad, the opening of branches abroad by Pakistani firms, business travel abroad and so on.

b. External assistance needed

1. Joint-venture industries

Pakistan, like most other developing countries, needs foreign capital to develop its industrial potential to the fullest possible extent. In order to attract a greater volume of foreign capital, Pakistan has been steadily improving the investment climate within the country. Foreign investments in Pakistan are granted several tax and other concessions and the Government has given repatriation guarantees as well as guarantees of compensation if circumstances lead to nationalization, although at present it has been categorically stated that no nationalization will take place.

Pakistan believes that, from its viewpoint as a developing country as well as from the viewpoint of capital-exporting countries, direct business investments are particularly desirable when they take the form of joint ventures. Joint ventures serve the following purposes:

- a) They stimulate the engagement of responsible local capital in productive enterprises.
- b) They help to develop a nucleus of experienced managerial personnel in the public and private sectors (in proportion to their participation).
- c) They help to train local industrial workers.
- d) They provide much needed foreign exchange by subscribing foreign capital.
- e) They help promote exports.
- f) They help save foreign exchange by producing import substitute goods.

The Government has taken adequate measures to attract foreign capital into Pakistan. Four investment advisory centres are being set up in foreign countries, in the United States, the United Kingdom, West Germany and Lebanon (Beirut). Others may also be set up, particularly in Japan and a few African countries.

One of the measures taken by the Government has been to enter into regional co-operation and development agreements with other countries. The most notable example is the agreement with Iran and Turkey and the creation of a council to approve and watch over the implementation of joint venture projects in the three countries.

The basic idea of seeking agreements of this kind is to have agreements which are extendable to other countries inclined to support such a move, as to provide wider bases for joint ventures and to seek

partners for Pakistani private investors from all over the globe.

The most promising fields for joint ventures are those which are basic to Pakistan's development efforts and which need a large volume of investment and higher calibre of know-how than Pakistani investors are able to muster. Some of these fields are:

- Fertilizers;
- Petrochemicals;
- Manufacture and assembly of motor vehicles including commercial vehicles;
- Iron and steel (Electric arc furnaces, steel ingots, steel alloys, castings, forgings);
- Machine tools;
- Heavy electrical goods (power generators, high-voltage and high-power transformers, high-voltage switch gears);
- Heavy engineering goods (locomotives, road-building equipment, machinery for sugar and cement factories, heavy containers for fertilizer/refinery units, boilers).

An analysis of the local market situation indicates an *existing market* of over 1,000 million rupees for vehicles, apparatus, machinery and equipment. Existing potentialities for the manufacture of machinery and equipment for sugar, cement, fertilizers and petrochemicals factories, and for locomotives, road-building machinery and boilers are quite large. To this may be added requirements that will grow during the Third Plan period (1965-1970). Based on an annual minimum turnover of 120 million rupees in this machinery and equipment, it is estimated that about 32 per cent of foreign exchange could be saved, representing the foreign currency required for investment in the project, which could thus be realized in three years after the complex starts production.

Apart from the above examples, joint-venture schemes are also indicated in the development of the following industries: electronics (manufacture of components such as transistors, diodes, polyester condensers/capacitors, carbon resistors, and ceramic condensers); fisheries (catching fleets, processing and canning of seafood); drugs and pharmaceuticals (basic manufacture only).

2. Manpower surveys and training needs

Current survey programmes include:

- a) survey of all known establishments employing 20 or more persons;
- b) survey of all establishments imparting technical, vocational or professional training.

The present survey operations are limited in scope, and they need to be extended to cover larger fields in greater detail. Assistance in the form of training of supervisory staff in countries where manpower surveys are highly developed would be greatly welcome.

The country is faced with an acute shortage of technically trained manpower at all levels. Accurate data on the shortages and surpluses by occupations and industries are being collected, but it can safely be assumed that the demand for skilled workers and trained personnel will in many areas increase faster than the supply. Looking at the general pattern of development, it can also be safely assumed that, during the third plan period, there will be an acute shortage of highly educated professional manpower such as scientists, agronomists, veterinarians, engineers, doctors, economists and statisticians. Their shortage will have both qualitative and quantitative aspects, and is expected to be magnified by their relative immobility. The rapid growth in the demand for technicians, technical supervisors, and other sub-professional personnel is likely to become more critical than the shortage of highly qualified professional personnel because the requirements for this category of manpower generally exceed those for senior professional personnel.

The magnitude of the employment problem in rural areas is so great that, in spite of all efforts so far undertaken, the situation is becoming acute at least in terms of absolute numbers. There does not exist sufficient knowledge about the organization and methods of promoting employment to serve as a guide in the development of a sound employment policy for rural areas. Pilot projects will, therefore, be undertaken within fairly limited rural areas over a number of years to develop and demonstrate methods of expanding rural employment opportunities through more labour-intensive methods of farming, the development of activities closely related to agriculture, promotion of rural industries, undertaking of special rural works programmes and encouragement of other promising avenues of employment. The results achieved will be evaluated and conclusions drawn as to the applicability of the methods and procedures tested in the pilot areas to regional and national programmes of rural employment promotion. International assistance in undertaking such projects may become available from the United Nations Special Fund, ILO and FAO.

The measures for employment promotion in organized industries in the urban areas will continue and will include fuller utilization of existing industrial capacity by introducing multiple shifts and removing handicaps such as the non-availability of raw materials and spare parts. Other measures will be the development of handicrafts, cottage and small-scale industries, and feeder industries, the promotion of suburban activities to meet the expanding demand for meat, eggs and vegetables, and the expansion of health, education and training programmes to provide employment to the educated unemployed.

International forums will be fully utilized to highlight the adverse effects of the policies regarding tariffs and trade unionism in the developed countries

on the employment situation in the developing countries, and possibilities will be explored to arrange bilateral agreements for providing overseas employment and training facilities to Pakistanis. Measures for providing greater mobility will include the provision of guidance and information to intending migrants to foreign countries, and also intraprovincial and inter-provincial migrants, the promotion of employment for seafarers and the promotion of gainful employment for women. This will involve a review and redefinition of the functions of the National Employment Bureau and the labour attaches abroad, strengthening of their existing offices, and the creation of labour offices wherever required.

3. *Fellowships and in-plant training*

Existing facilities for foreign training through fellowships and in-plant training will be fully utilized and ways and means sought to widen the scope for fellowship grants through international organizations devoted to technological development and through bilateral agreements. While fellowships will be sought over the entire field of economic development, facilities for in-plant training would be more rewarding if offered in the fields of new industrial investments proposed in the third plan (See section b.1 above)

4. *Importation of manufactured goods into developed countries*

According to a recent United Nations world survey the importation by the developed countries of 10 billion dollars worth of manufactures from developing countries by 1980 would materially help the developing countries, although it would be only one per cent of the additional demand for manufactures in the world. The creation of export opportunities in developed countries for the manufactures of developing countries does not require any extraordinary effort or sacrifice for the developed countries. In pursuit of this objective, the developed countries must accept structural changes in their economies so that the field of simple manufactures is vacated for developing countries, which could thereby improve their export earnings, meet their increasing foreign debt obligations and also enlarge their capacity to import more sophisticated manufactures from the developed countries.

Thirty-five to forty per cent of the increase in national income in Pakistan during the first five-year plan period (1955-1960) was contributed by industry. The impact of industrial development on the balance of payments position is also of particular importance. Even now, despite the considerable industrial development that has already taken place, Pakistan depends for over half of its total export earnings on raw jute and raw cotton. Its foreign exchange earnings are thus extremely vulnerable to fluctuations in demand and prices of these commodities.

Although the General Agreement on Tariffs and Trade (GATT) claims to have recently evolved a comprehensive programme of action in order to help the developing countries, this is by no means adequate. The programme involves not imposing new tariff or no-tariff barriers on certain products of the developing countries, eliminating the remaining quantitative restrictions at an early date, granting duty-free entry for tropical products by the 31 December 1963, eliminating customs tariffs on primary products, reducing and eliminating tariff barriers to exports of semi-processed and processed products of less developed countries, and reducing internal fiscal charges and revenue duties on the products of these countries. This programme would to some extent help to lift various trade barriers imposed on the manufactured products of the under-developed countries and thus help to stabilize their economies, but the programme is by no means sufficient to correct the wide imbalances in the external trade of the developing countries.

A suggestion which has recently been made is that the more developed countries should accept the repayment of loans from less developed countries in the form of manufactured goods. The idea has the great merit of linking trade with aid and deserves to be pursued vigorously by the less developed countries. Some of the advanced countries have, however, already expressed grave doubts about the wisdom of this suggestion. The argument advanced is that the repayment of international debts could not be a lasting arrangement, and it cannot be presumed that the exports of manufactured goods will terminate at the same time as the loan is paid off.

Pakistan will shortly import machinery against its exports of primary products as well as finished and semi-manufactured goods, from some East European countries under the proposed long-term barter

deals. These deals have been found necessary to find new markets for Pakistan's manufactured products and to earn foreign exchange for the development programme.

Pakistan is to conduct negotiations with over a dozen east European and other countries for the establishment of pacts under which it will supply simple manufactured goods in return for heavy industrial machinery under different aid and credit programmes. This will be on the pattern of an agreement signed between Pakistan and Yugoslavia. Pakistan will send delegations to some socialist countries for the purpose in 1965. The countries with which these pacts are proposed include the Soviet Union, Poland, Czechoslovakia and Hungary. A start is being made with Yugoslavia and the new principle, under which Pakistan will pay for its borrowings (in the shape of machinery) through simple manufactured goods, will be extended to other countries in the near future. The manufactured goods that Pakistan wants to supply in return for aid equipment include cotton textiles, pharmaceuticals, sports goods, leather, surgical and electrical goods, fertilizers and jute goods. Up to now, Pakistan has obtained heavy machinery through various tied aid and credit programmes, the bulk of which came from members of the Aid-to-Pakistan Club. While raw commodities such as cotton and jute find ready markets in various countries, the disposal of simple manufactured goods has been a problem for Pakistan.

The three-pronged action required to expand the developed countries' markets for exports of manufactures and semi-manufactures from developing countries consists of the gradual elimination of quota restrictions, the reduction and ultimate elimination of tariffs, and the abolition of internal fiscal charges that keep down the consumption of goods that reach the developed countries mainly from the developing countries.

DO3927

A COUNTRY STUDY ON THE PHILIPPINES

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning and programming

Historically, and in consonance with the prevailing economic settings, the evolution of industrial and economic planning can be traced to three periods, together with the corresponding plans and programmes formulated therein.

1. *Economic adjustment planning period*

(a) **Recommendations on Economic Adjustments During the Ten-Year Transition Period Prior to Political Independence.** Prepared by the Joint Preparatory Committee on Philippine Affairs (1938).

2. *Economic rehabilitation planning period*

(a) **Recommendations on Economic and Financial Adjustments for Economic Recovery.** Prepared by the Joint Philippine-American Commission (1947).

(b) **Hibben Memorandum on a Five-Year Investment Plan, Calendar Year 1948-1952.**

(c) **Beyster Programme for Philippine Industrial Rehabilitation and Development.**

(d) **The Government Programme of Economic Rehabilitation and Development of 1948, CY 1949 to 1953 (Cuaderno Plan).**

(e) **Philippine Agricultural and Industrial Development Programme, CY 1950 to 1954 (Yulo Plan).**

3. *Economic development planning period*

(a) **The Five-Year Economic and Social Development Programme for FY 1955 to 1959 (Rodriguez Plan).**

(b) **The Five-Year Economic and Social Development Programme for FY 1957 to 1961 (Puyat-Romualdez Plan).**

(c) **The Five-Year Economic and Social Development Programme for FY 1957 to 1961 (Roy Plan).**

(d) **Three-Year Programme of Economic and Social Development for FY 1959-60 to 1961-62 (Loesin Plan).**

(e) **Five-Year Integrated Socio-Economic Programme for the Philippines FY 1963 to 1967 (Macapagal Plan).**

The economic adjustment planning period is easily identified as covering the time from 1935 to 1941, although the original span was to have been up to 1945, or a ten-year period immediately

before the granting of political independence to the country in 1946.¹

Due to the impending change in the political status of the country, the principal planning and programming concern during this period was economic adjustment: the need to adjust the Philippine economy in relation to the American market upon which it was heavily dependent.

Except for the official birth of industrial and economic planning in the country in 1935, which was coincident with the creation of the National Economic Council as the economic planning arm of the Government, there were no other significant developments related to planning and programming during this period. The recommendations of the Joint Preparatory Committee on Philippine Affairs relating to economic adjustment did not constitute a formal development plan and the recommended projects were limited to improvements in the following:

- (1) technical training;
- (2) transportation;
- (3) conservation of natural resources;
- (4) agricultural practices and institutions;
- (5) manufacturing;
- (6) tariff schedules;
- (7) public revenue systems;
- (8) health conditions.

Moreover, the outbreak of war in the Pacific in 1941 halted the implementation of those recommendations.

It is hard to distinguish and clearly delineate the *economic rehabilitation* and *economic development planning periods* because of the inevitable overlaps. However, on the basis of the primary objective, five programmes can be classified into the former period and another five into the latter period.

Statistical data also seem to indicate that the above delineation appears appropriate in view of the fact that, while the reconstruction period had not yet definitely ended in 1955, there was evidence of a shift towards normal growth at the same time.²

As is implicit in the primary objectives of the different programmes formulated, the fundamental planning and programming consideration during the economic rehabilitation period was the reconstruction

¹ Under the provisions of the Tydings-McDuffie Law enacted by the United States Congress, the Philippines was granted independence on July 4, 1946.

² NEC, "The Five-Year Economic and Social Development Programme for FY 1957-1961," page 4.

of industries destroyed during the war, while that in the economic development period was the acceleration of economic growth.

Five programmes were formulated during the economic rehabilitation planning period and, as indicated earlier, all were primarily aimed at economic recovery, including economic adjustments and development. The main target of these plans was recovery to the pre-war levels of economic activity.

The recommendations on economic and financial adjustments of the Joint Preparatory Committee included a programme covering financial, monetary, fiscal and trade matters; nevertheless, it did not constitute a formal development plan. The main emphasis of the recommendations was on two major economic adjustments related to the gradual diminishing of United States Government payments after 1950 and to the gradual loss after 1954 of the favoured position of Philippine products in the United States market.

The Hibben Five-Year Investment Programme was a summary and integration of the different plans and programmes of government and private agencies. Its main feature was the expansion of agricultural and industrial output and concomitant services. Consequently, four major fields of investment were indicated as desirable:

- (1) increased production of foodstuffs for consumption and export;
- (2) increased production of non-foodstuffs for consumption and export;
- (3) expansion of Philippine exports;
- (4) increased output of services.

The magnitude of investment proposed in the Hibben Plan was approximately 2,000 million pesos of which about 420 million pesos was for industrial development.

The Beyster Plan outlined an over-all agro-industrial programme covering the rehabilitation of pre-war industries and the development of new ones. The projects recommended included eight major categories, namely, metals, chemicals, mining and quarrying, food and farm, textiles, forest products, public services, and miscellaneous and minor industries. The estimated total investment of the Beyster Plan was about 3,200 million pesos over a ten to fifteen-year period. Investments in industry were not indicated clearly.

The Cuaderno Plan was prepared primarily in connexion with a loan negotiation with the International Bank for Reconstruction and Development (World Bank). It was also the first programme drafted by domestic talents without foreign assistance. The aim of the Plan was substantially the same as that advocated in the recommendations of the Joint Philippine-American Commission, to adjust the economy in the face of the impending decline in United States Government payments and the application of United States tariffs to Philippine exports.

The Plan was conceived as the initial phase of industrialization, and it embraced investments in agriculture, industry, mining, transportation and communications, public works, and housing. The estimated investment over the five-year period was about 1,850 million pesos. Of this amount, 1,340 million pesos, or approximately 72 per cent, was allocated for industry.

Incidentally, the Cuaderno Plan was one of the only two economic development programmes, out of the series of economic plans so far formulated, which was implemented by the Philippine Government. It must be added, however, that only the first year of the Cuaderno Plan was implemented.

The Yulo Plan was the last programme framed during the period of economic rehabilitation. This plan was essentially a revision of the Cuaderno Plan. However, the revision refers substantially to changes in investment and production targets of the Cuaderno Plan in view of the trade and financial developments during the first year of the programme.

The total investment outlay estimated for the Yulo Plan was about 976 million pesos, of which 212 million pesos, or about 22 per cent, was earmarked for industry.

Five development plans have been framed so far during the so-called economic development planning period. As was indicated earlier, all these plans were basically geared to the acceleration of economic growth.

The five-year programme of FY 1955-59, or the Rodriguez Plan, was formulated after two drafts, one for FY 1953-57 and the other for FY 1954-58. This plan was approved by the President of the Philippines in 1954, but unfortunately, was not implemented. The Rodriguez Plan was the first plan conceived in a continuing planning and programming concept under which the programmes were intended to be revised and brought up to date every year by dropping off the programme for the year just passed, revising that for the remaining four years, and adding another year to form a new five-year programme period.

The five-year programme of FY 1957-61, or the Puyat-Romualdez Plan, was similarly formulated after a first draft of the programme for FY 1956-1960. This programme constituted the first revision of the five-year programme of FY 1955-59. It is essentially based on a public investment schedule which, together with schedule anticipation from the private sector, leads to a total schedule of capital formation. The programme thus envisioned an aggregate investment of 2,000 million pesos, in the public sector and from 3,200 to 3,500 million pesos of private net investment. Under the public sector, 362 million pesos was programmed in manufacturing, and in the private sector, 1,050 million pesos.

The five-year programme of FY 1957-61, or the Roy Plan, was the first and only programme

drafted by the legislative branch. This plan was prepared by the House of Representatives, Congress of the Philippines and was, therefore, the Congressional version of the economic development programme.

The three-year programme of economic and social development for FY 1959-60 to FY 1961-62, or the Locsin Plan, was the subsequent version of an earlier three-year production programme appended as a supplement to the Puyat-Romualdez Plan. The over-all financial requirements of this plan were estimated at 2,400 million pesos, of which 640 million pesos was destined for manufacturing.

The five-year integrated programme for socio-economic development for FY 1963-67 was adopted as the official development programme of the President. This programme indicates in terms of broad orders of magnitude the approximate targets for the public and private sectors during the programme period. These targets are designed for the improvement of the levels of living.

The programme envisages rates of economic growth of 5.5 per cent between 1962 and 1963, and 7.0 per cent from 1966 and 1967. The total investment target is 12,000 million pesos, of which 3,900 million pesos, or about 32 per cent, is directed to manufacturing.

b. Machinery for planning, implementation and evaluation

The description of the process flow of planning, implementation, and evaluation through the different agencies involved would perhaps best describe such machinery.

The National Economic Council, through statutory mandates, formulates national economic policies and prepares comprehensive economic and social development programmes. Such plans, when approved by the President and/or Congress, are implemented by government executive departments, government corporations, Government financial institutions chartered cities, and other local governments.

Under the same legal mandates, the National Economic Council is also vested with the function of evaluating, coincident with its duty (a) to review all existing economic development programmes and make modifications thereof at least once a year, and (b) to submit periodic reports to the President and to Congress concerning the state of progress in economic planning, and in the implementation of approved economic plans, programmes, and projects, and concerning current needs for legislation and changes in administrative policy, objectives, and practices.

When the present President of the Philippines assumed office in 1962, however, he created through an executive order the Programme Implementation Agency (PIA). This Agency, for all practical pur-

poses and intent, assumed and exercised not only the implementation function, which was the original reason of its being, but also the planning and evaluation functions. For this reason, this is the only office which is described subsequently, since it would seem academic to discuss a theoretical complex of planning, implementing, and evaluating machinery when in actual practice that is not the case.

II. INDUSTRIAL POTENTIAL

This chapter deals with reports on industrial surveys conducted by the various institutional agencies in the Philippines which are charged to undertake studies on the economic and industrial development of the country as well as the utilization of indigenous resources. Of these institutions, the most important are the Department of Commerce and Industry (DCI), the Philippine counterpart of the Asian Productivity Organization (APO), Forest Products Research Institute (FPRI), Philippine Bureau of Mines (PBM), Institute of Economic Development and Research (IEDR), Community Development Community Council (CDCC), National Institute of Science and Technology (NIST), the University of the Philippines' College of Agriculture (UPCA), Philippine Department of Labour (PDL) and Department of Agricultural and Natural Resources (DANR). Some of the reports of the above agencies as a result of their surveys are listed in appendix A.

Surveys, studies and reports on file at the Mining Division of the Agency for International Development include investigation on nickel-laterite, chromite, copper, manganese, coal, non-metallic minerals, ceramics, cement, electrometallurgical experiments on laterite, aeromagnetic survey, palaeontology, geology, general technical reports, and others. Papers or publications covering the reports are listed in appendix B.

Surveys on the resources of the country such as availability of water power, magnetite iron ore potential, iron deposits, operation of copper mines, investigations to formulate comprehensive programmes for multi-purpose development of major river basins, fishing grounds, studies and exploration of coal resources, nuclear power raw materials and so on are intended to guide parties who are interested in the development of those resources. Papers covering these studies are listed in appendix C.

Infrastructure constitutes essential industrial facilities. This group of elements for industrial development embraces such things as airports, ports, harbours, roads and highways, railroad, power, communications and shipping facilities.

Airports in the country are classified as trunkline, secondary and feeder. As of 1965, there are 8 trunkline, 25 secondary and 35 feeder airports. Aside from these are 45 existing rural airports. Twenty-seven feeder airports are proposed by the Civil Aeronautics Administration.

The railway systems of the country consist of the Southern Luzon line with a total length of 474 kilometres, the Northern Luzon line with 546 kilometres and 236 kilometres are credited to the Panay line. A plan has been completed for the extension of the Northern Luzon line by 330 kilometres, which will bring the terminal to Tuguegarao in the province of Cagayan. Likewise, the Southern Line is to be extended by 135 kilometres from Guinubatan Albay to Matong, Sorsogon.

Highways and roads are classified under six categories. They are P.C. concrete, low type bituminous, macadam, earth and miscellaneous. As of 1965, 15,677 kilometres are registered as national roads; 20,877 kilometres are credited to the provinces, 4,163 kilometres are shared by the cities; and 14,691 are marked as municipal roads or a total of 55,310 kilometres.

Sea ports are classified as (1) ports of entry, (2) sub-ports of entry, (3) ports open to coastal trade only. As of the end of 1964 there were 19 national ports of entry, 9 sub-ports of entry and 49 national ports open to coastal trade only.

III. INDUSTRIAL POLICY

As special incentives designed to spur the development of industries, Congress passed several laws granting tax exemptions, such as Republic Act No. 35 as amended by Republic Act No. 901, effective from 20 June 1953, and Republic Act No. 2351 passed on 20 June 1959, which authorizes the exemption of new and necessary industries from the payment of the internal revenue taxes. This act is no longer operative since new and necessary industries have been subjected to full taxes since the end of 1962.

Republic Act No. 3050 passed on 17 June 1961 grants exemption to local fertilizer companies from the payment, among other things, of sales and compensating taxes on their imports of capital goods, equipment, spare parts, raw materials, supplies, containers and fuel. The time limit of this exemption is 31 December 1965.

Republic Act No. 3127, which became effective on 17 June 1961, authorizes the exemption of basic industries from the payment of certain taxes, such as special import tax, compensating tax, foreign exchange margin fee and tariff duties in respect of the importations of machinery, spare parts and equipment. The exemption is as follows: 100 per cent of taxes due during the period from the date of approval of this act to 31 December 1966; 75 per cent of taxes due during the period from 1 January to 31 December 1967; 50 per cent of taxes due during the period from 1 January to 31 December 1968; thereafter, basic industries are liable in full to all taxes. Packaging and assembly plants are not entitled to the benefits granted in this act.

The basic industries are those mentioned in section 2 of this act, such as (a) basic iron, nickel, aluminium and steel industries; (b) basic chemical industries, antibiotics and fungicides, including cement manufacture and its allied industries and fertilizers; (c) copper and aluminium smelting and refining; (d) pulp and paper; (e) deep-sea fishing and canning of sea foods and manufacture of fish meals; (f) refining of gold, silver and other metals (g) mining and exploration of base and non-minerals or metals and crude oil or petroleum; (h) production of agricultural crops; (i) shipbuilding and dry-docking; (j) coal and dead burnt dolomite; (k) cattle industry; (l) logging and manufacture of veneer and plywood; (m) vegetable oil manufacturing, processing and refining; (n) manufacture of irrigation equipment, farm machinery, spare parts and tools for such machines, trucks and automobiles; (o) production and manufacture of textiles, cotton, ramie, synthetic fibres and coconut coir; (p) manufacture of cigars from both native and Virginia tobacco; (q) manufacture of gasoline and diesel engines; (r) manufacture of ceramics, furnaces, refractories and glass; (s) manufacture of food products, out of cereal, forest and/or agricultural products.

The Textile Industry Act (Republic Act No. 4086 approved on 18 June 1964) exempts from the payment of tariff duties, special import tax, sales and/or compensating tax, subject to specified conditions, the importation of natural and synthetic raw fibres and tow, chemicals, dyestuffs and spare parts, as well as the manufacture and sale of finished products thereof, by the textile industry in the spinning, weaving and finishing of raw fibres into yarn, thread, grey cloth and finished fabric. The exemption is 100 per cent of the taxes and duties from the date of approval up to 31 December 1966; 75 per cent from 1 January 1967 to the 31 December 1968; 50 per cent from 1 January to 31 December 1969; 25 per cent from 1 January to 31 December 1970; thereafter the textile industry is subject to full tax.

Section 188 of the Tax Code provides exemption from percentage tax for certain transactions and persons, such as the following:

- (a) Articles subject to specific tax;
- (b) Agricultural products and ordinary salt whether in their original state or not, when sold, bartered or exchanged in this country by the producer or owner of the land where produced as well as all kinds of fish and its by-products when sold by the fisherman or fish operator whether in their original state or not;
- (c) Minerals and mineral products when sold by the lessee or owner of the mineral land from which removed;
- (d) Articles taxed under section 189;
- (e) Articles shipped or exported abroad by the manufacturer or producer, irrespective of

any shipping arrangement that may be agreed upon which may influence or determine the transfer of ownership of the articles so exported.

IV. MARKET ANALYSIS AND SURVEYS

a. List of market surveys in the Philippines 1957-1964

1. 1957

(a) *Black iron pipes and agricultural implements*

1. A plant to manufacture b.i. pipes alone would not be economically feasible in view of its limited market.

2. The absence of locally produced agricultural implements led to importation being considered as the local consumption.

3. For ploughs, cultivators and harrows, there is an apparent downward trend in importation, and for reapers and mowers imports appear to be increasing.

(b) *Cement*

1. During recent years, there has been an acute shortage in the supply of cement.

2. There is an urgent need to expand existing cement plants or establish new ones.

3. Channels of distribution—sales agencies, organized dealers, and wholesalers.

(c) *Coconut coir and rope*

1. The domestic market for coir, if fully developed, would be large in view of the many uses of coir.

2. The foreign market, which is comprised of Japan, Europe and the United States, is extensive but cannot be developed owing to the high cost of baling and shipping the material.

(d) *Coil spring mattresses*

Surveys made indicated that no industrial firm is engaged in the production of spring coils at present. According to the technical staff of the Department of Finance, however, a private firm is planning to expand its operation into the production of this particular product.

(e) *Cornstarch, glucose, gluten and corn oil*

1. The market for corn starch is stable and capable of absorbing corn starch over the present level of consumption, in view of the establishment of the textile and pulp and paper industries.

2. There is a need to establish additional plants to manufacture corn starch to meet actual and potential demands.

3. There is sufficient available raw material to ensure continuous plant operation.

4. Channels of distribution—networks of organized dealers and agencies scattered throughout the Philippines.

(f) *G.I. wires, common wire nails, G.I. sheets and synthetic plastic sheets*

1. Raw materials needed by each type of industry under consideration are all imported and local materials, if any, are negligible.

2. The fields for these products except for the G.I. wires are considered crowded.

(g) *Glacial acetic acid*

1. The demand is more or less dependent upon its use by the textile industry and plastic industry.

2. The price has consistently been on the increase, and since it can be produced locally at a lower cost, the prospect of developing an export market is bright.

(h) *Gypsum*

1. Local production of gypsum is negligible and confined only to one or two localities despite the fact that about fifteen areas are known to contain sizable deposits of the mineral.

2. Feasibility of undertaking its production is doubtful because of the lower grade variety and the high transportation and distribution costs.

(i) *Potassium and sodium dichromate*

1. Prospective foreign markets—neighbouring countries such as Pakistan, Republic of Korea, Republic of China, Thailand.

2. Analysis of imports for the past five years indicates a positive increase in consumption of chromium salts.

3. Consumption is based on the need of the leather tanning, textile paint, and dye manufacturing industries.

(j) *Storage batteries*

1. Difficulties in foreign exchange limit the importation of essential raw materials for the manufacture of storage batteries.

2. There do not appear to be any prospects for expanding the present plant.

(k) *Toggle switches, outlets and sockets*

1. Establishment of an additional plant would not be feasible unless the demand increases.

2. The bulk of the market is located in industrial centres and their environs.

3. These are not seasonal goods and peak demand does not have a definite period.

4. Flush-mounted wiring fixtures are more saleable in cities and suburbs and cheaper surface-mounted fixtures are preferred in the provinces.

5. More sockets are used in residential construction than in commercial-industrial buildings.

6. Demand fluctuates according to the volume of construction activities.

(l) *Wooden casks and barrels*

1. For requirements in tight cooerage, the domestic market appears limited to what local distil-

leries are able to consume, estimated to be between 30,000 to 64,000 pesos worth of staves imported annually.

The requirements in slack cooperage are steadily expanding in proportion to the growth of the tobacco industry but this market can no longer be depended upon due to the fact that the tobacco redrying plants have undertaken the manufacture of their own barrels.

2. For tight cooperage, the volume of oak supply is hardly sufficient for present and future demand unless guio and palosapis are found to be successful substitutes.

3. For slack cooperage there is an unlimited supply of raw materials.

(m) *Wooden separators for storage batteries*

1. The stability of the market is based on the demand for storage batteries and the market is believed to be wide if the species of wood used is of high quality in accordance with the customer's preferences.

2. 1958

(a) *Cigarette industry*

1. Cigarette consumption in the Philippines during the past five-year period followed a vigorous and steady upward trend; an annual average increase of roughly 12 per cent.

2. Per capita consumption increased annually by roughly 10 per cent.

(b) *Hosiery industry*

1. There is an economic demand to warrant the establishment of a modern plant to manufacture high quality hosiery for men, women, and children.

2. The local market is wide and stable and is capable of absorbing a quantity of hosiery over the present level of consumption.

(c) *Mango jam and jelly*

The present market, local or foreign, is not developed to a satisfactory level but demand for the product may eventually increase to a point where every household becomes a possible consumer.

(d) *Printers' ink*

1. There is an economic demand to warrant the establishment of an additional plant.

2. Local raw materials are available but have barely been tapped. Serious consideration must be given to their proper exploitation, development and processing into ready and usable materials to ensure existing plants' continuous operation.

3. The local market is capable of absorbing a supply of the product above the present level of consumption.

(e) *Refractory bricks*

1. Three local firms are producing refractory bricks.

2. Although the trend was irregular, yearly increases and decreases resulted in a net increase of 66 per cent during the five-year period, 1952-1956.

(f) *Rod bearings*

1. No local firm is engaged in the manufacture of rod bearings.

2. The market is considered to be wide and stable.

3. Prospects for the proposed product are greatly dependent on its ability to withstand competition from imported brands.

(g) *Soap and candles*

1. Consumption is based on imports and production.

2. Irregularity in the consumption of laundry soap shows that production appears sufficient to meet the annual demand for this product.

3. There is increased production and abruptly decreased importation on toilet or fancy soap.

4. Production of candles is more than enough to meet the demand.

(h) *Tin can manufacture and lithography*

1. The market for tin cans is not only not saturated but is much wider than previously anticipated.

2. With the country's tin can potential not completely tapped, the market for tin lithography appears assured.

(i) *Transformer and fluorescent light bulbs*

1. The demand is greater than the present supply.

2. The demand for transformers is expected to narrow down following a decreasing tendency.

3. For fluorescent lamp ballast, the market is expected to expand, and demand will remain unsatisfied within the next five years.

3. 1959

(a) *Bicycle tyres*

1. Three local plants are manufacturing bicycle tyres

2. According to data furnished by the plants concerned, production capacity of the plants manufacturing tyres and tubes seems to have been reached.

3. It is believed that production of bicycle tyres and tubes will have to be accelerated to cope with the demand brought about by the increased level of local bicycle production.

(b) *Brake linings*

1. The project is considered sound and desirable.

2. The market is limited to the transportation industry.

(c) *Camel back*

1. Few local plants are engaged in the manufacture of camel back.

2. The market is limited to the tyre recapping and retreading industry, yet demand is quite enormous and is increasing to a point where the recapping industry cannot cope with the demand, due perhaps to

lack of a sufficient supply of camel back. Therefore, market is stable and extensive.

(d) *Castor beans and oil*

1. There is an increasing demand in the United States but the Philippines cannot sell competitively with other United States suppliers.

2. A big demand for dehydrated castor oil can be expected for local industry.

3. There is a need for capitalists who are willing to take risks and breed castor beans that are disease-resistant and high-yielding.

(e) *Evaporated and/or filled milk*

1. Local plants have adequate capacity to meet the estimated yearly requirements.

2. Operation of a third plant and/or increasing the level of production of existing plants would undoubtedly make the country eventually self-sufficient in evaporated and/or filled milk.

3. The market for the product is almost unlimited considering its various uses, the fact that every person is a potential consumer, and the fact that the population grows every year.

(f) *Fuller's earth*

1. There is no official record of local production of Fuller's earth; consumption is therefore wholly dependent on imports.

2. Vegetable oil refining is the largest consumer, the Fuller's earth being used in the decolorizing and bleaching processes.

(g) *Glass products*

1. No definite conclusion can be made as to the exact level of consumption.

2. Based on market trends, over-all production was increasing during 1955-1957 whereas importation of selected glasswares was decreasing.

3. There is little hope of expanding the production of lamp chimneys and similar items, due to the consistently declining market and a trend towards preference for electric lamps and bulbs over the kerosene type that uses lamp chimneys.

(h) *Marble products*

Since nine reporting firms produced less marble products, asbestos roofing, and so on in 1958, than eight reporting firms produced in 1957, and imports increased from 1957 to 1958, the establishment of a marble products factory will replace part if not all of the imports. The new factory, however, must produce marble comparable to imported products or to local products already accepted by the consumers.

(i) *Spark plugs*

1. Demand will depend on the number of motor vehicles or other power engines.

2. Market is considered stable.

3. At present, no local plant is engaged in the manufacture of spark plugs.

4. Prospects of the proposed product depend on the ability of the product to withstand competition from imported brands.

4. 1960

(a) *Ceramics*

1. Irregular trend with strong indications toward substantial yearly reduction in quantity and value, as local plants step up their tempo to attain higher efficiency and greater productivity.

2. Market for these products is wide in relation to the number of users.

3. Demand for each type of ceramic product is expanding.

(b) *Clocks*

1. No local firm is presently engaged in the manufacture of clocks.

2. Electric clocks are sought after by industrial establishments while non-electric clocks are popular with home-owners.

(c) *Desiccated coconut*

1. The United States is the biggest importer.

2. Australia has decided to change its source of desiccated coconut from Ceylon to the Philippines.

3. Japan does not import desiccated coconut.

(d) *Pork and beans and canned peas*

1. In 1957, production was limited, but in 1958-1959, a marked increase in the value and volume of production was noted.

2. In 1957, imports were high but they dropped sharply in 1958-1959.

3. Raw materials are available locally but they are of import origin.

(e) *Tar-laminated paper*

1. No plant has yet gone into the manufacture of tarlaminated paper in the Philippines.

2. Consumption is negligible.

3. The volume of local supply of tar is limited.

4. There is insufficient local capacity of kraft paper and paper bags made of kraft to meet the requirements.

(f) *Vinyl leather*

There is a decreasing trend in imports of the various related leather materials, with the exception of "other plastic materials" which spurted to a new high level in 1958. Apparently, this is an indication of an expanding demand for this type of product.

b. *Market studies*

1. 1963

(a) *Textile industry*

The demand for textile commodities shows an average annual increase as follows: yarn consumption 16.9 per cent; grey goods consumption 11.4 per cent; finished fabrics consumption and knitted fabrics consumption 1.94 per cent and 0.4 per cent respectively.



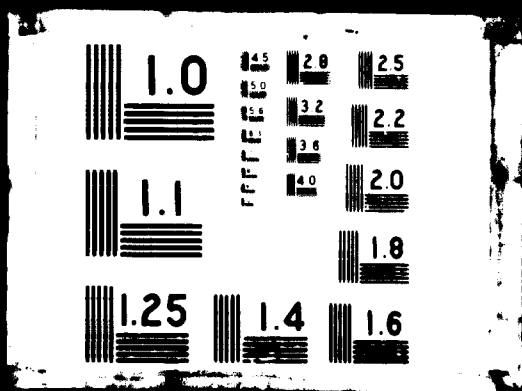
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Production and capacity utilization has increased: in spindle capacity utilization from 50 per cent to 80 per cent, weaving capacity from 38 per cent to 63 per cent, and finishing capacity utilization from 48 per cent to 58 per cent.

The two problems that face the textile industry are: the importations of fabrics and the increase in the cost of raw materials due to the increase in the exchange rate.

(b) *Wheat flour milling industry*

Over-capacity in the industry still exists. This implies that, under present conditions, no additional unit or expansion in capacity is warranted in the industry until such time as the present capacity can no longer meet the country's demand.

Projections disclose that local industry together with imports (estimated at a low level) can fill total demand for domestically produced wheat flour for the next five years.

Imports cannot be totally replaced by local production because of the preference of some for imported wheat flour and the requirements of industrialists for imported high-grade flour.

2. 1964

(a) *Leather tanning industry*

There are twelve principal mechanized tanneries with installed annual capacities of 19 million square feet of finished leather, and 137 small-scale tanneries.

Local production supplied 91.1 per cent of effective demand in 1962.

The demand for domestic leather is increasing at a low rate due to the relatively poor quality, the higher imports of leather goods resulting from rising national income, and competition from leather substitutes.

With 70-80 per cent utilization of the hides of slaughtered animals the requirements of the local principal tanners for raw hides can be met satisfactorily without importing raw hides.

(b) *Plywood and veneer industry*

Domestic consumption of plywood has been increasing during the period under study. Its growth parallels the movement of construction activity, with plywood accounting for about 15 per cent of construction expenses.

There are 19 plywood plants, 9 veneer plants, and 8 plywood and veneer plants with a rated capacity of 576,000,000 sq ft of plywood. Domestic production of plywood exceeds domestic demand. Excess production is hence channelled to the export market.

Imports of Philippine plywood and veneer into the United States have been increasing steadily, although they face competition from Japan.

(c) *Pulp and paper industry*

The supply of paper and paper products is slowly being taken over by local production. The average annual increase in local production is 18.5 per cent

compared with the annual average increase of 3.1 per cent in imports.

The present demand cannot be met by local mills. Even at full capacity, local production by 1970 will still be below the required volume. At present, the industry operates at 66 per cent of capacity.

(d) *Milk processing*

Demand met by local production represents only 32 per cent of effective demand for milk or 6 per cent of total milk demand (including unserved demand potential). This shows that there is still a great gap to be filled by local producers.

Present industry utilization is limited to less than two-thirds of full three-shift capacity.

Idle capacity can be reduced by limiting the importation of finished products, making products available at lower prices and arranging proper distribution.

3. 1965

(a) *Food processing industry*

The local consumption of processed meat is dictated by the supply of livestock, consisting mainly of pork, chicken and beef, as well as by imports which are largely made up of corned beef.

The demand for processed meat represented less than 10 per cent of total meat demand between 1958 and 1964. Capacity utilization of the industry for 1964 was 51.54 per cent of eight-hour capacity.

The supply of processed fish has been dominated by imports. With the introduction of two new canneries, however, it is foreseen that processed fish manufacturing will expand its share of the market.

Processed fruits and vegetables are sold both on the domestic and on the foreign market. There has been a steady increase in the number of firms engaged in fruit and vegetable processing. At present, 67.81 per cent of eight-hour capacity is utilized.

(b) *Textile industry*

The demand for textiles is estimated at an average of 13 pounds per person.

There are seventeen integrated textile mills performing the spinning, weaving and finishing operations and five firms performing spinning and weaving operations only. The capacity of the industry in 1964 was 167,958,594 pounds for spinning, 436,600,185 yards for weaving and 505,312,040 yards for finishing.

Capacity utilization in 1964 was approximately 52.6 per cent for spinning; 44.4 per cent weaving and 35.7 per cent for finishing.

(c) *Pulp and paper industry*

Local production has been increasing at a faster and steadier rate than importation. Production in 1964 grew at the rate of 19.6 per cent, importation 4.6 per cent.

The present demand cannot be met by local millers. Even by 1970, local production is expected to account for only 79 per cent of total supply.

Pulp used for paper manufacturing is mostly imported. Pulp milling capacity represented only 35 per cent of total paper capacity in 1963. Several proposed pulp and integrated mills are expected to improve this ratio.

(d) *Cement industry*

As of January 1965, there were seven cement plants capable of producing 36,500,000 94-lb bags of portland cement, another seven in various stages of establishment, and eighteen more with possibilities of establishment.

Production from existing plants has been growing steadily. Utilization of capacity has been maintained at nearly 100 per cent by all the plants except one, which has had technical, management and financial difficulties.

The supply of cement has been unable to meet the local demand for the product, thereby giving rise to increased prices.

(e) *Appliance industry*

The installed eight-hour capacity of the appliance industry (limited to radio, television, refrigerator and air-conditioning units only) is 383,700 units. As of 1963, utilization of capacity was 73 per cent.

All four appliances have a bright domestic market, except for tube radios, which are fast losing the market to transistorized sets. Sales of these appliances are growing at an impressive rate.

Because of high tariff rates calculated to protect the industry, which has been built up during the past decade or so, legitimate importations of these items have been minimal. In the meantime smuggling has become lucrative and continues to rise.

(f) *Motor vehicle industry*

The demand for motor vehicles increased nine-fold between 1953 and 1964, with the bulk of the increase in the five-year period 1960-1964.

Capacity utilization in 1964 was 58.1 per cent for cars and trucks. Despite low capacity utilization, other firms are planning to enter the business. Local production represented more than two-thirds of total supply in 1964.

Increases in future demand are expected to bring capacity utilization to 100 per cent in 1969.

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. *Rate of capital investment in industry*

The growth of the Philippine economy since the end of the Second World War was accompanied by a corresponding increase in capital formation. From 1946 to 1963, gross domestic investments rose by nearly 2,000 million pesos, from 384 million pesos to 2,298 million pesos. The increment was 17 per cent compared to 1962 and about 90 per cent from the launching of the decontrol programme in 1960. The annual rate of expansion in the last decade averaged 14 per cent and was nearly doubled

to 25 per cent in the more recent 1960-1963 period. Manufacturing and construction, representing more than half aggregate investments, rose at an average rate of 15 per cent and 10 per cent, respectively, between 1956 and 1963. (No earlier data by industry are available.) During the same period, however, trade, comprising about 7 per cent of the total investment, experienced the highest average yearly increment of 95 per cent, followed by transportation (14 per cent of total) at 58 per cent, communication and utilities (5 per cent of total) at 30 per cent, and services (6 per cent of total) at 29 per cent. Agriculture, accounting for 8 per cent of total investment during the period, registered an average annual rate of increase of 26 per cent, while mining, whose participation was only 2 per cent of total, experienced a slight deceleration as a result of a slow-down in mineral investments during 1957 and 1958 and also at the initial stage of decontrol in 1960; in the following year, however, the mining industry showed a substantial increase of 70 per cent, which was followed by a levelling off of investments in 1962 and disinvestments in 1963.

Since 1956, the industries that improved their shares in aggregate domestic investments were transportation, from 5 per cent to 17 per cent in 1963, followed by trade, from 2 per cent to 8 per cent. Likewise, communications and utilities increased their participation from 4 per cent to 6 per cent and services from 4 per cent to 7 per cent in 1963.

Investments in the private sector increased more rapidly than in government. In the last decade, private investments rose at more than twice the average annual rate of growth (7½ per cent) in the public sector, climbing further in the 1960-1963 period to 27 per cent, or more than two and a half times the public sector expansion rate. However, in the post-liberation years up to 1952, government investments, although representing only less than a fourth of aggregate investments during the period, moved up at a much faster pace.

At constant 1955 prices, however, the annual rate of growth in domestic investments averaged 11 per cent in the last decade with pronounced increases registered particularly between 1953 and 1955. This decelerated to 7 per cent in the later 1956-1963 period but, after decontrol in 1960, the rate went up to more than 11 per cent. The same trend was observed in the expansion of real GNP, except for the more recent period. The rate decreased to 4.7 per cent in the 1956-1963 period and fell further to 4.4 per cent in the last few years. During the period of decontrol (1960-1963), however, the ratio of real investments to real GNP was higher (about 10 per cent as compared to about 9 per cent in earlier years).

Total foreign borrowings of the government and private sectors between 1952 and the first half of 1964 amounted to \$213.6 million. Of this total, about four-fifths, or \$170 million, went to the public sector. A

major portion of this amount (\$86 million) was extended to the Central Bank by the IBRD, IMF, DLF and the Eximbank for industrialization purposes. The next largest loan, amounting to \$54 million, was extended to the National Power Corporation for the construction of Binga, Angat, Maria Cristina and Ambuklao electric projects. The Department of Public Works and Communications was also granted loans amounting to \$19 million by these different international lending institutions for the construction of roads, bridges and ports.

Total loans granted to the private sector accounted for one-fifth of total borrowings, or \$42.8 million, during the same period.

The peak of annual borrowings was reached in 1962, when both the government and private enterprises incurred a debt amounting to \$40.2 million. This represented an increase of 71.5 per cent over the end-1961 figure. In 1963, however, loans extended by the different lending institutions went down to \$61.4 million, a decrease of almost 60 per cent from the preceding year. Greatly responsible for the decrease in 1963 was the fact that the Government did not receive any loan from the IMF, while in 1962 that institution had extended a loan of \$28.3 million to the Central Bank. Similarly, private agencies did not borrow in 1963.

TABLE 1. RATIO OF REAL GROSS DOMESTIC INVESTMENT TO REAL GROSS NATIONAL PRODUCT, CY 1946-1963

Year	GDI at 1955 prices (million pesos)	GNI at 1955 prices (million pesos)	Ratio GDI to GNP (x 100)
1946	194	2,388	8.1
1947	560	4,802	11.7
1948	665	5,373	12.4
1949	711	5,718	12.4
1950	591	6,228	9.5
1951	455	6,523	7.0
1952	434	7,093	6.1
1953	562	7,646	7.4
1954	683	8,058	8.5
1955	789	8,687	9.1
1956	818	9,132	9.0
1957	940	9,532	9.9
1958	862	9,929	8.7
1959	838	10,514	8.0
1960	1,031	10,804	9.5
1961	1,234	11,431	10.8
1962	1,119	11,932	9.4
1963 ^a	1,249	12,510	10.0

Source of basic data: National Economic Council

^a Preliminary

b. Structure of the capital market

The capital market in the Philippines is predominantly a "customer's" market rather than an "organized" one. Capital or credit is generally obtained from financial institutions on a case-to-case basis with close contact between lender and borrower rather than with the impersonality and objective detachment of organized markets. Normally, securi-

TABLE 2. GROSS DOMESTIC INVESTMENT (at current prices)
CY 1946-1963
(million pesos)

Item	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
GROSS FIXED INVESTMENT:	258.3	530.6	644.8	599.0	484.4	491.1	485.8	559.3	562.6	623.6	777.1	889.7	870.4	945.0	1,225.0	1,734.0	1,889.0	2,203.0
Agricultural	—	—	—	—	—	—	—	—	—	—	51.3	54.2	40.1	32.0	61.0	82.0	146.0	172.0
Mining and quarrying	—	—	—	—	—	—	—	—	—	—	36.5	32.0	19.4	26.0	19.0	30.0	28.0	22.0
Manufacturing	—	—	—	—	—	—	—	—	—	—	159.8	193.3	238.4	234.0	265.0	506.0	530.0	480.0
Transportation	—	—	—	—	—	—	—	—	—	—	42.1	68.9	71.4	82.0	317.0	338.0	247.0	393.0
Communication and utilities	—	—	—	—	—	—	—	—	—	—	34.5	50.6	35.1	64.0	44.0	87.0	105.0	134.0
Construction	—	—	—	—	—	—	—	—	—	—	363.5	399.9	368.5	377.0	391.0	504.0	540.0	684.0
Ownership of dwellings	—	—	—	—	—	—	—	—	—	—	122.8	139.6	112.8	124.0	125.0	192.0	174.0	225.0
Government	—	—	—	—	—	—	—	—	—	—	227.7	232.2	226.9	255.0	249.0	273.0	283.0	342.0
Construction enterprises	—	—	—	—	—	—	—	—	—	—	18.0	28.0	28.0	18.0	17.0	39.0	83.0	117.0
Trade	—	—	—	—	—	—	—	—	—	—	53.8	50.3	44.6	67.0	73.0	98.0	121.0	160.0
Services	—	—	—	—	—	—	—	—	—	—	35.6	40.5	52.8	63.0	55.0	89.0	182.0	158.0
CHANGE IN INVENTORIES:	125.9	166.8	123.4	66.5	84.4	68.0	66.0	99.7	156.2	165.1	95.2	146.2	89.1	68.0	(17.0)	66.0	66.0	95.0
Livestock and poultry	111.0	153.0	104.0	55.0	68.0	50.0	52.6	84.9	122.1	91.5	43.3	8.1	38.3	13.0	49.0	15.0	31.0	36.0
Others	14.9	13.8	19.4	11.5	16.4	18.0	13.4	14.8	34.1	73.6	51.9	138.1	50.8	55.0	(66.0)	51.0	35.0	59.0
GROSS DOMESTIC INVESTMENT	384.2	697.4	768.2	665.5	568.8	559.1	551.8	659.0	718.8	788.7	872.3	1,035.9	959.5	1,013.0	1,208.0	1,800.0	1,965.0	2,298.0

Source: National Economic Council.

TABLE 3. GROSS DOMESTIC INVESTMENTS, BY INDUSTRIAL USE
CY 1956-1963
(million pesos)

Industrial Use	1956	1957	1958	1959	1960	1961	1962	1963
Agriculture	94.6	62.3	78.4	45.0	110.0	97.0	177.0	203.0
Mining	41.2	35.0	20.0	29.0	20.0	34.0	34.0	23.0
Manufacturing	242.2	251.9	286.2	282.0	291.0	536.0	543.0	523.0
Transportation	42.1	68.9	71.4	82.0	317.0	338.0	247.0	393.0
Trade	18.6	126.8	48.2	71.0	86.0	115.0	137.0	175.0
Construction	363.5	399.5	368.5	377.0	319.0	504.0	540.0	684.0
Communication and utilities	34.5	50.6	35.0	64.0	44.0	87.0	105.0	134.0
Services	35.6	40.5	52.8	63.0	55.0	89.0	182.0	158.0
Total	872.3	1,035.9	959.5	1,013.0	1,208.0	1,800.0	1,965.0	2,298.0
Percentage change over the preceding year								
Agriculture		-34.1	25.8	-42.6	144.4	11.8	82.5	17.5
Mining		-15.0	-42.9	45.0	-31.0	70.0	—	-32.4
Manufacturing		4.0	13.6	-1.5	3.2	84.2	1.3	-3.7
Transportation		63.7	3.6	14.8	286.5	6.6	-26.9	59.1
Trade		581.7	-62.0	47.3	21.1	33.7	19.1	27.7
Construction		9.9	-7.8	2.3	3.7	28.9	7.1	26.7
Communication and utilities		46.6	-30.6	82.3	-31.3	97.7	20.7	27.6
Services		13.8	30.4	19.3	-12.7	61.8	104.5	-13.2
Total		18.8	-7.4	5.6	19.2	49.0	9.2	16.9

Source of basic data: National Economic Council.

* Preliminary

TABLE 4. GROSS DOMESTIC INVESTMENT, BY TYPE OF PURCHASES, CY 1946-1963
(million pesos)

Year	Amount		Year-to-year change	
	Private	Government	Private	Government
1946	370.7	13.5	—	—
1947	644.5	52.9	73.8	291.9
1948	631.1	137.1	- 2.1	159.2
1949	467.9	197.6	-25.9	44.1
1950	381.0	187.8	4.3	- 5.0
1951	397.5	161.6	4.3	-14.0
1952	391.0	160.8	- 1.6	- 0.5

1953	494.5	164.5	25.4	2.3
1954	552.1	166.7	11.6	1.3
1955	615.7	173.0	11.5	3.8
1956	649.6	222.7	5.5	28.7
1957	803.6	232.3	23.7	4.3
1958	732.6	226.9	- 8.8	- 2.3
1959	778.0	235.0	6.2	3.6
1960	959.0	249.0	23.3	6.0
1961	1,527.0	273.0	59.2	9.6
1962	1,682.0	283.0	10.1	3.7
1963	1,956.0	342.0	16.2	20.8

Source of basic data: National Economic Council.

* Preliminary

TABLE 5. STAND-BY CREDIT ARRANGEMENTS ENTERED INTO BY THE CENTRAL BANK AS OF 31 DECEMBER 1964

Item	Original date of acceptance	Amount (million US\$)	Rate of interest (per cent)	Commitment fee	Maturity date ^a
International Monetary Fund	11/4/62	40.40	—	\$101,000	11/4/65
United States commercial banks		47.60			
Crocker-Anglo National Bank	29/3/62	2.50	5	1/2 of 1%	29/3/65
Bank of America	29/3/62	5.00	5	—do—	29/3/65
Manufacturers Hanover Trust Company	3/4/62	5.00	5	—do—	3/4/65
Chemical Bank New York Trust Company	3/4/62	5.00	5	—do—	3/4/65
Irving Trust Company	3/4/62	5.00	5	—do—	3/4/65
First National City Bank of New York	6/4/62	5.00	5	—do—	6/4/65
Morgan Guaranty Trust Company of New York	6/4/62	5.00	5	—do—	6/4/65
The Chase Manhattan Bank	11/4/62	5.00	5	—do—	11/4/65
Continental Illinois National Bank	20/8/62	5.00	5	—do—	20/8/65
National Bank of Commerce of Seattle	22/8/62	1.50	5	—do—	22/8/65
First National Bank of Chicago	8/10/62	2.50	5	—do—	8/10/65
Bank of California	29/3/62	1.00	5	—do—	29/3/65
TOTAL		87.90			

^a One year from date of acceptance but renewable.

TABLE 6. FOREIGN EXCHANGE OBLIGATIONS FROM INTERNATIONAL INSTITUTIONS — YEARLY AVAILMENTS
(million dollars)

Institution	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1st half 1964	Total
PUBLIC SECTOR:															
International Monetary Fund	—	11.00	—	—	10.00	5.00	—	—	8.75	6.25	—	28.30	—	—	69.30
Central Bank	—	—	—	—	10.00	5.00	—	—	8.75	6.25	—	28.30	—	—	58.30
National Government	—	11.00	—	—	—	—	—	—	—	—	—	—	—	—	11.00
International Bank for Reconstruction and Development	—	2.70	—	—	—	—	—	7.48	7.67	1.93	0.88	5.87	9.86	3.28	39.67
Central Bank	—	2.70	—	—	—	—	—	—	—	—	—	—	—	—	2.70
Department of Public Works and Communications	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
National Power Corporation	—	—	—	—	—	—	—	—	—	—	—	3.53	1.82	0.71	6.06
Binga	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Angat	—	—	—	—	—	—	—	7.48	7.67	1.93	0.88	0.34	0.07	0.02	18.39
Maria Cristina	—	—	—	—	—	—	—	—	—	—	—	2.00	7.77	2.27	12.04
National Waterworks and Sewerage Authority	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.28	0.48
Development Loan Fund	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Central Bank	—	—	—	—	—	—	—	—	—	0.02	2.50	3.17	2.52	0.88	9.09
Department of Public Works and Communications	—	—	—	—	—	—	—	—	—	0.02	0.84	0.27	0.59	0.80	2.52
Export Import Bank	—	—	—	—	—	—	—	—	—	—	1.66	2.90	1.93	0.08	6.57
Central Bank	—	—	20.00	—	—	—	7.37	—	2.12	6.75	6.72	1.96	4.02	3.77	52.71
Department of Public Works and Communications	—	—	—	—	—	—	7.37	—	2.12	6.75	6.72	0.04	—	—	23.00
National Power Corporation	—	—	—	—	—	—	—	—	—	—	—	1.31	1.57	3.77	6.65
Manila International Airport	—	—	20.00	—	—	—	—	—	—	—	—	—	—	—	20.00
Iligan Integrated Steel Mill	—	—	—	—	—	—	—	—	—	—	—	0.61	2.45	—	3.06
TOTAL PUBLIC SECTOR	—	13.70	20.00	—	10.00	5.00	7.37	7.48	18.54	14.95	10.10	39.30	16.40	7.93	170.77
PRIVATE SECTOR:															
International Bank for Reconstruction and Development-Private Development Corporation of the Philippines-Philippine National Bank	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24	0.24
Development Loan Fund — Private Direct Loans	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Export Import Bank	—	—	—	—	1.04	1.80	5.50	6.12	7.81	6.15	8.58	0.80	—	—	9.38
Commercial Bank	—	—	—	—	n.a.	n.a.	n.a.	6.12	0.13	n.a.	4.74	0.07	—	—	33.23
Private Direct Loans	—	—	—	—	1.04	1.80	5.50	—	7.68	6.15	1.44	—	—	—	9.62
TOTAL PRIVATE SECTOR	—	—	—	—	1.04	1.80	5.50	6.12	7.81	6.15	13.32	0.87	—	0.24	42.85
TOTAL PUBLIC AND PRIVATE	—	13.70	20.00	—	11.04	6.80	12.87	13.60	26.35	21.10	23.42	40.17	16.40	8.17	213.62

ties or papers arising from these transactions are held by lenders until maturity, thus lessening the tendency for market interest rates to fluctuate.

Commercial banks are still the principal suppliers of short-term or working capital while other finance institutions such as development banks, savings banks and insurance companies provide medium- and long-term credit.

Long-term industrial and agricultural credits are provided mainly by the Development Bank of the Philippines and the private development banks while real estate loans can be obtained from the Government Service Insurance System (GSIS), the Social Security System (SSS), private insurance companies, finance companies, savings banks and building and loan associations. The rural banks and the Agricultural Credit Administration (ACA) are the important suppliers of agricultural credit.

Although there are, as yet, no investment banks underwriting new capital issues, the Private Development Corporation of the Philippines (PDCP) and the National Investment and Development Corporation (NIDC), a subsidiary of the Philippine National Bank, are authorized to undertake such investment banking functions and are presently engaged in long-term lending. The Private Development Corporation of the Philippines was organized in early 1963 to assist in the establishment and development of private productive industries by extending medium- to long-term equity and debt financing. At the start of its operations in August 1963, the resources amounted to 112.5 million pesos, of which 25 million pesos represented equity capital and the balance of 87.5 million pesos loan capital. All but three of the loans were for expansion projects. In addition to project loans, the Corporation extended to the industrial and commercial sectors a sizeable amount in the form of short-term placements made against banker's acceptances. With an initial capital of 10 million pesos, the National Investment and Development Corporation (NIDC) was geared to help feasible industries whose large capital requirements could not be adequately met by commercial banks or other development banks. Credits extended are in the form of medium- and long-term loans. To meet the financial needs of local industries, a joint venture has been undertaken by a local bank (Commercial Bank and Trust Company) and a subsidiary of the Bankers Trust Company of New York. It is hoped that credit will be extended not only to new industrial projects but also to existing viable ones. The reorganization of the Credit Corporation of the Philippines in 1964 with an authorized capital of 2 million pesos also marked a significant step toward the development of long-term capital market in the Philippines.

The Central Bank of the Philippines accommodates the long-term capital needs of the Government and government corporations by supporting the 4 per cent PW and ED bond issues and by maintaining

government bonds and government corporations bonds in its portfolio.

Serving as the market for "old" investments, the Manila Stock Exchange registered an annual average value of transactions during 1959-1963 of about 154.6 million pesos.

c. Measures taken to promote savings and channel them into industry

Retrenchment measures have been adopted recently to promote government savings. The expense control programme of the national Government as a whole eliminated wasteful, uneconomic, excessive and extravagant expenditure. In particular, the Programme Implementation Agency, under the Office of the President, has called on all government bureaus and offices to fix their budgetary ceilings at a level equal to their operating expenses and capital outlays, which must be proportionate to the realizable income.

The bulk government resources are channeled to infrastructure projects to help accelerate capital formation. National highways, irrigation systems and inter-island seaports are priority projects in the Government's infrastructure programme.

A few government measures, especially those giving exemptions, effected savings for certain industries. Republic Acts Nos. 4086, 4065 and 4106 provided tax exemptions from certain taxes for the textiles and petroleum industries and the rural banks, respectively. Tax exemptions provided in the Basic Industries Law made more capital funds available for consolidation and expansion operations.

Several measures have been adopted to promote personal savings. Interest rates on some government bonds have been raised. Effective January 1965, interest rates on both savings and time deposits were increased by ½ per cent. Interest payable by commercial banks for savings deposits was increased from 3½ per cent to 4 per cent while that paid by savings, development, rural and co-operative banks was increased from 4 per cent to 4½ per cent. For time deposits in all banks, the interest rate was also raised from 4½ per cent to 5 per cent.

To induce more savings, some commercial banks have offered accident insurance benefits to their depositors. In order to reach the remote areas and to provide a more convenient service for savers, many banks have established branches all over the country. A voluntary payroll savings plan has been adopted, whereby deductions from the payroll of employees and workers are made for purchase of government bonds and securities.

d. Mobilization of private capital

There has been a gradual increase in the mobilization of private capital for the past few years, despite the limited ability of the banking system to extend credit to the private sector due to (1) the

tight credit policy of the Central Bank, (2) the low level of the excess and potential reserves of the commercial banks, and (3) the fact that a number of banks have nearly reached the statutory limitation of 15 per cent on the net worth risk assets ratio.

Reflecting the gradual increase in the mobilization of private capital, outstanding bank credits were granted in the banking sector alone for the period 1960-1964, resulting in increases of 16.4 per cent in 1961, 30.7 per cent in 1962, 23.6 per cent in 1963 and 22.7 per cent in 1964. During this period, it is especially noted that significant increases in bank credits were registered in construction, commerce, manufacturing and agriculture, as follows:

Year (ending June)	Percentage increase			
	Construction	Commerce	Manufacturing	Agriculture
1964	66.0	27.3	20.0	25.0
1963	40.0	38.5	15.8	23.3
1962	12.5	39.2	47.2	17.2
1961	42.9	21.8	25.6	7.5

There has been a definite downtrend in the rate of increase of bank credits extended to public utilities. The rates of increase were 34 per cent in 1961, 61.5 per cent in 1962, 29.7 per cent in 1963 and 19.7 per cent in 1964. Real estate and personal loans registered mild increases.

Loans outstanding from non-bank institutions (ACCFA, GSIS, SSS, insurance companies, mutual building and loan associations and pawnshops) increased by 101 million pesos, or 19 per cent, in 1961 compared with 73 million pesos, or 11 per cent, in 1962. Outstanding loans from these non-bank financial intermediaries also registered increases of 71 million pesos, or 10 per cent, in fiscal year 1963 and 144 million pesos, or 10 per cent, in fiscal year 1964. The lending operations of these institutions favoured real estate and consumption activities, especially in 1964 when the bulk of the increase in loans went to real estate (90 million pesos) and consumption (50 million pesos).

The main difficulty encountered in the mobilization of private capital lies in the unbusinesslike psychology of the people as a whole. Many keep their savings in hoards, in real estate, or in jewellery instead of depositing them with banks or buying government securities. Moreover, whatever savings have been already mobilized are not fully utilized. Many bank borrowers get loans supposedly to invest in productive ventures but the money finds its way into real estate or other speculative uses.

A wider spread of banking facilities and more disciplinary measures to ensure that credits are used for productive purposes are being adopted to overcome the difficulties described above.

e. Inflow of foreign capital

Sufficient organized data regarding the level of inflow of foreign capital by industry are not yet available.

Under the five-year socio-economic programme, domestic production is to be increased by 6 per cent. To attain this target, an estimated gross fixed investment equivalent to 12,053 million pesos is required. Of the total investment requirements, gross domestic savings are expected to finance 11,285 million pesos, or 89 per cent, and the balance, 11 per cent, will come from foreign sources. It is considered that the economy can support this amount of foreign investment (1,408 million pesos), which represents an annual average foreign investment requirement of about 300 million pesos.

The gross inflow of foreign capital reached a high level of \$118 million in 1961, prior to the five-year socio-economic programme. The high inflow of capital could be attributed to the \$54 million short-term loans accepted by the Central Bank and the \$58 million inflow of long-term capital through export deductions and deferred payments schemes and the direct loans of private companies. In 1962, however, the inflow of capital went down to \$39 million, the bulk of which came from credits obtained from international financial institutions such as IBRD and the Development Loan Fund. There was a further decline of foreign capital inflow in 1963. Of the gross inflow of \$36 million, short-term credits accounted for \$32.6 million. For the first half of 1964, the gross inflow of foreign capital reached \$52 million. New direct private investments amounted to \$3 million only. Short-term loans totalling \$17 million were provided by commercial banks in the United States, and \$20 million was obtained by the private sector through deferred payments and export deductions. The Government also obtained loans totalling \$8 million from IBRD, the DLF and Eximbank.

No reliable statistics on direct private foreign investments are available. It is therefore difficult to say whether or not the desired level of investments from abroad has been achieved.

f. Measures for servicing external public debts

External debts incurred by the Government, its agencies and instrumentalities are sometimes serviced through the establishment of sinking funds.

In addition, the Government or the Central Bank guarantees both the availability of foreign exchange and the payment of the external debt.

g. Measures taken to encourage joint ventures between domestic and foreign entrepreneurs

As a matter of policy, the Government welcomes foreign investment in the Philippines, preferably in joint-venture arrangements with Filipino businessmen. However, by virtue of the provisions of the Constitution and existing laws, foreign ownership in economic endeavours is limited, except for American citizens and corporations which have been given equal privileges to those enjoyed by Filipinos in

the matter not only of natural resources and public utilities but also in all other business endeavours.

Under the Philippine Constitution, the disposition, exploitation, development and utilization of natural resources is limited to Filipino citizens or to corporations or associations whose capital is at least 60 per cent Filipino. By virtue of the Parity Amendment (1947) to the Constitution, the same rights were extended to American citizens until July 3 1974.

As understood by the Constitution, "natural resources" includes all agricultural and forest land of public domain, waters, minerals, coal, petroleum, other mineral oils and all sources of energy. All these, with the exception of public agricultural lands, are not subject to alienation. A licence, concession or lease for their exploitation, development and utilization may be obtained for a period not exceeding twenty-five years, renewable for the same period, except that, with respect to water rights other than the development of water power, beneficial use shall be the measure and limit of the grant.

Agricultural land may either be private or public. Corporations or associations may not acquire leases or hold public agricultural land in excess of 1,024 hectares, nor may any individual acquire lands by purchase in excess of 144 hectares, or by lease in excess of 1,024 hectares. Grazing land not exceeding 2,000 hectares may be leased to an individual, private corporation or partnership. Private agricultural land, save in cases of heredity succession, may only be transferred or assigned to individuals, corporations or associations qualified to hold agricultural lands.

The National Economic Council recently adopted a declaration of national policy to allow entry to foreign investors who are willing to accept equity and managerial participation and to those who would exploit industries where there is a lack of Filipino capital and technical experience.

h. Policy regarding public ownership in certain sectors

The Philippine Constitution (article III, section 6) lays down the fundamental policy with respect to public ownership of enterprises. The State may establish or operate industries including transport and communications if such action is "in the interests of national welfare and defence." The State may acquire ownership of private enterprises, including utilities, upon payment of just compensation.

The Government has adopted a policy of owning and managing certain enterprises. The National Marketing Corporation (NAMARCO), a state trading corporation, was established to assist Filipino retailers and businessmen by supplying them with marketable goods at prices that allow them to compete success-

fully in the market. The aim was to increase Filipino participation in the retail distribution system.

The Government also purchases certain basic cereals to ensure a reasonable profit for producers while stabilizing the prices to the ultimate consumers. This is the case with rice and corn.

To promote the development of certain industries and for public welfare purposes, the Government has gone into public participation through the establishment of the Philippine Tobacco Administration, the Philippine Virginia Tobacco Administration, the National Shipyards and Steel Corporation, the Manila Railroad Company, the National Waterworks and Sewerage Authority, the Home Financing Commission, the Philippine Sugar Institute, the National Power Corporation, the Philippine Coconut Administration, the Cebu Portland Cement Company and the Abaca Corporation of the Philippines.

i. Remittance of profits, dividends and foreign capital

Under Central Bank Circular No. 133 of 21 January 1962, the remittance abroad of profits and dividends on foreign investments, as well as the repatriation of capital, can be effected through Authorized Agent Banks at the free market rate without prior approval. The banks are required to verify the amount requested for transfers of profits and dividends and to see that applications for capital transfers are supported by sufficient documentary evidence to substantiate the purposes and sources of the requested transfers.

j. Areas of industrial activity open to foreign investors

Limiting the term "industrial activity" to its specific sense, distinct from such other economic activities as the exploitation of natural resources, trade, finance, banking, transport and public utilities, the Government place no direct statutory prohibitions or limitations on overseas investors.

However, the Basic Industries Law (Republic Act No. 3127) provides that, in the event that two or more applications for exemption from taxes are pending, the applicant having the greater Filipino participation or control or both shall be given preference. By virtue of the Revised Trade Agreement of 1955 (Laurel-Langley Agreement), Americans are given equal rights to Filipinos in all business activities.

The National Economic Council, however, has adopted a policy statement welcoming foreign capital only in activities which Filipino enterprises cannot undertake due to lack of capital or experience. Foreign investment in industrial areas already pioneered or established by Filipino capital is discouraged. Where foreign capital is welcome, the policy adopted is based on a 60-40 formula, with Filipino control of 60 per cent.

k. Steps taken to encourage foreign investment in the country

The general measures taken to encourage foreign investments in the Philippines are: (a) the adoption of free enterprise as a declared policy; (b) the lifting of restrictions and control on foreign exchange; (c) the granting of tax exemptions to a number of basic industries.

Immigration laws granting easy entry to foreign technicians as non-quota immigrants also serve to encourage the inflow of foreign capital.

l. Measures and regulations affecting the import of technical know-how

The immigration laws of the Philippines allow the entry of foreigners for employment, as long as that employment is pre-arranged, thus justifying their entry and stay as non-quota immigrants.

While as a matter of policy, the Philippine labour laws generally prohibit the entry of foreign labour, foreign technicians are encouraged, upon certification by the Department of Labour that Filipino technicians are not available for the same work. Royalties are fully remittable at prevailing market rates, subject only to withholding tax under the Revenue Law.

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

The industrial institutions established by the Government as a pioneering endeavour to encourage and promote the development of similar ventures are the following:

1. *Industrial Development corporations.* The following agencies were organized for industrial development purposes:

- (i) *National Development Company:* Textile, shipping, mining, and so on.
- (ii) *Abaca Development Corporation:* Production of abaca and promotion of the effective utilization of abaca fibres.
- (iii) *Philippine Coconut Administration:* Coconut industry promotion of oil-processing industries and the use of coconut by-products such as coir and shell.
- (iv) *National Shipyard and Steel Corporation:* Shipyards and steel mills.
- (v) *National Cottage Industry Development Authority:* Development and promotion of small-scale and cottage industries on a nation-wide scale.

2. *The National Institute of Science and Technology (NIST)* was instituted to conduct research on converting a wide range of local raw materials into capital and consumer goods.

3. *The Economic Development Foundation* was recently organized to take the place of the abolished Industrial Development Center to extend technical

assistance in the preparation of industrial project studies and also serve as a productivity centre.

4. *The Development Bank of the Philippines* extends industrial loans to deserving industrial projects.

The promotional efforts made by the NDC in the field of textile manufacturing led to the establishment of twentyfour textile mills all operated by private entrepreneurs. Apart from these mills, there are also some knitting mills which are contributing to some extent to the productivity of the textile industry.

Abaca exports and the processing of abaca fibres by the private sector have made considerable headway under the Abaca Development Corporation.

The increased dollar earnings of the coconut industry and its achievements as the premier dollar earner of the Philippines reflect the success of the Philippine Coconut Administration (PHILCOA) in its efforts to develop both copra production and the processing of copra in oil mills.

The National Cottage-Industry Development Authority (NACIDA), through a vigorous campaign to promote and encourage cottage or handicraft industries, has achieved notable success during the short period of its existence. Many entrepreneurs of cottage industries are now producing handicrafts which have to a considerable degree replaced imports of handicraft goods.

A number of small shipyards have been built during the last few years through the efforts of the National Shipyard and Steel Corporation (NASSCO). Also, several steel manufacturing plants have been established to cater to the needs of the expanding domestic market for iron and steel.

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT

a. Manpower surveys and the need for trained personnel

The following are the principal manpower surveys conducted periodically which provide data for assessing manpower resources:

- (1) Population Census conducted every ten years by the Bureau of the Census and Statistics, Department of Commerce. The most recent census of February 1960 provided such manpower data as the number and the distribution of the employed labour force classified by industry (1 digit and 2-digits), class of workers, occupation (1-digit and 2-digits), and region.
- (2) Philippine Statistical Survey of Households (PSSH) conducted bi-annually by the Bureau of the Census and Statistics. This survey provides data on the size, composition, and distribution of the population in households ten years old and over and of the labour force; number and distribution

of the employed labour force classified by industry (1-digit), class of workers, occupation (1-digit), hours worked, and other socio-economic characteristics; and number and distribution of the under-employed and unemployed and their characteristics.

- (3) Philippine Statistical Survey of Manufactures conducted annually by the Bureau of the Census and Statistics. This is a sample survey of manufacturing establishments employing at least five persons. The survey provides data on employment, payroll, production, assets, inventories, sales and value added by production, classified by industry group (1 digit down to 4-digits groupings).
- (4) Quarterly Employment Survey conducted by the Department of Labour. This is a mailed questionnaire survey of selected non-agricultural establishments employing at least 20 persons. The survey provides data on employment trends, labour turnover, and hours worked, classified by industry (1-digit and 2-digits).

Two important manpower survey projects are presently being conducted with the assistance of experts from the International Labour Organisation (ILO). These are:

- (1) An evaluation of the vocational training needs of the Philippines to determine the feasibility of establishing special vocational training institutes. This survey is expected to be completed in April 1965.
- (2) A pilot survey of the modernizing sectors of the economy to test a method for collecting data on the quantitative as well as qualitative aspects of manpower, which subsequently could be used for more extensive investigations. Depending on the results of this test survey, plans are for a single agency of the Philippine Government to take over this project eventually as a continuing function. This survey is expected to provide a basis for determining the educational content of a selected band of occupations and for forecasting critical occupational needs.

No other manpower surveys are contemplated in the near future.

Using the employment data of the 1960 Population Census and the PSSH reports, the Programme Implementation Agency has attempted through the "analytic method" to identify current critical occupational needs of the economy. These estimates are shown in table 1.

These estimates are correlated to expected increases in the national income and therefore pre-

suppose the full achievement of planned targets. The influence of productivity is recognized but corresponding adjustments were not made in these projections for lack of essential data. They are, therefore, highly tentative and subject to revision.

b. Future needs for trained personnel

Table 8 gives the anticipated demand for a selected band of occupations derived on the assumption that between 1965 and 1969 there will be no major changes in the occupational composition of the industries involved. The assumptions used in forecasting employment by industry are also built into these occupational projections. The estimates represent maximum requirements without taking into account forthcoming supply from educational and informal training programmes. The projected output of educational institutions is indicated in table 9.

c. Training programmes for different categories of manpower

In addition to formal education, particularly vocational training, various training programmes are maintained by the Government and the private sector. Training in industry is generally maintained by individual establishments. Information on establishment programmes has not been collected. The significant training programmes maintained by the Government are as follows:

- (1) *Executive training.* A three-month training course is currently being offered to senior executive officials by the Philippine Executive Academy. Recently organized under the University of the Philippines, the Academy has in its first seminar this year 27 executive trainees, 7 of whom come from private firms. Through its scheduled seminars, the Academy expects to graduate 90 trainees a year. Individual government agencies, under the supervision of the Civil Service Commission, also conduct their own supervisory or middle management development courses. In 1964, about 300 trainees took such supervisory courses.
- (2) *Training in administrative and clerical skills.* This kind of training programme varies from one agency to another because each agency offers specialized courses for its own personnel. However, this training programme is under the over-all supervision of the Civil Service Commission. As of December 1964, there were 1,688 trainees in this programme.
- (3) *Land reform training.* An extensive training programme is planned by the Land Reform

Council to meet new demands for skilled agricultural extension workers and land expropriation, credit extension and legal advisers. A Land Reform Training Centre has been established to administer the training of such workers. In 1964, the Centre trained 269 field workers. Starting in 1965, the Centre is launching a five-year training programme to produce the following yearly output of trainees:

First year	4,950 field workers
Second year	3,600 field workers
Third year	2,200 field workers
Fourth year	2,250 field workers
Fifth year	1,350 field workers

- (4) *Apprenticeship training.* Apprenticeship programmes are jointly administered by the Department of Labour and the Department of Education. Apprenticeship contracts are voluntarily entered into by private establishments with the Department of Labour. These contracts specify employment conditions and emoluments of the apprentice. Active apprentices by occupational grouping registered in training programmes as of 30 June 1964 are summarized below:

Machining and other metal working trades	39
Mechanics and other repair trades ..	338
Printing trades	85
Weavers	47
Total	509

- (5) *Training for cottage industries.* Short training courses in home industry crafts such as bamboo and basket weaving, woodcraft, ceramics, sewing and hat weaving, are conducted by the National Cottage Industries Development Authority (NACIDA). The primary function of the NACIDA is to promote home industries particularly in rural areas. During the past two years, this agency provided training opportunities to 2,432 home workers in various parts of the country. Generally conducted as an incidental activity, training has become a major function of the NACIDA due to the shortage of skills in areas where it operates.
- (6) *Other training programmes.* To these programmes may be added several other training activities of limited scope. The Department of Finance recently established a Finance Academy to train its own personnel in tax administration. Skills in evaluating the economic and technical

feasibility of industrial projects seeking loans from government financial institutions are developed by a special programme maintained by the Programme Implementation Agency for the Loans and Investment Council. An ILO-assisted institute provides training in the promotion and administration of co-operatives. Recently, a special programme for lower-level statisticians in various government agencies was provided by the Statistical Centre of the University of the Philippines.

d. Mobilizing manpower resources

An attempt to mobilize the country's human resources was made by the Government in a massive employment programme undertaken by the Emergency Employment Administration (EEA) in 1962. The principal objective of this programme was to provide short-term employment in labour-intensive infrastructure projects as a means of utilizing the unemployed and under-employed labour force. It was also expected to generate some degree of economic activity in rural areas and thus provide bases for longer-term development projects. Over a period of two years, the EEA provided employment opportunities to over 800,000 workers in various projects such as the construction of feeder roads and irrigation canals, reforestation, forest conservation, land clearance and agricultural extension. Supplementary projects were also undertaken on a co-operative basis with agencies engaged in fisheries, cottage industries and regional planning.

Originally conceived as a five-year programme to coincide with the five-year socio-economic plan, EEA operations were curtailed and finally suspended after two years. The decision to suspend the programme was mainly the result of severe criticism levelled against the depression-inspired WPA and CCC of the late President Franklin Delano Roosevelt of the United States. Though defensible particularly from the standpoint of its contributions to rural economic activity, the programme was suspended as the Government, apart from reaching to public opinion, also began to experience budgetary difficulties during the first half of 1963.

Most of those provided with employment in EEA projects were seasonal farm workers and unskilled rural labourers who, for the first time, were exposed to alternative job opportunities. Some projects were directed towards hiring idle secondary school and college graduates, which constituted a very small proportion of over-all EEA employment but significant enough to indicate surpluses of various categories of educated manpower. The EEA experience at least succeeded in demonstrating the existence of a problem and an effective approach to the utilization of surplus manpower.

TABLE 7. ESTIMATED CURRENT (1965) OCCUPATIONAL NEEDS BY INDUSTRY^a

Occupational groupings	Estimated needs							Total
	Agriculture	Mining	Construction	Manufacturing	Transportation communication and utilities	Commerce and trade	Services (includes government)	
Administrative, executive and managerial workers	210	20	200	1,010	250	900	2,740	5,330
Government officials	30	—	—	10	50	100	1,800	1,990
Directors, managers and related workers	180	20	200	1,090	200	800	940	3,340
Engineering, technological and related professional workers	230	150	370	750	170	816	1,840	4,320
Architects, engineers and surveyors	110	50	300	400	130	80	1,100	2,170
Chemists, pharmacists, natural and agricultural scientists	70	10	40	200	10	700	300	1,330
Draftsmen and technicians	50	90	30	150	30	30	440	820
Clerical and related workers	70	30	50	680	360	1,140	2,470	4,800
Bookkeepers, accounting clerks and cashiers	40	10	10	300	210	700	900	2,170
Stenographers and typists	30	10	30	350	140	400	1,500	2,460
Office machine operators	—	10	10	30	10	40	70	170
Miners, quarrymen and related workers	—	3,490	—	—	—	—	—	3,490
Foremen, mines and quarries ...	—	90	—	—	—	—	—	90
Miners, quarrymen, well-drillers and related workers	—	3,400	—	—	—	—	—	3,400
Transport and communication workers	—	10	—	60	1,290	—	—	1,360
Ship engineers, officers and pilots	—	—	—	—	170	—	—	170
Ship crews, boatmen and related workers	—	—	—	—	450	—	—	450
Aircraft pilots, navigators and flight engineers	—	—	—	—	30	—	—	30
Railway drivers, brakemen and related workers	—	—	—	30	50	—	—	80
Inspectors, supervisors, traffic controllers and dispatchers	—	—	—	10	210	—	—	210
Telephone, telegraph and other communication operators	—	10	—	20	380	—	—	410
Craftsmen, production process workers, and related workers	280	270	5,800	7,010	740	280	1,130	15,510
Furnacemen, rollers, drawers, moulders metal making and treating workers	30	—	—	1,300	—	20	10	1,360
Precision-instrument mechanics, watch repairers and related workers	10	—	—	650	10	20	80	770
Toolmakers, machinists, plumbers, platers, and related workers ...	140	100	100	1,300	400	140	430	2,610
Electricians, electrical and electronics workers	20	40	100	100	250	40	310	860
Carpenters, cabinet-makers and related workers	50	40	5,600	1,500	40	40	170	7,440
Compositors, pressmen, bookbinding and related workers	10	—	—	500	—	10	30	550
Potters, kilnmen, glass and clay formers and related workers ...	—	—	—	300	—	—	20	320
Chemical and related process workers	10	—	—	1,300	—	—	—	1,310
Stationary-engine, excavating and lifting equipment operators and related workers	10	90	—	60	40	10	80	290
Total	790	3,970	6,420	9,510	2,810	3,310	8,180	34,810

^a Tentative estimates subject to further review, verification and modification.

TABLE 8. PROJECTED OCCUPATIONAL NEEDS, ALL INDUSTRIES*

Occupational grouping	Requirements 1965-1969	Average yearly requirement
Administrative, executive and managerial workers		
Government officials	29,200	5,800
Directors, managers and related workers	11,200	2,200
Engineering, technological and related professional workers	24,500	4,800
Architects, engineers and surveyors	12,600	2,500
Chemists, pharmacists, natural and agricultural scientists	7,700	1,500
Draftsmen and technicians	4,200	800
Clerical and related workers	26,500	5,300
Bookkeepers, accounting clerks and cashiers	12,000	2,500
Stenographers and typists	13,500	2,700
Office machine operators	1,000	200
Miners, quarrymen and related workers	19,500	3,900
Foremen, mines and quarries	500	100
Miners, quarrymen, well-drillers and related workers	19,000	3,800
Transport and communication workers	7,600	1,550
Ship engineers, officers and pilots	900	100
Ship crews, boatmen and related workers	2,500	500
Aircraft pilots, navigators and flight engineers	200	50
Railway drivers, brakemen and related workers	500	100
Inspectors, supervisors, traffic controllers and dispatchers	1,200	200
Telephone, telegraph and other communication operators	2,300	500
Craftsmen, production process workers and related workers	89,100	17,600
Furnacemen, rollers, drawers, moulders, metal making and treating workers	8,500	1,700
Precision — instrument mechanics, watch repairers and related workers	3,900	800
Toolmakers, machinists, plumbers, welders, platers and related workers	15,300	2,700
Electricians, electrical and electronics workers	5,500	1,100
Carpenters, cabinet-makers and related workers	41,700	8,300
Compositors, pressmen, bookbinding and related workers	3,000	600
Potters, kilnmen, glass and clay formers, and related workers	2,300	500
Chemical and related process workers	7,300	1,500
Stationary-engine, excavating and lifting equipment operators and related workers	1,800	400
Total	196,400	33,500

* Tentative estimates subject to further review, verification and modification.

TABLE 9. PROJECTED NUMBER OF GRADUATES FROM EDUCATIONAL INSTITUTIONS FOR VARIOUS OCCUPATIONS

Course	Number of graduates 1965-1969	Average yearly graduates
Post-graduate collegiate ^a	140	30
Industrial management and public administration	140	30
Undergraduate collegiate ^b	30,350	6,200
Engineering and architecture	15,700	3,100
Surveying	3,300	700
Agriculture	6,800	1,400
Chemistry	2,700	500
Veterinary medicine, geology and biology	350	100
Nautical	2,000	400
Secretarial and business vocational ^c	40,000	8,000
Bookkeeping	3,000	600
Secretarial science	37,000	7,400
Trade industrial vocational ^d	12,250	2,500
Drafting	700	100
Foundry, sheetmetal work and pattern making	150	50
Engine mechanics, welding and machine-shop practice	6,800	1,400
Electricity, electronics and sound	2,100	400
Wood pattern and cabinet making and building construction	2,000	400
Printing	200	50
Industrial ceramics	300	100

^a One- to two-year courses.

^b Four- to five-year courses.

^c Six-month to two-year post-secondary courses.

^d Four-year secondary courses or two-year post-secondary courses. The projections include only graduates of public vocational schools. Excluded are graduates of short opportunity courses offered by private and public schools.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

TABLE 10. PRODUCTION CAPACITIES OF SELECTED MANUFACTURING INDUSTRIES BY PRODUCT, 1958-1964

Industry and product	Number of firms	Production capacity	Unit
I. Ceramics			
1. Refractory and firebrick structural clay and sanitary ware			
a. Firebrick	4	1 million	pcs./yr
b. Sanitary ware	2	305,000	"
c. Structural clay	2	2,753,000	"
2. Mosaic, vitrified and glazed tiles, and insulator manufactures			
a. Glazed and vitrified tiles	2	37,700,000	pcs./yr
3. Dinnerware manufactures			
	3	602,000,000	pcs./yr
II. Chemical processing industries			
1. Caustic soda	6	15,000	mt/yr
2. Polyvinyl chloride	1	6,000	"
3. Acetic acid	1	1,350	"
4. Milk compound	1	850,000	lb/yr
5. Carbide	1	10,000	mt/yr

III. <i>Chemical fertilizers</i>			
1. Mixed fertilizers	2	128,000	mt/yr
2. Triple superphosphate	2	48,300	"
3. Urea	1	67,500	"
4. Ammonium sulphate	4	540,000	"
IV. <i>Flour</i>			
	6	290,000	mt/yr
V. <i>Iron and steel</i>			
1. Melting and rolling plants	5	211,000	mt/yr
2. Finishing plants			
a. Galvanizing plants	5	210,000	mt/yr
b. Tinning plants	1	72,000	"
c. Cold rolling mill	1	120,000	"
d. Tube and pipe mills	2	34,000	"
VI. <i>Leather tanning</i>			
		19,000	thousand sq ft
VII. <i>Milk processing</i>			
1. Bottling plants	6	22,256	thousand kg
2. Canned evaporated milk			
	3	367,897	thousand kg
VIII. <i>Petroleum refinery</i>			
	4	106,000	bbls. day
IX. <i>Plywood and veneer</i>			
1. Plywood	21	3.2 million	sq ft day
2. Veneer	10	2.5 million	"
3. Lumber	266	3.3 million	bft day
4. Log	381	2.6 billion	bf/year
X. <i>Pulp and paper</i>			
	15	140,000	mt/yr
XI. <i>Rubber manufactures</i>			
1. Tyres	3	501,470	pes. yr
2. Camel back	3	1,597,160	lb
3. Tubes and repair materials			
	3	1,873,346	pes.
4. Heels	1	996,300	pes.
5. Soling slab	1	158,400	pes.
6. Fan belts	1	31,050	pes.
7. Radiation hose	1	122,400	pes.
8. Bicycle tyres	1	270,000	pes.
9. Rubber bands	1	642,000	lb
10. Rubberized sheetings			
	1	255,000	pes.
11. Moulded rubber	1	27,000	kg
12. Recapping	1	90,000,000	kg
13. Latex foam products	1	300,000	kg
14. Rubber shoes	1	3,000,000	pes
XII. <i>Textile industry</i>			
1. Integrated textile mills			
	14	340 million	yd/yr
2. Weaving and finishing			
	1	6 million	"

Source: National Economic Council
Program Implementation Agency

IX. MEASURES TAKEN FOR STANDARDIZATION AND QUALITY CONTROL OF EXPORT OF MANUFACTURES AND SEMI-MANUFACTURES

(a) Republic Act No. 4109 — an act to convert the Division of Standards under the Bureau of Commerce into a Bureau of Standards to provide for the standardization and/or inspection of products and imports of the Philippines and for other purposes. The text of the act is as follows:

Section 1. The Division of Standards under the Bureau of Commerce is hereby converted into a Bureau of Standards under the Department of Commerce and Industry.

Section 2. The Bureau shall have as its head a Director of Standards and two assistant Directors,

one for technical matters and the other for administrative matters, who shall be appointed by the President of the Philippines with the consent of the Commission on Appointments. There shall be in the Bureau such officials and employees to be appointed by the Secretary of Commerce and Industry as may be necessary to carry out the purpose of this act; provided, that personnel of the Bureau whose duties and functions are technical in nature shall be exempted from the operation of the Wage and Position Classification Office.

Section 3. The Bureau shall have charge of the establishment of standards for, and inspection of, all agricultural, forest, mineral, fish, industrial and all other products of the Philippines for which no standards have as yet been fixed by law, executive order, rules and regulations; and the inspection and certification of the quality of commodities imported into the Philippines, to determine the country of origin of the articles which are the growth, raw materials, manufacture, process, or produce, and to determine if they satisfy the buyer's or importer's requirements or specification for domestic consumption; and to prohibit the discharge and/or release of any articles which are the growth, raw materials, manufacture, process, or produce of countries without trade relations with the Philippine Government. Physical, biological and/or chemical tests or analyses necessary for the examination of products under the provisions of this act may be undertaken in any branch of the Government having facilities for the purpose until such time as the Bureau may have its own facilities.

Section 4. Subject to the general supervision and control of the Secretary of Commerce and Industry, the Director of Standards shall possess the general powers conferred by the law upon Bureau chiefs, and the following specific powers and duties which he may perform personally or through his duly authorized representatives.

(a) Under such rules and regulations as the Director of Standards may promulgate which the Secretary of Commerce and Industry must approve within one year, to establish standards for the products within the purview of section three of this act; to inspect in order to sample and determine the standards of said products, and to certify the inspection and standard thereof;

(b) Before the government, including government-owned or controlled corporation, makes any purchase of any of the products within the purview of section three of this act, and/or the producer, manufacturer and/or dealer offers for sale any commodity which affects the life, health and property of the people, to inspect and sample in order to determine if, and to certify that, the products satisfy the requirements as to kind, class, grade quality or standard in accordance with the provision of sub-section (a) above;

(c) Before the exportation or shipment abroad of any of the products within the purview of section three of this act, for which no standard had or shall have, as yet, been established in accordance with the provisions of sub-section (a) above, to inspect the sample in order to determine if, and to certify that, the whole shipment satisfies the buyer's or importer's requirements as to kind, class, grade, quality or standard. Shipments which are not standardized but conform to the buyer's or importer's requirements shall, however, have their corresponding customs or shipping papers or documents stamped conspicuously with the caption "not under government commodity standardization" and may be released by the Collector of Customs in accordance with the existing Tariff and Customs Laws.

(d) Before any commodity imported into the Philippines is discharged and or released by the Bureau of Customs, to inspect such commodity in order to sample and determine the country of origin where the articles are the growth, raw materials, manufacture, process or produce, and to certify that the whole shipment satisfies the local buyer's or importer's requirements as to kind, class, grade, quality or standard which may be indicated on the corresponding customs or shipping papers or commercial documents; provided, however, that imports which are not shown to be covered by, or do not conform to, buyer's or importer's requirements, shall be labelled or stamped conspicuously with the caption "do not conform to buyer's or importer's specifications"; provided further that imports of any articles which are the growth, raw materials, manufacture, process or produce of countries wherein the Philippines has no trade agreement shall be confiscated and/or seized at the disposal of the Government.

(e) To fix and collect fees for the services of inspection and certification of inspection and standard, and or testing or analyzing samples and certification of tests or analyses, and other services, the nature of which requires scientific and or technological knowledge and skill.

(f) To take testimony or evidence on matters of official business relating to the exercise of his powers, the performance of his duties, and the accomplishment of the purpose of this act or any of the rules and regulations promulgated in accordance therewith.

(g) To initiate and undertake official investigations to determine the nature of organization and business methods of any entrepreneur, person, corporation, association, partnership or firm engaged in the manufacture, marketing and distribution of the products within the purview of section three of this act; provided, however, that this power shall be exercised only in connection with any known or reported violation of any provision of this act, or non-compliance with any rule or regulation promulgated in accordance therewith.

Section 5. Anybody who fails or refuses to comply with a legal summons or subpoena, or *subpoena duces tecum*, of the Director of Standards or his duly authorized agent or representative, or refuses to be sworn in, prior to giving testimony or refuses to answer pertinent questions or gives false or misleading data or information or wilful concealment of material fact in any investigation made pursuant to subsections (c), (d), (e), (f), and (g), of section four of this act, shall be punished by imprisonment of not less than two or more than six months, and by a fine of not less than five hundred nor more than one thousand pesos and deportation if he is an alien, after serving the entire period of his imprisonment; provided, however, that, if the false or misleading data or information shall have been given under oath, the maximum penalty for giving false testimony shall be imposed.

Section 6. No customs export entry, import entry, declaration, release certificate, manifest, clearance, import permit, or permit to ship abroad and/or discharge shall be issued for any of the products within the purview of section three of this act and or imported commodity, unless it is first inspected in accordance with the provisions of subsections (b), (c), (d), and or (e) of section four of this act; provided, however, that no product of the Philippines for which a standard has been established and promulgated by virtue of this act shall be sold and/or disposed of in any manner and/or exported unless and until its standard shall have been certified by the Director of Standards or his duly authorized representatives as conforming to standards set for either for local distribution and or for export; provided, further, that no such certification shall be required upon application under oath by the manufacturer and/or exporter to the Director of Standards that the shipment is in small quantity and the product is not for sale but for private use or consumption only. It shall be the duty and the responsibility of all collectors of customs to enforce the prohibition on the exportation and/or importation of any product hereinabove referred to.

Section 7. Any public official, employee, individual, corporation, association, partnership, or firm affecting or abetting the shipment abroad and/or facilitating the discharge or distribution and/or sale for domestic consumption of any product in violation of any of the provisions of section six of this act or any rules or regulations issued therewith, shall be punished by imprisonment of not less than six months nor more than two years and by a fine of not less than one thousand nor more than five thousand pesos, and deportation if he is an alien after serving the entire period of his imprisonment.

Whenever the violation is committed by a corporation, association, partnership, or firm, the President and each one of the directors or managers of said corporation, association, partnership or firm who

shall have knowingly permitted or failed to prevent the commission of said violation shall be held liable as principals thereof.

In case the offender is a naturalized citizen he shall, in addition to the penalty prescribed herein, suffer the penalty of cancellation of his naturalization certificate and such registration in the civil registry and immediate deportation.

In case the violation is committed by, or in the interest of a foreign juridical person duly licensed to engage in business in the Philippines, such license to engage in business in the Philippines shall immediately be revoked.

If the offender is a public officer or employee, he shall, in addition to the penalty of imprisonment and fine prescribed herein, be dismissed from office and perpetually disqualified from holding public office.

Section 8. The Division of Standards under the Bureau of Commerce is hereby converted and its personnel, appropriations, and share in the appropriations of the Bureau of Commerce funds, furniture, equipment, properties, supplies, records, assets and liabilities are hereby constituted to the Bureau and all powers conferred upon, and all duties, functions, and activities assigned to the said division and to the Director of Commerce by virtue of the provisions of sections one hundred fifty-five, one hundred fifty-six and one hundred forty-seven, together with the execution and enforcement of Commerce Administrative Orders on Standardization and inspection of Philippine products already promulgated in accordance with the provisions of the said sections of the executive order, are hereby transferred to the Director of Standards.

Section 9. In addition to such funds and appropriations as may be transferred to the Bureau as provided in section eight of this act, there is hereby appropriated, out of any funds in the National Treasury not otherwise appropriated, the amount of one million pesos for the salaries, wages, sundry and other expenses, furniture and equipment of such personnel of the Bureau as will be needed and required to carry out the purpose of this act.

Section 10. Twenty-five per centum of all receipts and collections accruing from the enforcement of this act and the rules and regulations on inspection and certificate of inspection and standard shall be set aside and be available for disbursement for salaries, wages, sundry and other expenses, furniture, and equipment of such additional personnel as may be needed and required to intensify or extend the activities and services of the Bureau. Any amount thus set aside, or so much thereof as may be needed for the extension of activities and services, shall be itemized in the special budget to be approved by the President upon recommendation of the Secretary of Commerce and Industry; and any such special budget thus approved shall be incorporated in the

draft of the regular budget for the ensuing fiscal year for the consideration of the Congress in its regular or special session. Unitemized and unexpended balances of amounts thus set aside shall be cumulative from year to year and shall constitute a special fund to be called the "Philippine Standardization and Inspection Fund" to be used for the purposes herein stated, and for such other aims and projects as may render the services of the Bureau efficient and effective.

Section 11. All acts, executive orders, administrative orders and proclamations or parts thereof inconsistent with any of the provisions of this act are hereby repealed or modified accordingly. If and part of this act shall, for any reason, be adjudged by any court of competent jurisdiction to be invalid, such judgement shall not affect the remainder thereof but shall be confined in its operation to the part directly involved in the controversy in which such judgement shall have been rendered.

Section 12. Effectivity. This act shall take effect upon its approval. 20 June 1964.

(a) Commerce Administrative Order No. 9, dated 24 January 1953 -- standardization and inspection of button blanks, and other purposes.

(b) Commerce Administrative Order No. 10, dated 19 January 1954 -- standardization and inspection of hemp squares and hemp rugs, canton squares and canton rugs, and other purposes.

(c) Commerce Administrative Order No. 11, dated 20 January 1955 -- standardization and inspection of finished buttons, and other purposes.

(d) Commerce Administrative Order No. 13, dated 17 August 1955 -- standardization and inspection of Philippine-made hats, and other purposes.

(e) Commerce Administrative Order No. 14, dated 3 April 1956 -- standardization and inspection of shellcraft, and other purposes.

(f) Commerce Administrative Order No. 15, dated 31 January 1957 -- standardization and inspection of bamboo-craft, and other purposes.

(g) Commerce Administrative Order No. 18, dated 21 October 1957 -- standardization and inspection of buri cloth (saguran), and other purposes.

(h) Commerce Administrative Order No. 19, dated 8 April 1960 -- standardization and inspection of placemats, and other purposes.

(i) Standard Administrative Order No. 1, dated 1964 -- standard rules and regulations on the inspection of standardized Philippine commodities, and for other purposes.

(j) Commerce Administrative Order No. 23, dated 8 November 1962 -- standardization and inspection of Philippine handmade embroideries, and other purposes.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING AND PROMOTING EXPORTS OF MANUFACTURED PRODUCTS

a. Broad strategy of action

The more important broad actions proposed for accelerating industrialization are as follows:

(1) The rehabilitation of existing enterprises, particularly those that were adversely affected by the institution of decontrol measures, through the assistance of anticipated foreign investments with the probable enactment of an investment incentives law. Increase of tariff protection under an omnibus tariff measure designed to simplify procedures regarding requests for tariff revision under the flexible tariff clause. Efforts toward strengthening the implementation of tariff laws.

(2) The relaxation of industrial financing regulations through the revision of credit policies by government financial institutions.

(3) The co-ordination of governmental development services, particularly those concerned with infrastructure, which includes highways, irrigation, water supply and power, in order to expand industrial productivity. The establishment of integrated steel mills and the exploitation of nickel deposits in the Surigao mineral reservation.

With regard to the diversification of manufacturing activities, the Government proposes to adopt the dispersal method of plant location and the establishment of industrial estates where transportation, ore, power, manpower, and fuel can be brought together for effective use. The economic objective of this action is to spread out the benefits of industrialization from the industrial centres to the surrounding consumer areas, where increased commercial activity would eventually result.

To promote the exports of industrial products, it is proposed to provide certain incentives, among which will be exemption from tax for raw material imports necessary for the manufacture of finished products intended for export, and a comprehensive tax exemption for new export manufacturing products. In addition, it is proposed to formulate a programme wherein idle labour will be more fully utilized in the manufacture of export products through a higher minimum wage level. Similarly, the Government, in its desire to promote the exportation of industrial products, intends to develop export markets abroad.

b. External assistance needed

1. Joint ventures

The concept of joint venture industries, as a means of remedying the smallness of the domestic market, is one that has been seriously considered by the economic planning agency during the last five years. It is not a

simple matter, however, in view of the fact that the products and natural resources of the Philippines are practically identical with those of neighbouring countries.

In the initial stage of study, the three ASA countries (Malaysia, the Philippines and Thailand) were considered with a view to forming joint ventures in the establishment of industries. Lately, the SEATO member countries have proposed not only joint ventures in industry but also co-operation in trade. The more the matter is studied, however, the more complicated it appears. The principal difficulty seems to relate to the identification of the type of industry that the countries could develop together for the common good.

The Philippine planning group is considering the domestic cement and chemical industries as possible fields for joint ventures with Pakistan and Thailand, since the Philippines appears to be more advanced in these manufacturing sectors than the other two countries. The ventures could be undertaken on either a bilateral or a trilateral basis, whichever is the more convenient.

2. Manpower surveys and training

The National Science Development Board has a proposed project to survey technical manpower in the country. The Board proposes to have the project conducted by an agency, such as the UP Statistical Center, on a contractual basis. External aid from the United Nations or other agencies could be helpful in this project.

Several surveys have been conducted to determine the training needs of the country. The results of these investigations only indicate general trends, however. They merely state that the needs are centred on vocational training and technical skill. The reports fail to identify the fields of vocational training and technical skill that are really required. A foreign aid assisted project in this field might perhaps be of value.

The country requires vocational training in ceramics, carpentry, mechanics, foundry work, wood working, plumbing, crane operating, electrical work, welding, printing, blacksmithing, tinsmithing, and the like. Training is also required in the following fields of technology: metallurgy, chemistry, steel rolling, electrical engineering, chemical engineering, mechanical steel furnace operating, foundry and metal-shop engineering, electroplating, electrorefining, machine and hand-tool engineering.

In the vocational fields, six to twelve months' training would be required, and about 5,800 trainees may be enrolled.

In the case of technical manpower, a large number may be required, considering the diversity of industries needing such skills. At least one year would be needed for this training.

Facilities for vocational and technological training in the country are very limited, especially for in-plant training.

Several universities and colleges in the country do offer technological courses leading to the degree of bachelor of science in chemistry, physics and various fields of engineering but the courses offered in these institutions are seldom geared to the demands of industry. As a result, these colleges turn out graduates who are unable to acquire employment and who therefore drift to unrelated and unrewarding occupations. This is where further training in specific fields is required.

3. *Institutional support for entrepreneurs*

Government-owned financial institutions and private banks provide the main institutional support to entrepreneurs in the country. Foreign exchange availability is very limited, however.

4. *Exports to developed countries*

The Philippines is exporting manufactured goods to developed countries. The United States is the largest market for Philippine cigars, veneer, plywood, vegetable oils, lumber, and so on. Philippine textile products are also exported to developed countries.

Annex A.

List of Philippine Industrial Surveys, 1953-1965

<i>Year</i>	<i>Survey</i>	<i>Agency</i>	<i>Geographical area</i>	<i>Subjects</i>
1965	Food Processing and Preserving Industry	PIA		<ul style="list-style-type: none"> Historical background Historical demand for and supply of processed meat, fish, fruit and vegetables Prospective demand and supply Industry capacity and capacity utilization Industry outlook
	Cement Industry	PIA		<ul style="list-style-type: none"> General information <ul style="list-style-type: none"> Identification of industry Problems Prospects Demand and supply analyses Technical analyses <ul style="list-style-type: none"> Production processes Economic size of plant Labour requirements Utilities Location Major machineries Raw materials Financial analyses <ul style="list-style-type: none"> Composition of assets Financing of assets Profitability Analyses of selected firms Management analyses <ul style="list-style-type: none"> Ownership
1965	Motor Vehicle Assembly Industry Marketing Study	PIA		<ul style="list-style-type: none"> Historical background Historical demand and supply analyses Prospective demand and supply situation Marketing aspects Used car market Some financial aspects Prospects and problems
1965	Motor Vehicle Assembly Industry Financial Study	PIA		<ul style="list-style-type: none"> Size of industry Composition of assets Sources of financing Profitability Inventory turnover Collection period of receivables
1965	Pulp and Paper Industry Demand and Supply Analyses	PIA		<ul style="list-style-type: none"> Historical background Historical demand for and supply of paper, aggregate and type of paper Prospective demand and supply Industry outlook Demand and supply analyses of pulp

1965	Appliance Industry Demand and Supply Study	PIA		<ul style="list-style-type: none"> Historical background Historical demand and supply analyses, aggregate and by type of appliance Prospective demand and supply situation Pricing structure Distribution channels Geographic distribution
1965	Financial Statistics on Selected Manufacturing Industries in the Philippines (cement, wheat flour, pulp and paper, filled milk, plywood and vener, and glass industries)	PIA		<ul style="list-style-type: none"> Condensed balance sheet Condensed income statement Statement of cost of goods sold Selected financial relationships
1965	Status Reports of Selected Industries	PIA		<ul style="list-style-type: none"> Status reports of the following industries: Animal feeds Soft drinks Knitting mills Fertilizer Glass Rice milling Corn milling Sugar milling Cocoa, chocolate and sugar confectionery Distilleries Wine Breweries Cigar and cigarette Rubber tyres Basic chemicals Coconut oil Petroleum refineries Pottery, china and structural clay
1964	Milk Processing Industry	PIA		<ul style="list-style-type: none"> Historical background Historical demand and supply Prospective demand and supply Nutritional requirement Consumption pattern Raw material supply Marketing system Movement of retail prices
1964	The Filled Milk Industry (Financial Study)	PIA		<ul style="list-style-type: none"> Size of industry Sources of financing Investments Cash position Collection period of receivables Inventories Profitability Disposition of net profit Break-even point
1964	The Philippine Embroidery and Garment Industry	DCI		<ul style="list-style-type: none"> Historical background Mechanics Geographical distribution of establishments Capital investment Export picture
1964	A Feasibility Survey of the Hydraulic Control of the Laguna de Bay Complex and related Development Activities	UN	Laguna Rizal Manila	<ul style="list-style-type: none"> Background Technical, organizational and financial aspects of the project Role of the Government Benefits to be derived
1964	The Philippine Coconut and Sugar Industries	NEC		<ul style="list-style-type: none"> The Philippine coconut industry Local production Coconut products and by-products Foreign exchange earnings Domestic price trends Philippines' share of the world market The world fats and oil situation Influence of trade policies on trade The situation under the Laurel-Langley Agreement

1964	Rice: Facts and Figures	NEC	<p>Philippine sugar acreage and production Number and distribution of centrals and mill districts Sugar quotas and their allocation Milling capacity, quota allocation and production relationship Market for Philippine sugar Quantity and value</p> <p>Rice importation Philippines goal — self-sufficiency Attempts at solution Area classification and productivity Fertilizer application</p>
1964	Foods in a Developing Economy	NEC	<p>Food situation — per capita requirement and supply Meat and milk production trends, imports and prices Problems and prospects</p>
1963	Wheat Flour Milling Industry Demand and Supply Analyses	PIA	<p>Demand Production Capacity Importation Outlook</p>
1963	Textile Industry Demand and Supply Analyses	PIA	<p>Industry structure Growth of the industry Current trends and development Marketing of textile goods Historical demand and supply Prospective demand and supply List of existing mills, (spinning, weaving, finishing, cotton and synthetic textile mills, knitting, hosiery and thread mills, twine manufacturers and fish net manufacturers)</p>
1963	Pulp and Paper Industry Financial Study	PIA	<p>Size of industry Historical background Income statement Profitability Break-even point Investments Sources of financing Dividends Various financial relationships Export and domestic prices of Philippine sugar World sugar consumption, production and prices Laurel-Langley Agreement Prospects Recommendations</p>
1964	Plywood and Veneer Industry Demand and Supply Analyses	PIA	<p>Historical background Domestic demand Export market Production Projected demand and supply Outlook</p>
1964	Textile Industry Financial Study	PIA	<p>Size of industry Sources of financing Investment Working capital Profitability Return on stockholder's equity Projected cash flow Other financial relationships</p>
1964	Leather Tanning Industry Demand and Supply Analyses	PIA	<p>Historical background Historical demand and supply Prospective demand and supply Outlook</p>

1964	Appliance Industry Financial Study	PIA		Basic financial statistics Size of industry Investment Cash position Collection of receivables Inventories Profitability Sales of break-even point
1963	Food Preserving and Processing Industry Financial Study	PIA		Basic financial statistics Size of industry Growth of selected firms Sources of financing Investment Cash position Collection of receivables Inventories Profitability
1963	Job Machine Shop, General Repair Shop and Foundry Plant — A Feasibility Study	IDC		Raw material End use of the product Capital requirement Estimated annual sales and profits
1963	Bright Prospects Ahead for the Iron and Steel Industry in the Philippines	IDC		Survey of raw materials and resources Feasible iron reduction processes Use of bunker oil as a substitute fuel Utilization of black sand for beaches Competitive position of sponge iron
1963	Survey of Commodity Flow	PIA/PC		To determine the flow of commodities between different regions of the country Inventory of the types of cargo transported by land, sea and air in the country
1963	Report of Top Management Study Mission	IDC/APO	India Philippines Japan China	To survey and study the different aspects of management within Asian countries Top management, its growth and develop- ment in India, Philippines and Japan
	Academic and Research Participa- tion in the Philippine Atomic Energy Programme	AID		
	Industrializing at the Grassroots level in the Philippines	AID		
	Present Status of the Cement Industry in the Philippines	IDC		Historical background Geographical distribution Domestic production Employment Foreign trade Analysis and recommendation
	Indoctrination and Training in the Biological Uses of Radioisotopes as a part of the Philippine Atomic Energy Programme	AID		
1962	Bamboo for Pulp and Paper Making	FRPI		The sulphate and sulphite processes Equipment for bamboo paper making
	Agricultural Fibre and Grasses for the Pulp and Paper Industry	FRPI		Good paper-making materials
	Provincial Industrial Survey Reports	IDC	Sulu Antique Aklan Abra Bataan	Historical background The province and its people Present economic development Natural resources Recommendations
1961	Prospects of Nuclear Power in the Philippines	IAEA	Luzon Grid	To present an analysis of the prospects of utilizing advantageously a relative- sized nuclear power plant in the Luzon Grid in the late 1960's Present structure of power demand and supply Energy resources Alternative power-supply programmes Future trends in fuel-oil prices

				Special consideration in building nuclear plants Nuclear fuel costs Generating cost of oil-fired and nuclear plants compared Steps in the introduction of nuclear power Origin and growth Key statistics—number and location, distribution of the plants, employment, capacity, production, consumption, raw material consumption and investment Technical data and information relative to the manufacture of the product
1961	Status of the Philippine Paint Industry	IDC		
1961	What New Industries Mean to Commodity Life (Economic Development of Makati, 1955-1960)	IDC	Makati	To estimate the economic effects of establishing industries in a community Industrial development (1955-1960) and its effects: demographic growth income community financing and credit facilities peace and order real estate development water and electrical energy consumption
1961	The Fruit and Vegetable Canning Industry in the Philippines	IDC		Historical background Key statistics and other information Problems Prospects
1961	The Synthetic Resin Industry in the Philippines	IDC		Status of the industry
1961	Pilot Plant Project in the Philippine Garment Industry	NEC		General industrial engineering and work methods design, pattern-making and cutting room sewing and finishing
1961	Studies on Coir and Coir Products	IDC		Components, uses, production List of manufacturers
1961	The Development of a Favourable Investment Climate for Industry in the Philippines	ICA		Guidelines for foreign investors
1961	Basic Guides for Starting or Expanding a Business	NEC/ICA		
1961	Economics of Mineral Resources	BM		Mining industry in the forties Post-war mineral development Legislation enacted Various surveys conducted with United States aid
1961	Logging Waste Study	FPRI	Basilan Is.	Ways and means of utilizing logging waste profitably
1961	Report on the Tobacco Industry in the Philippines	IDC		Origin and growth Key statistics Problems Prospects
1961	Second Survey of the Industrial Chemicals of the Philippines	IDC		Background and growth of the industry Key statistics Selected statistics of chemical plants 1959 Problems
1961	Status of the Meat Products Manufacturing Industry in the Philippines	IDC		Origin and growth Key statistics — number and location distribution of the plants, employment, capacity, production consumption, raw material consumption and investment Technical data and information relative to the manufacture of the product
1961	Provincial Economic and Industrial Survey Reports	IDC	Batangas Agusan Basilan Cotabato	Historical background The province and its people Present economic development Natural resources Recommendations

				Lanao del N. Lanao del S. Bukidnon N. Vizcaya Cagayan Misamis Occ. Misamis Or. Zamb. del N. Zamb. del S. Isabela Mindanao Samar Or. Mindoro
1960	An Economic Survey of the Limay, Bataan Area	IFDR, UP	Limay, Bataan	To chronicle economic change in a small rural area as a large industrial enterprise is introduced To present a picture of Limay before the coming of the Stanvac refinery Population Trade, commerce and industry Standards of living Government
1960	Charcoal Briquetting Plant	IDC		The promotion and development of the charcoal briquetting industry: economic feasibility project details financial requirements impact on the national economy
1960	Agricultural Credit and Co-operative Finance Administration	NEC/ICA		Technical guidance and assistance to the ACCFA in the administration of government loan programme to small farmers: supervision and development of farmers co-operative marketing associations (FACOMAS) establishment of nation-wide market facilities and programmes
1960	The Ready-Made Garment Industry in Minglanilla, Cebu	CDRC, UP	Cebu	Analysis of the industry Process of production Marketing of garments Patterns of investment capitalization, organization and labour utilization Recommendations
1960	Background for the Study of the Socio-Economic Aspects of Agricultural Products	AID		
1960	Wheat Improvement	AID		To survey potential wheat-growing areas To determine their suitability as regards soil, climate for soil cultivation To advise and assist the Government on adoption of more modern cultivation techniques, introduction and testing of improved varieties, and the development of new varieties suited to local soils, climate and other conditions Study the economics of wheat production problems — past work and technical accomplishments — varieties, seeding rate and spacing time of sowing, fertilizer, irrigation, bread-making quality and diseases
1960	A Report on the Industrial Possibilities of Jetafe Clay, Bohol	IDC/NIST	Jetafe, Bohol	To survey industrial possibilities of some towns of Bohol in ceramic manufactures, rubber and paper
1960	The Fish and Fish Canning Industry in the Philippines	IDC		Status of the industry Key statistics of the industry Data related to local consumption

1960	A Project Study on Coconut Coir Processing Plant	IDC		Type of project Raw materials Annual production End use of product Capital requirement Estimated annual sales and profit Profitability of the project
1960	Provincial Industrial Survey Reports	IDC	Bulacan N. Eclija Pangasinan	Historical background The province and its people Present economic development Recommendations
1960	Mindanao Area Economic Survey Based on Preliminary Reports of Each Individual Province	IDC	Misamis Or. Misamis Occ. Agusan Lanao (N & S) Zamb. (N & S) Surigao Davao Sulu Cotabato Bukidnon	Description — location, size, characteristics, climate The economy—basic, imports and exports Economic properties Land products, Mindanao Economic Dev. Authority Education, hotel facilities and tourism Organization and planning Industrial legislation Recommendations
1960	Report on the Third Survey of the Paper and Pulp Industry	IDC		Status of the industry Annual capacities of pulp and paper mills Estimated pulp consumption and requirements
1959	Status of the Pharmaceutical Industry in the Philippines	IDC		Historical background Geographical distribution Domestic production Employment Foreign trade Analysis and recommendations
1959	Ham and Sausage Making Industry in the Philippines	IDC		Methods of treatment Technical aspects of curing Bacon and sausage making
1959	Plywood and Veneer Industry in the Philippines	IDC		Growth of the industry Key statistics of the industry Date related to local consumption Foreign market
1959	The Cement Industry in the Philippines	IDC		Growth and key statistics of the local industry Technical and economic aspects Availability of fuel for cement manufactures, competition
1959	Survey on Cotton Battings and Waddings	IDC		Local installed capacity Users and potential users Market demand
1959	Survey on the Total Local Production of Bicycles	IDC		To determine the country's estimated annual requirements of bicycles, tyres and tubes (this was undertaken in connexion with the application of Marvex Industrial Corporation for dollar aid.)
1959-1960	Directory of Key Establishments in the Philippines	NEC/ICA		Listing of establishments by industry and by province with an industry Varied aspects of industry in 1959
1959	Status of the Textile Industry in the Philippines (Updated from 1957 issue)	IDC		Historical background Mass of statistics and information
1958	Investment in the Philippines	USDC		Over-all summary of investment situation Past and present foreign investment General background information about the country Some detail with some important aspects of the country Detailed information concerning taxation and some aspects of Philippine laws

1958	A Guide for Organizing and Operating a Small Electric Utility Company	ICA/NEC		To guide and assist private investors in the organization and operation of a small electric utility company Electric utility organization Responsibility of management Records and accounts Rates, rules and regulations Operation of electric generating plant Construction, operation and repair of electric power house Sales plan Public relations
1958	A Survey and Analysis of the Pulp and Paper Industry	NEC, ICA		Status of the industry Products Mill operations Pulp requirements Investments
1958	Status of the Iron and Steel Industry	IDC		Historical background Mass of statistics and information indicating local progress
1958	Status of the Glass and Ceramic Industry	IDC		Historical background Mass of statistics and information indicating local progress
1958	Abaca Waste as Raw Material for Pulp	IDC		Abaca materials of economic importance to the pulp and paper industry Paper-making value of abaca
1958 1959 1958	Sugar, Cost of Production Study in the Philippines The Leather Tanning Industry in the Philippines	UPCA IDC ICA	Negros Occ.	Cost Confined only to the tanning of cattle and carabao hides using either the chrome or vegetable tanning process Growth and present status, competitive outlook
1958	Status of the Paint Industry in the Philippines	IDC		Historical background Key statistics Recommendation
1957- 1958	Establishment and Development of a Dairy Industry in the Philippines	FAC		Improved methods for increasing the output and raising the efficiency of the dairy cattle industry through such measures as: stimulating the adoption of improved dairy husbandry methods, establishing modern dairy cattle feeding, breeding and management practices, the adoption of plans for improving the forage resources of the region
1957	Report of the Visit of Findlay Miller Plywood	IDC	Kolambugan, Lanao	Following-up survey report on production and equipment
1957	Coffee Roasting and Grinding	IDC		Methods Cost estimates
1957- 1959	Swine and Poultry Improvement in the Philippines	ICA USOM		Poultry and swine programme Specialist division and its programme Suggestions and recommendations
1956	An Economic Analysis of Philippine Domestic Transportation	SRI		To provide information and recommendations helpful to the NEC in formulating legislative, administrative and financial policies and measures designed to increase the contribution of the domestic transportation system to the economic development of the Philippines Action and investment programme Demand for transportation — commodity flows and passengers movements Domestic water transportation and ports Land transportation — roads and motor vehicles, railroads Government role in transportation Air transportation

1956-1959	Production of Virginia Type Flue-Cured Leaf Tobacco	UNTAB		Improvement of the quality of flue-cured Virginia type tobacco, by the introduction of improvement in the various aspects of cultivation, curing and grading
1956	Industrial Research and Development in the Philippines	NEC/ICA		Background, objectives and programme of industrial research and development Relationship to economic progress Present status The needs of the country Recommendations for a National Institute of Industrial Research and Technology Potentials and outlook Development in the Philippines Progress and accomplishments
1956	Coffee and Cacao Development in the Philippines	ICA		Background information on sources of supply, imports, consumption, cost and sales price, labour, equipment, financial requirements Study on cotton and synthetic textiles Problems Assessment of the industry Recommendations
1956	Development of the Textile Industry in the Philippines	IDC USOM		Number of recruitment and employment conditions Earnings, wage rates and facilities Incidence of injuries among workers Recommendations Knitting hosiery mills in operation Actual/potential production Production capacity compared to requirements
1956	Employment of Migrant Labour (Sacadas) in the Sugar Industry in Negros Occ.	ICA PDL	Negros Occ.	Design of the survey Production Marketing and storage Labour force/employment Financial requirements Historical background Physical properties of synthetic rubber Importance Future
1955	Survey of the Knitting Industry	IDC		Historical background Recent development Brief description of a caustic soda chlorine plant (SUGECO) Use pattern Imports Characteristics of chemical industries Future outlook
1955	A Survey Report on the Production and Deposits of Salt in the Four Leading Salt Producing Provinces of the Philippines, 1954-55	DARN	Bulacan Cavite Rizal Iloilo	Historical background Post-war development Use pattern Import-export relationship Status — ownership, kind, production, raw materials technology Financial factors Labour and wages Future outlook
1954	Survey of Synthetic Rubber	SSC		Historical background Recent development Relative size and importance Use pattern and markets Import-export relationship Present status Processes and equipment Plant capacity Production Raw materials Employment Cost of production and competition Future outlook
1953	Industrial Philippines — A Cross Section Chemicals and Chemical Products	PHILCUSA		
1953	Industrial Philippines — Rubber Manufacturing Industry	PHILCUSA		
1953	Industrial Philippines — Glass Industry	PHILCUSA		

1953	Industrial Philippines — Canning Industry	PHILCUSA	Background and recent development Relative size and importance Import-export relationship Consumption and requirements Status of the industry Problems
1953	Industrial Philippines — Fuels — Coal and Alcohol, Motor Fuel	PHILCUSA	Development Import-export relationship Use patterns and markets Coal exploration and investigations Uses of ethyl alcohol as motor fuel The molasses export market Problems and outlook
1953	Industrial Philippines — Clay and Ceramics Products, Cement	PHILCUSA	Background and development Ownership, control and investments Employment and payroll Location, production and types of equipment Raw materials and sources Technology of manufactures Cost of production Future outlook
1953	Industrial Philippines — Iron and Steel Industry	PHILCUSA	Background and development Size and importance Use pattern and market Sources of iron and steel imports Production of rolled steel products Prospects of the industry Philippine raw materials for iron and steel products Alternative iron smelting processes under Philippine conditions
1953	Industrial Philippines — Pulp and Paper	PHILCUSA	Background Pulp and paper industry in government industrial planning Survey report by Norwegian pulp and paper expert The Soriano pulp and paper project Importation Consumption and requirement Technology of manufacture of paper from bagasse Cost of production Employment Future outlook
1953	Industrial Philippines — Textile Industry	PHILCUSA	Yarn spinning and weaving Knitting Industrial textiles The Bell Mission Report on the Philippine Textile Industry Comments and recommendations Status and progress of textile manufactures in selected countries
1953	The Pilot Bast Fibre Spinning Mill of the Cottage Industry Project	ICA	Comments and recommendations
1953	An Evaluation of the Philippine Programme for Cottage Industries	ICA	Philippine national plan Specific goals Contribution of technicians from the United States and the United Nations Capital, credit and marketing problems Potential markets abroad

Annex B.

A List of Surveys, Studies and Reports on File at the Mining Division of the Agency for International Development*Nickel — Laterite*

1. Preliminary Report on the Pujada Project of APO Base Metals, Inc. — Laterites — by Luis Santos-Ynigo, PBM.
2. Economic Analysis of the Production of Ferrous Nickel and Steel from Philippine Nickeliferous Ores by S. Katell, J. H. Faber, T. J. Jayce, and P. Welman — United States Bureau of Mines, Information Circular No. 8116, 1962.
3. Metallurgical Investigations of Philippine Nickeliferous Ores by L. H. Banning, W. E. Anable, R. B. Quicho, H. D. Hess, and P. C. Good, United States Bureau of Mines R.I. No. 6063, 1962.
4. Geology and Geochemistry of the Nickeliferous Laterites of Nonoc and Adjacent Islands, Surigao Province by L. Santos-Ynigo and P. B. Esguerra — Philippine Bureau of Mines, 1961 (Publication No. 18 — Iron-Nickel).
5. Preliminary Report on the Investigation of the Nickel Resources of Nonoc Island, Surigao, Mindanao by W. S. Wright and A. Salazar, R.I. No. 14, November 1965.
6. Progress Report on the Aluminous Laterite Investigations, Nonoc Island, Surigao Mineral Reservation by F. B. Esguerra PBM, October 1961.
7. Special Project Series — Publication No. 17 — Iron-Nickel-Cobalt Resources of Nonoc, Awasan and Southern Dinagat Islands in Parcel II of the Surigao Mineral Reservation, Surigao Mindanao, by W. S. Wright, 1958.
8. Summary Report on Metallurgical Investigation of Philippines Nickeliferous Ores to ICA and PBM, 1 September 1956 — 20 June 1958.
9. The Development and Exploitation of the Nickeliferous Iron Deposits in the Government Mineral Reservation located in Surigao, Mindanao, February 1956.
10. Economic and Operational Analysis of the Proposed Philippine Nickel Project by R. B. Quicho — Philippine Bureau of Mines, February 1958.
11. Highlights of New Processes Developed for Utilized Philippine Nickeliferous Ores by R. B. Quicho, October 1957.
12. Continuous Electric Smelting of Low-Grade Nickel Ores by Herbert Cremer, R.I. No. 5021, January 1954.
13. Excerpt from Genesis and Evaluation of Nickel Occurrences in New Caledonia by E. de Chetelat.
14. Report on Nonoc Project — W. S. Wright.
15. Manicani Laterite Ore Development Project.
16. Preliminary Electric Smelting Research on Philippine Nickeliferous Ores — L. M. Banning and

W. E. Anable, United States Bureau of Mines, May 1955.

17. Summary of Information on the Philippine Laterite Iron-Nickel Deposits — Benoni Lockwood, Jr., 20 June 1953.
18. Iron-Nickel Project — Grade Cut-Off.
19. Nonoc Reserves Calculations.
20. Zone Thickness and Nickel Assays on Nonoc Islands.
21. Summary of Computations of Reserves above 15 per cent Nickel, as of 27 September 1955 ending with Sta. W. W. — 31.
22. Summary of Computations of Plus 1.5 per cent Nickel-Ore Reserves as 31 December 1954.
23. Summary of Reserves by Zones and Combinations of Zones as of 1 May 1955.
24. Report of Awasan Samples — Auer Hole.
25. Report of Awasan Samples.
26. Report of Dinagat Samples — Volumes I and II.
27. Report of Southern Dinagat Samples.
28. Report of Nonoc Samples.

Chromite

1. Geology of Chromite in the Sambales Area, Philippines, by Rossman, February 1964.
2. Pyrometallurgical Beneficiation of Off-grade Chromite and Production of Ferrochromium by W. L. Hunter and L. H. Banning, USBM, R.I. No. 6010, 1962.
3. Chromite deposits on Insular Chromite Reservation Number One, Zambales, Philippines — D. L. Rossman *et al.*, 1959.
4. Report on Exploration on Insular Chromite Reservation Parcel No. 1, Masinloc, Zambales by J. W. Peoples, N. S. Fernandez and C. A. Fontanos, 1957.
5. Second Progress Report on Insular Chromite Reservation Parcel No. 1, Masinloc, Zambales, 1957.
6. Report on Government Chromite Reservation Parcel No. 1, Dalayap, Taltal, Masinloc, Zambales by J. W. Peoples, N. S. Fernandez, and C. A. Fontanos, July 1956.
7. Report on Chromite in Zambales (2-week trip) by J. W. Peoples and N. Fernandez, from April 26 — 9 May 1956.
8. Report of Investigations of Chromite Deposits in Lourdes-Opal District, Misamis Oriental by W. S. Wright and C. Toa, 28 May 1953.
9. Report of Investigations of Chromite Deposits on Dinagat Island, Surigao, by W. S. Wright and Roa, 26 May 1953.

Copper

1. Notes on the PAMEX Copper Property, Marinduque Island, Philippines by L. E. Andrews USGS Geologist — Manila, February 1964.
2. Copper Orientation by E. N. Bautista, C. B. Sison, R. M. Lozano, R.I. No. 48, April 1963.
3. Percolation Leaching of Oxidized and Mixed Sulfide Copper Ores by R. N. Bautista, G. R.

- Sison, and G. C. Magkawas, PBM — R.I. No. 39, September 1961.
4. Pilot Milling of Bagacay Copper-Zinc Ore by R. B. Quicho, L. O. Pedron and F. C. de Leon, Manila, May 1961.
 5. Preliminary Report on the Geology of the Copper Deposits East of Sipalay, Negros Occidental by L. Santos-Ynigo, A. R. Kinkel, Jr., F. Francisco and S. Samaniego.
 6. Geology of the Botolan Mine, Botolan, Zambales by A. R. Kinkel, Jr., F. Francisco and S. Samaniego, 1956.
 7. Geology of the Copper Deposits of the Hixbar Gold Mines, Inc. Rapu-Rapu Island, Albay by A. R. Kinkel, Jr., and S. Samaniego.
 8. Report on the Spandonis Copper Deposit by J. I. Tabuada and W. S. Wright, 17 May 1956.
 9. Report on Copper in the Philippines by Arthur A. Kinkel, Jr. et al., Parts I and II, 1956.
 10. Report on the Copper Deposits near Hinubaan, Ilihan and Asia, Negros Occidental by A. R. Kinkel, Jr., L. Santos-Ynigo and S. Samaniego, 8 September 1954.
 11. Report on Toledo Copper Project of Atlas Consolidated Mining and Development Company at Lutopan Sitio, Toledo, Cebu, PBM-MBA by W. S. Wright *et al.*, 17 June 1953.
 12. Report on the Sipalay Copper Deposits in the Municipality of Cagayan, Negros Occidental, by W. S. Wright *et al.*, 28 March 1953.
 13. The Copper-Pyrite Deposits of Rapu-Rapu Island, Albay Province by E. M. Irving and D. P. Cruz, January 1951.
 14. Report of Investigation of the Masara Copper-Lead-Zinc-Gold-Silver Mine, Pantukan, Davao, Southeast Mindanao, by W. S. Wright *et al.*, 31 August 1953.
 15. Preliminary Report on the Geology of the Copper Deposits East of Sipalay, Negros Occidental, by A. R. Kinkel, Jr., L. Santos-Ynigo, F. Francisco and S. Samaniego, 1955.
 16. Report of Investigation of the Paulli Copper and Molybdenum Deposit on Tumbagahan Creek, Central Marinduque Island by MBA-PBM, 11 December 1952.
 17. Notes on the Lutopan Copper Deposit, Toledo District, Cebu Island by L. Santos-Ynigo, June 1952.
 18. Leaching-Flotation of Balabacan, Palawan, Mixed Oxide-Sulfide Copper Ore by R. N. Bautista, E. V. Pasilliao and R. M. Lozano, December 1963.
 19. Notes on the Masara Copper Mine, Samar Mining Company, Davao Province, Mindanao, by Laurence Andrews, Manila, 1964.
- Iron and steel*
1. Report on Surigao Iron Ore by A. C. Richardson, E. E. Slowter, J. D. Sullivan and Byron M. Bird, 1939 (Batelle Memorial Institute).
 2. Steel — Preprint from Bulletin 556, United States Bureau of Mines, by James Harris — A Chapter from Mineral Facts and Problems.
 3. Iron — Preprint from Bulletin 556, United States Bureau of Mines, by R. W. Holliday — A Chapter from Mineral Facts and Problems.
 4. Report regarding an Iron and Steel Industry in the Philippines by George B. Waterhouse, Ph.D., 17 July 1950.
 5. Preliminary Report regarding an Iron and Steel Industry in the Philippines by G. B. Waterhouse, June 1950.
 6. Report of Investigation of the Geology and Ore Possibilities of the Camalaniugan Iron Prospect in Cagayan Province, by P. M. Capistrano, June 1952.
 7. Report of Investigation of the Mati Iron Deposit in the Municipality of Mati, Davao, Mindanao by PBM-FOA, October 1953.
 8. The Krupp-Renn Process by Dr. Ing. Friedrich Johannsen, Professor at the Mining Academy at Clausthal (Germany) — Iron and Steel — 1955.
 9. Iron and Steel — National Shipyards and Steel Corporation (NASSCO), 1957.
 10. Geology of Iron Ore Resources and Operational Plans for Sibuguey Iron Project — Samar Mining Co., Inc. by E. Biel and M. H. Tupas, February 1958.
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Annex C.**List of Philippine Resources Surveys, 1956-1964**

<i>Time covered</i>	<i>Surveys</i>	<i>Agency</i>	<i>Geographical area</i>	<i>Objective/scope</i>
1964 1966	Electric Power Survey (in process)	AID NEC IAEA		Studies on: available capabilities and economics of energy resources, management, organization and operational requirements for effective development of the power system, rates and financial plans and all other pertinent factors requiring investigation in order to reasonably ensure development of a power complex that will meet the needs of a growing industrial economy
1964	Pamex Copper Property, Marinduque Island	AID PBM	Marinduque	Geologic study of the area: ore body — positions, structure, value and content, production of mine area
1964	Survey of the Masara Copper Mines, Samar Mining Company, Davao	AID PBM	Davao	Assessment of the potential in recoverable by-product magnetite iron ore associated with the copper ore
1964	Kiamba Magnetite Prospect, Cotabato	AID PBM	Cotabato	Survey of iron deposits
1964	Alip Valley Iron Prospect, Cotabato	AID PBM	Cotabato	Topographic surveys and geologic studies for iron deposits
1964	Philippine Water Resources Survey	AID USBR ^a		Comprehensive coverage of the current status of the water resources survey Project Programme: Central Luzon, Pantabangan Projects, Upper Pampanga River Project and Five Basin Reports
1964	By-Product Iron Potential of Copper	AID		Investigation of the following operating copper mines in order to assess their by-product iron ore potentials: Atlas Consolidated Mines, Inc. Toledo Mines (Cebu) Philex Mining Corp. (Sto. Tomas, Pampanga) Pamex Mining Corp. (Marinduque) Baguio Gold Mines, Inc. (Mt. Province) Samar Mining Co. (Masara, Mindanao) Sipalay Copper (Negros)
1963- 1965	Water Resources Survey (in process)	AID BPW ^b		Surveys, investigations and studies necessary to formulate comprehensive programmes for multi-purpose development of seven major river basins

1963-1969	Fisheries Survey (in process)	United Nations PFC ^a		Survey of the Philippine fishing grounds, fishing seasons and marine species suited to the purse seine method of deep-sea fishing To assist the Philippines toward self-sufficiency in coking coal production through the assessment of additional coal reserves in Mindanao and the improvement of their current exploitation.
1963	Survey of Coal Resources in Mindanao	United Nations	Mindanao	Improvement of current mining methods of the Malangas mines; Exploration and assessment of additional reserves in the Malangas field to attain increased annual production; Training of engineers in mine exploitation, management; drillers in the use of modern diamond drilling equipment. Recommendation.
1963	Nuclear Power Raw Material Surveys (in process)	United Nations PALC ^d	Luzon	Study on the existing power-generating resources in Luzon to find out if these resources will be enough to fill the needed power requirements of an industrialized Philippines
1962-1963	Forest Resources Survey	AID NEC		Land area, geography Timber volume estimates Timber production estimates Outlook of the industry
1962	Engineering Geological Survey	AID BPW	Pampanga Tarlac	A geological examination of dam sites on the Pampanga and Talavera rivers, in view of the proposal to construct a multi-purpose reservoir
1959-1960	Limnology Project	FAO		Fish population studies Fisheries census Snail and shrimp studies Aquatic insect studies Hydrochemical studies Lake mapping Limnology station
1961	Flood Control Storage on Angat River and Flood Control in Lower Pampanga River in Central Luzon	AID NEC	Central Luzon	A review with recommendations regarding: the multi-purpose dam and reservoir project on the Angat River; alternative channel systems for lower Pampanga River
1961	Preliminary Report on the Water Resources of Central Luzon	NEC		Description of the area Soils and climate Water supply Existing project development Agricultural economy Means to promote proper land use Repayment of development cost Watershed management
1960	Fish Resources in the Philippines	NEC		Grounds, seasonal occurrence and gathering methods
1959	Raw Material Resources Survey	NEC ICA		National economic planning Guidance of current and prospective investors and financial institutions
1958-1959	Management of Resources for Research	ICA		Procedure for the administration of research
1956-1957	Strategic Minerals Surveys	PBM ICA		Geography Geology Mineral deposits
1956	Copper Deposits of the Philippines	ICA PBM	Mt. Province Cubangan Zambales	Geology of the Lepanto Copper Mines, Mankayan, Mt. Province Geology of the copper mines — Mindanao Mother Lode Mines, Inc., Cubangan, Zambales

^a United States Bureau of Reclamation

^b Bureau of Public Works

^c Philippine Fisheries Commission

^d Philippine Atomic Energy Commission

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A COUNTRY STUDY ON SINGAPORE

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

Ideally located at the crossroads of international routes, Singapore has been a major trading centre for south-east Asia. Its chief role as an entrepôt contributed immensely to its early prosperity. In recent years, earnings from entrepôt trade accounted for almost 20 per cent of the gross domestic product of Singapore, or about 400,000,000 M\$. This will undoubtedly continue to be a mainstay of the Singapore economy for some years yet. Despite this, it is recognized that the entrepôt sector of the economy offers limited scope for a rapid expansion.

In the light of rapid population growth in recent years, and the necessity of providing employment for the increasing population, the expansion in the trade sector will not be sufficient and the importance of a well-developed manufacturing centre becomes very urgent.

Planning and programming for industrialization in Singapore is a recent phenomenon. A vigorous effort was first made in 1959 to plan and implement a balanced industrialization programme. With the realization that private investment cannot be encouraged without the State providing the economic and social infrastructure, the Government established the Economic Development Board in 1961 to implement its industrial programme.

In 1960, the first four-year development plan (1961-1964) of Singapore was inaugurated. Broadly, the plan's objective was to lay the basic economic infrastructure and provide the initiative in land and resource development. It aimed to achieve this goal by:

- (a) expanding the production capacity and distribution network of public utilities;
- (b) developing of land for industries and residential housing;
- (c) improving and expanding the public transport and communications systems of Singapore;
- (d) improving the social services of the country especially in the fields of education and health.

These basic objectives are being continued in the second plan (1966-1970).

All these measures are intended to attract local and foreign capital into industry. The overriding objective is one of providing sufficient job opportunities

for the rapidly growing population and to increase the national output at a faster rate.

Planning in the State of Singapore is undertaken by the Economic Planning Unit of the Ministry of Finance which formulates the policy and co-ordinates the implementation of the plan in close co-operation with the various government departments and statutory boards.

The Economic Planning Unit reviews periodically the physical progress attained in the implementation of the major projects and takes collective measures to ensure that development policy is properly co-ordinated and projects smoothly implemented.

II. INDUSTRIAL POLICY

Singapore's industrialization programme is aimed, primarily, at providing about 30,000 new employment opportunities each year. In its approach to this task, the Government has chosen to complement the efforts of the public sector with those of the private sector. The Government's contribution to the industrialization effort is to create lasting stability within the country and within this framework, to build a strong economic and social infrastructure. Private enterprise, it is expected, will then take up the challenge of providing the requisite management, know-how and ingenuity for the successful operation of the various industrial establishments.

To give substance to its industrial policy, the Government has implemented a number of positive schemes to encourage and assist the growth of industrial investment.

Tax exemptions

New industrial ventures can apply to obtain full tax exemptions, under the Pioneer Industries Ordinance and accelerated depreciation depending upon their volume of investment.

Industrial facilities

Problems of acquiring suitable industrial sites with all requisite services are reduced to the minimum for the industrial investor. The Economic Development Board of the Government of Singapore has, during its five years of existence, developed a number of industrial estates throughout the island republic. Each of these estates is well serviced with all public utilities, transport and communications systems, public housing, social amenities, and, in some cases, standard factory buildings. An industrialist is thereby spared the immense inconvenience and higher cost of acquiring and

developing his own site. In the development of these industrial estates the Economic Development Board has taken into account the special requirements of industries, both big and small. The Jurong Industrial Estate, for example, provides facilities for industries requiring bulk handling and transport, deep-water wharves, disposal of trade wastes, cheap industrial water, and the like.

Industrial financing

To reduce the financial risk to the private investor, the Economic Development Board extends long- and medium-term loans to industries. These loans enable industries to finance a substantial part of their building and equipment costs at interest rates well below the market rate. Furthermore, in cases where the private investor deems it desirable, the Economic Development Board may also participate in the equity of an industrial enterprise. For the smaller industries, the Board operates a special financing scheme which provides the borrower, with his more limited resources, the opportunity of finance without having to put up the usual collateral.

Unrestricted capital movement

Foreign industrial investors may bring in any amount of capital and there is no restriction on remittance of profits or repatriation of capital in the currency of the original investments. There is also no requirement for local capital participation in any enterprise established by foreign investors.

Imports of capital equipment, raw materials and technical personnel

To assist the industrial development effort, it is recognized that the imports of raw materials, machinery and foreign technical personnel should be allowed without restriction and without duty. It is expected that there would be no change in government policy in this regard for a considerable time.

Export promotion

The success of Singapore's industrialization programme will depend, to a large extent, on the ability of its industries to compete successfully in export markets. The Government is fully aware of this and a great deal of thought and effort is being undertaken to work out a programme of export incentives. In addition, the Government has approved the establishing of an export promotion body to assist in all aspects of export promotion work.

Technical assistance

To the smaller industries, which by virtue of their limited resources cannot afford their own technical services, the Economic Development Board renders assistance to provide them with a wide range of technical services. These services include the provision of technical personnel, both local and foreign, testing and research facilities for the improvement of products, management advisory services, and special services in all aspects of production management, quality control, design improvements, and the like.

Selective tariff protection and preferential purchase

Selective tariff protection is a part of the Government's declared policy to assist the development of local industries. Furthermore, in all government procurements, preference is given to the purchase of locally manufactured goods.

Industrial relations and higher productivity

Singapore's newly developing industries will have to face the full brunt of international market competition. An important basis for the development of healthy industries is good industrial relations and high productivity. This was recognized by the Government which, accordingly, took the lead in forming a State Economic Consultative Council with representation from the Government, management and labour. In one of its early sessions, the Council met and drew up a Charter for Industrial Progress, the basic objective of which was to achieve higher productivity through closer co-operation between workers and employers. In it, the National Trades Union Congress, the Singapore Manufacturers' Association and the Singapore Employers' Federation pledged their common conviction that the future economic and social well-being of the people of the Republic of Singapore depend primarily on the continuing expansion of its industries through accelerated industrial growth. Under these circumstances, every citizen of the country is duty-bound to intensify his contribution to all national development efforts. The parties to the Charter recognized that the need for concerted effort is especially important for the continuing expansion of Singapore's industrialization programme. Young industries take time to mature and, yet, have to face a highly competitive international market from the start. To overcome these initial difficulties, all partners in the industrialization programme, workers, employers and the Government, must pool their efforts and strive for continuing increase in productivity and output in all enterprises.

The Charter noted that a translation of policies, aimed at achieving higher productivity, into concrete action and practical results, has to be initiated from plant level in each enterprise. A Singapore Productivity Centre will soon be established to be governed by a Board with equal representation from workers, employers and the Government. The Centre will be responsible for promoting and co-ordinating the productivity movement in the State.

The Economic Development Board

The Government's agency for implementing its industrialization policy is the Economic Development Board which was established in August 1961. In establishing the Board, the Government was fully aware of the need for a single body to be in charge of all aspects of industrial promotion, industrial financing, the formulation and implementation of industrial incentive schemes, the provision of industrial facilities and technical assistance, industrial aspects of management and manpower training; in short, all in-

quiries and problems that might be encountered by a potential or an existing industrialist in Singapore can be attended to by the Economic Development Board. This machinery has proven to be both effective and of immense value to industrial investors.

III. INDUSTRIAL POTENTIAL

1. *General industrial feasibility surveys*

Besides the normal feasibility studies of industrial projects undertaken by the staff of the Economic Development Board, the services of various foreign experts have been co-opted from time to time from private firms, the United Nations, the Colombo Plan, and from bilateral arrangements with foreign governments to undertake specific studies. A notable study was undertaken by the United Nations Industrial Survey Mission, 1960-1961, of the industrial potential of Singapore. A list of industries considered feasible for establishment and for expansion was suggested. The Mission surveyed specifically the following industries:

(a) *Shipping and repairing*

The Mission made an over-all survey of this industry especially the potential for future development. The general opinion of the Mission was that Singapore can be developed into a major shipping centre for south-east Asia.

(b) *Metal and engineering*

The Mission suggested a wide range of products that could be manufactured in Singapore on a competitive basis.

(c) *Chemical products*

The Mission covered 20 specific products in this industry group including the manufacture of insecticides, plastics, paints, pharmaceutical products, cement, calcium carbide, washing powder and detergents. All major aspects of the technical and economic feasibilities of each industry were ascertained.

(d) *Electrical equipment and appliances*

The Mission was of the opinion that the position of Singapore, *vis-a-vis* its neighbours, offers advantages for the development of an electrical equipment and appliance industry. The Mission concluded that because of the relatively high skills and adaptability of the local working population there would be few difficulties in bringing about the local assembly and manufacture of electrical motors, switchgears and a wide range of electrical household appliances.

(e) A separate Mission also undertook a survey of the feasibility of an iron and steel mill for Singapore. The Mission was in favour of such a project. The National Iron and

Steel Mills Limited was subsequently established and commenced operations in 1963, marking the first phase in the development of an iron and steel industry. A number of specific industry studies have also been undertaken by foreign experts since 1961 and most of these are at various stages of implementation.

(f) In addition, feasibility surveys of a wide range of industries such as fishery, petrochemicals, electronics, machine-tools and optical instruments, have been made by the Economic Development Board.

2. *Status of resources survey*

Singapore possesses no raw materials of its own in any significant quantity; however, because of its geographical position and excellent harbour and handling facilities, the import of raw materials presents no physical problem. The Economic Development Board conducted several preliminary studies on the utilization of the raw materials of Singapore's immediate neighbouring countries. These raw materials include, in particular, iron, tin, clay and forest products. The results of many of these studies revealed that these raw materials could be successfully tapped for industrial use.

3. *Status of infrastructure development*

(i) *Transportation*

The transportation system of Singapore is well developed. The roads system is one of the best in south-east Asia with a first-class network of roads connecting all parts of the island to one another. Singapore is the most highly motorized country in Asia with a ratio of one car to every 26 persons.

At the end of August 1965, the total number of registered vehicles was 508,913 of which 127,283 were motor driven four-wheelers. To serve this highly motorized population, the Republic is covered with a network of 1,200 miles of excellent roads or about 5 miles of roads to every one square mile of land.

A main dual carriage-way links the island to the Malaysian mainland. To meet the increasing demand of motor traffic resulting from the establishment of Jurong Industrial Estate, a new road was constructed to link the industrial township to the city. In the Estate itself, a total of 18 miles of roads have been completed besides culverts and bridges.

In addition to the existing railway linking the Singapore harbour to the Malaysian mainland, a 7-mile railway track has been laid to link the present line to the entire Jurong Industrial Estate. This new line is

now fully operational. The Port of Singapore is the fifth largest in the world. In 1965, a total of 10,928 vessels of over 75 tons net registered with a total tonnage of 44.5 million arrived at the Singapore harbour. In the corresponding period, 10,296 vessels with a total tonnage of 44.3 million departed from it. Total cargoes handled at its "roads" and wharves amounted to not less than 21.5 million tons. The harbour which is under the management of the Port of Singapore Authority, is highly mechanized and equipped with modern handling facilities. By the end of 1964, there was a total of 3 miles of berthing space capable of accommodating 24 ocean-going ships and six coastal vessels. Four more berthing wharves were opened for service in 1965. In addition, there are six dry docks in which vessels of all sizes can be docked for repairs and services. Besides these extensive berthing and repairing facilities, the Port accommodates the installations of four oil companies and it is served by 40 international shipping lines.

To serve the industrial township of Jurong, and to meet the increasing traffic that would result with the country's industrial development programme, a new harbour is being developed in Jurong. To date, the first phase comprising 3,000 feet of deep-water wharves capable of handling ocean going vessels with draughts of up to 36 feet has been completed together with attendant shore installations. The second phase of the project comprising another 3,000 feet will begin shortly. On the bank of the Jurong River, a 3,000 feet wharf for coastal steamers and lighters is under construction. About 800 feet of this wharf has so far been completed. The completed portions of the wharf are presently operational.

The Jurong Wharf will be serviced by a complex of bulk handling equipment, the first phase of which will be operational by the end of 1966.

Extension work to the runway of Singapore's Paya Lebar International Airport and the construction of a new terminal building were completed early in 1965. With this extension completed, the Singapore Airport is one of the most modern in Asia. It can now handle the largest commercial aircraft operating in this part of the world and is served by a dozen international airline companies with regular and frequent connexions to all parts of the world.

(ii) Electricity

By the end of 1964, total installed capacity of the two existing thermal power stations was 235 m.w. In October this year, the first stage of an extension programme to increase the capacity of the Pasir Panjang Power Station by 240 m.w. was completed with the installation of two 60 m.w. generator sets. When the second stage is completed next year, installed capacity on the Island will reach 474 m.w. It is also proposed that a new thermal power station with an installed capacity of 240 m.w. be built in Jurong itself in anticipation of the increase in demand for extra power by industries.

The charge for electricity for industrial users are among the lowest in this region, for example, tariff E features the following rates:¹

First 5,000 units per month	6 cents
Next 20,000 units per month	5 ..
Next 375,000 units per month	4½ ..
In excess of 400,000 units per month	3½ ..

Even lower tariffs are available to large industrial consumers, full details of which are available on application to the Chief Electrical Engineer, Public Utilities Board, Singapore.

(iii) Water

A vigorous effort has been made to increase the water supply of Singapore from the present Johore and Seudai Schemes. By April this year, the Seudai River Scheme costing \$21 million was completed. This added an additional supply of 24 million gallons a day of fresh water to Singapore. The Johore Water Scheme which is being financed by a loan from the IBRD will be completed by the middle of 1967. It is estimated that when both schemes are fully in operation, Singapore will have no water problem for many years to come.

(iv) Industrial water requirements in the Jurong Industrial Estate

A stretch of the Jurong River is being impounded to form an industrial reservoir with a storage capacity of 800 million gallons. Meanwhile, construction work on a scheme to utilize the sewerage effluence from the nearby Ulu Pandan sewerage work is making satisfactory progress. When completed, this system will supply additional 20 million gallons of industrial water per day to factories located in the Jurong Industrial district.

¹Malaysian currency.

IV. MOBILIZATION OF CAPITAL FOR INDUSTRIAL INVESTMENT

1. Capital investment in industry

According to the Singapore Census of Industrial Production, new investment in manufacturing firms employing ten workers and above show the following trend:

1959	M\$12.9 million
1960	M\$ 9.8 million
1961	M\$10.5 million
1962	M\$33.5 million
1963	M\$18.7 million

There was a substantial increase in investment in 1962 and 1963. 1962 shows an unprecedented upsurge in investment, reflecting the heavy capital expenditures brought about mainly by petroleum refineries. An increase in investment in 1963 clearly shows the result of the Government's encouragement to promote industrialization. It is estimated that in the period 1961-1964, total investment in fixed assets by new manufacturing firms amounted to \$220 million. In the first half of 1965, pioneer firms (113 of them) invested up to \$34 million in fixed assets. Government investment in the development of the Jurong Industrial Estate totalled \$43.5 million by December 1964 (see table below).

GOVERNMENT INVESTMENT IN THE DEVELOPMENT OF JURONG INDUSTRIAL ESTATE, SINGAPORE 1961-1964

1961	\$ 0.6 million
1962	\$ 7.9 million
1963	\$16.0 million
1964	\$19.0 million
Total	\$43.5 million

As an indication of the growth of the industrial sector, the capital structure of the 113 pioneer companies may be taken. The following table shows the paid-up capital as at the end of June 1965.

CUMULATIVE PAID-UP CAPITAL OF 113 PIONEER FIRMS (1961-1965)

	(\$'000)
Food and beverages	21,958
Textiles, garment and leather	11,616
Wood and paper products	6,950
Rubber products	9,830
Chemical and chemical products	7,650
Petroleum and petroleum products	26,500
Non-metallic mineral products	5,758
Metal and engineering	35,412
Electrical products	2,932
Miscellaneous	3,732
	\$132,338

Besides equity capital these companies also raised long-term loan capital amounting to \$53.4 million and medium-term loan to the amount of \$4.7 million. Total investment undertaken by these companies since 1961 is \$204.5 million or an average of \$45.4 million a year, a considerable amount considering the fact that

a determined effort to industrialize in Singapore started only in 1960.

The industrial sector is left by and large to private enterprise. However, the Economic Development Board does play a large part in mobilizing capital, especially from the traditional sector to industrial undertakings, by providing both an industrial financing scheme as well as a host of industrial incentives to attract private investment.

To encourage private capital investment in industries, the Economic Development Board grants loans to an enterprise for the acquisition of capital assets up to 50 per cent of their total value. It may also share in the equity capital of an industrial enterprise. By November 1965, the EDB committed loans to 43 firms and participated in the equity capital of 12 firms. Total loans disbursed by November 1965 was \$37.7 million which is about 60 per cent of the long-term loan capital of the pioneer firms. Total equity participation was \$22 million of which \$13 million had already been paid up. This represents about 10 per cent of the paid-up capital of the pioneer firms.

The Singapore Factory Development Limited, a subsidiary of the EDB, also provides mortgage loans to industrial enterprises for the purchase of factory sites and buildings.

At present, there are 35 banks in Singapore operating a total of 115 offices. Of the 35 banks, 21 are foreign-owned. The total advances by banks to the manufacturing sector as at June 1964 was \$117 million out of a total bank advance of \$873.7 million, or about 13 per cent. Most of these advances were in fact for working capital rather than for the acquisition of fixed assets. It can be seen therefore, that banks in Singapore are still predominantly trade-orientated; however, local banks have increasingly realized the important role they can play in the industrialization programme of Singapore. The E.D.B., by occasional guarantee and other measures, tries to bring in local banks wherever possible into the field of industrial financing. There is also under consideration the establishment of a separate industrial development bank for Singapore.

The Singapore Stock Exchange Trading Room (as part of the pan-Malaysian clearing system) came into operation in 1963 to facilitate the transference of shares. The market for long-term securities is well-developed and played an important part in raising capital for a number of industrial enterprises, in the recent years.

There are no specific plans to channel government and business savings into industries. Any capital that goes into industries comes mainly from the private sector with the encouragement of the EDB.

It is believed that there is no foreseeable shortage of capital in Singapore. Experience has shown that any worthwhile project could readily attract sufficient local and foreign capital participation. In this respect

it is appropriate to note that recent new issues of equity capital for new industries have invariably been oversubscribed. Most of the local capital have been accumulated from profits derived from trade.

In June 1965, of the total paid-up capital of \$132 million in pioneer firms, \$73 million, or about 54 per cent, was from local sources. In general, industries have experienced no difficulties in raising sufficient capital; hence the necessity of government measures to promote business and personal savings is not particularly pressing.

Of the 113 pioneer firms established up to June 1965, about 50 per cent are joint ventures between local and foreign industrialists. Of the total establishments that have commenced operations or are in an active stage of implementation, Japanese interests accounted for 22 of them and Hongkong 9. Foreign investors are usually prepared to go into partnership with local investors who may lack the technical know-how but who may have well-established distribution systems in Singapore and Malaysia. The advantage of this method is that foreign investors are assured of an established market for their locally manufactured products.

The Singapore Government is fully aware of the benefit that would be derived from joint ventures. Experience has tended to indicate that the relative scarcity of know-how and of industrial management will be a factor that will have to be increasingly reckoned with in the country's efforts to industrialize. To encourage the inflow of foreign technical know-how and management, the Government places no limitations in respect of remittances of profits, dividends or even capital repayments in the original currency of the investors.

Overseas investors are free to enter any line of manufacturing industries. No regulations are imposed on the direction of foreign capital inflow nor is there any law prohibiting ownership and control of foreign industrial enterprises. However, in the case of joint ventures, joint control is normally the rule rather than the exception.

The Government strongly encourages joint ventures in industries where technical know-how is lacking. Furthermore, there are no regulations restricting the payment of royalties and other technical know-how payments.

V. TECHNICAL TRAINING AND MANPOWER DEVELOPMENT

A high literacy level is one of the prerequisites for economic development; this has been recognized by the Government of Singapore for a long time. Education, accordingly, rates highest in the Government's budget and accounts for 30 per cent of the annual government recurrent expenditure.

A broad base has already been achieved in the Government's educational programme resulting in free primary education for all. At the end of the year

there was a total of 514 primary and 89 secondary schools, and 13 technical and vocational institutes. In addition, there are two universities and two technical colleges in the country, offering courses in medicine, science, engineering, commerce, accountancy, law and, the liberal arts. A total of around 8,000 students are admitted to those four institutions of higher learning each year. Since 1960 there has been a distinct shift in emphasis in the Government's educational programme from the liberal arts to the trades, the crafts and the applied sciences.

The number of students in primary and secondary schools number around 455,000, or approximately 25 per cent of the total population of the republic. The teacher-student ration is around 1 to 30.

To augment the formal educational programme and to meet the more immediate needs of industry for technical and managerial manpower, a number of programmes have been devised. With assistance from the United Nations and from foreign governments, the Economic Development Board has launched a production training scheme in the fields of electronics and metal engineering. These production training programmes are designed to provide the trainees with opportunities to be trained under actual factory production conditions. They are also designed to meet the immediate requirements of industries and their training courses are adjusted accordingly. The courses have a flexibility which the normal curriculum of technical colleges cannot provide by virtue of the latter's long-term and broader objectives.

In the field of management training a notable step forward has been achieved with the establishment of the Singapore Institute of Management which conducts management courses for senior and middle-level executives. The Institute draws its teaching staff from among local senior management executives as well as overseas management executives. For junior executives, manager-proprietors of small establishments and trainees at the foremen level, the Light Industries Services of the Economic Development Board organizes, as part of its functions a number of management training courses. In all cases, these courses are designed to deal with the practical problems encountered in day-to-day management. Theorizing and the advocating of principles are generally reduced to a minimum.

As in production training programmes, these management training courses are designed to emphasise the practical side of management problems. Case studies, as far as possible, are taken from actual and recent experiences of local industries.

Overseas training/industrial scholarships

To complement training facilities available locally the Government has also created an Industrial Scholarship Scheme to assist local industries in financing the in-plant training of their technical personnel overseas. Additionally, local trainees are increasingly being given opportunities for overseas in-plant training

as part of the general framework of joint-venture industrial arrangements.

VI. DEVELOPMENT OF MAJOR INDUSTRIES

As a logical development of trade, an assorted range of light industries sprang up under private enterprises in the State before 1960. Among other things, these industries were characterized by their smallness and geared essentially to meeting the home demand for cheap and low-quality goods. These industries included food processing, light metalworking, ship-repairing, and the manufacture of footwear and clay building materials. However, with a substantial effort on the part of the Government to expand the manufacturing industries in Singapore, a number of new industries have either commenced operations or are at various stages of being implemented. The following are some of the major ones:

(a) *Iron and steel industry*

One of the largest industries established in Jurong, the National Iron and Steel Mills Limited is a joint enterprise between the Economic Development Board and private local investors. With a capital investment of \$20,000,000 in fixed assets it incorporates one 60-thousand-tons-per-year electric furnace (and another one will be in operation by early 1966), one 100-thousand-tons-per-year rolling mill and a 30-thousand-ton re-rolling mill. The plant has been designed to produce mild steel bars, high tensile deformed bars, sections and angles and other steel products for the building construction industry. For the first nine months of 1965, it produced a total of 44,000 tons of steel products. Its annual capacity is expected to be 120,000 tons of steel products of various descriptions when the second furnace is installed.

(b) *Shipping*

With Singapore's ideal location in the centre of trade and commerce, it is not surprising that Singapore should have a shipbuilding industry. Small craft were until recently being built by small shipyards in the Kallang Basin. Singapore will be in a position to build ships of up to 90,000 DWT capacity when a dry dock of Jurong shipyard becomes operational next year. Established on Pulau Semulun in Jurong by Ishikawajima Harima Heavy Industries (IHI) Japan and EDB with a total capital investment of about \$16 million by the end of 1965, the shipyard will have the biggest dry dock in south-east Asia, besides a 1,700-metric-ton-capacity floating dock and a building slipway for smaller vessels. This shipyard has been in opera-

tion since early 1965, only two years after preliminary planning.

(c) *Oil refinery*

The State will have three petroleum refineries in operation by the middle of 1966 and a fourth is now in a planning stage. Total investment when the fourth one is completed will run to about \$153 million. Two of the refineries opened in 1961 and 1962 produced petroleum products to the value of \$61.5 million for the first half year of 1965.

(d) *Rubber product-tyres*

Bridgestone (Malaysia) Limited was opened early this year. A \$20 million joint venture between local and Japanese industrialists, it produces a full range of tyres and tubes for automobiles and trucks. This company took only two years from planning to production.

(e) *Veneer and plywood industry*

To date, four factories are in operation producing mainly for export. Another factory is under construction in Jurong. Total investment by December 1965 in those factories will amount to approximately \$13 million. The factories employ the latest machinery available and are highly successful. Three of these enterprises are joint ventures, representing local and foreign interests.

(f) *Flour-milling industry*

This industry is represented by two newly established pioneer firms. With a total investment of \$13 million, the firms have a total capacity of 160,000 tons of wheat flour a year for local and overseas markets.

(g) *Cement*

Two clinker grinding plants are in operation while a third one is under construction. Total investment will be about \$9 million by the end of 1965. Output will largely be used locally by the booming construction industry.

(h) *Cable industry*

Two factories are now in operation in Jurong producing a wide range of PVC insulated wire and cable for domestic consumption while another is under construction. These companies will, at a later stage, produce rubber and paper insulated heavy-duty cable.

(i) *Textile*

This is one of the most labour-intensive industries. The State has three weaving mills operating in Jurong, producing grey-sheeting for export. Another fully-integrated textile project is in the planning stage. This factory plans to produce a whole range of synthetic textile fabrics. Other factories

manufacturing garments for local consumption, and for export are already in operation. Two knitting factories producing socks and under-garments are also in operation.

(j) *Feedmix*

Three factories are in the implementation stage, with the total proposed capital investment in fixed assets of \$5.5 million. Together, the output of these factories when in operation will be \$17.3 million per year.

(k) *Chemical*

One factory commenced operations recently to produce powder and liquid detergents for household and industrial use while two others are also in operation producing sulphuric and hydrochloric acid. The third factory will commence operations shortly to produce caustic soda. Total investment in all these factories would reach \$8.5 million by the end of 1965.

(l) *Fertilizer*

A ground phosphate fertilizer plant is under construction in Jurong and is expected to go into commercial production in 1968. When completed, the plant will supply fertilizer to Malaysia and other neighbouring countries. Total investment is expected to reach \$3.4 million by the end of 1967.

(m) *Motor vehicle assembly*

The State has two motor vehicle assembly plants. It is expected that a few more assembly plants will be established following the Government's policy statement on vehicle assembly.

(n) *One sugar refinery* costing about \$4 million is in the process of construction. When in full production it expects to produce 88 metric tons of refined sugar for the domestic market as well as for export.

(o) *Electrical appliance industry*

Two factories are in production producing a whole range of refrigerators and television sets. Besides, another project is now underway in Jurong. When completed in 1967, this factory will manufacture air-conditioners, refrigerators, electrical fans, and other household appliances. Total investment is expected to be above \$2 million.

The above are some of the illustrative examples of the major industries that have been established in Singapore. Other major industries that are in various stages of planning include a paper mill, a deep-sea fishing and canning industry, an aluminium extrusion mill, manufacture of PVC, an integrated timber industry to make use of timber waste products, sheet glass factory, and an integrated petrochemical complex.

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A COUNTRY STUDY ON THAILAND

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning and programming

Most of the industrial activity in Thailand is undertaken by the private sector on the basis of individual entrepreneurial initiative. For the seven-year period (1959-1965), total gross fixed capital formation in manufacturing amounted to 18,534 million baht in the private sector and 1,415 million baht in the public sector. The current National Economic Development Plan, as quoted below, reflects the Government's reliance on private enterprise:

"It is believed that in Thailand increased output will be most readily secured through the spontaneous efforts of individual citizens, fostered and assisted by the Government, rather than through the Government itself entering directly into the field of production. The keynote of the public development programme is, therefore, the encouragement of economic growth in the private sector, and the resources of the Government will be mainly directed to projects, both in the agricultural and non-agricultural sectors of the economy, which have this objective in view."

Consequently, planning for industrial development has focussed on the provision of infrastructural facilities to attract private industrial ventures. Development planning in Thailand is, however, a relatively recent activity. The first six-year National Economic Development Plan began in 1961 and was divided into two phases of three years each. It includes a detailed industrial development plan only for the state-owned enterprises. The second phase of the plan starting in 1964, projects a structural trend in the economy, with manufacturing increasing to 14.4 per cent of the gross national product by 1966, but there is no detailed analysis of supply and demand by the industrial sector. The function of the plan is to formulate and recommend industrial policies which will stimulate private investment and to ensure the most productive allocation of resources in the public sector. Particular emphasis has been placed on the development of the following aspects of the infrastructure:

(1) *Development of power*

An electric power expansion programme has

Note: All information and statistical data contained in this study are those available up to the end of March 1966.

been under way since 1957 to remedy the power shortage which has constituted an obstacle to industrial development. In spite of Thailand's hydro-electric potential, the expansion of generating and distribution facilities has lagged behind the demand for power. The six-year plan allocates 4,100 million baht for the development of power. Projects completed in 1964 have brought capacity well in excess of demand, and the plan calls for the encouragement of demand for productive purposes by the adjustment of rates and increased efficiency.

(2) *Development of transport and communications*

The improvement and expansion of Thailand's transport system, particularly road transport, has been of utmost importance for economic growth and military security. Transport and communications have been the largest component of the public development programme, accounting for 27 per cent of actual expenditures during the first phase of the plan and 34 per cent of projected expenditures during the second phase. Their improvements will facilitate processing and distribution of agricultural products and, consequently, geographical distribution of industry beyond Bangkok.

(3) *Development of natural resources*

While at present no significant mineral resources apart from tin have been discovered in Thailand, much of the country is still geologically unexplored. The development programme calls for expanded geological and geophysical efforts including a series of specific area surveys conducted with foreign assistance.

b. Machinery for planning

The National Economic Development Board (NEDB), created by law in July 1959, is charged with the functions of a central planning agency. Essentially, the NEDB operates on three levels. At the top is the Board, with the Prime Minister as chairman, two Deputy Prime Ministers as deputy chairmen, the Secretary-General of the NEDB as an *ex-officio* member of the Board and its Secretary, and 45 other government and non-government members appointed by the Council of Ministers. Cabinet Ministers act as advisers to the Board, and Ministers directly concerned with economic development of the country, function as chairman of sectoral sub-

committees. The Board, however, does not meet frequently and its function is therefore delegated to the Executive Committee which has nine members including the Secretary-General of the NEDB. The Executive Committee meets regularly as a policy-making body. It has the authority to supervise the work of the Planning Secretariat, which forms the base of the organizational pyramid, and that of a number of *ad hoc* and standing committees including the Department of Technical and Economic Co-operation and the Foreign Loans Sub-Committee. The Board, or in practice the Executive Committee, recommends plans, programmes, projects and policies to the Council of Ministers for final approval.

The Planning Office has an Industry Division, which is responsible for the approval of the capital budgets of the public enterprises and government policies affecting industrial investment. A private-sector planning group, composed of representatives from the Government and the private sectors, has been organized to broaden the planning process conducted by the NEDB so as to include the private sector. Working sub-committees have been formed for manufacturing, trade and services. The projections of private economic activity are to be integrated into the next national development plan, namely, the five-year National Economic and Social Development Plan, 1967-71, in order to give more realism and consistency to the national plan, to assist in the formulation of policies necessary to achieve objectives, and to provide guidelines concerning relations between state-owned enterprises and private business.

II. INDUSTRIAL POTENTIAL

a. Industrial feasibility surveys

In Thailand, general feasibility surveys for the whole country have not yet been conducted by any government agency or private organization. However, four industry feasibility surveys were undertaken by a group of consultants from Ebasco Service Incorporated in 1962. These surveys were financed by the United States Operations Mission to Thailand (USOM or AID) and reports of these surveys were published and distributed widely in the United States by the United States Government.

Before the abovementioned surveys were undertaken, a consultant from Ebasco Service Incorporated came to Bangkok and stayed from December 1961 to March 1962 to gather facts and figures with a view to identifying industrial investment opportunities or possible industries which could be profitably set up in Thailand. This consultant based his analysis of the opportunities for industrial investment on market demand and potential for growth, use of local raw materials, extent of import reduction and consequent conservation of foreign exchange, general contribution to the economy of Thailand and potential for profit sufficiently attractive to private investment. As

a result of his study, 18 specific industries, (industrial chemicals, plastics, paperboard, corn processing and storage, vegetable oils, small machinery, water pumps, small internal combustion engines, synthetic fibre [viscose rayon], sheet glass, food canning, electrical equipment and supplies, household electric appliances, agricultural equipment and tractors, paint, bicycles, automobile tyres and tubes, and fertilizers) were recommended to USOM¹ and to the Thai Government for selection for further economic and technical feasibility studies.

Subsequently, a team of six consultants from Ebasco Service Incorporated (financed by USOM/AID), came to Thailand to carry out economic and feasibility studies on four selected industries, namely, water pumps, household electric appliances, soda ash and caustic soda, and hand tools. Four government engineers were assigned by the Ministry of Industry to work with this team of consultants. Market studies were conducted to find the market potentials of water pumps, household electric appliances, particularly electric fans and electric irons, soda ash and caustic soda, and hand tools. Production methods and processes for their estimated shares of the market potentials thus obtained, as well as organizations for production facilities, were proposed. Financial analyses were made to estimate the profitability of the projects and the expected rates of return on investment. The four reports submitted by the consultants and subsequently published by USOM cover in detail the following points:

- (1) market analyses, covering present local consumption, growth potential of market, and possibility of export;
- (2) production requirements, including process and raw material needs and supply;
- (3) estimated cost of investment, including machinery and equipment and working capital;
- (4) estimated production and operating costs;
- (5) financial analyses showing expected rate of return on investment.

It was shown in all the four reports that investment in these four fields would yield attractive rates of return.

No other industrial feasibility surveys for specific industries have been undertaken since then; however, since 1965, a general techno-economic survey unit has been formed within the Department of Industrial Promotion of the Ministry of Industry. This unit, at present composed of two economists and one engineer, has so far undertaken techno-economic surveys of six provinces in the north-eastern region of Thailand, namely, Konkaen, Udorn, Ubol, Sakon-nakorn, Roi-et and Mahasarakam, under the assistance and guidance of an industrial adviser from USOM/AID.

¹ Hereafter in this country study, "USOM" refers to USOM, Thailand, unless otherwise specified.

The main purposes of the surveys are as follows:

- (1) to study the present conditions of industries operating in provincial areas so that a plan can be formulated in the future to provide the necessary technical assistance where required;
- (2) to find out what new industries and profitably be set up in those provinces and which existing industries could be expanded into economically viable units, taking into consideration local agricultural and mineral resources as well as skills and financial investment capability of the people in the provinces.

In the fiscal years 1965 and 1966, 169,500 and 208,750 baht respectively were allocated in the national budget for those surveys. A bigger budget allocation for the next fiscal year 1967 has been requested by the Department of Industrial Promotion to enable another team of two economists and one engineer to be added to the unit, so that techno-economic surveys of ten more provinces may be undertaken by the unit during 1967. In this way, it is planned to conduct techno-economic surveys eventually of all the 69 provinces in Thailand, apart from Bangkok and Thonburi.

b. Resources surveys

Most of the resources surveys being conducted in Thailand at present are mineral resources surveys undertaken by the Department of Mineral Resources of the Ministry of National Development. Geologically, a large part of Thailand is still waiting to be surveyed. Preparation is now being made to provide, during the next few years, more staff and equipment to enable the Geological Survey Division and the Economic Geology Division of the Department of Mineral Resources to extend its geological, geophysical and geochemical work in locating new areas which would merit intensive prospecting.

Foreign aid has lately been obtained for surveying and prospecting in some special areas and deposits. Exploration of iron ore deposits in Kanchanaburi province has recently been completed with the assistance of the Government of the Federal Republic of Germany. With the financial assistance of the United Nations Special Fund, a mineral survey over a wide area in the north-eastern region of Thailand, west of the Mekong River, has just been successfully completed by a team of British Overseas Geological Surveys geologists under the auspices of the Colombo Plan and the Lower Mekong Development Committee. At present, a team of German geologists, with the assistance of the Government of the Federal Republic of Germany, is working jointly with Thai geologists from the Department of Mineral Resources in conducting a geological survey in the northern region of Thailand.

Some mineral resources surveys are also being conducted by private enterprises. Since 1962, ex-

plorations for oil in two areas of the north-eastern region of Thailand have been undertaken by two private companies under concessions granted by the Government. No drilling in these areas has yet been attempted, the work undertaken being confined mainly to ground and aerial surveys. Five more applications for oil exploration concessions are at present being considered by the Government. These applications cover very wide areas, in the north, north-east, east, south, and even in the Gulf of Thailand. A number of applications for off-shore tin prospecting covering large areas in the south of the country have also been recently submitted to the Thai Government for consideration.

In addition, a three-year pulp and paper material survey is being undertaken, since December 1963, in selected areas in Kanchanaburi, Srisaket, Surajthani, Chiangmai and Petchbul provinces, with a view to assessing the availability, suitability and potential of existing domestic fibrous raw materials for pulp, paper, paperboard, and wood-based panel products manufacture. Forestry inventory surveys, studies and plantation experiments are being conducted as a part of this survey. Technical and economic feasibility studies of specific types and sizes of industrial plants based upon present and future raw material availability will also be included in the survey. It is believed that this survey will help in the training of officials of the Royal Forest Department and, when completed, will assist the Government of Thailand in the formulation of a long-term forestry and forest products development plan. This survey is being jointly financed by the Thai Government and the United Nations Special Fund, with the Food and Agriculture Organization (FAO) acting as the Executing Agency. The Special Fund allocation amounts to US\$557,300 whereas the government counterpart contribution totals US\$299,540. Already, it has been reported by the inventory survey team that large stands of pine trees suitable for paper pulp making, exist in Chiangmai and Petchbul.

c. Infrastructure development

(1) Transport

Transport facilities in Thailand are reasonably adequate. In addition to the traditional waterways transport, an extensive railway system is in existence. The main lines cover 3,494 kilometres, joining up the major centres of population and production. This state railway is being improved with new rolling stock and equipment, including a gradual conversion to diesel locomotives and heavier rails. Modern highways radiating from Bangkok, complemented by secondary roads and bridges, are already linking principal cities and regions of the country, and major programmes for extension of highway systems are under way. Air transport systems are also being expanded. Bangkok's large, modern airport is a major international air centre for south-east Asia, with

many airlines providing frequent jet service from it to all parts of the world.

The first six-year National Economic Development Plan (1961-1966) contains many projects for improving and developing inland, water and air transport facilities and services. Inland transport may be divided into that by road and by rail, and road transport further subdivided into that by national highways and by provincial highways.

(a) *Roads*

The national highway network at present comprises about 9,500 kilometres of primary and secondary highways, of which about 5,000 kilometres are paved with cement, concrete, or asphalt while the rest are of lateritic and gravel or earth-type surfaces. Most of the existing highways are still below modern standards, being too narrow and limited to dry-season use or small loads. This frequently causes many districts to be cut off from the rest of the country, especially during the rainy season.

The original plan for national highway development called for the rehabilitation of 3,982 kilometres of substandard primary and secondary highways and the construction of 1,459 kilometres of new roads within the eight-year period from 1963 to 1970. This plan was to be financed by annual national budgets and foreign loans; however, when the plan was worked out in detail, it was found that the actual construction costs were much higher than previously estimated and sufficient mechanical equipment and trained engineers and other necessary technical staff were not available. A new and more feasible plan extending over a period of seven years from 1965 to 1971 was, therefore, devised by a special committee appointed by the Council of Ministers, based on the guidelines laid down by the National Economic Development Board. Under the revised plan, the Government will rehabilitate and improve substandard primary highways as well as construct new highways to a total distance of 4,507 kilometres. In addition, 3,123 kilometres of the existing secondary highways will be improved by black-topping with penetration maccadam. Emphasis in this seven-year period is on upgrading of the substandard highways, widening of the pavements and increasing the wheel-load capacity so that the improved highways can be used throughout the year with subsequent saving in maintenance costs. When the plan is fully implemented, most of the primary highway network will be up to modern standards and almost all the secondary highways will be black-topped and all-weathered.

The provincial and rural highway system at present totals about 20,000 kilometres, of which 6,200 kilometres are classified as provincial highways. The majority of the existing provincial roads are still substandard, many of them deteriorate very quickly and are impassable during the rainy season. This situation is attributable to lack of adequate construction and maintenance funds and insufficient supply of machinery

and equipment and trained personnel. At present only about 2,700 kilometres of provincial highways are paved and all-weathered. Most of the rural roads are mere service tracks and only a small proportion of them can be used during the rainy season. It should be mentioned here that, while the maintenance of the provincial highways is financed from the national budgets, the rural roads are in most cases being maintained with insufficient and uncertain allotment of funds from provincial revenues.

A feeder roads development plan is now being drafted with a view to rehabilitating and constructing about 3,000 kilometres of provincial and rural roads during the next seven years. This plan, as envisaged, will be financed mainly from the national budgets.

(b) *Railways*

Regarding railway transport, the Government's railway development programme (1961-1966) concentrates more on increasing the carrying capacity and efficiency of the state railway system than on substantial extensions of the existing network. In order to improve the existing facilities, the state railway during the past few years has been shifting from steam to diesel locomotives, and has procured many new passenger and freight cars. At the same time the 50-pound rails were replaced by heavier ones of 70 pounds, and many of the wooden bridges were replaced by steel or reinforced concrete bridges capable of carrying a 15-ton axle load. Quite a number of the old station yards, railway junctions, and signal systems were also improved.

The railway investment programme for the period 1964-1966 envisages spending 418 million baht from the national budget and another 539 million baht from foreign loans. It is estimated that during this period an average increase of 3 per cent per annum in passenger traffic and of 4 per cent per annum in freight traffic will be obtained.

(c) *Water transport*

In the field of water transport, a river traffic survey including studies of its volume, origin and destination of passengers and cargo, and other related aspects essential for a proper assessment of the importance as well as present and future requirements of the country's inland water transport system has been in progress since 1963. It is expected that this survey will be completed some time in 1966.

(d) *Aviation*

Concerning air transport, activities since 1961 have been concentrated mainly on airport construction and installation of improved air traffic control systems. Surveys and airport construction work have been undertaken at Chiangmai, Korat, Udornthani, Ubol, Phuket, Phitsanuloke, Lampang, Chiengrai and Nakornphanom. Surveys and designs have been completed for airports at Songkla, Maesarieng and Maehongson. Air traffic towers, a VOR station and a receiver station have been erected at Bang Ping and

a transmitter station has been completed at Bang Pla, near Bangkok. In addition, a communications centre for both domestic and international services has been set up and two additional teletype machines were installed in the province. All these activities were undertaken by foreign companies under contract to the Thai Government.

With the object of reducing air traffic congestion at Don Muang Airport, an eastern runway capable of carrying loads up to 75,000 pounds per wheel was recently constructed. In addition, after the completion of a preliminary engineering survey, a proposal for the construction of a second commercial airport near Bangkok was submitted some time ago to the Thai Government. The Government, however, decided that, because of the large capital outlay required, further careful investigation must be made, including the alternative of expanding the present Don Muang Commercial airport.

Recently, the Thai Airways Company, a government enterprise, acquired three new commercial Avro 748 aircraft, each having accommodation for forty passengers. Work is now in progress to expand the aviation overhaul and maintenance facilities of the Company by the end of 1966, to a capacity of 60,000 man-hours, which is about three times that in 1963.

(2) Power

For some years after the Second World War, Thailand suffered from a severe electric power shortage especially in Bangkok and Thonburi, which was mostly due to the very rapidly increasing demand which could not be met by the slow expansion of generation and distribution facilities.

Before the commencement of the first six-year development plan (1961-1966), some significant steps had been taken to remedy this situation by the initiation of a major hydro-electric project at Yanhee in the north of Thailand, and by the decision to construct a new thermal power station in Bangkok.

In 1952, the Thai Government approved a proposal, submitted by the Irrigation Department, for the construction of a multi-purpose dam at Yanhee on the Menam Ping river, approximately 360 miles north of Bangkok, to irrigate areas around Tak and Kampanget provinces and to provide low-cost electric power for Bangkok and other provinces of the central region. During the subsequent five years engineers of the Irrigation Department, with the co-operation of the United States Bureau of Reclamation and the World Bank, worked out details of the dam. In 1957, a loan of US\$66 million for the construction of the dam was obtained from the World Bank. An additional 700 million baht was provided by the Thai Government for the same purpose. The dam, which is now known as Bhumibol Dam, together with the hydro-electric power station erected at the dam site and operated by the Yanhee Electricity Authority, was officially opened by His Majesty the King of Thailand

on 17 May 1964. The total planned generating capacity of this station is 560 MW, to be provided by eight 70-MW units. At present, however, only two units have been installed and the 140 MW, generated, is being supplied to the Yanhee grid system which provides power to several provinces in the northern, central and eastern regions of Thailand, including the Bangkok and Thonburi area which is the largest load centre and is situated at a transmitting distance of 445 kilometres from the generating station. Two more 70-MW units are now being acquired to increase the generating capacity of the station to 280 MW. in the near future.

In addition to the Yanhee Project mentioned above, many smaller hydro-electric projects are now being investigated and some are already being constructed. In the north-east region of the country, the Nam Pong Project at Konkaen with a capacity of 25 MW, came into operation on 14 March 1966, when its Ubolratana Dam was officially opened by His Majesty the King of Thailand. Another project in the north-east region, the Nam Pung Project at Sakolnakorn, with a capacity of 6 MW, is now under active construction and is scheduled to come into operation very soon. In the south a 30-MW hydro-electric power scheme at Yala, called the Pattani Project, is at present under intensive study. Two more projects are now being closely investigated; they are the 240-MW Ta-Pla Dam Project, on the Nan river, Uttaradit province in the north, and the 21-MW Lam Dome Noi Project at Ubolrajthani in the north-east. On the Mekong river, the first hydro-electric dam to be constructed is the Pha Mong Dam at Nongkai. Apart from these projects, many more hydro-electric schemes in the country are now undergoing preliminary surveys, such as the Sai Yai Project at Prachinburi and the Quae Yai Project at Kanchanaburi.

Regarding thermal power, the principal thermal plant in the country at present is the new power station at Bangkrucy, just north of Bangkok, which has a total generating capacity of 150 MW provided by two 75-MW units. This station is linked with the Yanhee system and is also operated by the Yanhee Electricity Authority. The two former thermal plants at Wat Lieb and Samsen, both in Bangkok, which have a combined generating capacity of 41.3 MW and which have supplied electricity to Bangkok and Thonburi for many years both before and after the Second World War, are now being kept as stand-bys. In the provinces, the construction of a lignite-burning thermal station of 40 MW capacity at Krabi in the southern region of Thailand has now been completed. The station has been supplying electric power since June 1964 to the mining industry in several important southern provinces. In the north, however, the 12.5-MW lignite-burning thermal plant at Maemoh, near Lampang, which had been supplying electric power for some years for the construction of

the Yanhee Project, as well as to neighbouring towns, was closed down when the Yanhee hydro-electric power station started operation, and is now kept as a stand-by.

Apart from these large power plants, the Provincial Electricity Authority is at present operating a number of small diesel-driven power stations in rural towns which cannot yet receive power supply from large central stations. It is now the policy of the Authority not to install any more new diesel-driven generating units but to replace old and obsolete ones by units withdrawn from areas which can be supplied by the Yanhee grid system. Some units in these areas will, however, still be retained as stand-bys until a regular supply of power by the Yanhee grid system is fully assured. At the beginning of 1965, the diesel generating capacity in use totalled 60 MW, and it is estimated that 11 MW of this capacity will be replaced during the year by power supplied by the Yanhee grid system. In 1966 it is expected that a further 15 MW of the diesel generating capacity will be withdrawn.

The development of electric power during the six years (1961-1966) of the plan period will necessitate a total expenditure of around 4,000 million baht. Of this, well over 2,000 million baht was provided during the years 1961-1963 by long-term loans largely from the World Bank and partly from foreign governments. During the same period, about 344 million baht was contributed by various public enterprises operating in the power field from their own resources, and about 312 million baht was provided by the Government from the national budget. Another 169 million baht toward the expenditure came from foreign grants during the period. The actual expenditure for power development of the country during the first three years, 1961-1963, of the plan period, together with those estimated for the next three years, 1964-1966, are as follows:

TABLE 1. EXPENDITURE ON THE DEVELOPMENT OF ELECTRIC POWER, 1961-1966
(million baht)

Contribution from	Expenditure		
	1961-1963 (actual)	1964-1966 (estimated)	Total for the 6-year period
1) National budget	311.95	566.06	878.01
2) Public enterprises (own resources)	344.12	244.36	588.48
3) Foreign loans	1,515.51	962.51	2,478.02
4) Foreign grants	169.27	24.70	193.97
Total	2,340.85	1,797.63	4,138.48

In the Bangkok and Thonburi area, which is the largest load centre of the country and consumes approximately three-quarters of the total electricity requirement of the whole country, an attractive schedule of electric rates was introduced in the latter part of 1962. Because of this inducement, the

energy sold in this area by the Metropolitan Electricity Authority in 1963 increased by about 24 per cent over that sold in the previous year. A similar type of rate schedule is now being planned for other areas of the country.

It will thus be seen that the Thai Government places great emphasis on the development of electric power supply industry, in energy resources development as well as in promotion of energy consumption through power rate adjustment.

The total capacity of public supply utilities in the past two decades steadily increased and had reached 273 MW by the end of 1962. By the end of 1963 it had increased to approximately 331 MW. The increase in 1964 was 180 MW, so that by the end of the year, the over-all capacity was 511 MW.

III. INDUSTRIAL POLICY

a. Investment laws and regulations

(1) Basic legislation

In order to encourage investment, local as well as foreign, in industries, the Government of Thailand enacted the first promotion law called the "Act on the Promotion of Industries, B.E. 2497" in October 1954. In April 1959, the Board of Investment was created to render assistance to would-be industrial entrepreneurs and investors under the provisions of the Act. This Act was, however, replaced by the "Promotion of Industrial Investment Act, B.E. 2503" in October 1960, with the Board of Investment becoming administrator of the new Act. The Act was in turn revised and liberalized by the "Promotion of Industrial Investment Act, B.E. 2505" in February 1962. The important features of this Act of 1962, which is at present still in force (see also page 50 for details of the Promotion of Industrial Investment Act of 1965), may be summarized as follows:

(a) Unlike in the previous promotion laws, the "promoted industrial activities (industries)" defined by ministerial regulations or by announcement of the Board of Investment under the provisions of the Act of 1962 are classified into three groups as follows:

(i) *Industrial activities under group A* are those which are vital and necessary to the economy of the country, and shall be designated by ministerial regulation defining the categories, sizes and other conditions applicable to this classification.

Originally 38 industries were designated for promotion under group A. In August 1963 and December 1965 two more industries, namely, the calcium carbide industry and kraft paper industry, were added to the group. In August 1964, however, five of those already designated under group A were withdrawn, namely, tin smelting industry, cast-iron, steel, asbestos cement or plastic pipe industry, motor vehicle tyre or inner tube industry, household electrical appliances industry, and sweetened condensed milk industry, leaving at present only 35

industries to be promoted under group A as shown in table 2.

ii) *Industrial activities under group B* are those which are less vital and necessary to the economy of the country than those under group A, as shall be designated by ministerial regulation defining the categories, sizes, or other conditions applicable to this classification.

Originally 18 industries were designated for promotion under group B. In August 1964, three of these were withdrawn, namely, electric wire or cable industry, household electrical appliances assembling industry, and concentrated cream or evaporated milk industry. However, in December 1964, the grease manufacturing industry, was added to the Group, making the number of industries remaining to be promoted under this group at present 16 as shown in table 3.

(iii) *Industrial activities under group C* are those other than the industries classified under groups A and B, in respect to which the categories, sizes, and other conditions shall be defined by announcement of the Board of Investment with the approval of the Prime Minister.

Originally 63 industries were designated for promoted under group C. Between July 1962 and December 1965, fourteen industries were added to the group. They were the industries for wire screens, sheet glass, galvanized sheet iron, internal boat transportation, modern rice mill, stone quarry, gramophone records, prefabricated building and prefabricated factory of iron structure, animal foods, parts for motor vehicles, engines or machines, fibre-board, sensitized paper, welding electrode, and animal hair selecting and cleaning. In August 1964, however, four industries already designated under this group were withdrawn, namely, spinning (from cotton), weaving (from cotton into grey shirting), wet-type electric storage battery and galvanized iron sheet, leaving at present only 73 industries to be promoted under this group as shown in table 4.

It must be pointed out here that the current lists of industries designated for promotion under the three groups are not necessarily inclusive nor final and may be changed or expanded from time to time as the Board of Investment deems fit. However, it is definitely stipulated in the Act of 1962 that

"after five years from the date this Act takes effect, any 'promoted persons' for industrial activities under groups A and B who thereafter begin operations of the industrial activities shall not receive the rights and benefits under section 20 and section 21, and such industrial activities shall be regarded as those under group C."

(b) The State guarantees not to engage in any new industrial activity in competition with that of the "promoted person".

(c) The State guarantees against expropriation or nationalization of any private industrial activity.

(d) A "promoted person" shall receive the following rights and benefits:

(i) If the "promoted person" is a limited company or a partnership registered in Thailand, it shall be permitted to own land for carrying on the industrial activity to such extent as the Board of Investment deems fit even in excess of the limit permissible under other laws.

(ii) Exemption from import duties on the machinery, component parts and accessories which are required for the industrial activity. This shall include prefabricated factory structures to be installed for carrying on the industrial activity or such other materials and equipment for the construction thereof as may be approved by the Board of Investment under such conditions as it deems fit, provided that similar materials, approximately equal in price and quality, are not being produced within the country in sufficient quantity.

(iii) Exemption from business tax on the machinery, component parts and accessories which are required for the industrial activity. This shall include prefabricated factory structures to be installed for carrying on the industrial activity or such other materials and equipment for the construction as it deems fit, and regardless of whether such tax-exempt person be a trader, producer or importer.

(iv) In the case where a "promoted person" is a juristic person, it shall be exempted from taxes on income derived from the industrial activity for five fiscal periods under the Revenue Code beginning with the tax period in which such juristic person has either sold its products or gained an income. This shall not apply to a "promoted person" who receives promotion covering *expansion* of an industrial activity.

TABLE 2. INDUSTRIAL ACTIVITIES UNDER GROUP A

Serial Number	Categories	Size	Conditions	Remarks
1	Iron Smelting Industry (smelting of iron ores into pig iron)	All sizes	Machinery and equipment approved by the Board must be used.	
2	Steel Making Industry (producing steel from pig iron or steel scraps)	All sizes	Machinery and equipment approved by the Board must be used.	

<i>Serial Number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
3	Tin Smelting Industry	Daily producing capacity of not less than twenty thousand kilogrammes of tin metal	Machinery and equipment approved by the Board must be used and the metal produced must have a purity of not less than 99.5 per cent with smelting losses of not more than 2 per cent.	Withdrawn on 3 August 1964
4	Lead Smelting Industry	All sizes	Machinery and equipment approved by the Board must be used and the metal produced must have a purity of not less than 99.8 per cent with smelting losses of not more than 5 per cent.	
5	Zinc Smelting Industry	All sizes	Machinery and equipment approved by the Board must be used and the metal produced must have a purity of not less than 99.8 per cent with smelting losses of not more than 5 per cent.	
6	Copper Smelting Industry	All sizes	Machinery and equipment approved by the Board must be used and the metal produced must have a purity of not less than 99.8 per cent with smelting losses of not more than 5 per cent.	
7	Antimony Smelting Industry	All sizes	Machinery and equipment approved by the Board must be used and the metal produced must have a purity of not less than 99.8 per cent with smelting losses of not more than 5 per cent.	
8	Tungsten Smelting Industry	All sizes	Machinery and equipment approved by the Board must be used and must be capable of smelting mixed tungsten or producing pure tungsten according to international standards.	
9	Manganese Smelting Industry	All sizes	Machinery and equipment approved by the Board must be used and must be capable of smelting mixed manganese according to international standards.	
10	Tractor Producing or Assembling Industry	Annual producing or assembling capacity of not less than one hundred tractors	Machinery and equipment approved by the Board must be used.	
11	Motor Vehicle Spare Parts Industry	All sizes	Machinery and equipment approved by the Board must be used.	
12	Bicycle or Tricycle With or Without Engine Industry	Sizes requiring capital investments of not less than five million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
13	Internal-Combustion or Electrical Prime-Moving Engine Industry	Sizes requiring capital investments of not less than three million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used and the quality of the products must be in accordance with international standards.	
14	Agricultural Machinery Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
15	Water Pump Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used and the quality of the products must be in accordance with international standards.	

<i>Serial Number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
16	Machine Tool Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used and the quality of the products must be in accordance with international standards.	
17	Cast-Iron, Steel, Asbestos Cement or Plastic Pipe Industry	Sizes requiring capital investments of not less than ten million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Withdrawn on 3 August 1964
18	Motor Vehicle Tyre or Inner Tube Industry	Annual producing capacity of not less than 50,000 of either tyres or tubes	Machinery and equipment approved by the Board and mainly domestic raw rubber must be used.	Withdrawn on 3 August 1964
19	Carbon Dioxide Industry	Daily producing capacity of not less than two thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	
20	Caustic Soda Industry	Daily producing capacity of not less than five thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	
21	Sodium Carbonate or Soda Ash Industry	Daily producing capacity of not less than twenty five thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	
22	Ammonia Industry	Daily producing capacity of not less than ten thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	
23	Nitric Acid Industry	Daily producing capacity of not less than five thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	
24	Hydrochloric Acid Industry	Daily producing capacity of not less than three thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	

<i>Serial Number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
25	Concentrated Latex Industry	Annual producing capacity of not less than four hundred thousand kilogrammes of 60 per cent concentrated latex	Machinery and equipment approved by the Board and Gómes-tic natural latex must be used.	
26	Chemical Fertilizer Industry	Daily producing capacity of not less than fifty thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	
27	Plastic Powder Industry	Sizes requiring capital investments of not less than ten million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
28	Synthetic Fibre Industry	Daily producing capacity of not less than three thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
29	Lac Products Industry	Annual producing capacity of not less than five hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	
30	Household Electrical Appliances Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Withdrawn on 3 August 1964
31	Fungicide or Insecticide Industry	Sizes requiring capital investments of not less than five million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	
32	Radio Parts Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
33	Television Parts Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
34	Electronic Products (Other Than Those in No. 32 and No. 33) Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
35	Photographic Film, Cinematographic Film or X-ray Film Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
36	Sweetened Condensed Milk Industry	Annual producing capacity of not less than one hundred and fifty thousand kilogrammes of sweetened condensed milk	Machinery and equipment approved by the Board and the formula officially permitted must be used and refined sugar locally produced must be used.	Withdrawn on 3 August 1964
37	Vegetable Oil Industry	Daily producing capacity of not less than five thousand kilogrammes	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	

<i>Serial number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
38	Cold Storage Industry	In Bangkok and Dhonburi must have the energy of refrigeration by absorbing heat not less than three hundred and two thousand kilogramme-calories (refrigeration of one hundred tons) in other towns must have the energy of refrigeration by absorbing heat not less than sixty thousand kilogramme-calories (refrigeration of twenty tons)	Machinery and equipment approved by the Board must be used.	
39	Calcium Carbide Industry	Daily producing capacity of not less than three thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The quality of the products must be in accordance with international standards.	Designated on 23 August 1963
40	Kraft Paper Industry	Daily producing capacity of not less than one hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used. Locally produced pulp must be used according to conditions fixed by the Board. The quality of the products must be in accordance with international standards.	Designated on 20 December 1965

TABLE 3. INDUSTRIAL ACTIVITIES UNDER GROUP B

<i>Serial number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
1	Ship Building Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	The ships built must not be smaller than one hundred tons displacement and machinery and equipment approved by the Board must be used.	
2	Passenger Car and Truck Producing or Assembling Industry	Annual producing or assembling capacity of not less than three hundred units	It must be capable of producing or assembling passenger cars and trucks, and machinery and equipment approved by the Board must be used.	
3	Internal-Combustion or Electrical Prime-Moving Engine Assembling Industry	Sizes requiring capital investments of not less than three million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	
4	Agricultural Machinery Assembling Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
5	Water Pump Assembling Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	
6	Machine Tool Assembling Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	

<i>Serial number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
7	Carpenter's or Blacksmith's Tools Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
8	Producing or Assembling Sewing Machine Industry	Sizes requiring capital investments of not less than five million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
9	Sewing Thread Industry	There must be not less than one thousand spindles of doubling frame	Machinery and equipment approved by the Board must be used.	
10	Paper Industry	Annual producing capacity of not less than two million kilogrammes	Machinery and equipment approved by the Board must be used.	
11	Wood-Pulp Industry	Annual producing capacity of not less than two million kilogrammes	Machinery and equipment approved by the Board must be used.	
12	Electric Wire or Cable Industry	Sizes requiring capital investments of not less than three million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	Withdrawn on 3 August 1964
13	Electric Accessories Industry	Sizes requiring capital investments of not less than five hundred thousand baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The quality of the products must be in accordance with international standards.	
14	Household Electrical Appliances Assembling Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Withdrawn on 3 August 1964
15	Spectacle Glass or Lens Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
16	Fountain-Pen Industry	Annual producing capacity of not less than one hundred thousand fountain-pens	Machinery and equipment approved by the Board must be used.	
17	Food Canning Industry (using cans or other airtight containers)	Annual producing capacity of not less than five hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used and must be capable of producing good quality food in cans or other airtight containers. Mainly domestic raw material must be used.	
18	Concentrated Cream or Evaporated Milk Industry	Annual producing capacity of either kind or both of not less than fifty thousand kilogrammes	Machinery and equipment approved by the Board and the formula officially permitted must be used.	Withdrawn on 3 August 1964
19	Grease Manufacturing Industry	Annual producing capacity of not less than five hundred and forty thousand kilogrammes	Machinery and equipment and process approved by the Board must be used.	Designated on 19 October 1965

TABLE 4. INDUSTRIAL ACTIVITIES UNDER GROUP C

<i>Serial number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
1	Mineral Oil Prospecting Industry	All sizes	Machinery and equipment approved by the Board must be used.	
2	Crude Oil Producing Industry	Daily producing capacity of not less than one hundred and fifty thousand litres	Machinery and equipment approved by the Board must be used.	
3	Oil Refining and Distilling Industry	Using not less than one hundred and fifty thousand litres of crude oil daily	Machinery and equipment approved by the Board must be used.	
4	Lead Ore Producing and/or Dressing Industry	Annual producing capacity of not less than one million kilogrammes of concentrate calculated on the basis of 70 per cent of lead metal	Machinery and equipment approved by the Board must be used.	
5	Zinc Ore Producing and/or Dressing Industry	Annual producing capacity of not less than one million kilogrammes of concentrate calculated on the basis of 60 per cent of zinc metal	Machinery and equipment approved by the Board must be used.	
6	Copper Ore Producing and/or Dressing Industry	Annual producing capacity of not less than one million kilogrammes of concentrate	Machinery and equipment approved by the Board must be used.	
7	Antimony Ore Producing and/or Dressing Industry	Annual producing capacity of not less than five hundred thousand kilogrammes of concentrate	Machinery and equipment approved by the Board must be used.	
8	Tungsten Ore Producing and/or Dressing Industry	Annual producing capacity of not less than one hundred thousand kilogrammes of concentrate	Machinery and equipment approved by the Board must be used.	
9	Manganese Ore Producing and/or Dressing Industry	Annual producing capacity of the less than five hundred thousand kilogrammes of concentrate	Machinery and equipment approved by the Board must be used.	
10	Steel Working Industry (fabricated steel products and castings)	All sizes	Machinery and equipment approved by the Board must be used.	
11	Rolling Mill Industry	Annual producing capacity of not less than one million kilogrammes	Machinery and equipment approved by the Board must be used.	
12	Tin Plate Industry	Annual producing capacity of not less than one million kilogrammes	Machinery and equipment approved by the Board must be used.	
13	Galvanized Iron Wire Industry	Annual producing capacity of not less than one million kilogrammes	Machinery and equipment approved by the Board must be used.	
14	Galvanized Iron Pipe Industry	Annual producing capacity of not less than one million five hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
15	Other Galvanized Iron Products Industry	Annual producing capacity of not less than five hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
16	Barbed-Wire Industry	Annual producing capacity of not less than five hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
17	Bolt and Nut Industry	Annual producing capacity of not less than five hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
18	Agricultural Tools and Implement Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	



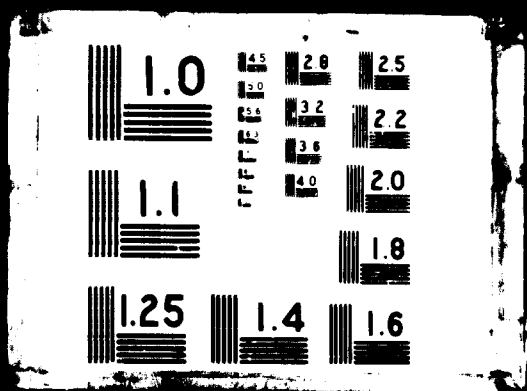
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Serial number	Categories	Sizes	Conditions	Remarks
19	Electric Bulb Industry	All sizes	Machinery and equipment approved by the Board must be used.	
20	Radio Receiving Set Manufacturing or Assembling Industry	Annual producing or assembling capacity of not less than one thousand sets	Machinery and equipment approved by the Board must be used.	
21	Television Receiving Set Manufacturing or Assembling Industry	Annual producing or assembling capacity of not less than one thousand sets	Machinery and equipment approved by the Board must be used.	
22	Spinning from Cotton, Natural Fibre or Synthetic Fibre Industry	There must be not less than 3,000 spindles of spinning frame	Machinery and equipment approved by the Board must be used.	Spinning from cotton only withdrawn on 3 August 1964
23	Weaving from cotton, Natural Fibre or Synthetic Fibre Industry	There must be not less than 50 looms	Machinery and equipment approved by the Board must be used.	Weaving from cotton into grey shirting only withdrawn on 3 August 1964
24	Cotton, Natural Fibre or Synthetic Fibre Products Industry	Daily producing capacity of not less than five hundred kilogrammes	Machinery and equipment approved by the Board must be used.	
25	Bleaching, Dyeing, Printing or Finishing of Fabric or Yarn Industry	Total daily producing capacity of not less than five hundred kilogrammes by weight or three thousand square metres by area	Machinery and equipment approved by the Board must be used.	
26	Rope or Mat Industry	Annual producing capacity of either kind or both of not less than one hundred and fifty thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
27	Coconut Fibre or Shell Products Industry	Annual producing capacity of either kind or both of not less than one hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
28	Bicycle Tyre or Inner Tube Industry	Annual producing capacity of not less than (a) fifty thousand tyres (b) one hundred thousand inner tubes (c) thirty-five thousand sets of tyre and inner tube	Machinery and equipment approved by the Board must be used.	
29	Hard Rubber (Ebonite) Products Industry	Annual producing capacity of not less than thirty thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
30	Rubber Products (other than those in No. 28 and No. 29) Industry	If rubber smoked sheet or rubber crepe is used as raw material, not less than thirty thousand kilogrammes must be used annually. If rubber latex is used as raw material, not less than ten thousand kilogrammes must be used annually	Machinery and equipment approved by the Board and mainly domestic raw rubber must be used.	
31	Reclaimed Rubber Industry	Annual producing capacity of not less than three hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
32	Turpentine or Dammar Industry	Annual producing capacity of not less than twenty thousand kilogrammes of turpentine oil or not less than one hundred thousand kilogrammes of dammar	Machinery and equipment approved by the Board must be used.	
33	Wood Shaving and Cement Board Industry	Annual producing capacity of not less than one thousand five hundred cubic metres	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited if similar material of suitable quality is available in Thailand.	

Serial number	Categories	Sizes	Conditions	Remarks
34	Wood Parquet Flooring Industry	Daily producing capacity of not less than two cubic metres	Machinery and equipment approved by the Board must be used.	
35	Wood Drying or Curing Industry	Curing capacity of not less than ten cubic metres	Machinery and equipment approved by the Board must be used.	
36	Wood Preserving Industry	Annual preserving capacity of not less than seven thousand five hundred cubic metres	Machinery and equipment approved by the Board must be used.	
37	Wood Distillation Industry	Daily use not less than one hundred cubic metres of wood	Machinery and equipment approved by the Board must be used.	
38	Pressed Sawdust (Briquettes) Industry	Annual producing capacity of not less than two million and five hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
39	Glazed Ceramic Industry	Annual producing capacity of not less than one hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand.	
40	Floor or Wall Ceramic Tile Industry	Annual producing capacity of not less than one hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand.	
41	Edible Flour Industry	Annual producing capacity of not less than three million kilogrammes	Machinery and equipment approved by the Board must be used.	
42	Tea Industry	Annual producing capacity of not less than twenty thousand kilogrammes of tea leaf or tea dust	Machinery and equipment approved by the Board must be used.	
43	Rice-Bran Oil Industry	Using not less than fifty thousand kilogrammes of rice bran daily	Machinery and equipment approved by the Board must be used.	
44	Agricultural Products Curing Industry	Hourly capacity of curing agricultural products of not less than five thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
45	Tannin Producing Industry	Daily producing capacity of not less than two thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
46	Artificial Leather Producing Industry	Sizes requiring capital investments of not less than five million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
47	Paint Industry	Daily producing capacity of not less than five thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
48	Printing Ink Industry	Annual producing capacity of not less than fifty thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
49	Feather Selecting and Cleaning Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
50	Neutral Glass Industry	Sizes requiring capital investments of not less than three million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used, and mainly domestic raw material must be used.	

<i>Serial number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
51	Crystal Glassware Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
52	Modern Pharmaceutical Products Industry	Sizes requiring capital investments of not less than ten million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The pharmaceutical products produced must be manufactured from natural material or at least from intermediates or from domestic medicinal herbs or plants.	
53	Wet-Type Electric Storage Battery Industry	Annual producing capacity of not less than fifteen thousand wet-type electric batteries suitable for motor vehicle use	Machinery and equipment approved by the Board must be used.	Withdrawn on 3 August 1964
54	Pencil Industry	Annual producing capacity not less than one million pencils	Machinery and equipment approved by the Board must be used.	
55	Button Industry	Sizes requiring capital investments of not less than five hundred thousand baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
56	Rattan and Bamboo Products Industry	Annual producing capacity of not less than three hundred thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
57	Deep Sea Fishing Industry	Using fishing boats with capacity of not less than thirty tons gross each	Must fish in sea of a depth of not less than thirty metres and must have a factory on shore in Thailand for processing fish, and machinery and equipment approved by the Board must be used.	
58	Fish Processing Industry	Daily capacity of processing raw fish of not less than five thousand kilogrammes	Machinery and equipment approved by the Board must be used.	
59	Pearl Oyster Culture Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The pearl oyster culture must begin with the rearing of oyster up to the production of pearls and other productions from the mother-of-pearl.	
60	Marble Industry	Sizes requiring capital investments of not less than ten million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The product must be mainly produced for export abroad.	
61	Mineral Water Bottling Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	
62	Hotel Industry	In Bangkok and Thonburi must have from one hundred rooms upwards; in other towns must have from thirty rooms upwards	Must be a first class hotel, the designed plan, accessories and equipment of which must be approved by the Board.	On 26 August 1965 the number of rooms for Bangkok and Thonburi area was changed to two hundred, and that for other towns to fifty

<i>Serial number</i>	<i>Categories</i>	<i>Sizes</i>	<i>Conditions</i>	<i>Remarks</i>
63	International Sea-Transportation Industry	Using sea-going vessels with capacity of not less than eight thousand tons gross each	Must carry on shipping between Thailand and foreign countries and must undertake to train Thai as students in navigation and marine engineering.	
64	Wire Net for Protection from Insects Industry	Sizes requiring capital investments of not less than four million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Designated on 25 July 1962
65	Glass Sheet Industry	Sizes requiring capital investments of not less than ten million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used	Designated on 25 July 1962
66	Galvanized Iron Sheet Industry	Annual producing capacity of not less than ten million kilogrammes	Machinery and equipment approved by the Board must be used.	Designated on 25 July 1962 and withdrawn on 3 August 1964
67	Internal Boat Transportation Industry	Using steel boats with capacity of not less than fifty ton gross each and with total capacity of not less than five hundred tons gross	Must have the designed plan approved by the Board.	Designated on 13 August 1963
68	Modern Rice Mill Industry	Daily capacity of milling paddy of not less than one hundred Kwien (1 standard Kwien = 2,000 litres)	Machinery and equipment approved by the Board must be used.	Designated on 13 August 1963
69	Stone Quarry Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Designated on 13 August 1963
70	Gramophone Record Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Designated on 13 August 1963
71	Prefabricated Building and Prefabricated Factory of Iron Structure Industry	Sizes requiring capital investments of not less than five million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The use of foreign raw material is prohibited, if similar material of suitable quality is available in Thailand. The prefabricated building and prefabricated factory of iron structure manufactured must be in accordance with the law relating to the control of building construction.	Designated on 7 January 1965
72	Animal Food Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used. The formulae used in the production must have official approval.	Designated on 7 January 1965
73	Parts for Motor Vehicles, Engines or Machines Industry	Sizes requiring capital investments of not less than two million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Designated on 30 July 1965
74	Fibre-Board Industry	Sizes requiring capital investments of not less than twenty million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Designated on 10 August 1965

75	Sensitized Paper Industry	Annual producing capacity of not less than one hundred and twenty thousand kilogrammes by weight or one million five hundred thousand square metres by area	Machinery and equipment approved by the Board must be used. Locally made paper must be used to the extent of not less than 75 per cent of the total amount required for annual production.	Designated on 15 November 1965
76	Welding Electrode Industry	Daily producing capacity of not less than four thousand kilogrammes	Machinery and equipment approved by the Board must be used. The flux used must be produced locally in the plant from the commencement of the production of welding electrode.	Designated on 29 November 1965
77	Animal Hair Selecting and Cleaning Industry	Sizes requiring capital investments of not less than one million baht (not including value of land and circulating capital)	Machinery and equipment approved by the Board must be used.	Designated on 27 December 1965

(v) Taking out or remitting abroad of money in foreign currency will be permitted if it represents investment capital derived by the "promoted person" from a foreign country, foreign loan, profit derived from such investment capital, interest on foreign loan, or obligations assumed by the "promoted person" under a contract relating to rights and services necessary to the industrial activity, provided however, that during any period when the balance of payments of foreign currency may be such as to require preservation of foreign currency reserves to a reasonable amount, the Bank of Thailand may for that purpose require that the taking out or remitting abroad of such money be suspended or restricted temporarily.

(vi) Subject to the immigration law, insofar as it is not otherwise provided herein, a "promoted person" shall be permitted to bring skilled workers or experts, who are aliens, into the country for the purpose of the industrial activity in such number and for such period as authorized by the Board of Investment, including their spouses and dependent children as approved by the Board of Investment to accompany them, irrespective of whether it is in excess of the quotas provided by the immigration law.

(vii) Export of products which have been produced shall always be permitted except when otherwise required by national security or economic interest.

(viii) A "promoted person" for industrial activity under group A shall be exempted from the import duty collectable under the law or custom tariffs and from the business tax on raw or necessary materials imported for use in the industrial activity in such quantity as is used or estimated to be used for production within the period of five years as fixed by the Board of Investment, provided that such materials approximately equal in price and quality are not being produced or originated within the country in sufficient quantity.

For a "promoted person" for industrial activity under group B, the exemption will be for only 50

per cent of such import duty and business tax (also for a period of five years).

For a "promoted person" for industrial activity under Group C, the Board of Investment, with the approval of the Council of Ministers, may grant a reduction of such import duty and business tax not exceeding one-third of the amount collectable (also for a period of five years).

(e) Apart from the rights and benefits enumerated in d) above, if the Board of Investment deems it expedient in the interest of national economy a "promoted person" may receive one or more special rights and benefits as follows:—

(i) Prohibition, under the law on control of exports and imports of certain kinds of goods, of the import of the products of the same kind as those produced by the "promoted person" for such period as the Board of Investment deems fit.

(ii) Increase of import duty collectable under the law on customs tariffs for products of the same kind as those produced by the "promoted person" for such period as the Board of Investment deems fit.

(iii) Exemption from, or reduction of export duty collectable under the law on customs tariffs for the products produced by the "promoted person" for such period as the Board of Investment deems fit.

(iv) Exemption from, or reduction of business tax in case the "promoted person" exports his own products for such period as the Board of Investment deems fit.

Certain possible benefits as enumerated above are subject to individual consideration and negotiation. Specific enquiry is recommended regarding the terms available for any particular industrial project.

In January 1966, the Promotion of Industrial Investment Act of 1962 was amended by the "Promotion of Industrial Investment (No. 2) Act, B.E. 2508". The purpose of this last amendment is to raise the status of the Board of Investment to the level of a permanent government department so as to give it a

TABLE 5. INDUSTRIES ALREADY PROMOTED AND THEIR INVESTMENT
(From 13 April 1959 to 31 March 1966)

Item	Year										Total
	1959	1960	1961	1962	1963	1964	1965	1966 (to 31 Mar. 66)			
1. Number of applications received	159	78	76	93	134	149	141	41			871
2. Number of applications approved	54	48	66	65	82	69	67	23			474
3. Number of promotion certificates issued	23	40	38	47	66	63	60	7			344
3a. { 1. Thai ventures	9	18	23	17	23	18	27	4			139
{ 2. Foreign ventures	2	2	1	3	5	2	—	—			15
{ 3. Joint ventures	12	20	14	27	38	43	33	3			190
3b. { 1. New ventures	16	25	26	30	50	43	51	7			248
{ 2. Expansion of old ventures	7	15	12	17	16	20	9	—			96
3c. { 1. Number under group A	1	2	2	9	24	15	13	1			67
{ 2. Number under group B	—	3	1	9	2	6	—	—			21
{ 3. Number under group C	22	35	35	29	40	42	47	6			256
4. Number of ventures which have come into operation	10	23	28	26	13	19	15	3			137
5. Registered capital of 3) above — Total (baht)	212,400,000	427,175,043	228,658,000	375,020,000	529,152,200	510,630,000	248,700,000	48,150,000			2,579,885,243
5a. { 1. Thai capital (baht)	138,581,200	354,156,393	178,666,500	252,452,250	337,652,000	261,808,267	157,126,400	45,098,000			1,725,541,010
{ 2. Foreign capital (baht)	73,818,800	73,018,650	49,991,500	122,567,750	191,500,200	248,821,733	91,573,600	3,052,000			854,344,233
6. Working capital of 3) above — Total (baht)	398,888,766	849,894,344	1,157,473,876	1,173,663,544	1,698,974,191	2,045,763,160	608,590,633	64,710,000			7,997,958,514
7. Machinery and equipment cost of 3) above — Total (baht)	273,290,263	471,621,779	670,324,799	606,449,745	1,012,602,744	1,110,490,553	323,744,953	41,856,366			4,510,381,202
8. Number of local people expected to be employed by 3) above — Total	3,937	12,407	4,977	6,038	10,861	10,158	6,825	552			55,756

Source: Office of the Board of Investment.

TABLE 6. DETAILS OF THE REGISTERED CAPITAL OF INDUSTRIAL ENTERPRISES ALREADY PROMOTED
(By Nationality of Ownership and Participation of Ventures)
(From 13 April 1959 to 31 March 1966)

Nationality of Ownership	Registered capital solely owned by one nationality		Registered capital of joint ventures (Thai Foreign)		Total registered capital	
	Amount in baht	per cent	Amount in baht	per cent	Amount in baht	per cent
1. Thailand	920,406,243	86.57	805,134,767	53.09	1,725,541,010	66.90
2. Japan	119,930,000	11.28	254,675,000	16.80	374,605,000	14.53
3. Republic of China	—	—	160,620,608	10.60	160,620,608	6.22
4. United States of America	10,000,000	0.94	77,695,791	5.12	87,695,791	3.40
5. United Kingdom	1,000,000	0.09	27,943,250	1.84	28,943,250	1.12
6. Malaysia	—	—	26,753,334	1.76	26,753,334	1.03
7. Federal Republic of Germany	—	—	25,828,000	1.70	25,828,000	1.00
8. Denmark	—	—	22,494,000	1.48	22,494,000	0.90
9. India	12,000,000	1.12	4,083,850	0.27	16,083,850	0.62
10. Australia	—	—	14,599,750	0.96	14,599,750	0.56
11. Italy	—	—	11,727,000	0.77	11,727,000	0.45
12. Switzerland	—	—	9,578,400	0.63	9,578,400	0.37
13. Israel	—	—	7,000,000	0.46	7,000,000	0.27
14. Portugal	—	—	6,341,000	0.42	6,341,000	0.24
15. Holland	—	—	6,247,750	0.41	6,247,750	0.24
16. Indonesia	—	—	6,000,000	0.40	6,000,000	0.23
17. Hong Kong	—	—	4,749,500	0.31	4,749,500	0.18
18. Burma	—	—	3,750,000	0.25	3,750,000	0.14
19. Argentina	—	—	3,000,000	0.20	3,000,000	0.11
20. Philippines	—	—	850,000	0.06	850,000	0.03
21. Austria	—	—	100,000	0.01	100,000	0.01
22. Others	—	—	37,377,000	2.46	37,377,000	1.45
Total	1,063,336,243	100	1,516,549,000	100	2,579,885,243	100
100% Thai registered capital			920,406,243 baht (35.68%)			
100% Foreign registered capital			142,930,000 baht (5.54%)			
Registered capital of joint ventures:						
a) Thai capital	805,134,767 baht (31.22%)					
b) Foreign capital	711,414,233 baht (27.56%)					
c) Total			1,516,549,000 baht (58.78%)			
Total registered capital			2,579,885,243 baht (100%)			

Source: Office of the Board of Investment.

legal status. The changes made in the amendment are, therefore, confined to the internal structure and operation of the Board and in no way affect the promotional privileges and procedures contained in the Act of 1962, as enumerated above. The main feature of this amendment of 1966 is the creation of the "Office of the Board of Investment" in the Office of the Prime Minister to handle the affairs of the Board of Investment in place of the Executive Committee of the Board of Investment in the Act of 1962.

Since the establishment of the Board of Investment on 13 April 1959 and until 31 March 1966, the Board received altogether 871 applications for promotion, and has approved 474 of them. However, out of these 474 approved, promotion certificates have been issued, during the same period, to only 344 of them, the remainder is asking for more time to

make up their minds definitely whether to proceed with their projects or not. During the same period, 137 of the already promoted industries have come into operation, while ten others have had their rights and benefits withdrawn because of some failure or other. Total registered capital of the 344 promoted ventures amounts to just under 2,580 million baht, out of this, more than 1,725 million baht, (more than 66 per cent) being subscribed by local investors. Total working capital of the 344 ventures, however, amounts to over 7,997 million baht, of this approximately 4,510 million baht (about 56 per cent) being spent on machinery and equipment. Table 5 shows in detail the annual breakdown of these promotional results.

In order to give an indication of the extent of foreign investments in these promoted ventures, as well as their sources, table 6 showing details of the

total registered capital of the 344 ventures promoted, is attached herewith. The parts played by foreign investments in the various types of industries undertaken by the 154 promoted ventures which have come into operation during 1955-1965 are shown in table 8 in chapter V.

Table 18 in chapter V gives in detail the different types of promoted industries for which promotion certificates have been issued by the Board of Investment during 1957-1965.

(2) *Other pertinent laws and regulations*

(a) *Law governing control of capital issue.* At present there is no specific law governing control of capital issues in Thailand. Foreign capital is allowed to enter the country freely, and local capital can participate in any economic undertakings as the investors wish. However, if a company, or corporation, or partnership is formed in the country for such a purpose, this entity, in order to conform with the Civil and Commercial Code and the Commercial Registration Act of 1956, must register with the Department of Commercial Registration, Ministry of Economic Affairs. Regarding imported foreign capital, rules and regulations concerning their repatriation, as well as the remittance of interests, profits and dividends derived from them, will be discussed in details in section (i) of chapter V.

(b) *Law governing licensing of imports of capital goods.* Commercial imports into Thailand at present generally do not require licenses, except those listed under import control. Goods under control consist mainly of products that are produced locally in sufficient quantities or products under the Government's promotional programme. At present, they include sugar, matches, rattan, mats, iron cooking pans, rubber bands, old newspaper, and paper umbrellas. For national security or political reasons, imports of all goods produced in mainland China are prohibited. Imports and exports of such other products as arms, ammunition, and radioactive materials also require licenses. It will be seen that at present the imports of capital goods into the country can be made freely, payment for them in foreign currency, however, being subject to the rules and regulations of the Bank of Thailand.

(c) *Law governing the location of industrial enterprises.* At present there is as yet no specific law governing the location of industrial enterprises. There is, however, a "Town and Country Planning Act, B.E. 2495 (1952)" which deals mostly with the planning and laying out of towns, and inevitably touches a little on the matter of the location of industrial factories. It is decreed in this Act that "the planning officials shall make plans to define locations where the establishment of factories is prohibited and the municipalities shall be responsible for the carrying out of the plans under the conditions stipulated and under the supervision of the planning officials". Since the

promulgation of this Act, no Royal Decree defining locations or towns in which this Act will be enforced has been issued; this is due to the shortage of planning officials, and the lack of budgetary allocation for operating expenses such as land and building compensation which is considerable. The Ministry of Interior is now actively revising the Act so as to make it operational.

In 1959, the Ministry of Interior hired an engineering consulting firm called Litchfield, Whiting and Browne, to draw up a plan for Bangkok and Thonburi. In the plan, which is called the "Greater Bangkok Plan", finally submitted by the Company, industrial locations in these two towns were defined. The Public Works Department of the Ministry of Interior together with the Bangkok and Thonburi Municipalities in their joint study of this plan, recommended additional industrial locations so as to give prospective industrial entrepreneurs a wider choice of suitable locations for their factories. The plan as well as the suggested modifications are now being urgently studied by the Thai Government.

In order to have something to work on regarding industrial locations while the plan is being considered by the Government, the Ministry of Industry together with the Bangkok and Thonburi Municipalities have devised some guidelines for the location of industrial factories in the two towns. Factories are classified into four separate groups according to the amount of trouble and nuisance they could possibly give to their localities. Different locations are then tentatively defined for these different groups of factories, and now industrial enterprises will not any longer be permitted to be established in wrong locations.

In the provinces, the Public Works Department has drawn up plans of quite a number of municipal areas and thickly-populated localities. Industrial locations are defined in all these plans, and the municipalities concerned will usually allow establishment of factories only in these planned locations. However, since the Town and Country Planning Act of 1952 has not yet been decreed in force in those areas, the municipalities have to invoke other laws, which are already in force, for the purpose.

(d) *Law governing licensing of factory establishments.* The first law governing the licensing of factory establishments was promulgated in Thailand in 1929 and is called the "Act on Factories, B.E. 2482". Only 16 types of factories were specified to come under the Act at that time; and those only in Bangkok and Thonburi. The Act, however allows other types of factories as well as other localities to be decreed to come under control by Royal Decrees. In 1946, six more types of factories in Bangkok and Thonburi were added to the list of those originally specified, and in 1950, twentyone more, also in Bangkok and Thonburi, were added. In 1957, a further sixtyseven types of factories in Bangkok and Thonburi were decreed to come under the Act, making a total of

110 types under control. At the same time a Royal Decree was issued bringing the Act into force, with respect to all the 110 types of factories already specified for Bangkok and Thonburi, in 27 provincial towns. In 1960, a further 16 provincial towns were brought under the Act. The remaining 26 provincial towns of the kingdom were decreed to come under the Act in 1961. As matters now stand, therefore, 110 types of factories in all parts of the country are under the control of this Act. Other factories outside these 110 types are at present still outside the jurisdiction of this Act.

Under this Act, no one will be allowed to establish or enlarge a factory as specified without having first obtained a licence from the Ministry of Industry. However, this Act applies only to factories of private persons, partnerships or companies, factories belonging to government departments and agencies being outside its jurisdiction. The Ministry of Industry has the power to grant or to refuse any application for licence within thirty days from the day the application was submitted; however, this period may be reasonably extended and the applicant informed of the extension. The Minister also has the power to specify in the licence any conditions he may think necessary for the safety and health of the people concerned. The licensed factory can start operation only when a written permission for the opening of the factory is issued by the competent official after he is satisfied from his inspection specified by the Minister in the licence. The owner of the licensed factory is obliged to adhere to various health and safety regulations enumerated in the Act. If there is any violation of these regulations, the Act empowers the competent official to order the owner or manager of the factory to make the necessary changes, repairs or arrangements within a prescribed period. If the competent official is of the opinion that such violation is likely to be injurious to body, life or health, he can order the factory owner to stop work entirely or in part until the necessary changes, repairs or arrangements ordered by him have been made. The factory owner has to report any stoppage of the factory for more than thirty days and the subsequent re-start, and any accident causing death or injury. Any change in the owner or manager of the factory must also be reported.

In order to make the licensing and control of factories more effective and to obtain more data and information for industrial and economic planning, the Act on Factories, B.E. 2482, was repealed in 1960, when seven of its original sections were changed and three new sections were added. The new Act is known as the "Factories Act (No. 2), B.E. 2503". It is now compulsory for the manager of the licensed factory to submit a report showing the annual operations and production of the factory to competent officials on the forms and within the time prescribed in ministerial regulations; failure to do so after being warned in writing by the competent official or falsification of

such report in the essential elements can be fined, or even punished by having the licence revoked by the Minister. The new Act also empowers the competent official to order the owner or manager of the factory to make the necessary changes, repairs or arrangements within a prescribed period, in the case where the factory owner or manager has not complied with the conditions prescribed in the licence or where the factory is creating a public nuisance. Violation of the order of the competent official on the part of the owner or manager of the factory to make the necessary changes, repairs or arrangement in the above two cases, as well as in the case of the violation of the health and safety regulations, can now be punished by having the licence revoked by the Minister. Other offences, apart from the two already mentioned, which can be punished in the same way are:

- (i) the factory owner has made false statements in his application to establish or enlarge a factory and such statements are essential to the consideration of whether to issue the licence;
- (ii) the factory owner or manager is operating a factory which may be of danger to the national economy or safety;
- (iii) the factory is so dilapidated that it cannot be operated.

(e) *Law governing control of raw material.* At present there is no specific law governing the control of raw materials. All raw materials available in the country can be purchased freely for any purpose. Those that have to be obtained from abroad can be imported as required if they are not under import control at the time and provided that the rules and regulations stipulated by the Bank of Thailand regarding payment are complied with.

(f) *Law governing control of power supply.* The basic law governing control of power supply in Thailand was enacted in 1953 and is called the "National Energy Authority Act, B.E. 2496". This Act takes under control all forms of energy, water, wind, natural heat, solar energy, minerals and fuels such as firewood, rice husks, oil, coal and natural gas, and so on. All energies produced or sold by any body, private as well as public, are subject to control under this Act, unless a special law is enacted for a specific case. Until now, however, only electric power generation and supply has been declared in force under this Act by the "Royal Decree Concerning the Controlled Energy, B.E. 2497 (1954)" and the "Royal Decree Concerning the Energy Area, B.E. 2497 (1954)".

Essential features of the Act and the Royal Decrees respecting the control of power supply can be briefly summarized as follows:

(i) By virtue of the Act, the National Energy Authority (NEA) is vested with the powers and duties of laying down the policy and devising control for energy production, and of establishing standards and safety control. Such standards and regulations are prescribed in the Ministerial Regulations.

(ii) For any undertaking not concerned with the sale of electric energy to the public, a source of energy having a total capacity greater than 50 kilowatts is legally regarded as controlled energy.

(iii) No production or extension of controlled energy within the Energy Area prescribed in the Royal Decree may be carried out without permission from the National Energy Authority.

(iv) In order to comply with the defence programme or the industrial programme or for the benefit of the economy of the nation, or in the interest of safety, a producer of controlled energy may be ordered to suspended production or to take other appropriate steps.

(v) Use of certain raw materials or natural resources for energy production may be prohibited or limited. Any production of energy in such a case requires permission from the National Energy Authority.

Apart from this basic law, a number of other laws concerning power generation and supply have been enacted, but each one of them is for a specific purpose as shown below:

(i) *Yanhee Electricity Authority Act*, enacted in 1957, to construct a dam and generate, transmit and distribute electric power from the hydro-electric Bhumipol (Yanhee) dam situated in the northern part of the country. The area supplied by this Authority (YEA) covers 36 provinces including Bangkok and Thonburi, the main load centre. The distribution undertaken under this Act is, however, limited to the wholesale supply of electric power generated to other Authorities.

(ii) *Metropolitan Electricity Authority Act*, enacted in 1958, to distribute electric power supply, bought from the Yanhee Electric Authority (YEA), including that produced by generating sets formerly owned by the Metropolitan Electricity Authority (MEA) but not transferred to the YEA, in the Bangkok and Thonburi areas and some neighbouring districts.

(iii) *Provincial Electricity Authority Act*, enacted in 1960, to generate and distribute electric power in all the provinces of the kingdom, outside the sphere of the MEA and the NEEA (see below). This Authority generates electric power from its own diesel generating sets in the provinces where power from the YEA, LA (see below) and NEEA is not yet available. In those provinces where the other generating Authorities — YEA, LA, and NEEA — can supply power, the Provincial Electricity Authority (PEA) will buy from them and distribute it to customers.

(iv) *Lignite Authority Act*, enacted in 1960, to exploit the country's lignite deposits in all possible ways, including the generation of electric power and the production of fertilizers. At present this Authority (LA) is operating a lignite-burning thermal power

plant at Krabi in the southern part of Thailand, and owns a lignite mine with its lignite-burning thermal power plant at Maemoh in the northern part of the country. The lignite mined at Maemoh will soon be used in the production of fertilizers in the plant which is being urgently constructed at present.

(v) *North-Eastern Electricity Authority Act*, enacted in 1964, to construct dams and generate, transmit and distribute electric power from hydro-electric projects in the north-east region of Thailand. The planned area to be supplied by this Authority (NEEA) will cover fifteen provinces in the region. The distribution of electric power under this Act in the initial stage will be entrusted to the PEA which will buy power wholesale from the Authority.

A committee set up by the Council of Ministers is now deliberating the merging of all these power generating and distributing authorities into one national body, possibly operating under the supervision of the National Energy Authority.

Regarding the generation of electric power for sale by private enterprises, it must be pointed out here that in some remote districts or small villages not covered by the PEA, electric power is still generated and sold to consumers by private business and local bodies under concessions from the Government. The concessions can be obtained by applying to the Department of Public and Municipal Works of the Ministry of Interior and are granted under the provision of the Act on the Control of Business Activities Affecting Public Security or Welfare, B.E. 2471 (1928), as amended. Before the concessions can be granted, the technical details of the applications must first have the approval of the National Energy Authority.

If the generation of electric power is for one's own use and the total power generated is under 50 KW, no special permit is required. However, if the total power produced for one's own use is from 50 KW upwards prior approval must be obtained from the National Energy Authority.

Application for the use of electric power in Bangkok and Thonburi and in neighbouring districts covered by MEA must be submitted to the Metropolitan Electricity Authority. In other provinces the application must be lodged with the Provincial Electricity Authority. In special cases, where much power is required or high supply voltage is necessary, or a special reduced tariff is sought it is recommended that the appropriate generating Authority, YEA, LA or NEEA, as the case may be, is consulted.

(g) *Law governing control of transport*. A law governing the control of transportation in Thailand was enacted in 1954 and is called the "Transport Act, B.E. 2497". The aim of this Act is to achieve economic as well as safety regulation of all branches of land and water transport. It does not, however, include transport by air. Up until not very long ago this Act was enforced only in thirty provinces

of the kingdom. In 1965 the remainder of the country was brought under the Act. Motor transport, trucks and buses were brought under the control of the Act at the same time.

Regarding inland water transport at present only safety regulations are being enforced. Since 1963 the Ministry of Communications has initiated a river traffic survey to determine the volume of river traffic, the origin and destination of passengers and cargo and other related aspects essential for a proper assessment of the importance as well as present and future requirements of the country's inland water transport system. It is expected that this survey will be concluded in 1966, and when studies of the fundamental data obtained in the survey have been completed, economic regulation in the field will be started.

Concerning sea transport, a committee set up by the Council of Ministers is at present considering a draft law for its control and regulation.

Regarding rail transport, all railways in Thailand are owned and operated by the State Railway of Thailand, a government organization under the supervision of the Ministry of Communications. The operation of this organization is subject to the provisions of the Railway Act, and the Ministry of Communications exerts only nominal authority over it, mostly in the nature of economic control. Such important changes as increases of passengers tariff or freight rate must, however, have the approval of the Council of Ministers before they can be put into operation.

The main aim of most of the rules and regulations already issued under the Transport Act of 1954 is to ensure harmonization between the transport services and other services in the country's economic development, especially in the industrial field. The policy of the Ministry of Communications is to encourage private as well as public transport enterprises to enlarge their activities to meet the ever-increasing demand in the country and to see that a proper standard of public safety is always maintained. This will be carried out through granting of proper and adequate concessions to transport operators.

However, it must be pointed out here that the authorities concerned are still not satisfied with many of the regulations presently in force, and the Ministry of Communications is trying to improve them.

(h) *Law governing control of import of technical know-how.* At present there is no specific law governing the control of the import of technical know-how into Thailand. The use of technical know-how imported from abroad, as well as the use of various rights and services, such as patent rights and research services, can be done freely, and remittance of payments for them is assured by the Promotion of Industrial Investment Act of 1962, as already discussed in section A above. Moreover, it must be pointed out here that regarding such remittances the Bank of Thailand's Communique of 17 July 1959 (given in full in chapter V section J), announced that "Remit-

tances abroad of *royalties and patent fees* arising from investments or other business activities are regarded as current transactions and are permitted freely under the Exchange Control Law". The Promotion of Industrial Investment Act of 1962 also allows the bringing in of alien skilled workers and experts necessary for any particular "promoted industry", irrespective of whether it is in excess of the quotas provided by the immigration law.

(i) *Law governing company law administration.* Business organizations in Thailand, according to the Civil and Commercial Code of Thailand, fall into four separate types, namely, proprietorship, ordinary (unlimited) partnership, limited partnership and limited company (corporation). These four types have been defined as follows:

(i) *Proprietorship.* There are no special prerequisites for individuals to establish a proprietorship. However, a natural person who carries on commercial business is required to register the following items with the Business Registrar of his locality: (1) name, age, race, nationality and address; (2) business name, if different from that of the registrant; (3) nature of commercial business; (4) head office, branch office and commission agents; (5) date of commencement of business in Thailand; (6) date of application for registration; (7) commercial business previously engaged (if any), place of that business, date of its termination and causes thereof.

(ii) *Ordinary partnership.* An ordinary partnership is one in which all the partners are jointly and unlimitedly liable for all the obligations of the partnership. It is not required by the Civil and Commercial Code to be registered with the Registration Office in the districts in which it is situated; but if it is registered, it becomes a legal entity.

If the ordinary partnership is registered with the Registration Office, the entry must contain the following particulars: (1) firm name of the partnership; (2) its objects; (3) address of the principal business office and of all branch offices; (4) full name, address and occupation of every partner (if a partner has a trade name, the entry in the register must contain his own name and his trade name); (5) names of the managing partners, in case not all of the partners have been appointed as such; (6) restrictions, if any, imposed upon the powers of the managing partners; (7) the seal or seals which are binding on the partnership. The entry may contain any other particulars which the partners may deem expedient to make known to the public. The entry must be signed by every partner and must also be sealed with the common seal.

A certificate of registration will be issued by the Registration Office to the Partnership.

(iii) *Limited partnership.* A limited partnership is one in which there are (1) one or more partners whose liability is limited to such an amount as they

may respectively undertake to contribute to the partnership, (2) one or more partners who are jointly and unlimitedly liable for all the obligations of the partnership. A limited partnership is required by the Civil and Commercial Code to be registered as a legal entity.

The entry in the register in this case, must contain the following particulars in addition to those required for the registration of an ordinary partnership: (1) statement that the partnership is a limited partnership; and (2) amount of contribution by partners with limited liability.

(iv) *Limited company.* A limited company (corporation) is one which is established with capital divided into equal shares. Each shareholder is liable to no more than the amount subscribed and paid by him. Any seven or more persons may, by subscribing their names to a memorandum and otherwise complying with the provisions of the Civil and Commercial Code, promote and form a limited company. A limited company must be registered as a legal entity.

The memorandum must contain the following particulars: (1) name of the proposed company, which must always end with the word "Limited"; (2) the part of the kingdom in which the registered office of the company is to be situated; (3) the objects of the company; (4) a declaration that the liability of the shareholders shall be limited; (5) the amount of share capital with which the company proposes to be registered, and the division thereof into shares of a fixed amount; (6) the names, addresses, occupation, and signatures of all the promoters and the number of shares subscribed by each of them. The memorandum must be made in at least two original copies and signed by all the promoters, and the signatures must be certified by two witnesses. One of the copies of the memorandum must be deposited and registered at the local Registration Office.

In applying for registration of the company, the following particulars must be furnished: (1) the total number of ordinary shares and the total number of preferred shares subscribed as fully or partly paid up otherwise than in money and, in the latter case, the extent to which they are regarded as paid up; (2) the cash amount received on each share; (3) the total amount of money received from the sale of the shares; (4) the names, addresses, and occupations of the directors and, if the directors have power to act separately, their respective powers and the number of and names of the directors whose joint signatures are binding on the company; (5) the period, if any has been fixed, for which the company is formed; (6) the addresses of the principal business office and all branch offices, if any.

The application for registration must be accompanied by a copy of the regulations, if any, and of a report of the proceedings of the statutory meeting, both instruments being certified and authenticated by at least one director.

In accordance with the Commercial Registration Act, B.E. 2499 (1956), all commercial enterprises in Thailand are required to register with the Department of Commercial Registration, Ministry of Economic Affairs.

b. Conditions governing public and private investment

1. Fields of investment open to private and public sectors and domestic and overseas investors

It is the policy of the Thai Government to promote industrial expansion through private entrepreneurs, both domestic and foreign. It is not the desire of the government to engage directly in any new industries; even those industries that are at present operated by Government agencies will be transferred to private ownership when possible. The Government will assist private enterprises by concentrating on the building and maintenance of the infrastructure, the promotion of surveys and explorations of natural resources, and the provision of technical and other assistances to small-scale and cottage industries, and will let private enterprises undertake the actual industrial development freely. The Government does not intend to carry out comprehensive planning and will not interfere in any way in the operating of private businesses.

Because of the Government's policy of encouraging free enterprises as stated above, generally speaking, therefore, private investors are welcome to participate in almost all areas of industrial activity, within as well as outside the sphere of the promotional measures of the Promotion of Industrial Investment Act. Exceptions to these are only a few industries which, according to the Act on the Control of Business Activities Affecting Public Security or Welfare, B.E. 2471 (1928), as amended, are reserved for the State only or which require prior approval by the special agreement with the Government, and three small ones declared by Royal Decree Specifying Vocations and Professions Reserved for Thai Nationals of 1949. These activities are given in details in sections H and J of chapter V.

Regarding overseas investors, there is no obstacle to their investment in Thailand. They are free to invest in any activities which are open to the private sector, either entirely by themselves or in partnership with domestic investors in whatever proportion which can be mutually agreed among them. However, for their own benefit, they will find it easier and more profitable for them in the long run to join in with some suitable and experienced local investors.

2. Investment services

Apart from the Office of the Board of Investment which has been created solely for the purpose of administering the Promotion of Industrial Investment Act and assisting "promoted" industries, no other investment centres have been established in Thailand

up to now. Those who are interested in investing in the types of industries which have been designated "industrial activities" to be promoted under the Promotion of Industrial Investment Act, as well as those who are desirous of obtaining promotional rights and benefits under the Act, are advised to contact the Office of the Board of Investment.

However, the government agency which is responsible for the over-all industrialization of the country is the Ministry of Industry, and all enquiries concerning industries, promoted or otherwise, can be directed to this Ministry. Various departments under this Ministry, especially the Department of Industrial Promotion, will assist prospective industrial entrepreneurs, domestic as well as foreign, in every way possible. In fact, the Ministry of Industry is the main source of assistance to all those other industries which do not come under the Promotion of Industrial Investment Act, and which account for about 97 per cent of the industries of the country at present. Apart from technical advice and assistance, the Ministry renders financial aid, in the form of loans to small-scale and cottage industries and other assistances, such as acquiring immigration permits for technical experts and skilled technicians for needed industries, collecting data necessary for the consideration of customs tariff changes or import restrictions, and planning measures for the assistance and exports of surplus products. The Ministry also acts as the centre for the promotion of the establishment of industrial societies and associations.

Other government agencies, such as the Ministry of Economic Affairs, the Ministry of National Development, the Ministry of Agriculture, the Office of National Statistics and the Office of the National Economic Development Board, can also render assistance to prospective industrial investors by supplying data and information in their respective fields upon request.

It must be mentioned here also, that many local banks are now actively collecting data and information regarding industrial prospects in the country and no doubt will be ready to pass them along to their clients.

3. *Procedure to be followed by an entrepreneur in establishing a new industry*

Before a decision is made whether to invest in any specific industry or not, a proper and detailed feasibility survey should be made. Information and data for this purpose can be obtained from various government agencies such as the Ministry of Industry, the Ministry of Economic Affairs, the Ministry of National Development, the Ministry of Agriculture, the Office of the Board of Investment and the Office of the National Economic Development Board. Information regarding marketing and trade practices, however, must be obtained from local traders specializing in the products to be manufactured.

If promotional rights and benefits are required, the Office of the Board of Investment must be contacted, and answers obtained as to the possibilities. At this point, it will be necessary to make enquiries both at the Ministry of Industry and the Office of the Board of Investment whether the establishment of the specific industry is permitted and whether there are any conditions that must be satisfied, for there are at present some types of industries which are not open to private investment, and some which are temporarily closed for economic reasons.

After the above preliminary investigations have been concluded and a decision to proceed with the project is definitely made, selection of the factory site must be settled and land for the purpose must be acquired in the appropriate industrial area. If the location is in Bangkok and Thonburi areas, an enquiry must be made at the Ministry of Industry to ascertain definitely whether the location is in the planned industrial areas; enquiry must also be made at the municipality concerned to find out whether there is going to be any objection to the establishment of the planned factory on the location. If the location is in the provinces, outside Bangkok and Thonburi, these enquiries must be made at the Office of the District Officer concerned. Before any money is paid for the land it would be wise to enquire at the appropriate Land Office whether the transaction can be made or whether there will be any objection to the transfer of the title deed. It must be mentioned here that under the Land Act no foreigners are allowed to own land in Thailand, except under agreements on reciprocal treatment and even under this, the amount of land that can be so obtained is considerably limited. However, for promoted industries, land necessary for the approved industries can be obtained under the Promotion of Industrial Investment Act by the promoted juristic person even in excess of the limit permissible under other laws.

If promotional rights and benefits under the Promotion of Industrial Investment Act are required and it has been established from preliminary enquiry that they can be obtained, an application on official forms together with details of the project and a list of the necessary machinery and equipment must now be submitted to the Office of the Board of Investment for consideration. If the project is approved by the Board, a promotion certificate will be issued by the Board to the applicant stating the rights and benefits that are being given and the conditions with which the applicant must comply.

If no promotional rights and benefits are required, the applicant can apply for permission to establish a factory direct to the Factory Control Division, Office of the Under-Secretary of State, Ministry of Industry. Under the Factories Act, no one will be allowed to establish or enlarge a factory without having first obtained a licence from the Ministry of Industry. It must therefore be pointed out here that a licence permitting the establishment of a factory must be obtained

from the Ministry of Industry in all cases, whether the industry has been approved by the Board of Investment under the Promotion of Industrial Investment Act or not. However, in the case of an industry which has been approved by the Board of Investment, the issuing of the licence by the Ministry of Industry is definitely assured, whereas in the case of other industries, the Minister of Industry can refuse the application for licence.

If the location of the factory is to be in either Bangkok or Thonburi, the application must be submitted at the Factory Control Division, Office of the Under-Secretary of State, Ministry of Industry. If the factory is to be erected in the provinces, the application must be made at the office of the District Officer concerned, who will process and submit it to the Governor of the appropriate province, who in turn will pass it on to the Ministry of Industry with his comment. In either case the application must be made on the official forms and must be accompanied by plans and drawings of the factory to be erected and the layout and details of the machines to be installed. Engineers of the Factory Control Division will inspect the proposed site after the application is sent to him. If the application is approved, a licence signed by the Minister of Industry permitting the establishment of the factory will be issued to the applicant, who will have to comply closely with the conditions (if any) stipulated in the licence.

In the meantime, if the location of the factory is in a municipal area, a permit to erect buildings and operate a business establishment, in accordance with by-laws, must be sought from the municipal authority concerned. The application for this permit must be accompanied by detailed plans and drawings of the buildings to be constructed.

If the enterprise is going to be operated as a juristic person, that is, as an ordinary partnership, or a limited partnership, or a limited company (corporation), it must be registered with the Department of Commercial Registration, Ministry of Economic Affairs, in accordance with the Commercial Registration Act of 1956.

When the buildings have been constructed and the machinery erected and the factory is ready to start operation, a request for a permit to start the factory must be submitted to the Factory Control Division of the Ministry of Industry. In accordance with the Factories Act, no factory can start operation without a permit to start operation issued by the Factory Control Division after inspection by the competent official. It must be pointed out here also that any expansion of the factory at a subsequent date cannot be carried out without a licence permitting the expansion from the Factory Control Division.

If exemption from import duties and business tax for machinery and equipment is obtained from the Board of Investment, a list of the machinery and equipment to be imported must be submitted to the Office of the Board of Investment for consideration.

The Office of the Board of Investment will send the approved list to the Department of Customs of the Ministry of Finance so that the machinery and equipment will be exempted from import duties and business tax when they enter the country. The same procedure applies in the case of exemption of import duties and business tax on raw materials and components.

If foreign experts and skilled technicians are to be brought into the country, approval of the Board of Investment must be obtained so that the Immigration Department will be appropriately informed.

c. Customs duties and taxes

1. Customs duties on raw materials and components

In conformity with the Thai Government's policy of encouraging industrial investment in the country, the Government is revising its policy regarding customs duties on imported raw materials and components so as to give as much incentive to industrial investors as is compatible with the Government's fiscal and economic policy. Customs tariffs or rules and regulations which are outdated and impede industrial development are being replaced by more realistic ones. As has already been pointed out above, apart from the exemption of import duties and business tax on machinery, component parts and accessories, as well as prefabricated factory structures or such other materials and equipment for their construction, an approved "promoted" industry is also allowed exemption (for those under group A) or reduction (one-half for those under group B and not exceeding one-third for those under group C) of import duties and business tax on "raw or necessary materials imported for use in the industrial activity in such quantity as is used or estimated to be used for production within the period of five years".

It is the policy of the Government regarding customs duties to see that the import duties on raw materials and components necessary for the industries of the country are lower than those on the imported finished products. The case of the motor vehicle assembling industry is a good example of this policy; the "promoted" motor vehicle assembling factories are allowed to pay import duties on the component parts, or on even the whole vehicle imported knocked-down, at half the rate of that collectable if the vehicle were imported complete. A standing committee has been set up by the Government to consider changes in the customs tariffs so as to give incentives and protection to industries in this respect, and many changes in customs rates on necessary raw materials and components have been made during the short time the committee has been in operation. In order to make the changes recommended by the committee legal, a law called the "Customs Tariffs Act (2), B.E. 2506" was enacted in 1963. Under this Act, the Minister of Finance, with the approval of the Council of Ministers, may, for the purpose of promoting agriculture,

industry, public health and exports, reduce customs rates to below those stipulated in the Customs Tariffs Act; however, the remaining customs rates after such reduction must not be less than one-tenth of those previously stipulated.

It must be mentioned here also that, in order to encourage exports of products manufactured in the country, a rebate of seven-eighths of the customs duties collected on raw materials which are used in the exported products is allowed the manufacturers.

2. Taxes affecting industry

A summary outline of taxes applicable to business in Thailand, industrial or otherwise, is given below. These include principally the income tax and the business tax, which is essentially a gross receipts tax. Other taxes are relatively minor in amount.

(a) *Companies' income tax.* Net profits derived from business carried on in Thailand in any accounting period of twelve months are subject to income tax. These net profits are ascertained in accordance with generally accepted accounting principles, subject to conditions commonly found in income tax laws of most countries. The income tax is charged on the net profits at the following rates:

on the first 500,000 baht	15 per cent
on the next 500,000 baht	20 per cent
on all in excess of 1,000,000 baht	25 per cent

Annual return and payment of the tax must be made within 150 days from the closing date of the accounting period.

Companies organized under foreign laws which carry on business in Thailand are, to the extent that their incomes are derived from sources in Thailand, subject to income taxes in the same way as companies organized under Thai laws. For some foreign nationals, however, double taxation relief is now available under the bilateral agreements signed between Thailand and some foreign countries (see section K [4] of chapter V).

A company or juristic partnership which disposes of profits out of Thailand is subject to 15 per cent tax on such profits and is required to pay the tax within seven days from date of disposal.

The transfer of profits by a branch office of a company to its principal office abroad comes within the scope of this 15 per cent tax. However, remittance made to a recipient abroad in the form of dividends, interest, royalties, or purchase price of goods and services is not treated as disposal of profits and is not taxable as such.

It must be pointed out here again that, under the Promotion of Industrial Investment Act, a "promoted" juristic person is exempted from tax on income derived from the industrial activity for five fiscal periods under the Revenue Code beginning with the tax period in which such juristic person has either sold its products or gained an income. This exemption, however, will not be allowed in case where the promotion covers expansion of an industrial activity.

(b) *Personal income tax.* An individual who is present in Thailand for one or more periods aggregating 180 days or more in any tax year is treated as a resident of Thailand and subjected to income tax on income from sources in Thailand as well as on incomes from foreign sources which are brought into Thailand.

The personal income tax is charged on the gross assessable incomes under eight categories covering income from employment, properties, profession, and business, after deduction of proper allowances. The following deductions are allowed against gross assessable incomes:

(i) *Expenses.* Standard deductions are fixed at the following rates:

- (1) Income from employment and services — 20 per cent but not to exceed 20,000 baht.
- (2) Income from interest, dividends, royalties, etc. — no deduction allowed.
- (3) Income from rentals — varying from 10 per cent to 30 per cent depending on the type of property rented.
- (4) Income from liberal profession — 30 per cent.
- (5) Income of contractors — 80 per cent.
- (6) Income from business, industry, or any other occupations — varying from 75 per cent to 90 per cent depending on the nature of the occupation.

In case of items (3), (4), (5) and (6) above, taxpayers may elect to itemize their ordinary and necessary expenses incurred for the purpose of earning income.

(ii) *Personal allowances.* Deductions are allowed on personal allowances as follows:

- (1) 4,000 baht for the taxpayer,
- (2) 2,000 baht for the taxpayer's spouse,
- (3) 1,000 baht for each of the taxpayer's children.

The balance after deductions under (i) and (ii) is called net income. The personal income tax is charged on this net income at the following rates:

on the first 10,000 baht	10%
on the next 40,000 baht	13%
on the next 50,000 baht	16%
on the next 50,000 baht	20%
on the next 50,000 baht	25%
on the next 50,000 baht	30%
on the next 50,000 baht	35%
on the next 50,000 baht	40%
on the next 50,000 baht	45%
on all excess over 400,000 baht	50%

An annual return and payment of the tax are required on or before the last day of February each year in respect of incomes obtained during the previous calendar year.

It must be pointed out here that foreign residents in Thailand are likewise subject to an individual tax on income derived within the country.

(c) *Business tax.* Monthly gross receipts from thirteen categories of business are subjected to business tax at the following rates:

(i) *Sale of goods* — Varying according to types of goods 1.5 per cent to 25 per cent of gross receipts.

Examples. Alcoholic beverages 25 per cent of gross receipts.

Passenger automobiles 20 per cent of gross receipts.

Refrigerators, TV sets 12 per cent of gross receipts.

Common goods used in homes 5 per cent of gross receipts.

Non-finished goods 1.5 per cent of gross receipts.

To the above must be added a municipal surtax of 10 per cent, for example, 5 per cent becomes 5.5 per cent.

(ii) *Sales of service, rentals and other categories* —varying according to nature 1.5 per cent to 10.5 per cent of gross receipts.

In the case of business tax on sale of goods, the tax is collected at the level of the manufacturer or importer, and not the retailer.

In other categories of business, the tax is collected from persons carrying on the business.

Returns and payment of business tax are required monthly on or before the fifteenth day of the month following that in which gross receipts occur.

It should be noted that this business tax is the major taxation on business.

(d) *Local development tax.* This is a land tax levied against the owner of land or the person in possession of land not under private ownership. For the collection of this tax all lands, inside as well as outside municipal limits, are assessed average and fair values in units of rai (1,600 square metres) officially every four years, and local development taxes for them are levied on these average values at the following rates:

Minimum rate: for land used for cultivation of crops — 0.25 baht per rai.

Maximum rate: for land bearing a value of over 500,000 baht per rai—400 baht per rai plus 100 baht per rai for every 100,000 baht per rai of value in excess of 500,000 baht.

(e) *Stamp duty.* This is required for thirty categories of instruments specified in the schedule to the Revenue Code, for example, receipts for payment of money, loan instruments, power of attorney, and so on. Payment of this stamp duty is effected by affixing required stamps on dutiable instruments. The rate at which stamp duty is required varies with the nature of the instruments.

Examples: Receipts — 0.5 per cent amount received. Loan instruments — 0.05 per cent of principal amount.

Cheques — 0.25 baht per document.

Receipts issued in the ordinary course of business are exempted from the stamp duty.

IV. MARKET ANALYSIS AND SURVEYS

In Thailand, in the past, some market analyses and surveys have been conducted by private enterprises as well as by government organizations. Market analyses and surveys undertaken by private businesses are naturally limited to merchandise marketed by individual business and, of course, are intended for their own benefit. Oil-distributing companies, for one example, have their own market analysis and survey divisions. Besides this, there are in the country at present two companies which will undertake to conduct market survey and analysis on any specific merchandise upon request by any client. One private financial establishment, the Bangkok Bank, has for some time been conducting market analyses on certain goods and has published reports of the findings in its "Bangkok Bank Monthly Review" magazine. In addition, the Thai Chamber of Commerce and the Thai Board of Trade occasionally conduct market analyses and surveys on merchandise which are of general interest and publish reports of the results in their own publications.

The aim of market surveys undertaken by government organizations is principally to promote trade in general and to benefit producers, traders and all concerned in the marketing of the merchandise surveyed as a whole. Movement of prices as well as trading position both inside and outside the country are published to assist private producers in their decision concerning future production. In addition, the data obtained in these market surveys are used by the Government in planning for the promotion of production, industry and trade, in private as well as in public sectors.

In Thailand, generally, governmental market analyses and surveys are the responsibility of the Ministry of Economic Affairs; however, in practice, because of the present shortage of competent officials in this field, only a small part of the work has been undertaken by the Ministry. Moreover, at present, because of the urgent need for quicker progress, the work of production promotion is being carried out by a number of ministries. Therefore, in order to obtain data required for their promotional work quickly, it is now quite usual for these ministries to conduct market surveys on products which they are promoting themselves. In the Ministry of Agriculture, for instance, there is a Division of Agricultural Economics, which undertakes market analyses and surveys on many agricultural products. Data obtained in these surveys, besides being used in the work of the Division's own Agricultural Promotion Section, are usually published

for the benefit of the general public in the monthly "Agricultural Economic Research" magazine. The Bank of Thailand conducts market analyses on many types of merchandise and publishes its findings in the Bank's "Monthly Economic Report". In addition, on the national level, the Office of the National Economic Development Board sometimes conducts surveys to obtain more data required in some specific cases.

In the Ministry of Economic Affairs, which has the direct duty concerning trade and marketing, there are a number of organizations dealing specifically in this field. In the Department of Internal Trade there is a Markets Division which continually conducts surveys on retail prices of commodities on the Bangkok market. The Department of Economic Relations collects and conducts further analysis on retail and wholesale prices of commodities in the provinces, using data obtained from market surveys undertaken by Provincial Trade Officers of the Office of the Under-Secretary of State for Economic Affairs. The Department of Foreign Trade concerns itself with market analyses and surveys on some exportable products. It falls on the Trade Information Division of the Department of Commercial Intelligence to undertake general market surveys in the country and make the results obtained available to the general public in the forms of "Market News Service" and "Marketing Research" on specific cases. The Technical and Commercial Statistics Division of the same Department conducts analyses on retail prices of commodities in Bangkok and Thonburi and publishes results monthly in the form of "Consumer Price Index for Bangkok and Thonburi". Moreover, in order to make all these trade data and market prices available to the general public, the Ministry runs a "Daily Trade News" and publishes monthly the "Monthly Trade Bulletin" and the "Economic and Trade News Bulletin".

Regarding industrial products, up to now there have been very few detailed market analyses and surveys, and most of those that have been made were conducted by private business enterprises for their own use and were not generally made public. A recent example of these is the market surveys on kraft paper and allied products undertaken by an American company to ascertain the feasibility of establishing a kraft paper factory in this country. It must be mentioned here, that not very long ago market analyses were made in Thailand on five commodities, namely, water pumps, household electric appliances, soda ash and caustic soda and hand tools, by six American consultants under contract to USOM, Thailand. These analyses were made in conjunction with industrial feasibility surveys on four specific industries carried out by these consultants and financed by American AID to Thailand. Details and results of these surveys have already been discussed in chapter II.

It must be mentioned here that, in Thailand, Bangkok acts as the main central market for both

inland and foreign trade. All commodities produced in the country, after a part is retained for consumption in the producing and neighbouring areas, are usually sent to Bangkok for distribution to other consuming areas or for shipment abroad. Bangkok is also the central point for distribution of imported goods to provincial markets. It is estimated that about 95 per cent of all commodities imported into the country passes through the Port of Bangkok. Provincial markets, which are usually located within individual municipalities, in turn act as central points for further distribution to secondary markets in nearby villages. These secondary markets in their turn collect products from local producers and despatch them to provincial markets or, sometimes, send them directly to Bangkok.

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. Rate of capital investment in industry

In the following discussion on capital investment in industry, the term "industry" is taken to include manufacturing, mining and electricity only.

The industrial sector plays a minor role in the Thai economy and accounts for 12 to 13 per cent of the gross domestic product. Most of the manufacturing industries are small-scale, light industries catering mainly for domestic consumption and are mainly in private hands; those under public ownership include the tobacco monopoly, paper, gunny bag and sugar factories, and a few other small industrial units.

Although available data on capital investment in industry are incomplete, it is believed that the figures in table 7 can be used to show trends. Investment in industry, both public and private, on the average accounted for over one-third of total gross capital formation during the period 1957-1965 or about 6 per cent of the gross domestic product. Of the total capital investment in industry, by far the largest share was contributed by the private sector. Between 1957-1960 this private investment amounted to over 90 per cent of the total investment, but since 1961, the proportion fell sharply to slightly over 80 per cent. This was because during the latter period, public sector expenditures on electricity increased rapidly, especially in connexion with the multipurpose hydroelectric Bhumipol Dam. It will be noted that within the public sector itself, electricity played a dominant role in the sector's investment in industry, its share within the sector averaging over 60 per cent between 1960-1965. In the private sector, the proportion of manufacturing in the sector's investment in industry, averaged over 70 per cent throughout the period, with the exception of 1965.

A further breakdown by type of industry (for manufacturing only) in the private sector is indicated to some extent in table 8. Assuming that most of the relatively large industrial establishments set up between 1955-1965 were "promoted" industries, that is, industries enjoying various benefits and privileges

TABLE 7. CAPITAL INVESTMENT IN INDUSTRY, 1957-1965,
SHOWING ITS DISTRIBUTION BY SECTORS, SHARE OF EACH SECTOR TO GROSS CAPITAL FORMATION, AND ITS GROWTH RATE

	1957	1958	1959	1960	1961	1962	1963	1964	1965
1. Total capital investment in industry ^a (million baht)	2,520.2	2,171.0	2,573.3	3,019.2	3,552.5	4,189.4	5,215.8	6,175.5	6,365.1
Percentage change from previous year		-15.6	+18.5	+17.3	+17.7	+17.9	+24.5	+18.4	+3.1
1.a Public Sector (as percentage of 1.)	6.5	6.7	8.4	9.7	15.6	17.7	16.3	15.0	17.2
a1. Manufacturing (as percentage of 1.a)	58.3	61.8	29.9	16.8	26.6	34.5	33.9	29.3	31.1
a2. Mining (as percentage of 1.a)	7.3	8.7	17.9	17.6	10.0	6.8	5.6	9.2	8.0
a3. Electricity (as percentage of 1.a)	34.4	29.5	52.2	65.6	63.4	58.7	60.5	61.5	60.9
1.b Private Sector (as percentage of 1.)	93.5	93.3	91.6	90.3	84.4	82.3	83.7	85.0	82.8
b1. Manufacturing (as percentage of 1.b)	74.2	73.3	73.2	75.4	73.8	71.1	70.9	70.7	69.8
b2. Mining (as percentage of 1.b)	17.0	16.0	15.3	13.9	18.4	14.9	17.1	18.1	18.8
b3. Electricity (as percentage of 1.b)	8.8	10.7	11.5	10.7	7.8	14.0	12.0	11.2	11.4
2. Total gross capital formation ^a (million baht)	7,133.4	6,653.1	7,804.6	9,309.7	9,645.6	12,220.1	15,247.9	16,898.1	17,744.8
2.a Public sector as percentage of 2.)	20.4	21.6	26.2	27.3	30.9	24.8	24.5	27.9	28.7
2.b Private sector (as percentage of 2.)	79.6	78.4	73.8	72.7	69.1	75.2	75.5	72.1	71.3
3. Total capital investment in industry as percentage of total gross capital formation	35.3	32.6	33.0	32.4	36.8	34.3	34.2	36.5	35.9
4. Growth rate									
4.a Public capital investment in industry		-11.6	+49.4	+29.8	+97.4	+34.1	+14.7	+9.1	+17.7
4.b Private capital investment in industry		-14.0	+16.3	+16.2	+9.5	+14.9	+26.6	+20.2	+0.5

N.B. ^a Including gross fixed capital formation and changes in inventories.

Source: National Income Statistics of Thailand, 1965 Edition.

under the industrial investment promotion laws, then the textile industry comes first in terms of number, followed by hotels, sugar mills, metal works, motor car and tractor assembling plants, and so on. Figures on actual investment in each type of industry are not available, and they cannot be derived from the size of registered capital since there is no precise relation between them. For instance, an oil refinery plant recently opened, required an actual capital expenditure of about 700 million baht, but has a registered capital of only 10 million baht. The same is true for most other factories. However, as an indication, it has been estimated that the total fixed investment of all the "promoted" industries which came into operation during 1955 to 1965 amounts to over 3,000 million baht, while their registered capital totals only about 1,550 million baht. There is no information as to how much of the investment in industry in the private sector was financed by domestic capital and how much by foreign capital, except as differentiated in the registered capital and shown in the table.

In the public sector, table 9 indicates the sources of financing by broad types of industries from 1953-1965. Between 1954-1956 the Government decided to invest directly in a number of pilot projects in order to induce the private sector to follow. The results of such policy, however, proved somewhat unsatisfactory. From 1957-1959 the Government discontinued direct investments in new industrial ventures. From 1962-1964, public funds were again used to build an oil refinery and a weaving factory, but primarily with the objective of serving military needs. It should be noted that since 1959 government expenditure on electricity has been substantial.

b. Structure of the capital market

Before the Second World War, most businesses in Thailand were operated in the form of private undertakings owned by a single person or a family. They were private companies where outsiders were more or less regarded with suspicion. There were, of course, a few public companies, the shares in which

TABLE 8. LIST OF PROMOTED INDUSTRIES IN OPERATION, 1957-1965

Type of industry	Number of factories opened	Registered capital (baht)		
		Domestic	Foreign	Total
1. Weaving spinning, bleaching and dyeing	26	65,150,000	80,750,000	145,900,000
2. Sugar	12	427,365,850	7,134,150	434,500,000
3. Hotels	13	67,320,000	20,680,000	88,000,000
4. Metal rolling mill, iron transfiguring such as bolts and nuts and nails	8	21,110,000	4,590,000	26,000,000
5. Motor car and tractor assembling	7	30,110,000	29,490,000	59,600,000
6. Dry cell batteries	6	12,200,500	18,799,500	31,000,000
7. Electric appliances and accessories, electric bulbs, cable and wire	4	17,004,000	19,996,000	37,000,000
8. Radio and televising parts and sets	1	3,000,000	—	3,000,000
9. Wood curing and impregnating and wood parquet flooring	4	9,300,000	200,000	9,500,000
10. Shaving-board	1	30,000,000	—	30,000,000
11. Tin plate	2	6,000,000	—	6,000,000
12. Galvanized iron sheet	4	13,498,500	14,001,500	27,500,000
13. Motor spare parts	4	4,450,000	3,790,000	8,240,000
14. Edible flour	5	14,121,043	25,500,000	39,621,043
15. Cold storage	4	5,900,000	100,000	6,000,000
16. Edible milk	3	9,000,000	12,000,000	21,000,000
17. Alum	1	3,770,000	—	3,770,000
18. Sulphuric and hydrochloric acids	2	12,000,000	—	12,000,000
19. Gypsum	1	2,000,000	—	2,000,000
20. Cement	3	164,446,000	7,554,000	172,000,000
21. Pharmaceuticals	4	14,877,000	30,177,000	45,054,000
22. Ceramics	2	9,000,000	—	9,000,000
23. Gunny bags	2	60,000,000	—	60,000,000
24. Gourmet (seasoning) powder	2	18,750,000	26,250,000	45,000,000
25. Rubber products	2	2,101,200	3,898,800	6,000,000
26. Zip fasteners	2	8,230,000	1,770,000	10,000,000
27. Glass products	2	5,100,000	3,900,000	9,000,000
28. Aluminium products	2	4,202,000	298,000	4,500,000
29. Plantation oil	2	5,000,000	750,000	5,750,000
30. Rattan and bamboo products	3	800,000	1,700,000	2,500,000
31. Coconut fibre	1	2,400,000	3,600,000	6,000,000
32. Fishing net	1	8,000,000	—	8,000,000
33. Oil refinery	1	10,000,000	—	10,000,000
34. Rope	1	1,200,000	—	1,200,000
35. Motor car tyres and tubes	1	8,000,000	12,000,000	20,000,000
36. Tin and petrol drums	1	4,500,000	500,000	5,000,000
37. Printing ink	1	1,700,000	1,700,000	3,400,000
38. Tea	1	1,200,000	800,000	2,000,000
39. Feather selecting and cleaning	1	50,200	949,800	1,000,000
40. Carbon dioxide	1	960,000	40,000	1,000,000
41. Sewing machine assembling	1	1,000	4,999,000	5,000,000
42. Agricultural products curing	1	7,200,000	4,800,000	12,000,000
43. Gramophone records	1	3,000,000	—	3,000,000
44. Slaughter house	1	50,000,000	—	50,000,000
45. Plastic pipe	1	8,000,000	2,000,000	10,000,000
46. Iron pipe	1	2,000,000	10,000,000	12,000,000
47. Tin smelting	1	5,400,000	12,600,000	18,000,000
48. Paint	1	500,000	9,500,000	10,000,000
49. Motors and mechanical tools	1	6,000,000	4,000,000	10,000,000
50. Storage batteries	1	1,450,000	1,550,000	3,000,000
Total	154	1,167,667,293	382,367,750	1,550,035,043

Source: Office of the Board of Investment.

TABLE 9. DISBURSEMENTS ON FOREIGN LOANS FOR INDUSTRIAL INVESTMENT IN THE PUBLIC SECTOR, FOR FY 1953-1965* (million baht)

Fiscal Year	Industry	Foreign Creditors				Total
		IBRD	United States Gov't	West German Gov't	Others	
1953	Manufacturing	—	—	—	—	—
	Mining	—	—	—	—	—
	Electricity	—	—	—	—	—
	Total	—	—	—	—	—

1954	Manufacturing				237.5	237.5
	Mining				2.8	2.8
	Electricity				99.2	99.2
	Total				339.5	339.5
1955	Manufacturing				164.3	164.3
	Mining				1.2	1.2
	Electricity				64.9	64.9
	Total				230.4	230.4
1956	Manufacturing				404.2	404.2
	Mining					
	Electricity					
	Total				404.2	404.2
1957	Manufacturing					
	Mining					
	Electricity				62.0	62.0
	Total				62.0	62.0
1958	Manufacturing					
	Mining					
	Electricity	37.2				37.2
	Total	37.2				37.2
1959	Manufacturing					
	Mining					
	Electricity	250.4	138.3			388.7
	Total	250.4	138.3			388.7
1960	Manufacturing		35.6		64.4	100.0
	Mining					
	Electricity	233.7	183.4			417.1
	Total	233.7	219.0		64.4	517.1
1961	Manufacturing					
	Mining					
	Electricity	261.3	123.3			384.6
	Total	261.3	123.3			384.6
1962	Manufacturing				262.3	262.3
	Mining					
	Electricity	264.3	192.9		27.2	484.4
	Total	264.3	192.9		289.5	746.7
1963	Manufacturing				84.7	84.7
	Mining					
	Electricity	242.9	132.0	9.2	148.4	532.5
	Total	242.9	132.0	9.2	233.1	617.2
1964	Manufacturing				116.3	116.3
	Mining					
	Electricity	145.8	73.7	106.4	84.3	410.2
	Total	145.8	73.7	106.4	200.6	526.5
1965	Manufacturing	5.9		7.9	39.2	53.0
	Mining					
	Electricity	54.1	50.3	98.4	2.8	205.6
	Total	60.0	50.3	106.3	42.0	258.6

N.B. * Fiscal years prior to 1961 corresponded with calendar years. Fiscal year 1961 covered January-September 1961. From 1962 onwards, fiscal year commences on October and ends in September of the following year; for example, F.Y 1963 runs from October 1962 to September 1963.

Source: Bank of Thailand.

might change hands within a very small circle of investors unknown to the public.

After the war, under the impetus of the Government's policy of industrial promotion, especially since 1958, public companies began to be formed in greater numbers. In June 1962, a group of businessmen and a few share brokers organized the Bangkok Stock Exchange Limited Partnership. In 1964, the partnership was transformed into a limited company. At present there are only a few active brokers buying and selling the shares of 25 listed companies. Daily newspapers carry quotations of these shares. The annual trading volume is still very small, and the organization is not yet a stock exchange in the sense used in developed countries. Recently the Exchange Control authorities have agreed to trading in the shares of mining companies operating in Thailand but registered in Malaysia, provided the purchase and sale of such shares are made under present exchange control procedures. Normally such shares are deposited with banks in Thailand acting as nominee holders and trading is done on the basis of depository receipts of the shares.

The Bangkok Stock Exchange also carries quotations of government bonds; however, transactions in government securities on the Bangkok Stock Exchange are still very small as holders of long-term Government securities generally prefer to resell these bonds to the Government at par.

The capital market in Thailand is still far from adequate. It lacks the various institutions which would provide long-term finance. Although the number of life insurance companies has increased since the Second World War, the amount of life insurance funds is relatively small. The greater part of these funds is lent to policy holders or kept as fixed deposits with commercial banks, while only a very insignificant proportion is invested in shares of private companies and in government bonds.

The government Savings Bank invests mainly in long-term government bonds and finances the operations of a few government commercial undertakings and public utilities. The rate of growth of savings deposits in the Government Savings Bank has been slackening in recent years.

To make up partly for the scarcity of long-term funds, the Government has set up the Industrial Finance Corporation of Thailand, a private institution, to finance medium- and long-term investments in industry. A fund to finance small-scale industries is operated jointly by the Ministry of Industry and two state-owned commercial banks. An Investment Fund is also in operation.

c. Measures taken to promote savings and channel them into industry

To encourage public savings, the Government has adopted various measures to increase tax revenue and at the same time to hold down current expenditure to an appropriate level. The following table 10 shows that between 1959-1964 the average rate of increase of revenue was about 10.6 per cent a year whilst that of current expenditure was slightly over 9 per cent. This still left a savings margin of about 17 per cent of revenue a year on average. To widen this margin further, the Government has in the past few years taken the following action:

On the revenue side, it has made upward adjustments in customs tariff rates, modernized the Revenue Code, and gradually improved tax administration.

(1) *Customs tariff.* Important changes in recent years are as follows:

- (a) on 5 June 1959, all import duties were increased by 10 per cent;
- (b) in March 1960, a reclassification of goods according to the Brussels Nomenclature and readjustment of rates for a number of commodities resulted in some increases in revenue.

Partly as a result of the above measures and partly because of the increase in total imports, revenue from import duties has been rising steadily, as shown in the following table:

(2) *Revenue code.* During 1960 the Government initiated a programme for the revision of the entire Revenue Code. The principal taxes involved are Personal Income Tax, Corporation Income Tax, Business Tax, Purchase Tax and Stamp Duty. The aim is to make more financial resources available for economic development. On 30 August 1961,

TABLE 10. SAVINGS OF THE CENTRAL GOVERNMENT, 1959-1965
(million baht)

Calendar year	Current revenue	Increase per cent	Current expenditure	Increase per cent	Government savings	Savings as % of Gov't revenue
1959	6,037		5,268		769	13
1960	6,778	12.3	5,514	4.7	1,264	19
1961	7,449	10.0	6,202	12.5	1,247	17
1962	8,007	7.5	6,558	5.7	1,449	18
1963	8,817	10.1	7,403	12.9	1,414	16
1964	9,954	12.9	8,200	10.8	1,754	18
1965 (nine months)	8,669	—	6,483	—	2,186	—
		av. 10.6		av. 9.3		av. 17

Source: Bank of Thailand.

amendments to Personal Income Tax and Business Tax were promulgated. The new Business Tax has already yielded a sizable amount of additional revenue annually.

TABLE 11. REVENUE FROM IMPORT DUTIES, 1958-1965

Calendar year	Revenue from import duties (million baht)	As percentage of total revenue
1958	1,613.2	28.8
1959	1,792.8	29.7
1960	2,049.5	30.2
1961	2,359.5	31.7
1962	2,521.5	31.5
1963	2,780.1	31.5
1964	2,830.0	28.3
1965	2,819.2*	25.0*

* Estimated.

Source: Bank of Thailand.

(3) *Tax administration.* The Government recently engaged the services of a private American firm, the Public Administration Service, to look into the machinery of tax collection and make recommendations for improvement. To lessen tax evasions, the Government has also set up the Board of Tax Supervision.

On the non-development expenditure side, the Council of Ministers recently adopted the recommendation of the National Economic Development Board to limit the rate of increase of non-development expenditures of the Government to 6-7 per cent a year so that a greater proportion of public funds could be diverted to development projects. The actual average increase of current expenditure between 1959-1964 was about 9.3 per cent.

In the field of private savings (business and personal) the Government has been encouraging the growth of financial institutions and has been pursuing an interest rates policy that is meant to attract savings from business and private individuals, especially in the form of financial assets. The following developments are worth noting:

(1) *Expansion of bank offices.* Between 1955-1965, the total number of commercial bank offices increased from 91 to 474; most of these were set up outside the metropolitan area.

(2) *Deposit rates.* At present maximum rates of interest on deposits payable by commercial banks are as follows:

- deposits maturing in less than 3 months: 0.5 per cent per annum¹;
- deposits maturing from 3 months to under 6 months: 5 per cent per annum;
- deposits maturing from 6 months to under 12 months: 6 per cent per annum;
- deposits maturing from 12 months upwards: 7 per cent per annum.

As a result of the above measures, time deposits rose sharply, especially in the past few years, as shown in table 14.

(3) *Government bonds.* In 1956, the Government raised the interest rate on government bonds sold to the public from 6 per cent to 8 per cent². Since then investment by private institutions and individuals in government bonds has been rising very rapidly. The following table 12 shows that the proportion of holdings by the Bank of Thailand (central bank) has declined sharply in recent years whilst those by other institutions and private individuals have risen significantly.

(4) *Government Saving Bank.* On 1 April 1965, the rate of interest for fixed deposits at the Government Savings Bank was increased from 3 per cent to 5 per cent.

The Government uses most of the public savings to finance directly development expenditures, such as power projects and other basic facilities that are necessary for industrialization. A small part of it is invested indirectly, for instance, through the Ministry of Industry, in the form of loans at low interest rates to operators of small-scale industrial establishments in the private sector. The Government also lent substantially to the Industrial Finance Corporation which gives medium- and long-term loans to private investors in medium-sized industries. In the private sector, outstanding loans by commercial banks to manufacturing industries now exceed 1,400 million baht, mostly as working capital; commercial banks also hold shares in various industrial enterprises amounting to about 200 million baht.

TABLE 12. DISTRIBUTION OF GOVERNMENT BONDS OUTSTANDING, BY OWNERSHIP, 1960, 1965 AND 1966 (million baht)

Type of owner	December 1960		December 1965		February 1966	
	Out standing	per cent of Total	Out standing	per cent of Total	Out standing	per cent of Total
Bank of Thailand	2,920.8	68.4	3,237.5	34.6	3,224.1	33.2
Commercial banks	394.8	9.2	2,342.7	25.0	2,522.2	25.9
Government Savings Bank	440.2	10.3	2,405.0	25.7	2,584.8	26.6
Other financial institutions	38.7	0.9	61.5	0.7	31.2	0.3
Other domestic sources, including state enterprises	478.1	11.2	1,310.7	14.0	1,357.3	14.0
Total	4,272.6	100.0	9,357.4	100.0	9,719.6	100.0

¹ This rate of interest has been reduced to 0.01 per cent per annum from 2 July 1966.

² This rate of interest has been reduced to 7 per cent per annum from 2 July 1965.

TABLE 13 CHANGES IN PRIVATE SECTOR SAVINGS AS REPRESENTED BY FINANCIAL ASSETS HOLDINGS, 1957-1965 (million baht)

Year	Monetary system		Government Savings Bank			Commercial banks		Government		Life insurance companies			Total (1957-1965)	National income (1957-1965)	Per cent (1957-1965)
	Cash (1957-1965)	Demand deposits (1957-1965)	Savings accounts (1957-1965)	Time deposits (1957-1965)	Savings bonds (1957-1965)	Time deposits (1957-1965)	Time deposits (1957-1965)	Treasury bills (1957-1965)	Life insurance (1957-1965)	Other (1957-1965)	Government provident fund (1957-1965)	Rank provident fund (1957-1965)			
1957	147.5	318.5	122.0	-1.0	16.0	89.1	33.4	—	38.8	-3.0	55.6	2.9	819.8	40,083.1	2.0
1958	-25.0	323.9	64.0	—	18.0	183.2	37.1	1.2	21.1	5.8	56.3	3.6	689.1	41,579.1	1.7
1959	236.7	350.4	45.0	—	29.0	145.0	77.2	0.4	18.4	-0.1	64.9	4.5	971.4	44,358.6	2.2
1960	264.0	754.8	169.0	22.0	34.0	259.0	143.5	-1.6	5.9	0.2	59.7	5.1	1,715.6	48,910.6	3.5
1961	467.8	541.0	175.0	-21.0	46.0	459.6	172.2	2.3	-15.4	22.7	65.9	22.2	1,938.3	52,308.2	3.7
1962	61.7	-43.8	155.0	7.0	88.0	1,663.3	150.6	-4.3	3.3	-3.3	72.1	17.7	2,167.3	56,863.5	3.8
1963	130.1	657.6	144.0	4.0	129.0	1,106.4	157.1	0.2	21.7	8.7	56.9	5.9	2,421.6	58,818.7	4.1
1964	586.7	451.3	152.0	3.0	160.0	1,113.3	239.1	6.5	-31.9	-0.4	—	14.8	—	63,010.8	—
1965	890.5	522.6	348.0	13.0	122.0	1,038.5	174.7	-6.7	—	—	—	20.4	—	66,644.3	—

Note: — Nil

... Not yet available

Private sector covers individuals and companies and partnerships. Financial assets represent changes in the main forms of the private sector's claims on the banking system, on life insurance companies and on the government sector.

Source: Bank of Thailand.

d. Mobilization of private capital

The figures in tables 13 and 14 show that the volume of private savings in various forms of financial assets has increased satisfactorily during the last four to five years and that its proportion to national income has risen steadily.

The most notable development in recent years has been in the field of time deposits at commercial banks. Between 1960 and 1965, the volume of time deposits rose sharply from 1,025.7 million baht at the end of 1960 to 6,406.8 million baht at the end of 1965. The Government Savings Bank has also made a fair advance; although its saving deposits increased at a lower rate in the last two years, its sale of saving bonds rose steadily, thus compensating to some extent the slackening in savings deposits.

Government bonds have become an important means of mobilizing private capital. Since 1956, when the interest rate on these bonds was increased from 6 per cent to 8 per cent per annum with the Government standing ready to repurchase them at their face value (the actual amount of interest payable varies with the length of time the bonds have been held), investment in government bonds by private individuals has increased considerably (see table 12). Several factors are responsible for this increase. First, the rise in income level in recent years has made it possible for people to save more. Second, monetary stability in recent years has increased the confidence of the people in the currency and made them willing to put their savings in various forms of financial assets. And third, the banks have opened more branches in the country areas, thus bringing a greater number of people into the money economy.

Life insurance is the only sector that is still encountering certain difficulties. The amount of funds acquired through this channel has been declining in recent years. This is due in a large measure to inadequate management in a certain number of life insurance companies, thus undermining the confidence of the people in this type of savings. To overcome this problem the Government has decided to exercise closer control over the operation and management of the life insurance business. A bill to control the life insurance business has already been introduced in the Constituent Assembly and is expected to be passed in the very near future.

e. Inflow of foreign capital

As shown in the following table 15, during the period 1960-1965 the inflow of foreign capital rose steadily from 1,598.8 million baht in 1960 to 4,248.6 million baht in 1965, at an average rate of increase of about 23 per cent a year, largely as a result of the Government's policy of accelerating economic development.

TABLE 14. OUTSTANDING AMOUNTS OF PRIVATE SECTOR SAVINGS AS REPRESENTED BY FINANCIAL ASSETS HOLDINGS, 1956-1965 (million baht)

Year	Monetary system		Government savings bank			Commercial banks	Life insurance companies					
	Cash	Demand deposits	Savings accounts	Time deposits	Savings bonds	Time deposits	Bonds	Treasury bills	Life insurance fund	Other insurance fund	Government provident fund	Bank provident fund
1956	5,420.7	2,275.1	657.0	2.0	71.0	349.4	187.3	2.0	210.0	—	—	—
1957	5,568.2	2,593.6	779.0	1.0	87.0	438.5	220.7	2.0	243.8	—	—	12.8
1958	5,543.2	2,917.5	843.0	1.0	105.0	621.7	257.8	3.2	264.8	—	—	15.7
1959	5,779.9	3,267.9	888.0	1.0	134.0	766.7	335.0	3.6	283.2	—	—	19.3
1960	6,043.9	4,022.7	1,057.0	23.0	168.0	1,025.7	478.5	2.0	289.1	—	—	23.8
1961	6,511.7*	4,563.7*	1,232.0	2.0	214.0	1,485.3	650.7	4.3	273.7	—	—	28.9
1962	6,573.4*	4,519.9*	1,387.0	9.0	30.0	3,148.6	801.3	—	277.0	—	—	51.2
1963	6,703.5*	5,177.5*	1,531.0	13.0	431.0	4,255.0	958.4	0.2	298.7	—	—	69.0
1964	7,290.2*	5,628.8*	1,683.0	16.0	591.0	5,368.3	1,197.5	6.7	266.8	—	—	74.9
1965	8,180.7*	6,151.4*	2,031.0	29.0	713.0	6,406.8	1,372.2	—	—	—	—	89.7
												110.1

Note: * Includes cash in hand and deposits of life insurance companies.

— Nil

... Not yet available

Source: Bank of Thailand.

TABLE 15. INFLOW OF FOREIGN CAPITAL, 1960-1965 (million baht)

	1960	1961	1962	1963	1964	1965
Private	276.7	547.2	743.4	1,394.9	2,096.6	2,026.6
Public						
(a) Grants	725.6	459.3	810.6	1,010.5	670.0	1,420.6
(b) Loans	596.5	880.0	1,389.9	1,079.6	1,012.7	801.4
	1,598.8	1,886.5	2,943.9	3,485.0	3,779.3	4,248.6

Source: Bank of Thailand.

This transfer of capital was reflected in the sharp increase in the import of capital goods such as mining and construction equipment, electric generators, railway equipment, tractors, road motor vehicles, and so on. The rising trend of the inflow of foreign capital in the private sector is due partly to the Government's policy of encouraging foreign and domestic investment in industrial activities through investment promotion laws and through new investments in some of the public enterprises. The inflow of foreign capital in the public sector takes the form of grants and loans, mostly for financing projects in the Six-Year Economic Development Plan (1961-1966).

Thailand's first national economic development plan covers a period of six years, from 1961 to 1966. It is a partial development plan as it deals only with the public sector. During the first three years of the plan, the first phase, about 35 per cent of the development expenditure was financed by foreign loans. Table 16 shows foreign financing broken down by sectors and by sources of financing.

The execution of the first phase (1961-1963) of the plan proceeded fairly satisfactorily; most of the targets were achieved and, in many cases, even surpassed. It will be seen from the table that public expenditures during 1961-1963 with respect to industry and mining were relatively small, as the policy of the Government has been to limit the role of the public sector mostly to infrastructural projects. In the field

of power, expenditures amount to about 70 per cent of the total development plan spendings. So far the Government has had no difficulties in securing loans on conventional terms from abroad to finance development projects.

It is to be noted that only a small proportion of the private foreign investments which came in as a result of the Government's industrial promotion programme is in the form of equity capital. The main proportion of this foreign investment is in the form of loans or suppliers' credit for machinery, components, and semi-processed products, with terms ranging from one to seven years and with relatively high interest rates. Although the magnitude of these short- and medium-term credits does not present a problem to Thailand's balance of payments at the moment, further accumulation of such credits at a more rapid rate may put severe strains on the future payments position. The Government is, therefore, keeping a close watch on development of suppliers' credit in both the private and public sectors.

f. Measures for servicing external public debts

The current level of external public debts of Thailand is relatively low. As indicated in the following table 17, the proportion of external public debts to foreign exchange earnings of the country tended to decline between 1959-1963. With the acceleration in the implementation of the second phase (1964-1966) of the six-year economic development plan (1961-1966), external debts are expected to rise moderately in the coming years. Although the servicing of foreign loans does not present any immediate problem, the Government has taken precautionary measures to keep future external obligations within the country's means. In 1960, the Government set up a sub-committee under the National Economic Development Board, called the Sub-committee for the Study of Applications to Contract Foreign Obligations. This Sub-

TABLE 16. SUMMARY OF SIX-YEAR DEVELOPMENT PLAN EXPENDITURES FINANCED BY FOREIGN LOANS
BY SECTOR, SOURCE OF FINANCING AND FISCAL YEAR, 1961-1966
(million baht)

Item	First half			Total 1961- 1963	Second half			Total 1961- 1966	Grand total
	1961	1962	1963		1964	1965	1966		
<i>Agriculture and co-operatives</i>	—	—	1.39	1.39	98.10	399.50	231.42	729.02	730.41
IBRD (Prospective)	—	—	1.39	1.39	37.01	5.86	4.37	47.24	48.63
United States Aid (Prospective)	—	—	—	—	—	336.00	168.00	504.00	504.00
United States Aid (Prospective)	—	—	—	—	61.09	40.42	10.12	111.63	111.63
	—	—	—	—	—	17.22	48.93	66.15	66.15
<i>Industry and mining</i>	15.00	—	10.00	25.00	151.00	78.50	—	229.50	254.50
United States (PL 480 II)	15.00	—	—	15.00	—	—	—	—	15.00
Japan Toyo Menka (Supplier's Credit)	—	—	10.00	10.00	98.50	26.00	—	124.50	134.50
IBRD	—	—	—	—	—	—	—	—	—
W. Germany (Kreditanstalt für Wiederaufbau)	—	—	—	—	52.50	52.50	—	105.00	105.00
<i>Power</i>	330.97	581.74	602.80	1,515.51	551.99	300.38	110.14	962.51	2,478.02
IBRD	207.47	348.05	244.58	800.10	197.59	35.70	—	233.29	1,033.39
United States (Erimbank)	29.31	133.12	90.30	252.73	—	—	—	—	252.73
(DLF)	94.19	73.12	100.80	268.11	82.77	—	—	82.77	350.88
Austria Consortium of Elin-Union A.G. Waagner Biro A.G. (Supplier's Credit)	—	27.45	157.84	185.29	85.09	2.80	—	87.89	273.18
W. Germany (Kreditanstalt für Wiederaufbau)	—	—	9.28	9.28	89.31	88.26	23.18	200.75	210.03
Prospective	—	—	—	—	97.23	173.62	86.96	357.81	357.81
United States Aid	—	—	—	—	—	—	—	—	—
W. Germany	—	—	—	—	97.23	173.62	86.96	357.81	357.81
<i>Communications and trans- portation</i>	115.00	91.00	9.00	215.00	473.40	677.10	863.10	2,013.60	2,228.60
United States (DLF)	35.00	2.00	—	37.00	—	—	—	—	37.00
(PL 480-Yen)	—	35.00	—	35.00	—	—	—	—	35.00
(ICA-AID)	80.00	54.00	5.00	139.00	63.00	—	—	63.00	202.00
(Erimbank)	—	—	—	—	96.70	72.37	224.97	394.04	394.04
IBRD	—	—	—	—	97.10	344.93	418.13	860.16	860.16
W. Germany (Kreditanstalt für Wiederaufbau)	—	—	4.00	4.00	195.60	24.30	12.50	232.40	236.40
Prospective	—	—	—	—	21.00	235.50	207.50	464.00	464.00
IBRD	—	—	—	—	—	100.00	150.00	271.00	271.00
United States	—	—	—	—	21.00	—	—	—	—
W. Germany	—	—	—	—	—	57.50	57.50	115.00	115.00
Japan	—	—	—	—	—	78.00	—	78.00	78.00
<i>Community facilities and social welfare</i>	12.00	91.00	339.00	442.00	407.25	68.00	—	475.25	917.25
France Degremont (Supplier's Cre- dit)	12.00	91.00	339.00	442.00	407.25	68.00	—	475.25	917.25
<i>Public health prospective</i>	—	—	—	—	—	69.64	75.42	145.06	145.06
	—	—	—	—	—	69.64	75.42	145.06	145.06
<i>Education</i>	—	—	—	—	—	122.50	310.10	432.60	432.60
IBRD (Prospective)	—	—	—	—	—	122.50	310.10	432.60	432.60

Total	472.97	763.74	962.19	2,198.90	1,681.74	1,715.62	1,590.18	4,987.54	7,186.44
Prospective loans	---	---	---	---	1,563.51	761.14	693.27	3,017.92	5,126.82
Existing loans	---	---	---	---	118.23	954.48	896.91	1,969.62	1,969.62
Total development expenditures				11,677				20,300	

Source: The National Economic Development Board.

committee is to make recommendations from time to time to the Council of Ministers regarding the appropriate ceiling of foreign debt service payments of the country. The sub-committee also screens proposals for foreign loans submitted by various government administrative agencies and enterprises, with respect to priority, sources and terms of loans, before recommending them for inclusion in the National Economic Development Plan. The ceiling of the external debt service payments was originally fixed at 4 to 5 per cent of the country's estimated gross foreign exchange earnings from the exports of goods and services. In view of the recent improvement in the payments position and the need to quicken the pace of economic growth, the ceiling has been raised since 1964 to 7 per cent.

TABLE 17 FOREIGN EXCHANGE EARNINGS AND EXTERNAL PUBLIC DEBT SERVICING, 1959-1965
(million baht)

Calendar year (1)	Foreign exchange earnings ^a (2)	External public debt service payments ^b			(5) as percentage of (2) (6)
		Principal (3)	Interest (4)	Total (5)	
1959	8,222.5	284.0	42.9	326.9	3.97
1960	9,441.2	318.7	54.0	372.7	3.95
1961	11,076.4	274.6	96.2	370.8	3.35
1962	10,838.4	235.6	136.3	371.9	3.43
1963	11,161.0	236.9	144.1	381.0	3.41
1964	14,038.8	343.0	172.6	515.6	3.67
1965 ^c	15,257.9	391.9	206.0	597.9	3.92

N.B. ^a Receipts from exports of goods and services, except investment income receipts.

^b Covering the Government's own debts and other debts bearing government guarantee as to repayments or foreign exchange convertibility.

^c Preliminary figures.

Source: Bank of Thailand.

As the capacity of a country to service foreign loans depends chiefly on its capacity to increase exports, a Committee for the Promotion of Exports was also set up under the Prime Minister's Office.

g. Measures taken to encourage joint ventures between domestic and foreign entrepreneurs

At present, there is no specific measure adopted by the Government to encourage joint ventures between domestic and overseas entrepreneurs. However, under section 17 of the Promotion of Industrial Investment Act (1962), the Board of Investment has the power to call for a joint venture in any type of investment

it may deem fit. From table 18 it will be seen that the extent of foreign participation in investments under the industrial promotion laws enacted since 1958 is significant.

In this connexion, it must be mentioned that one of the objects of the Industrial Finance Corporation of Thailand is to encourage the participation of private capital, both internal and external, in industrial enterprises. In its policy statement of 23 December 1963, the Corporation declared its intention to make use of the entire range of forms of investment, particularly equity financing; the Corporation, it was announced, will provide such equity to the extent consistent with sound financial practice.

h. Policy regarding public ownership in certain sectors

Under the Industrial Promotion Act of 1954, the Ministry of Industry issued a Notification (dated 21 October 1955) stating that it is the policy of the Government to support free enterprise for both Thai and foreign nationals and that in no circumstances would the Government nationalize private industrial enterprises. This declaration of intent has been reaffirmed in later legislation. Section 18 of the Promotion of Industrial Investment Act, B.E. 2505 (1962), reads:

"A promoted person shall receive the following guarantees:

- (1) the State will not engage in any new industrial activity in competition with that of the promoted person;
- (2) the State will not nationalize any private industrial activity."

However, according to the Act on the Control of Business Activities Affecting Public Security or Welfare, B.E. 2471 (1928), as amended, and other laws and regulations, there are certain activities which are reserved for the State only or which require prior approval by and special agreement with the Government. These activities are listed below.

(a) Enterprises reserved for the State:

- (1) production of arms and military weapons including ammunitions and explosives, but excluding fireworks,
- (2) production of cigarettes,
- (3) railways,
- (4) ports,
- (5) domestic civil aviation.

TABLE 18. LIST OF PROMOTED INDUSTRIES FOR WHICH PROMOTION CERTIFICATES HAVE BEEN ISSUED, 1957-1965

Year in which certificates were issued	Type of industry	Number of business establishments	Registered capital (thabts)		Total
			Domestic	Foreign	
1957	1. Sugar	1	228,000,000	—	228,000,000
	2. Chemical (alum)	1	3,770,000	—	3,770,000
1959	1. Pharmaceuticals	2	8,750,000	14,250,000	23,000,000
	2. Sugar	2	41,700,000	300,000	42,000,000
	3. Gourmet (seasoning) powder	2	18,750,000	26,250,000	45,000,000
	4. Weaving and Spinning	7	30,380,000	14,620,000	45,000,000
	5. Tin plate	1	1,000,000	—	1,000,000
	6. Galvanized iron sheet	1	5,100,000	4,900,000	10,000,000
	7. Wood parquet flooring	1	1,000,000	—	1,000,000
	8. Rubber products	1	1,200	2,998,800	3,000,000
	9. Tin and petrol drums	1	4,500,000	500,000	5,000,000
	10. Aluminium products	1	3,000,000	—	3,000,000
	11. Dry cell batteries	4	9,000,000	13,600,000	22,600,000
	12. Chemical (sulphuric acid)	1	12,000,000	—	12,000,000
	13. Fishing net	1	8,000,000	—	8,000,000
	14. Edible milk	1	3,000,000	—	3,000,000
	15. Ceramics	1	6,000,000	—	6,000,000
1960	1. Pharmaceuticals	1	4,927,000	5,127,000	10,054,000
	2. Sugar	9	157,665,850	6,834,150	164,500,000
	3. Weaving and spinning	9	22,719,500	15,780,500	38,500,000
	4. Galvanized iron sheet	1	3,298,500	4,201,500	7,500,000
	5. Timber impregnating	1	2,000,000	—	2,000,000
	6. Shaving-board	1	30,000,000	—	30,000,000
	7. Rubber products	1	2,100,000	900,000	3,000,000
	8. Dry cell batteries	1	500	399,500	400,000
	9. Edible milk	1	3,000,000	12,000,000	15,000,000
	10. Edible flour	3	9,321,043	19,500,000	28,821,043
	11. Cement	2	144,584,000	7,416,000	152,000,000
	12. Motor car and tractor assembling	3	25,040,000	1,960,000	27,000,000
	13. Gypsum	1	2,000,000	—	2,000,000
	14. Nails	3	11,000,000	—	11,000,000
	15. Coconut fibre	1	2,400,000	3,600,000	6,000,000
	16. Cold storage	2	5,000,000	—	5,000,000
	17. Glass products	1	2,100,000	3,900,000	6,000,000
	18. Hotel	1	30,000,000	—	30,000,000
	19. Gunny bags	1	40,000,000	—	40,000,000
	20. Printing ink	1	1,700,000	1,700,000	3,400,000
1961	1. Weaving, spinning, bleaching and dyeing	7	8,950,500	14,449,500	23,400,000
	2. Tin plate	1	5,000,000	—	5,000,000
	3. Wood parquet flooring	1	—	—	—
	4. Aluminium products	2	17,590,000	298,000	17,888,000
	5. Dry cell batteries	1	3,200,000	4,800,000	8,000,000
	6. Chemicals (hydrochloric acid)	1	—	—	—
	7. Edible flour	3	15,000,000	15,800,000	30,800,000
	8. Cement	1	19,862,000	138,000	20,000,000
	9. Ceramics	1	3,000,000	—	3,000,000
	10. Motor car assembling	1	5,070,000	—	5,070,000
	11. Metal rolling mill, and iron transfiguring such as bolts and nuts and nails	4	7,410,000	590,000	8,000,000
	12. Motor car spare parts	1	2,500,000	—	2,500,000
	13. Glass products	1	3,000,000	—	3,000,000
	14. Hotels	3	10,000,000	—	10,000,000
	15. Zip fasteners	2	8,230,000	1,770,000	10,000,000
	16. Electric appliances and electric bulbs	2	2,004,000	9,996,000	12,000,000
	17. Plantation oil	1	4,250,000	750,000	5,000,000
	18. Slaughter house	1	50,000,000	—	50,000,000
	19. Oil refinery	1	10,000,000	—	10,000,000
	20. Pearl oyster culture	1	1,400,000	600,000	2,000,000
	21. Tea	1	1,200,000	800,000	2,000,000
	22. Deep sea fishery	1	1,000,000	—	1,000,000
	1. Gourmet (seasoning) powder	1	9,000,000	6,000,000	15,000,000
	2. Weaving, spinning, bleaching and dyeing	3	800,000	800,000	1,600,000

	3.	Galvanized iron sheet	2	5,100,000	4,900,000	10,000,000
	4.	Wood curing	1	5,000,000	—	5,000,000
	5.	Dry cell batteries	1	—	—	—
	6.	Fishing net	1	4,000,000	6,000,000	10,000,000
	7.	Edible milk	2	13,200,000	19,800,000	33,000,000
	8.	Edible flour	1	300	3,439,700	3,140,000
	9.	Cement	1	96,876,000	11,124,000	108,000,000
	10.	Ceramics	1	—	—	—
	11.	Motor car and tractor assembling	3	—	27,530,000	27,530,000
	12.	Steel making and iron transfiguring	3	3,000,000	2,000,000	5,000,000
	13.	Motor car spare parts	2	1,450,000	550,000	2,000,000
	14.	Cold storage	1	900,000	100,000	1,000,000
	15.	Hotels	4	26,000,000	—	26,000,000
	16.	Gunny bags	1	20,000,000	—	20,000,000
	17.	Electric accessories, Electric cable and wire and television sets	4	17,214,750	11,785,250	32,000,000
	18.	Plantation oil	1	750,000	—	750,000
	19.	Oil refinery	1	7,650,000	7,350,000	15,000,000
	20.	Agricultural tools	1	2,000,000	—	2,000,000
	21.	Rope	1	1,200,000	—	1,200,000
	22.	Rattan and bamboo products	2	800,000	700,000	1,500,000
	23.	Feather selecting and cleaning	1	50,200	949,800	1,000,000
	24.	Paper	2	12,000,000	—	12,000,000
	25.	Carbon dioxide	1	960,000	40,000	1,000,000
	26.	Plastic pipe	1	11,000,000	—	11,000,000
	27.	Agricultural products curing	1	7,200,000	4,800,000	12,000,000
	28.	Sewing machine assembling	1	1,000	4,999,000	5,000,000
	29.	Buttons	1	500,000	—	500,000
	30.	Spectacle lenses	1	2,400,000	100,000	2,500,000
1963	1.	Weaving, spinning, bleaching and dyeing	12	20,854,200	37,373,000	58,227,200
	2.	Galvanized iron sheet	1	420,000	980,000	1,400,000
	3.	Wood parquet flooring and wood curing	4	7,295,000	205,000	7,500,000
	4.	Reclaimed rubber	1	1,200,000	800,000	2,000,000
	5.	Motor car tyres and tubes	1	8,000,000	12,000,000	20,000,000
	6.	Aluminium products	1	100,000	1,400,000	1,500,000
	7.	Storage batteries	2	1,450,000	3,550,000	5,000,000
	8.	Edible milk	3	13,000,000	13,000,000	26,000,000
	9.	Ceramics	1	5,000,000	5,000,000	10,000,000
	10.	Motor car and tractor assembling	1	5,000,000	—	5,000,000
	11.	Antimony smelting	1	500,000	—	500,000
	12.	Tin smelting	1	5,215,000	12,785,000	18,000,000
	13.	Steel making, metal rolling mill and iron transfiguring such as bolts and nuts	4	31,600,000	22,400,000	54,000,000
	14.	motor car spare parts	2	3,500,000	3,500,000	7,000,000
	15.	Coconut fibre	2	—	—	—
	16.	Cold storage	2	3,000,000	—	3,000,000
	17.	Glass products (sheet glass)	1	6,000,000	6,000,000	12,000,000
	18.	Hotels	5	23,239,800	2,360,200	25,600,000
	19.	Zip fasteners	1	1,325,000	1,175,000	2,500,000
	20.	Electric applicances, motors and radio parts	5	12,178,000	2,447,000	14,625,000
	21.	Paints	2	900,000	9,500,000	10,400,000
	22.	Plantation oil	1	2,000,000	—	2,000,000
	23.	Pearl oyster culture	1	1,020,000	980,000	2,000,000
	24.	Rattan and bamboo products	2	400,000	1,000,000	1,400,000
	25.	Plastic pipe, asbestos- cement pipe, iron and galvanized iron pipe	4	48,600,000	23,400,000	72,000,000
	26.	Chemical fertilizers	1	120,000,000	—	120,000,000
	27.	Food canning	2	6,955,000	5,545,000	12,500,000
	28.	Gramophone records	1	3,000,000	—	3,000,000
	29.	Synthetic fibre	1	3,200,000	28,800,000	32,000,000
1964	1.	Pharmaceuticals	1	1,200,000	10,800,000	12,000,000
	2.	Sugar	1	1,000,000	1,000,000	2,000,000
	3.	Weaving, spinning, bleaching and dyeing	11	30,700,000	62,300,000	93,000,000

	4.	Galvanized iron and barbed wire	1	3,500,000	-	3,500,000
	5.	Dry cell batteries	1	-	-	-
	6.	Chemicals (caustic soda, hydrochloric and nitric acids)	4	12,300,000	18,700,000	31,000,000
	7.	Edible flour	2	5,935,900	4,064,100	10,000,000
	8.	Cement	2	-	-	-
	9.	Motor car assembling	3	10,045,000	11,845,000	21,890,000
	10.	Steel making and metal rolling mills	4	21,884,000	52,116,000	74,000,000
	11.	Motor car spare parts	2	500,000	2,240,000	2,740,000
	12.	Hotels	13	83,686,667	32,313,333	116,000,000
	13.	Electric appliances, electric bulbs and electric cable and wire	4	11,200,000	8,800,000	20,000,000
	14.	Plantation oil	1	1,530,000	1,470,000	3,000,000
	15.	Rope	1	1,275,000	1,225,000	2,500,000
	16.	International sea transportation	2	2,280,000	220,000	2,500,000
	17.	Iron and galvanized iron pipe	1	5,000,000	15,000,000	20,000,000
	18.	Motors and mechanical tools	2	7,275,000	5,225,000	12,500,000
	19.	Stone quarry	3	39,015,000	14,985,000	54,000,000
	20.	Bicycle tyres and tubes	1	2,400,000	1,600,000	4,000,000
	21.	Bicycles	1	9,997,000	3,000	10,000,000
	22.	Motor cycles	1	3,000,000	-	3,000,000
	23.	Plastic powder	1	7,150,000	5,850,000	13,000,000
1965	1.	Weaving, spinning, bleaching and dyeing	7	20,820,000	22,180,000	43,000,000
	2.	Hotels	8	32,700,000	3,800,000	36,500,000
	3.	Steel making and metal rolling mill, iron transfiguring such as bolts and nuts and nails	7	20,616,000	7,384,000	28,000,000
	4.	Radio parts and sets	3	9,000,000	-	9,000,000
	5.	Motor car and tractor assembling	1	10,000,000	-	10,000,000
	6.	Wood parquet flooring and wood curing	5	3,780,000	1,120,000	4,900,000
	7.	Edible flour	2	6,800,000	-	6,800,000
	8.	Calcium carbide	2	4,750,000	3,250,000	8,000,000
	9.	Cold storage	3	9,100,000	1,900,000	11,000,000
	10.	Ceramics	4	3,260,000	2,340,000	5,600,000
	11.	Pharmaceuticals	1	3,000,000	9,000,000	12,000,000
	12.	Plantation oil	3	9,550,000	15,450,000	25,000,000
	13.	Rubber products	1	690,000	510,000	1,200,000
	14.	Coconut fibre	1	150,000	350,000	500,000
	15.	Bicycle tyres and tubes	1	2,000,000	-	2,000,000
	16.	Tea	1	510,000	490,000	1,000,000
	17.	Carbon dioxide	1	-	-	-
	18.	Stone quarry	1	1,000,000	-	1,000,000
	19.	Artificial leather	2	6,900,000	6,100,000	13,000,000
	20.	Paint	2	2,250,000	2,750,000	5,000,000
	21.	Motor cycles	1	6,000,000	14,000,000	20,000,000
	22.	Cotton or synthetic fibre products	3	4,250,400	949,600	5,200,000
		Total	347	2,063,478,310	862,226,933	2,925,705,243

Source: Office of the Board of Investment.

(b) *Enterprises in which investors are required to enter into agreements with the Government:*

- (1) production of alcoholic beverages and beer,
- (2) passenger transportation,
- (3) electric power,
- (4) water supply,
- (5) telegraph,
- (6) telephone,
- (7) mineral prospecting, mining and quarrying,

- (8) oil prospecting, extracting and refining,
- (9) forestry,
- (10) banking,
- (11) insurances, including life insurance.

With respect to industrial activities already operated by the State previous to the enactment of the Promotion of Industries Act of 1954, the Ministry of Industry Notification (dated 13 January 1958) stated that, if and when any state-owned industrial enterprises could be taken over by Thai nationals, the State would sell the share capital of these enterprises to them. At present, a State Organizational

Activity Advisory Group set up by the Prime Minister¹ is in charge of making recommendations as to whether any state enterprises should be dissolved or transferred to the private sector, or should continue to receive aids from the Government.

i. Remittances of profit, dividends and foreign capital

Under the Promotion of Industrial Investment Act, B.E. 2505 (1962), section 19 (5) the following rights of a promoted person regarding remittance abroad of foreign currencies are stipulated:

The "taking out or remitting abroad of money in foreign currency will be permitted if it represents investment capital derived by the promoted person from a foreign country, foreign loan, profit derived from such investment capital, interest on foreign loan, or obligations assumed by the promoted person under a contract relating to rights and services necessary to the industrial activity, provided, however, that during any period when the balance of payments of foreign currency may be such as to require preservation of foreign currency reserves to a reasonable amount, the Bank of Thailand may for that purpose require that the taking out or remitting abroad of such money be suspended or restricted temporarily."

As administrator of the Exchange Control Regulations, the Bank of Thailand issued a Communiqué on 17 July 1959, to the following effect:

(1) For the benefits of investors, the Bank of Thailand shall maintain a Special Register in which all amounts of foreign exchange remitted or brought into Thailand by investors, either as capital or as a loan for use in the establishment or expansion of industrial enterprises, are recorded.

(2) When an investor wishes to remit overseas any dividends, profits or interest gained from funds or to repatriate any amount of capital or principal recorded in this Special Register, the Exchange Control Office shall be prepared to approve the following transfers:

- (a) transfers of profits or dividends after deduction of income and other taxes and after appropriation of reserves;
- (b) transfers of 50 per cent of the estimated net profit for the first six months of the fiscal year of each relative enterprise;
- (c) transfers of funds in payment of interest or principal in accordance with a contract;
- (d) transfers of capital invested upon liquidation of the enterprise in which the capital had been invested or upon submission of proof that such enterprise no longer required the use of the amount of capital to be repatriated.

¹ Under the Prime Minister Office Directive No. 299/2508, Re: Appointment of the State Organizational Activity Advisory Group, dated 31 December 1964.

In case of transfers of large amounts, such transfers may be permitted in instalments so as to prevent any undue fluctuations of the exchange rates.

Investments are classified into two groups as follows:

(i) *Investments in industrial activities*

(a) such industrial activities which are entitled to receive benefits under the Promotion of Industrial Investment Act, B.E. 2505;

(b) other industrial activities.

(ii) *Investments in other activities*

Capital brought in for activities under (i) (a) will be recorded in the Special Register; the Bank of Thailand is under the obligation to grant the repatriation of capital fund and the remittance of profits arising therefrom when such remittance is due. As for investment under group (i) (b) and (ii), approval from the Exchange Control Officer should be obtained before capital is brought into the country. However, this is not an exchange control requirement, although such prior approval will very much facilitate the subsequent repatriation of principal and remittance of interest on foreign loan as well as profits.

(3) Procedures regarding the importation and repatriation of capital:

(a) *Foreign currency.* There is no restriction as to the type of currency brought in; however, it must be sold to the authorized agent within seven days of importation by submitting an application Form E.C. 71 (application to receive remittance from abroad). The applicant has to state explicitly in the form the purpose for which the fund is to be put to use. If the fund is to be invested in the promoted or approved industrial activities, it will be recorded in the Special Register.

Requests for the repatriation of such capital will be considered by the Exchange Control Officer according to the criteria as laid down in the Bank's Communiqué.

(b) *Machinery or other materials.* The importation of machinery and other materials as investment capital can be made either after or before receiving approval from the Bank of Thailand. The importer has to submit Form E.C. 21 accompanied by shipping documents, contract and the memorandum.

Machinery and materials imported will be valued according to their invoices.

Machinery and materials for investment can also be imported on a long-term deferred payment basis, but prior approval has to be obtained for payments made in instalments or on a deferred payment basis.

(c) *Loans.* The Exchange Control Officer shall not record in the Special Register funds which have been brought in without prior approval from the Bank of Thailand, whether for the establishment or the expansion of business activities — industrial or

otherwise. Requests for the repatriation of such funds will be considered in the light of the foreign exchange position of the country at that time. However, in the case where prior approval from the Exchange Control Officer has been granted, application for repatriation will be greatly expedited, since the Bank of Thailand considers itself as virtually bound by the prior approval.

(4) Importation of capital for the purchase of shares, debentures and bonds or for depositing in bank accounts as investments can be made freely and the Exchange Control Officer will give his sympathetic consideration when repatriation of such fund is requested.

A. Purchase of Thai Government bonds

(1) Importation of capital for this purpose requires prior approval from the Exchange Control Officer.

(2) Repatriation.

(a) interest is exempted from taxation and can be remitted when it is due.

(b) principal can be repatriated after redemption.

B. Purchase of shares and debentures

(1) Importation of capital for this purpose requires prior approval from the Exchange Control Officer.

(2) Repatriation.

(a) Dividends: Remittance can be made after deduction of expenses and taxes.

(b) Shares: Repatriation is allowed with evidence proving that the shares have been sold or the enterprise has been liquidated.

C. Deposits in bank accounts. The baht proceeds from the sale of foreign currency brought in to the authorized agent must be deposited into the bank account. This account will be regarded as "Transferable non-resident account". Remittance abroad of profits arising from such deposit requires prior approval of the Exchange Control Officer.

In order that there shall be no adverse effect from the capital movement on the domestic money market, the Exchange Control Authorities reserve their right to grant approvals. In the case of non-industrial investment a maximum amount of one million American dollars is allowed for a single inward remittance.

(5) Remittance abroad of the interest, dividend and profits of foreign branch offices.

Approval will be granted under the following conditions:

(a) *Interest*: With supporting documents showing that the interest rate is in accordance with terms and conditions prescribed in the loan contract.

(b) *Dividend*: With supporting documents showing that such dividend is legal.

(c) *Profits of foreign branch offices*: With accounting and other documents showing that taxes have been duly paid.

(6) Transfer of capital after liquidation of enterprises: The Exchange Control Officer will grant approval upon submission of the accounting and other documents showing that liabilities and legal obligations have been settled.

Remittances abroad of *royalties and patent fees* arising from investments or other business activities are regarded as current transactions and are permitted freely under the Exchange Control Law.

j. Areas of industrial activity open to overseas investors

Generally speaking, overseas investors are welcome to participate in all areas of industrial activity, within as well as outside to sphere of promotional measures of the Promotion of Industrial Investment Act. Exceptions to this are only a few industries mentioned in section (h) as reserved for the State, and three small ones declared by Royal Decree Specifying Vocations and Professions Reserved for Thai Nationals of 1949, namely, the making or moulding of Buddha images, manufacturing of lacquer-ware and manufacturing of niello-ware.

Apart from the abovementioned exceptions, there is no other regulation prohibiting or limiting ownership or control in industrial enterprises by foreign investors. Though, in the case of industries eligible for promotion, the provisions of section 17 of the Promotion of Industrial Investment Act of 1962 specifies that "in issuing a promotion certificate granting rights and benefits under this Act, the Board of Investment shall have the authority to impose such conditions as it may deem necessary governing the exercise of such rights and benefits". This should not, however, be construed as allowing for the prohibition or limitation of ownership. In some special industries, such as in the case of the oil refining industry undertaken by the Thai Oil Refinery Company Limited, special conditions were stipulated in the promotion certificate; because in this case the investors agreed, under the contract signed with the Government, to transfer the ownership of the refinery to the Government free of charge after operating it for ten years.

k. Steps taken to encourage foreign investment in the country

After the Second World War, the Government became increasingly aware of the urgent need to strengthen the industrial sector of the economy. While it confines itself mostly to providing basic facilities that will lead to the establishment of more industries, the Government also provides incentives and creates the necessary climate for prospective investors, both domestic and foreign. The following measures were adopted by the Government aiming at encouraging industrial investments, especially from abroad.

1. *Industrial investment promotion laws*

In order to attract foreign investment into Thailand, the Government introduced the first investment law called the "Act on the Promotion of Industries, B.E. 2497 (1954)". This Act was subsequently repealed twice, the last time in 1962 (see also page 50). The industrial promotion laws which are in force at present are the Promotion of Industrial Investment Act, B.E. 2505 (1962) and the Promotion of Industrial Investment (No. 2) Act, B.E. 2508 (1965). Details of these Acts have already been given in chapter III and will be further discussed in chapter VI.

2. *Investment opportunity surveys*

As a result of an agreement between the Government of Thailand and the United States Government, four industry feasibility surveys in Thailand were carried out by a group of consultants from Ebasco Service Incorporated in 1962. (Details of these surveys have already been discussed in chapter II and, therefore, will not be repeated here. However, it must be mentioned that the aim of these surveys was to develop a series of investment feasibility prospectuses which can be used by the Government to promote industrial development in the private sector.)

3. *The establishment of industrial estates*

One obstacle to industrialization in Thailand is the relatively high price of land in the metropolitan areas of Bangkok and Thonburi. In order to provide industries, small, medium as well as large, with suitable and reasonably priced land complete with necessary services and facilities, the establishment of industrial estates near and around Bangkok and Thonburi and in other important towns is, therefore, planned by the Thai Government. For the Bangkok and Thonburi area, where a large industrial estate is required, a feasibility survey agreement, authorized by the Thai Government, was signed by the Ministry of Industry with the International Development and Engineering Associates, an American company, in 1963. A feasibility survey report was submitted some time ago by this Company to the Thai Government. It is expected that a decision on the recommendations contained in the report will be made in the very near future. In addition, a working group constituted by the Ministry of Industry in 1964 has not very long ago completed its study of how best to utilize the large piece of land, about 1,000 acres, situated about 40 kilometres north of Bangkok, which the Ministry has previously acquired, to provide factory space for existing industries as well as new ones. The recommendations made by the working group in its report to the Ministry of Industry have now been approved by the Government, and when funds for their implementation are available these recommendations will be put into effect by the Ministry of Industry.

It is contemplated that within the next decade several industrial estates in different locations of the country will be set up.

4. *Bilateral agreements on double taxation relief*

As one of the measures to attract foreign capital, the Government of Thailand has sought to reach agreements with foreign countries on the avoidance or relief of double taxation. The first such agreement was signed between Thailand and Sweden on 24 October 1961, becoming effective on 18 January 1962. On 1 March 1963, a similar agreement was signed between Thailand and Japan, becoming effective on 24 July of the same year. Another agreement was concluded between Thailand and Norway on 9 January 1964 and came into force on 31 December 1964. A similar agreement was signed between Thailand and Denmark in Bangkok on 14 April 1965 and became effective on 23 December 1965. In March 1964, an agreement between the Thai Government and the United States Government on the same subject was also signed.

5. *Investment guaranty*

In 1954 and in 1957 agreements were concluded, by the exchange of notes, between Thailand and the United States Government, in which the latter is to offer to new American investments in Thailand insurance protection against the risk of inability to convert foreign currency receipts into American dollars and against the risk of loss through confiscation or expropriation or war. On the 22 December 1965, a further agreement was concluded, also by the exchange of notes, between Thailand and the United States of America extending the scope of the investment guaranties which may be issued by the Government of the United States of America for American investments in activities in Thailand to now include also guaranties against loss due to revolution or insurrection, as well as loss of an investment from any risk including normal business risks other than fraud or misconduct for which the investor is responsible and other than normal insurable risks such as fire and theft.

In December 1961, a treaty was signed between the Federal Republic of Germany and the Kingdom of Thailand relating to the promotion and reciprocal protection of investments. This treaty was subsequently ratified in March 1965, and will take effect thirty days after the ratification. The treaty deals with such matters as expropriation, losses due to war or revolution and the transfer of capital.

1. *Measures and regulations affecting the import of technical know-how*

A communique issued on 17 July 1959 by the Bank of Thailand as administrator of the Exchange Control Regulations states that:

"Remittances abroad of *royalties and patent fees* arising from investments or other business activities

are regarded as current transactions and are permitted freely under the Exchange Control Law."

This regulation is still in force, and the procedures announced in the communique and discussed in detail in section i) above must be followed.

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

a. Existing or planned industrial promotion organizations

In Thailand, at present there are four organizations which have direct and substantial roles in the field of industrial promotion. They are the Ministry of Industry, the Board of Investment, the Industrial Finance Corporation of Thailand, and the Applied Scientific Research Corporation of Thailand.

1. *The Ministry of Industry*

This Ministry was created in 1942, almost twenty-four years ago. At present, it is directly responsible for developing and promoting industries in the country and planning and implementing small industry development programmes. There are three organizations in the Ministry which play very important parts in the country's industrial development, namely, the Department of Industrial Promotion, the Department of Science, and the Thailand Management Development and Productivity Centre.

(a) *The Department of Industrial Promotion.*

This Department has the duty to promote and assist all types of industries, large, medium as well as small. However, since about 97 per cent of the industries in the country at present are small-scale industries employing less than 50 persons, it has been decided that this Department should give more attention to them. Accordingly, the Department, with the assistance of an expert on small industries development provided by the International Labour Organisation (ILO), has recently formulated and has already started implementing comprehensive development measures for assisting small industries. This comprehensive programme of assistance to small industries consists of:

(i) *The establishment of a Small-Industries Service Institute (SISI).* The main functions of this Institute are to render technical extension and advisory services to small private entrepreneur-industrialists, to train managers and skilled workers of small industries, to develop prototypes of simple machinery and equipment and to undertake techno-economic surveys of provinces in Thailand to find out what industries could profitably be set up and would be economically viable. It is planned that the Institute will be located in Bangkok and will later on have extension centres throughout the country. In the initial stage (the first five years), however, the Institute will concentrate its efforts in providing extension and advisory services to light engineering and textile industries in Bangkok and Thonburi areas only.

The Governing Council of the United Nations Special Fund in January 1965 approved a financial assistance amounting to US\$915,000 for the establishment and initial operation of the planned Institute. The Thai Government's counterpart contribution will amount to the equivalent of US\$1,287,000. The Special Fund will provide expert services, fellowships, and imported machinery and equipment for the Institute's workshops. On 25 March 1966, the plan of operation of the Institute was signed by the Minister of Industry and the representatives of the United Nations Special Fund and the International Labour Organisation which will act as the executing agency. A detailed work plan is now being actively prepared by officials of the Ministry of Industry with the assistance of an expert from the International Labour Organisation and it is expected that the Institute will become operational in 1967.

To prepare for the establishment of this Institute, 15 Thai graduates from local technical institutes were sent to India in July 1964, under the Colombo Plan fellowship grants and with the co-operation of the Government of India, for one to two years training in special subjects, namely, pattern making, foundry work, machine shop practice, forging and blacksmithy, heat treatment, electroplating, tool and die making. All of these trainees except one have already returned to Thailand and ten of them have been subsequently sent to Taiwan for further training for one year in their specialized fields under USOM/AID grants, together with two new graduates from technical institutes who will be trained in machine shop practice under the same grants. Of the four trainees remaining in Bangkok, two will soon be sent under USOM/AID grants to Taiwan for further training in electroplating, and two will be sent to either Australia or England for further training in foundry work with the assistance of the International Labour Organisation. Eight more graduates from local technical institutes are now being selected for one year training in Taiwan, under USOM/AID grants, in forging, plastic moulding, sheet metal fabrication, non-ferrous foundry work, tool and die designing, textile chemistry and textile technology. At the same time, preparation is being made to send ten Thai university graduates, also under USOM/AID grants, to the United States of America for one to two years' training in industrial economics, industrial engineering, industrial design, electrical engineering and mechanical engineering. All these trainees on their return will be appointed technical staff of the Institute. In addition, the Department of Industrial Promotion some time ago recruited two economists and one engineer to form a team to be trained to undertake techno-economic surveys in six provinces in the north-eastern region of the country, namely, Konkaen, Udorn, Ubol, Sakonakorn, Roi-et and Mahasarakam. This field work is now in progress and reports on industry possibilities for these provinces are expected to be available soon.

The Cotton and Silk Experimentation Unit, which was established in the Department of Industrial Promotion in 1962 has been providing valuable technical extension services to private entrepreneurs in textile industry, such as giving training courses on dyeing and jacquard weaving. When the Small Industries Service Institute becomes operational, this Cotton and Silk Experimentation Unit will, in co-operation with the new Institute, continue to render training to small textile undertakings in improved methods and adaptation of fabric designs from machine and hand looms.

(ii) *The provision of credit facilities for small industries.* In order to make low-interest credit facilities available to industries, a government loan of 10 million baht a year for the three years starting from the 1964 fiscal year has been made by the Thai Government for this special purpose to two local commercial banks, namely, the Agricultural Bank and the Provincial Bank,¹ at the very low interest rate of 3 per cent per annum. The banks will contribute another 10 million baht each year and then loan out the total of 20 million baht each year to deserving small industries at an interest rate of 9 per cent per annum. For the purpose of screening applications submitted by prospective borrowers to the banks, a Loan Office for Small Industry Development was established in the Department of Industrial Promotion in March 1964. This Office makes a technical assessment of each application and submits its recommendation concerning the application to a Loan Board for final decision. This Loan Board is composed of the Director-General of the Department of Industrial Promotion as chairman, representatives of the Ministry of Finance, the National Economic Development Board, and the Budget Bureau, and the managers of the two banks.

The Government hopes that this pilot credit facilities project will enable local commercial banks to gain experience and confidence, so that similar credit facilities for small industries can be undertaken by the banks themselves without government participation in the future.

(iii) *The establishment of industrial estates.* In order to provide industries, small, medium as well as large, with suitable and reasonably priced land complete with necessary services and facilities, the establishment of industrial estates near and around Bangkok and Thonburi and in other important towns is planned by the Thai Government. For the Bangkok and Thonburi area, where a large industrial estate is urgently required, a feasibility survey agreement, authorized by the Thai Government, was signed by the Ministry of Industry with the International Development and Engineering Associates, an American company, in 1963. A feasibility survey report was submitted by this Company to the Thai Government

some time ago and is now being studied by competent Thai officials.

In addition, a working group constituted by the Ministry of Industry has not very long ago completed its study of how best to utilize the large piece of land, about 1,000 acres, situated about 40 kilometres north of Bangkok, which the Ministry has previously acquired, to provide factory space for existing industries as well as new ones, and has already submitted its findings and recommendations to the Ministry. The Thai Government has recently given its approval to these recommendations, and the Ministry is now waiting for funds to be made available for their implementation. In the meantime, the Ministry of Industry is sending a request to the United Nations Development Programme (UNDP) for high-level experts to come and undertake pre-investment survey for the establishment of an industrial estate for small industries in Bangkok and Thonburi.

It is contemplated that within the next decade several industrial estates in different locations of the country will be set up.

(iv) *The creation of a small-industries marketing centre.* Lack of proper marketing facilities is often a serious problem encountered by small industries. To maintain a reasonable and economical volume of production, an extensive marketing programme must be ensured, which, unfortunately, very often is beyond the reach of small industries. Therefore, in order to assist small industries in the marketing of their products, a marketing organization is necessary. The Department of Industrial Promotion is at present actively studying a proposal made by an ILO expert on handicraft design and marketing, for the establishment of a Small Industries Marketing Centre. It is proposed that the functions of the Centre include the following:

- a) undertaking promotional campaigns including market research and creative services, such as preparing and publishing illustrated catalogues and pamphlets of products for wide distribution, with a view to speeding the flow of productions between manufacturers and buyers for their mutual benefit.
- b) creating new product designs closely related to market requirements and production capabilities;
- c) assisting in aggressive selling, including realistic pricing and displaying of products;
- d) taking large orders for the products of small industries and handicrafts from customers in the country and abroad, and dividing these large orders among a number of small industry units, keeping in view the capacity of each unit;
- e) supplying, if required, raw material of the correct specifications, bought in bulk, to small industries, to meet the orders taken;
- f) inspecting products during the process of

¹ On 14 April 1966 these two banks were merged into one, the Krung Thai Bank.

manufacture and on completion of manufacture;

- g) collecting, warehousing, and transporting the finished goods for delivery to customers;
- h) in the case of exports, assisting in the documentation, packing, shipping and expediting.

Apart from the above activities, the Department of Industrial Promotion in 1963 set up an Industrial Design Centre. The main function of this Centre is to serve as an institution for the design of traditional and contemporary handicraft and industrial products. Its staff of designers are graduates from Thai universities who have received their post-graduate training in industrial and graphic design, supervised by an International Labour Organisation expert on handicraft design and marketing. These designers are now capable of developing new designs for products in ceramics, wood, lacquer, silver, bronze, glass and plastics. Their services are available to local manufacturers without charge. In September 1964, the first Industrial Design Exhibition was organized by the Centre as a part of its activities. Seven industrial establishments participated in this Exhibition by sending some 70 new designs. The second Industrial Design Exhibition organized by the Department in September 1965 met with such a success that it has now been decided to organize this Exhibition every year in the future.

The Department of Industrial Promotion has also paid much attention to the development and improvement of existing cottage industries. Groups of officers were sent up-country regularly to study the present production techniques of rural artisans and to assess market possibilities for different products made by them. Improved production techniques are afterwards investigated with a view to increasing production, improving the quality of products and lowering their cost of production. Up to now, five cottage industries, namely, pottery, blacksmithy, basketry, hand-made paper, and handloom weaving, have been studied in this way. Since the beginning of 1964, 14 locations in the north and north-eastern regions of the country have been selected by the Department for demonstrating new and improved production techniques in the five selected industries to rural artisans. At this stage, it is premature to make an assessment of the impact made by these demonstrations; however, from the reports on the follow-up made by officials of the Department, there is an indication that the new techniques introduced are being adopted by the people concerned.

(b) *The Department of Science.* The main function of this Department is to serve as a central scientific centre for the country and to maintain and operate a modern laboratory for chemical, physical and technical work. This Department analyses food-stuffs and beverages and controls food quality to ensure public safety. It assists the general public and private industries in technical matters, including making scientific analyses for them and giving them technical information and consulting services. It co-

operates with the Department of Industrial Promotion in analysing and certifying domestically produced goods with a view to popularizing Thai goods both at home and abroad. As a part of this work, the Department has started drawing up industrial standards for locally manufactured goods. One of them, namely, standards for flashlight batteries, has been in use for some time and is now undergoing revision. Other standards which are being prepared at present include those for soft-drink bottles with crown cork stopper, wet batteries, round steel bars, cans for canned food, tin plate, canned food, fish sauce, sauce in which proteins are extracted by a chemical process, mono-sodium glutamate, table salt, lard rice-bran oil, drinking water, distilled water for industry, citronella oil, gunny bags, electric lamp bulbs, electric wire and cable, and PVC pipe. Another important duty of this Department is to conduct scientific research and technical investigations on the best utilization of the country's natural resources. Until the beginning of 1964, this Department was the only government organization in the country to conduct practical industrial research. A number of industries are now making use of its results and findings. Another activity of this Department is the training of students in applied science, especially in analytical chemistry, in order to help satisfy the need of government agencies, factories and other private organizations for practical chemists. Its Chemistry Institute created for this training purpose is now academically attached to the Chulalongkorn University and offers a diploma course in Practical Chemistry of three years' duration.

(c) *The Thailand Management Development and Productivity Centre (TMDPC).* The Government of Thailand has long recognized the importance of improving the productivity of the fast-growing industrial sector of the country's economy. Not only can the gross national product be increased by new investment but, what is perhaps even more important, existing investment in factories and production equipment can be used with greatly increased efficiency. With the over-all objective of raising the standard of living of the people through increased productivity, especially in industry, an agreement to establish the Thailand Management Development and Productivity Centre was signed by the Government of Thailand, the United Nations Special Fund and the International Labour Organisation (ILO) in January 1962. The objective of the Centre is to improve the utilization of all the resources used in industry and commerce including men, materials, machines and money. The establishment of the Centre was a continuation of the work carried out by the Ministry of Industry from 1957 to 1962 in connection with TWI supervisory training and productivity, with the assistance of the International Labour Organisation under the United Nations Technical Assistance Programme.

The present agreement provides for United Nations Special Fund assistance to establish the Centre over a period of five years. The ILO, as the executing agency for the United Nations Special Fund, has provided a team of six experts to act as advisers in running training courses in various management subjects. After the Special Fund assistance period is completed, the work of the Centre will continue with all activities conducted by the trained national staff.

The Special Fund allocation for the Centre's first five years of operation amounts to US\$588,900 and the Thai Government's counterpart contribution for the same period totals the equivalent of US\$272,3000.

The essential objective of the Centre is to raise the standard of management and productivity in Thailand by training all levels of management in the use of effective management methods and techniques; by carrying out short consultative assignments on specific problems; by providing information through publications, books and films; and by working closely with other national and international organizations that can augment these efforts. The training given covers all aspects of management skills and techniques including production, marketing, finance, personnel and general management. An initial period of theoretical training at the Centre is followed by a longer period of practical project work which the participants undertake at their own place of work. This consists of solving some real and specific problem under the guidance of the teaching staff of the Centre. Finally a short seminar is held at which the participants present their projects for general discussion and make plans for further practical application of the principles they have learned.

2. The Board of Investment

This Board was first created in April 1959 to render assistance to industrial entrepreneurs and investors under the provision of the Act on the Promotion of Industries, B.E. 2497 (1954). In February 1962, this Act was replaced by the Promotion of Industrial Investment Act, B.E. 2505 (1962) and the establishment of the Board of Investment was redefined in section 6 of the new Act, which has, in its turn, been amended by a later Act of 1965 destined chiefly to streamline the Board's organizational set-up and expedite its processing activity. Sections 6, 7 and 11 of the "Promotion of Industrial Investment Act B.E. 2505 (1962)" read as follows:

"Section 6. There shall be a Board of Investment which shall have the powers and duties relating to promotion of industrial investment as defined herein. It shall consist of the chairman and other members, not exceeding fourteen in number, who shall be appointed by the Cabinet. (The composition of the Board has been notified by the 1965 Act.)

The Cabinet may appoint other persons, not exceeding seven in number, to be advisers of the Board.

The Board may appoint any person to be its secretary." (In the 1965 Act appointment of the Secretary-General, as well as his deputy and assistant is provided for.)

"Section 7. A member or adviser of the Board shall hold office for a term of two years.

A retired member or adviser of the Board may be reappointed."

"Section 11. There shall be an Executive Committee' of the Board of Investment, consisting of the Chairman of the Board of Investment as Chairman and other members not to exceed six in number to be appointed by the Cabinet, which shall perform such duties as authorized by resolution of the Board and other administrative functions.

the Executive Committee may appoint any person to be its secretary;

an executive member shall remain in office for a term of two years;

a retired executive member may be reappointed."

Sections 15, 16 and 17 of the Act delineate the duties of the Board as follows:

"Section 15. Anyone desiring to be a promoted person under this Act shall file an application with the Board according to the form and procedures prescribed by the Board." (In the 1965 Act an application is received by the Secretary-General of the Board.)

"Section 16. Upon receipt of an application under section 15 and determination by the Board that the applicant should be a promoted person under this Act, it shall issue a promotion certificate to the applicant.

In issuing a promotion certificate to an applicant who applies for expansion of an industrial activity, the rights and benefits granted to the applicant shall be limited to that part of the industrial activity so expanded.

The promotion certificate shall be in the form prescribed by ministerial regulation and signed by the Chairman of the Board."

"Section 17. In issuing a promotion certificate to a promoted person granting the rights and benefits under this Act, the Board shall have the authority to impose such conditions as it may deem necessary governing the exercise of such rights and benefits."

Apart from the above duties, the Board undertakes to give all assistance possible to entrepreneurs and investors in "promoted industries", and carries out promotional work to encourage foreign as well as domestic investment in new industries.

It must be mentioned here that when the Act

¹ This body was abolished by the Promotion of Industrial Investment Act (No. 2) B.E. 2508 in 1965 and "the Office of the Board of Investment" is substituted for "the Executive Committee" in every case where the latter appeared in 1962 act.

of 1962 was amended in January 1966 by the "Promotion of Industrial Investment (No. 2) Act, B.E. 2508" (see also page 50), some amendment was made to section 6 of the Act of 1962 resulting in a change in the composition of the Board of Investment. Section 6, as amended in 1966, now reads as follows:

"Section 6. There shall be a Board of Investment, B.O.I. for short, which shall have the powers and duties relating to promotion of industrial investment as defined herein. It shall consist of a chairman, a vice-chairman and other members, not exceeding sixteen in number, who shall be appointed by the Cabinet, and the Secretary-General of the Office of the Board of Investment shall serve as member-secretary to the Board.

The Cabinet may appoint other persons, not exceeding seven in number, to be advisers of the Board."

Since in the amendment of 1966 the Executive Committee of the Board of Investment of the Act of 1962 was abolished and the Office of the Board of Investment was created in its place to handle the affairs of the Board, and application for promotion must now be submitted to the new Office.

3. The Industrial Finance Corporation of Thailand

The establishment, by a special charter, of the Industrial Finance Corporation of Thailand (IFCT), a financial institution for rendering long-term credit facilities to prospective industrialists, is one of the many important measures taken by the Thai Government to encourage and expedite industrial development. Under the provisions of the "Industrial Finance Corporation of Thailand Act, B.E. 2502 (1959)", the objectives of this Corporation are as follows:

- a) to assist in the establishment, expansion, or modernization of private industrial enterprises;
- b) to encourage the participation of private capital, both internal and external, in such enterprises.

The Corporation is empowered to provide finance in the form of long- and medium-term loans, with or without security, or by purchasing or subscribing for shares or other securities, or by acquiring any other interest, as well as to underwrite issues of shares or other securities and to guarantee loans from other private sources.

The Corporation is privately owned and controlled, and will deal only with private industrial enterprises, especially the medium-sized establishments. An enterprise with government participation to the extent of over 10 per cent of its registered capital is not eligible for assistance by the Corporation.

Although the authorized capital of the Corporation is 100,000,000 baht, the actual outstanding capital of the Corporation at present amounts to only 30,000,000 baht, divided into 30,000 shares each having a par value of 1,000 baht. These shares are

at present being held by Thai and foreign investors as shown in table 19.

TABLE 19. THAI AND FOREIGN SHAREHOLDERS OF THE INDUSTRIAL FINANCE CORPORATION OF THAILAND

Name of shareholder	Number of shareholders	Number of shares	Percentage of total
A) Thai			
The Agricultural Bank Ltd.	1	4,027	13.43
Other banks	15	6,093	20.31
Insurance companies	20	1,290	4.30
Private corporations	3	111	0.37
Private individuals	18	1,294	4.31
Total Thai Shareholders	57	12,815	42.72
B) Foreign			
Banks with branches in			
Thailand	10	8,031	26.77
Other banks	4	4,400	14.67
Private corporations	3	754	2.51
Total foreign shareholders	17	13,185	43.95
C) International Finance Corporation (A World Bank affiliate)			
	1	4,000	13.33
Total Shareholders	75	30,000	100.00

When the ICFT first came into existence in 1959, the Government of Thailand financed it with an interest-free loan of 13,732,684 baht from the proceeds of the liquidation of the government-owned Industrial Bank. In October 1962, a sum of 20,000,000 baht from the 1962/1963 budget appropriation was added to its resources as a long-term loan by the Government. The Corporation has also obtained a 30-year interest-free loan of 15,000,000 baht from the United States of America's local baht currency funds, through the International Co-operation Administration, the predecessor of the Agency for International Development.

At the end of 1962, the Thai Government amended section 23 of the Industrial Finance Corporation of Thailand Act of 1959 so that the limit of government guarantee in respect of ICFT's loan from abroad is raised from 40 million baht to 200 million baht.

On 20 December 1963, a loan agreement was signed by the Corporation with the Kreditanstalt für Wiederaufbau of the Federal Republic of Germany for a loan of 53,648,167 baht in foreign currencies for financing imported machinery and equipment before the end of 1968. On 11 March 1964, a similar loan agreement, but this time to the total amount of 50,000,000 baht, was signed with the International Bank for Reconstruction and Development (World Bank) for financing imported machinery and equipment before 3 April 1967. These two external loans bear a fixed interest of 5½ per cent per annum and will mature in 15 years.

The Corporation's present total resources, including reserves, amount to about 209 million baht. It had, however, committed a total of 131,969,000

baht in 61 loans to 50 private industries, up to the end of March 1966.

Normally the ICFT will not consider loans for an amount lower than 500,000 baht because the expense incurred in examining loan applications and in administering this amount of loan is considered to be out of proportion to the possible returns. In addition, the Corporation will commit to no single enterprise an amount greater than 15 per cent of paid-in share capital and reserves plus quasi-equity, and will commit to no single enterprise in the form equity more than 10 per cent of paid-in share capital and reserves. Moreover, the total of all the equity investments made by the Corporation shall not exceed its paid-in share capital and reserves.

The Corporation has prescribed the following procedures for prospective borrowers to follow in approaching the Corporation for loans. First, the applicant will have to discuss the loan broadly with the Project Officer of the Corporation so that the Project Officer will be able to determine whether the applicant can be considered creditworthy and whether further study will be worthwhile. If the Project Officer is satisfied, then the applicant can submit a preliminary application giving more detailed information on this project. The detailed information will be assessed to find out whether the project is worthy of assistance and whether a comprehensive study is warranted. If the assessor is satisfied with the project, the applicant will be asked to submit his final application. The Loan Operations and Engineering Departments of the Corporation will make comprehensive studies of the project and a Project Manager will be assigned by the Corporation for the project. If the Project Manager is of the opinion that the project is a good loan prospect, he will submit a detailed report recommending it to the General Manager of the Corporation. After having reviewed the report of the Project Manager, the General Manager will submit it for the consideration of the Executive Loan Committee. If the Committee is satisfied, then the Board of Directors of the Corporation will be requested to approve the loan.

4. *The Applied Scientific Research Corporation of Thailand*

This Research Corporation was established by the Thai Government in 1964. The principal responsibility of the Corporation is to undertake scientific research to solve problems of national importance in natural resources, agriculture, industries and administrative services of the country, including health and nutrition, and to provide basic scientific information needed for national development plannings.

Under the charter of the Corporation, the management of the Corporation is in the hands of a Board which consists mainly of scientists. The Board functions as a central executive body deciding on policy and direction of research programmes.

The Corporation is expected to include several specialized research organizations. Initially, however, the Board has approved plans for the three following research institutes:

- (i) The Technological Research Institute.
- (ii) The Agricultural Research Institute.
- (iii) The Nutrition and Food Sciences Research Institute.

So far, only the Technological Research Institute (TRI) has been established within the Corporation, the other two Institutes are still being planned.

The United Nations Special Fund is providing financial assistance for the first five years of the TRI's operation totalling US\$778,200, and the Thai Government counterpart contribution to this amounts to the equivalent of US\$3,083,000. The Special Fund will provide the services of research leaders, special research equipment and supplies, and fellowships for training abroad. The Government of Australia is also providing assistance in terms of expert services under the Colombo Plan.

The TRI will be organized, initially, to include the following groups:

(a) *Industrial Chemistry Group*. This group will be responsible for the investigation of local plant materials and the development of industrial applications, and will first concentrate on adapting already developed processes suitable for plant materials, such as in vegetable oil extraction, starch technology, production of pharmaceuticals, particularly those which can be extracted from local plants, and production of perfumes and flavouring materials.

(b) *Minerals and Metallurgy Group*. This Group will initially concentrate on mineral beneficiation, process metallurgy and applied metallurgy. The mineral beneficiation team will work in close co-operation with the Department of Mineral Resources and will concentrate on problems which arise in the treatment and beneficiation of local ores. The process metallurgy and the applied metallurgy teams will be concerned with the transformation of mineral deposits into marketable products and will concentrate on problems occurring in the manufacturing of metal products.

(c) *Materials of Construction Group*. The initial activity of this group will be confined to three main areas, namely, the improvement of the quality and flexibility of clay products, such as bricks, glazed pipes and tiles, the increasing production and utilization of gypsum products, such as wall boards and fibrous plaster products in building construction, and the utilization of lime as a basis for new products, such as sand-lime bricks and road construction materials.

(d) *Fibres and Textiles Group*. The work of this Group will be initially confined to improving the techniques of extraction of fibres from kenaf, and will later be extended to include the technology of cotton.

TABLE 20. NUMBER OF REGISTERED FACTORIES IN THAILAND, 1957-1965
(Classified by Type of Industry)

Type of industry	In Bangkok and Thonburi only										In the whole kingdom									
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1957	1958	1959	1960	1961	1962	1963	1964	1965		
1. Rice mill	108	115	127	134	141	143	143	146	166	4,589	4,634	4,915	6,704	11,919	12,605	14,092	14,605	22,789		
2. Saw mill	304	312	314	314	314	315	315	287	287	478	487	489	560	664	671	697	701	706		
3. Ice factory	36	37	39	41	41	41	41	40	40	113	122	129	170	229	242	270	290	300		
4. Glass factory	23	25	26	26	26	26	26	26	26	23	25	26	26	29	29	29	27	27		
5. Match factory	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	9	9	9		
6. Printing shop	359	420	481	501	560	603	651	625	716	425	486	553	603	695	750	819	847	937		
7. Aeration water factory	41	42	42	42	42	42	44	35	35	70	71	73	83	98	99	112	107	107		
8. Vegetable oil pressing mill	34	34	35	36	38	38	38	35	35	43	43	44	45	51	54	66	64	67		
9. Dyeing factory	63	74	85	85	86	86	84	84	84	92	107	118	122	124	127	133	137	140		
10. Tannery	128	132	133	133	133	133	133	3	3	129	133	135	135	181	186	190	59	59		
11. Soap factory	8	10	12	12	12	12	13	13	13	8	10	12	12	12	12	13	13	13		
12. Hand weaving mill	355	358	361	364	373	384	391	361	364	569	373	376	379	389	415	424	401	404		
13. Foundry or metal-turning shop	670	822	939	974	1,008	1,035	1,068	1,134	1,188	765	917	1,058	1,123	1,230	1,275	1,358	1,463	1,574		
14. Dock for building and repairing motor or steam boats	26	30	31	31	37	38	44	46	50	62	66	67	70	81	82	89	105	115		
15. Truck-body building plant	8	9	11	14	17	19	21	23	25	35	37	43	48	62	68	82	97	113		
16. Machinery repairing shop	227	249	258	267	280	300	312	303	315	307	329	343	315	421	453	486	530	555		
17. Blacksmith shop	—	—	—	—	—	—	—	—	—	2	2	2	2	2	2	2	2	2		
18. Mechanized factory for producing, assembling, or repairing engines, electric motors, or electric generators	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
19. Factory using electricity or gas for welding, galvanizing or plating metals, other than silver, gold, gold alloy or platinum	11	15	18	18	20	21	21	22	25	45	49	53	56	79	80	98	103	117		
20. Metal smelting plant	211	288	354	387	442	481	519	543	595	224	301	368	412	481	523	580	619	685		
21. Chemical products factory (using electricity in the process)	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3		
22. Enamelware factory	—	1	1	1	1	1	1	1	1	—	1	1	1	1	1	1	1	1		
23. Sugar factory	12	12	12	12	13	13	13	12	12	13	13	13	13	14	15	15	14	14		
24. Glue factory	5	8	9	9	9	9	9	9	9	387	383	398	508	633	637	647	741	743		
25. Rubber products factory	62	77	99	101	115	128	135	143	153	5	8	9	9	10	10	10	11	11		
26. Lac or shellac factory	23	23	24	24	24	24	24	24	24	68	83	105	117	151	166	191	204	221		
27. Paint and lined oil factory	4	7	10	11	13	17	18	20	21	40	40	41	42	43	43	44	44	44		
28. Alcohol distillery	1	1	1	1	1	1	1	—	—	4	7	10	11	13	17	18	22	24		
29. Mechanized gunny bag weaving mill	1	1	1	1	1	1	1	—	—	1	1	1	1	1	1	1	—	—		
30. Mechanized spinning factory	35	42	53	56	63	67	69	60	61	3	3	3	3	3	3	5	3	4		
31. Mechanized rope factory	10	12	14	14	16	17	17	17	21	35	42	53	56	64	69	72	63	65		
32. Mechanized paper factory	1	1	3	4	4	4	4	6	6	15	17	19	19	21	22	23	25	32		
33. Gas compressing factory	5	5	5	5	5	5	5	5	5	3	3	5	6	6	6	6	9	9		
34. Liquor or vinegar distillery or brewery	5	5	5	5	5	5	6	4	4	5	5	5	5	6	6	7	7	7		
35. Canned food factory	29	33	34	35	38	42	42	43	43	13	13	14	14	17	18	20	20	21		
										30	34	35	41	44	48	48	49	50		

Type of industry	In Bangkok and Thonburi only										In the whole kingdom									
	1957	1958	1959	1960	1961	1962	1963	1964	1957	1958	1959	1960	1961	1962	1963	1964				
103. Toothbrush factory	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
104. Animal hair bleaching factory	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
105. Mechanized cold storage plant	7	14	17	19	20	23	25	30	37	37	19	23	28	33	40	50				
106. Commercial electric power generating plant	—	—	1	1	1	1	1	1	1	52	53	81	109	109	128	129				
107. Waterworks	—	—	—	—	—	—	—	—	—	1	1	4	5	5	5	5				
108. Automobile assembling or repairing factory	45	116	161	178	235	267	292	287	314	81	152	253	371	407	474	504				
109. Communication radio, radio, television or amplifier assembling or repairing factory	30	91	132	147	171	197	216	232	248	43	104	150	175	210	243	311				
110. Mechanical laundry plant	2	5	9	11	12	15	21	16	17	2	5	11	13	16	22	18				
Total	4.166	5.469	6.634	7.018	7.740	8.307	8.857	9.004	9.768	10.409	11.760	13.301	16.005	23.060	24.555	27.311				

Note: For 1957-1959, the figures for the whole kingdom are for Bangkok and Thonburi and 27 provincial towns only.
 For 1960, the figures for the whole Kingdom are for Bangkok and Thonburi and 43 provincial towns only.
 For 1961-1964, the figures are for the whole kingdom, i.e., for Bangkok and Thonburi and 69 provincial towns.
 In 1957, 67 more types of factories were decreed to come under the Act, making a total of 110 types under control from 1957 onwards.
 Source: Ministry of Industry.

It is contemplated that the TRI will later on work closely with the Small Industries Service Institute (SISI) of the Ministry of Industry in bringing useful technological information and giving assistance and advice to entrepreneurs in small industries.

It is planned that a number of auxiliary scientific services will be provided by the Applied Scientific Research Corporation of Thailand to the country's scientists as well as to other research and industrial institutions. They will be in the form of:

- (i) Thai National Documentation Centre.
- (ii) National Reference Standards Laboratory.
- (iii) Instrument Repair and Calibration Centre.
- (iv) Centre for Thai National Standard Specifications.

So far only the first of these, namely, the Thai National Documentation Centre, has been established, the others being still in the planning stage.

b. Results and problems

Results achieved in the promotional efforts made by the organizations described in (a) above and the problems faced by them can be summarized as follows:

1. The Ministry of Industry

The success or otherwise of the industrial promotional activities of the Ministry of Industry can be assessed in general terms by the number of factories registered with the Ministry, as shown in table 20. For the Bangkok and Thonburi area alone, where factory registration has been enforced since 1929, the number of registered factories has increased steadily; during the last six-year period, 1960-1965, the increase averaged 7.5 per cent. In the other 69 provinces of the kingdom the increase has been appreciably greater than that in Bangkok and Thonburi. During the last four-year period, 1962-1965, the increase in the number of registered factories for the whole Kingdom, including Bangkok and Thonburi, averaged 8.5 per cent.

Although in the established industries, in the mining sector as well as in the manufacturing sector, production has been climbing for some time, this rise has become more marked during the last few years. The contribution by the various sectors of the mining industry, especially tin mining, to the country's economy, increased significantly during the last six years. In the same period, in the manufacturing sector, production in some important local industries has climbed markedly, resulting in a sizable saving of foreign exchange. Gunny bag production, utilizing local raw material, has increased so rapidly during the last six years that it has now exceeded the country's requirement. Local sugar production also has increased to such an extent that during the past few years a great effort has had to be made to export the surplus. Cement production has increased enough not only to keep pace with the increased local demand

caused by a construction boom, but also to allow sizable exports to be made. The greatest increase in production and activity has been in the textile industry, in which not only finer yarns and finer materials such as poplins and white shirtings are now being produced in greater quantities, but many new finishing plants are also being established.

In the field of credit facilities for small industries, from the establishment of the Loan Office for Small Industry Development in March 1964 to the end of March 1966, a period of just over two years, 257 applications were received by the Loan Office for loans totalling 74,937,538 baht. Of these applications, 17 were withdrawn by the applicants and 42 were rejected by the Office before assessment of securities and collaterals had been made by the banks, because these applications did not comply with the regulations of the office. Of the 189 applications sent to the two banks during the period for security assessment, the banks had already been able to complete the examination of 186. Of these 186, 156 were found to have sufficient securities and collaterals and 30 were rejected. Of the remaining 156 applications, 104 were finally approved, 18 were rejected by the Loan Board and eight were withdrawn by the applicants. Of the 104 applications so far approved, five were subsequently withdrawn by the applicants. The 99 loans approved and remaining total 22,712,000 baht. Of this total amount, about 38.7 per cent will be used as working capital, 38.0 per cent for the purchase of machinery and equipment, 17.3 per cent for the erection of new or the expansion of existing factory buildings, and the remaining 6.0 per cent for the acquisition of land and other miscellaneous items. Of the 99 borrowers, 70 have their industrial establishments outside Bangkok and Thonburi area. Table 21 shows in detail these 99 loans.

Since the establishment of the Department of Science in 1934, the Department has successfully undertaken several industrial research projects including the following:

(i) Development of the alum production process for domestic water supply.

(ii) Quick processes for manufacturing fish sauce and vinegar.

(iii) Preparation of special glues and starch paste.

(iv) Production of water repellent used in shaving-board production.

(v) Improvement of the quality of locally produced solar salt.

The improvement of the quality of Thai solar salt can be quoted as a good example of the Department's contribution to local industries. Before 1964, the quality of solar salt produced in this country was considered poor by foreign buyers. The discovery by scientific research, undertaken by the

Department's scientists, of the cause of this shortcoming was rather unusual, yet the solution found is most simple. During the 1964 salt-producing season, this new method of quality improvement was tried in the field, and about 5,000 tons of high quality salt with purity ranging between 90 and 96 per cent were obtained with very little additional cost. Without this new method the purity of the salt produced would be only about 85 per cent. In this work the Department was not only acting as a trouble-shooter for the industry and giving advice regarding the remedy, but actually supervised and helped the local salt-makers in using the new improved method.

TABLE 21. DETAILS OF LOANS TO SMALL INDUSTRIES APPROVED BY THE LOAN OFFICE UP TO THE END OF MARCH 1966

Type of industry	Number of applications approved	Amount of loans approved (baht)
1. Weighing and measuring instrument manufacturing	1	150,000
2. Farming equipment manufacturing and repairing	1	30,000
3. Tractor plough components manufacturing	1	300,000
4. Machine and engine repairing	3	700,000
5. Boat building and repairing	2	320,000
6. Construction equipment manufacturing and repairing	2	945,000
7. Motor vehicle repairing	3	890,000
8. Lock and key manufacturing	1	350,000
9. Lead casting and metal plating	2	550,000
10. Metal plate printing	1	499,000
11. Iron plough casting	3	550,000
12. Nielloware manufacturing	2	650,000
13. Bronzeware manufacturing	2	217,000
14. Silverware manufacturing	3	410,000
15. Pin and paper-clip manufacturing	1	480,000
16. Gravel mining	1	150,000
17. Cement concrete products manufacturing	1	150,000
18. Wood preserving oil blending	1	80,000
19. Paint manufacturing	1	200,000
20. Stone crushing	6	1,820,000
21. Construction brick manufacturing	7	1,721,000
22. Wood door and window manufacturing	7	1,721,000
23. Cotton fabric weaving	1	50,000
24. Cotton fabric weaving	17	5,350,000
25. Silk fabric weaving	1	100,000
26. Silk fabric weaving and printing	1	300,000
27. Textile fabric finishing	2	400,000
28. Batik fabric printing	1	350,000
29. Leather tanning	3	500,000
30. Leather shoe manufacturing	2	120,000
31. Electric porcelain insulator manufacturing	1	300,000
32. Ceramicware manufacturing	1	300,000
33. Earthenware manufacturing	1	50,000
34. Curry powder making	1	30,000
35. Air-line catering	1	495,000
36. Fish sauce making	3	300,000
37. Soyabean sauce making	1	300,000
38. Fruit jam making	1	60,000
39. Tapioca flour milling	1	450,000
40. Tapioca chip mking	2	300,000

10. Dry cleaning chemical manufacturing	1	27,000
11. Talcum powder making	1	120,000
12. Mosquito-repellant stick making	2	136,000
13. Silk screen making	1	60,000
14. Wood carving	1	330,000
15. Soap-stone carving	1	30,000
16. Gem cutting	1	50,000
17. Reed mat weaving	1	80,000
18. Transistorized radio set assembling	1	200,000
19. Thai pharmaceutical products manufacturing	2	612,000
20. Rubber products manufacturing	1	150,000
Total	99	22,712,000

Source: Loan Office for Small Industry Development.

In previous years, industrial research carried out by the Department of Science was confined mostly to the efficient utilization of the country's raw materials, the improvement of production method, pilot plant trials, and the formulation and application of industrial standards. Some work, however, has been undertaken in quality control, marketing research, feasibility investigation, and design and productivity studies. Progress has recently been made in the development and use of local raw materials, especially for the paper, ceramic, and dry battery industries. Other local raw materials suitable for many industries are now being investigated by the Department. Some start has also been made by the Department regarding the development of industrial standards and specifications. Many testing machines and instruments have been installed, and a sizable collection of foreign standards and specifications has been acquired.

A shortage of competent research staff is one of the serious problems faced by the Department of Science. Relatively few of local graduates in science have the ability to carry out satisfactory research work. Those who have research qualifications are usually foreign-trained graduates with higher degrees, and, unfortunately, there are not enough of them available at present.

In the field of management and productivity training, from the establishment of the Thailand Management and Productivity Centre in January 1962 to the end of March 1966, the Centre has conducted over 315 training courses and seminars. Nearly 3,000 participants from some 380 private and government enterprises attended. Of these enterprises, approximately 35 per cent are manufacturing enterprises, 30 per cent are commercial or merchant houses, and the remaining includes transport, banking, insurance, public utilities and educational institutions. About 65 per cent of these enterprises are privately owned. The number of courses conducted and the number of participants attending them in each year are given below:

Year	Number of courses	Number of participants
1962	16	206
1963	55	646
1964	50	673
1965	72	1,100
1966 (January-March) ..	23	315

The subjects covered in these training courses include:

Production management

Production Cost Reduction — Work Study
Production Planning and Control
Plant Layout

Marketing

Sales Management
Marketing Research
Advertising, Sales Promotion and Public Relations
Sales Training
Salesmanship
Total Marketing

Management accounting

Cost Accounting and Budgeting
Financial Analysis
Inventory Control
Introduction to Cost Accounting and Cost Statistics
Cost Accounting and Control
Reports Forms for Government Enterprises

Personnel management

Supervisory Training (Job Instruction, Job Relation, Job Methods, Job Safety)
Leadership in Industry
Developing an Effective Work Force
Training Trainers in TWI Programmes
Advanced Supervision
Developing Training Director

General management

Efficient Company Organization
Office Organization, Methods and Management
Top Management Conferences
General Management Course for Senior Executives
Management Data

In all these training courses emphasis is placed upon the importance of the practical application of theoretical knowledge. During the 1964 follow-up, visits were made to all previous participants of major courses in order to evaluate the status of the project work which they undertook, the current use being made of the techniques concerned, the difficulties encountered and the future plans for extending the practical implementation of the principles involved. These visits indicated that in general very good use had been made and was still being made of the training received.

The review of practical projects showed that, apart from the participants themselves gaining direct experience in the use of the techniques concerned, the companies where the projects were carried out also achieved benefits from the improved methods.

The Centre also undertakes consulting projects as one method of training its own technical officers. Furthermore, help is given to companies that conduct their own training programmes or need assistance to solve specific problems.

The Centre also provides a number of other services of which the following are examples:

The publication of a monthly magazine which contains articles on management and productivity in Thailand. Translations of foreign articles are also included. This has a wide circulation throughout the business and industrial community.

The operation of a management library of text books, periodicals and films.

The regular presentation of a radio programme every two months on technical management topics.

The provision of lecturers to educational institutions or to companies that run their own management training programmes.

The organization of Thai representation in overseas management conferences, seminars, training programmes and study missions. The Centre participates in, or acts as the national agency and secretariat for, the following organizations:

- Productivity Group (Government Enterprise)
- Thailand Management Association
- Asian Productivity Organization (APO)

In general it can be said that the Centre has done an impressive job in promoting better management practice in the country. Nevertheless, it has had its problems and, no doubt, will experience new ones as it continues to develop and extend its work. At the present the major cause for concern is the increasing difficulty in recruiting high-calibre staff.

2. The Board of Investment

The results achieved by the Board of Investment in the past few years in promoting industries in the

country have been discussed in chapters III and V, and details of the industries already promoted since 1957 have been already given in tables 5, 6, 8 and 18.

3. The Industrial Finance Corporation of Thailand

From its establishment on 6 October 1959 to the end of March 1966, a period of about six and a half years, the Corporation has approved 61 loans to 50 private companies totalling 131,969,000 baht (comprising 93,416,000 baht, 4,331,670 DM and US\$770,577) against which disbursements of 98,227,000 baht (comprising 72,665,511 baht, 2,009,098 DM and US\$ 726,713) have been made and 17,136,000 baht has been repaid to the Corporation. No record has been kept which would indicate accurately the number of loan applications which have been processed or considered, but a total of 8 loan applications for 30,400,000 baht which reached the stage of approval by the Board of Directors of the Corporation were later withdrawn by the applicants before any advances against them had been made and 2 loans were reduced by 494,000 baht by the Corporation before disbursement had been completed. At the end of March 1966 there were still 53 formal applications under consideration by the Corporation. The total amount requested in these 53 applications came to 202,455,000 baht; 128,101,000 baht for machinery, 57,345,000 baht for construction, 1,133,000 baht for land and land improvement, 5,695,000 baht for vehicles, and 10,181,000 baht for working capital. The following table 22 shows details of the 61 loans already approved by the Corporation.

4. The Applied Scientific Research Corporation of Thailand

Since this Corporation has only been recently established, it will not be possible to make any assessment of its working at this stage; nor can it be possible to predict now any difficulties that it will have to face. However, it can safely be said that one of the problems that the Corporation will sooner or later have to solve will be the difficulty of recruiting enough competent researchers for its staff.

TABLE 22. DETAILS OF LOANS TO INDUSTRIES APPROVED BY THE INDUSTRIAL FINANCE CORPORATION OF THAILAND UP TO THE END OF MARCH 1966

Date approved	Type of industry	Amount approved (baht)	Amount disbursed (baht)	Amount repaid (baht)	Balance outstanding (baht)
1960 Sept. 7	Ceramics	2,000,000	2,000,000	1,730,000	270,000
1961 Jan. 31	Chemicals	1,000,000	1,000,000	1,000,000	—
Apr. 19	Dry cell batteries	1,500,000	1,500,000	700,000	800,000
19	Auto parts	800,000	800,000	720,000	80,000
Jul. 20	Plastic products	1,500,000	1,500,000	1,500,000	—
Aug. 30	Gypsum products	2,400,000	2,400,000	1,020,000	1,380,000
Aug. 30	Pharmaceuticals	2,000,000	2,000,000	1,520,000	480,000
Sept. 27	Ceramics (second)	600,000	600,000	—	600,000
1962 Feb. 20	Auto parts (second)	600,000	600,000	—	600,000
Apr. 4	Steel rods	2,000,000	2,000,000	100,000	1,900,000
Apr. 4	Rubber sheets	700,000	700,000	—	700,000

	May	22	Tobacco curing	1,800,000	1,800,000	—	1,800,000
	Jul.	4	Cotton textiles	200,000	200,000	80,000	120,000
	Aug.	8	Plastic products (second)	1,000,000	1,000,000	1,000,000	—
	Sept.	19	Cotton and nylon twine	1,300,000	1,300,000	750,000	550,000
	Sept.	19	Tobacco curing	900,000	900,000	540,000	360,000
	Sept.	19	Wood flooring	2,000,000	1,880,000	1,250,000	630,000
	Nov.	2	Pharmaceuticals	500,000	500,000	500,000	—
	Nov.	2	Reed mats	400,000	400,000	200,000	200,000
	Dec.	26	Tobacco curing	500,000	500,000	100,000	400,000
	Dec.	26	Radio and television sets	2,000,000	2,000,000	1,200,000	800,000
1963	Feb.	7	Machine tools	2,000,000	2,000,000	250,000	1,750,000
	Feb.	7	Aluminium products	1,500,000	1,500,000	1,000,000	500,000
	Mar.	14	Seed oil extraction	300,000	300,000	176,000	124,000
	Apr.	11	Seed oil extraction	700,000	700,000	200,000	500,000
	May	9	Cold storage, deep freeze	4,000,000	4,000,000	800,000	3,200,000
	May	9	Ceramics (third)	500,000	500,000	—	500,000
	Jul.	25	Cotton textiles (weaving)	1,200,000	1,200,000	300,000	900,000
	Aug.	2	Soap and soap products	2,100,000	2,100,000	—	2,100,000
	Aug.	2	Toilet soap	200,000	200,000	—	200,000
	Oct.	10	Steel rods (second)	1,000,000	1,000,000	—	1,000,000
	Nov.	14	Electrical appliances	1,500,000	1,500,000	300,000	1,200,000
	Nov.	14	Seed oil extraction	1,500,000	1,500,000	—	1,500,000
	Nov.	14	Aluminium products	4,255,000	4,255,000	—	4,255,000
1964	Mar.	26	Cold storage, deep freeze	4,306,000	4,306,000	—	4,306,000
	Mar.	26	Cotton ginning	700,000	700,000	200,000	500,000
	Jun.	25	Tapioca flour	3,370,000	—	—	—
	Aug.	20	Milk products	8,000,000	7,815,000	—	7,815,000
	Aug.	20	Paper products	650,000	566,000	—	566,000
	Sept.	24	Steel pipe	5,408,000	5,408,000	—	5,408,000
	Sept.	26	Hotel	7,000,000	6,644,000	—	6,644,000
	Dec.	28	Paper and paper products	8,000,000	7,000,000	—	7,000,000
	Dec.	28	Cotton textiles	2,000,000	1,536,000	—	1,536,000
1965	Mar.	15	Tobacco curing	600,000	600,000	—	600,000
	May	13	Ceramics (fourth)	6,000,000	2,923,000	—	2,923,000
	May	13	Auto batteries	3,500,000	836,000	—	836,000
	Aug.	26	Wood drying	1,055,000	841,000	—	841,000
	Oct.	14	Seasoning (gourmet) powder	8,320,000	8,172,000	—	8,172,000
	Oct.	14	Cotton textiles (weaving) (second)	700,000	—	—	—
	Oct.	14	Pharmaceuticals	6,000,000	—	—	—
	Oct.	14	Steel wool	1,000,000	—	—	—
	Oct.	14	Redrying tobacco leaves	1,745,000	300,000	—	300,000
	Nov.	4	Animal feeds	500,000	500,000	—	500,000
	Nov.	4	Tractor assembling	1,660,000	—	—	—
	Dec.	30	Cotton textiles (second)	100,000	100,000	—	100,000
	Dec.	30	Electrical appliances (second)	1,500,000	1,500,000	—	1,500,000
1966	Feb.	7	Mining (tin ore)	1,100,000	810,000	—	810,000
	Feb.	21	Aluminium products (second)	2,080,000	—	—	—
	Feb.	21	Weaving	570,000	—	—	—
	Mar.	10	Cotton and nylon twine (second)	1,650,000	1,335,000	—	1,335,000
	Mar.	29	Corrugated iron	8,000,000	—	—	—
	Total (61 loans)			131,969,000	98,227,000	17,136,000	81,091,000

Note: Foreign currency loans are expressed in baht equivalents.

Source: Industrial Finance Corporation of Thailand.

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT

a. Manpower surveys

The latest population census which took place in 1960, showed the economically active population of eleven years of age and over, by type of activity, to be as shown in table 23.

It is evident from these figures that agriculture, which includes forestry, hunting and fishing, maintains its precedence in Thailand's economy. Workers in the manufacturing sector numbered less than five

hundred thousand, most of whom were non-Government employees and mainly self-employed persons. The percentage of employers was 1.8, and the proportion between employers and employees was 1:26.7.

The same census revealed the prevalence of manufacturing workers in the following industries, as shown in table 24.

Since industry in Thailand has been expanding at a very high rate during the past few years, it is certain that the results of the industrial census started in December 1963, which will be published soon, will show a considerable increase in the above figures.

TABLE 23. ECONOMICALLY ACTIVE POPULATION IN THAILAND IN 1960

Activity	Number of workers	As a percentage of total workers	As a percentage of total population
Agriculture, forestry, hunting and fishing	11,331,382	82.3	43.2
Mining and quarrying	29,568	0.2	0.1
Manufacturing	471,027	3.4	1.8
Construction, repair and demolition	68,813	0.5	0.3
Electricity, water and sanitary services	15,535	0.1	0.1
Commerce	779,904	5.7	2.9
Transport, storage and communications	165,939	1.2	0.6
Other services	655,271	4.8	2.5
Activities not adequately described or unknown	251,665	1.8	1.0
Total	13,772,194	100.0	52.5

Note: Total population 26,257,916.

Source: National Statistical Office.

TABLE 24. NUMBER OF WORKERS IN MANUFACTURING INDUSTRIES IN THAILAND IN 1960

Type of industry	Number of workers	As a percentage of total workers in manufacturing
Manufacture of Wearing Apparel, except Footwear	80,492	17.1
Manufacture of Wood and Cork, except Furniture	59,755	12.7
Manufacture of Food Preparations, not elsewhere classified	38,941	8.3
Manufacture of Grain Mill Products	37,024	7.9
Manufacture of Cordage, Rope and Textiles, not elsewhere classified	27,244	5.8
Saw Mills and Planing Mills	26,823	5.6
Manufacture and Repair of Motor Vehicles and Bicycles	21,900	4.6
Spinning, Weaving and Finishing of Textiles, not elsewhere classified	21,531	4.6
Other industries	157,317	33.4
Total	471,027	100.0

Source: National Statistical Office.

Working population surveys in the industrial sector in this country are still very restricted. Those known as employment market information surveys conducted by the Labour Bureau of the Department of Public Welfare are confined in scope, and cover only establishments employing ten or more workers in the Bangkok and Thonburi area. These surveys, which have been carried out during the past five years, do, however, throw some light on the prevailing situation of employment in industry in Thailand. Table 25 shows the results obtained in these surveys.

Apart from these surveys carried out by the Labour Bureau of the Department of Public Welfare, the National Statistical Office, in January 1963, undertook the first labour force survey and made available to government agencies and to the public, up-to-date information on labour supply and demand

in 120 municipalities throughout the country. The survey revealed that, out of an economically active population of 1,313,150 in all municipalities, 225,500, or approximately 17.2 per cent, were engaged in manufacturing industries. The ratio of the number of workers in manufacturing industries to the number of workers in all activities in both municipal and non-municipal areas was found to be 3.4 in the census. It is apparent that employment in the industrial sector is mostly found in municipal areas.

b. Forecast of the future needs for trained personnel

Manpower assessment and planning in Thailand is now the responsibility of the Manpower Planning Unit of the Office of the National Economic Development Board. This Unit, organized in 1963, has up to now concentrated its efforts on macro-economic demands for trained and educated manpower in terms of levels of educational or training attainment.

TABLE 25. NUMBER OF WORKERS IN DIFFERENT MANUFACTURING INDUSTRIES IN THE BANGKOK AND THONBURI AREA, 1961-1965

Type of industry	1961	1962	1963	1964	1965
No. of establishments visited	1,800	1,734	2,090	2,182	2,069
No. of workers in all activities	199,052	219,153	234,252	247,947	185,476
No. of workers in manufacturing	47,939	52,981	57,871	64,641	70,981
Food	4,030	4,906	4,621	6,983	7,641
Beverages	3,400	3,387	3,569	3,840	4,188
Tobacco	6,231	6,244	6,467	5,386	5,614
Textiles	7,839	8,663	9,828	11,409	14,753
Shoes and apparel	784	908	984	1,141	2,056
Wood products	3,984	4,129	4,666	4,955	4,397
Furniture	330	268	416	519	648
Paper	956	489	492	477	517
Printing and publishing	4,889	5,554	5,909	6,406	5,944
Leather	457	387	381	375	306
Rubber products	1,240	1,370	1,447	1,467	991
Chemicals	4,390	5,021	5,297	5,992	6,213
Clay, glass, cement, etc.	2,570	3,767	4,056	4,776	4,669
Basic metal	257	243	348	291	2,978
Metal products	3,089	3,719	4,792	5,109	3,102
Machinery	235	220	155	418	471
Electricity	996	1,383	1,604	1,945	3,118
Transportation and equipment	1,091	1,177	1,979	2,198	2,323
Miscellaneous manufacturing	1,171	1,126	860	954	1,022

Source: Department of Public Welfare.

The report "Preliminary Assessment of Education and Human Resources in Thailand" prepared by the joint Thai-USOM Human Resources Task Force in 1963, presents a careful analysis of the future manpower needs of the country. Much attention has been paid to the revision and improvement of the data and analysis of this report. These data are being used as human resources targets and

reference points for the purpose of educational planning and for the establishment of training programmes designed to meet the needs of the developing economy. In early 1965, an intensive investigation of the entire secondary educational system of Thailand, including the vocational educational system, was undertaken in co-operation with the Educational Planning Office of the Ministry of Education. For this investigation, the Manpower Planning Unit prepared a series of estimates of human resources needs at five, fifteen and twenty year points in the future. These needs are expressed in terms of levels of optimum educational attainment, by general content of educational programme. Distinction is made at primary, secondary, and university level of educational attainment between those requiring technical or scientific orientation in education and those requiring non-technical orientation. Consequent to this investigation, a report entitled "Current and Projected Secondary Education Programs for Thailand" has just been published by the Educational Planning Office of the Ministry of Education. Detailed estimates of employment by sector and by occupation, as well as useful information on manpower supply and demand, are given in this report.

A series of manpower assessment surveys to be conducted by, or for, the Manpower Planning Unit is in the planning stages. These are planned to be surveys in depth of the key sectors of economic activity including agriculture, industry, construction, and services. Short range forecasts of manpower needs on the basis of individual occupations will be incorporated in these surveys. The exact timing and content of such surveys cannot be described in detail at this early stage of research project planning.

The next cycle of the economic development plan for Thailand will cover the five-year period 1967-1971. Each of the project proposals to be considered for inclusion in this plan contains detailed information relating to manpower requirements. Information on needs for approximately thirty individual occupations for each of the years in the development period has been collected and assessed. In addition, information on total employment requirements by broad occupational group levels has been collected for appraisal and analysis. The majority of these projects relate to the creation of the economic infrastructures under the auspices of the Government, but the development projects of the public enterprises in the country are also included. This information will be contained in chapter VI, "Manpower and Employment", of the forthcoming five-year plan.

Table 26, based on data contained in the report "Preliminary Assessment of Education and Human Resources in Thailand" published in 1963 and revised on the basis of more recent information, presents forecasts of total employment in 1980, including military occupations, on two different assumptions regarding the capacity of the agricultural sector to absorb per-

sons in the labour force. In column A the assumption used is that, agriculture will provide employment for 70 per cent of the economically active population, while in column B, the assumption made is for an absorption in the agricultural sector of 74 per cent. For comparison, corresponding figures for actual total employment in 1960 are also given in the table.

As already mentioned, more refined forecasts, for example, by specific occupation, are now being prepared by the Office of the National Economic Development Board.

TABLE 26. ESTIMATED TOTAL EMPLOYMENT IN THAILAND IN 1980

Type of Activity	Estimated Total Employment in 1980		Actual total employment in 1960
	A agricultural absorption 70 per cent	B agricultural absorption 74 per cent	
Total economically active population	24,944,000	24,944,000	13,772,104
Agricultural workers (farmers, fishermen, hunters, loggers and related works)	17,460,800	18,458,600	11,332,489
Non-agricultural workers	7,483,200	6,485,400	2,439,615
Professional, technical and related workers ^a	598,600	518,800	173,960
Administrative, executive and managerial workers ^b	89,300	77,300	26,191
Clerical workers ^c	538,800	466,500	154,303
Sales workers	2,140,200	1,855,800	735,457
Miners, quarrymen and related workers	89,800	77,300	26,255
Workers in transport and communication occupation	449,000	389,100	144,610
Craftsmen, production process workers and labourers	2,529,300	2,192,600	806,205
Service, sports and recreation workers	823,200	713,400	273,375
Workers not classifiable by occupation ^d	224,500	194,600	99,259

Note:

^a Including captains and military officers of higher rank who work in professional occupations.

^b Including captains and military officers of higher rank, except as above.

^c Including all other military personnel, except privates whose occupations could not be classified in other groups.

^d Including privates.

Source: Manpower Planning Unit, Office of the National Economic Development Board.

In December 1963, the first industrial census in Thailand was undertaken by the National Statistical Office. The results obtained in this census are now being tabulated. When they are published, it is hoped they will provide data on patterns of occupational employment within individual sub-categories of the manufacturing industrial group. Further, separate manpower matrices will be available at different levels of technological advancement for the sub-categories

of manufacturing. A series of productivity and investment ratios are being calculated as guides to levels of technological advancement. These ratios include capital output, labour output and investment per job. The manpower matrix data derived from this census will provide a valuable tool for future analytic study of the economy of Thailand.

c. Training programme for different categories of personnel

In Thailand significant advances are being made in the field of education which will contribute to the economic well-being of the country. Compulsory education was extended some time ago from four years to seven. School systems, from the primary grades to the university level, have been expanded and improved in plant, curricula, and teaching staff. Numerous technical and vocational schools have been established to provide training for industry.

Under the National Scheme of Education proclaimed in 1960, there are now in Thailand only two levels of education between kindergarten and higher education, namely, elementary education and secondary education, each consisting of two stages or sections. The elementary level consists of four lower and three upper grades, whereas the secondary level comprises three lower and two or three upper forms. Separation of vocational training from academic education begins after the completion of the elementary education when the children have developed sufficiently in the various desired respects through fundamental education.

Vocational education in Thailand covers a variety of fields, and there are a great number of vocational schools giving instruction in a range of subjects. Since Thailand is a predominantly agricultural country, naturally agricultural schools take a prominent part in the country's vocational education. However, a number of vocational schools in other fields apart from agriculture have also been established. These institutions are grouped under the following headings:

1. Boys' vocational schools

These include all kinds of vocational schools which give instruction in the fields in which boys are normally trained. Among the most popular are the schools of mechanical trades, of which the oldest is Pathumwan School of Mechanical Trades which was established in 1932. Schools of this type train their students in the various branches of mechanical trades, such as electrical, auto-mechanics, and the welding trades, without special emphasis on any particular one of them. During the past six years four more schools of the same kind have been opened including the one which came into existence through the assistance of the Government of the Federal Republic of Germany. Building-construction schools are another type of popular school. They offer instruction in the various branches of building construction. The first school

of this type was Uthen Thawai School of Building Construction established in 1933. In 1955 the second one of the same type, called the Dusit School of Building Construction came into being.

More numerous than these, however, are those schools formerly known as carpentry schools which are scattered throughout the country. In each of these schools, stress in the instruction is on wood-work, which ranges from the making of furniture to the construction of buildings. Practical work includes, in addition to workshop assignments, the actual construction of buildings both in and out of school. Recent developments in building construction and various other forms of service have necessitated the transformation of these schools into multi-craft or multi-trade schools. Thus a project for their modification emerged and more trades: building construction, electrical trade, auto-mechanics, sheet metal and welding, and radio service, were introduced as additional subjects. Sponsored by foreign assistance, this project commenced in 1957 with twenty multi-trade schools, transformed from the former schools of carpentry, to its credit. Further work of transformation along the same line within its own financial appropriations is contemplated by the department concerned.

Besides the abovementioned schools, there are individual schools for particular crafts or trades. These are schools of tailoring, leathercraft, niello-ware, boat building, and telecommunication.

2. Technical colleges

After the Second World War, the increasing pace of development with regard to town-planning and building and a great variety of services together with the introduction of new projects, the expansion of the utilization of electricity, of transportation, of television services, generated the feeling that in the field of vocational education there was a gap between the experts with degrees at one end and the skilled workers from the various vocational schools at the other. In other words, men of the technician class were inadequate in some respects. This is why the establishment of technical colleges was conceived.

The first technical college, called the Bangkok Technical Institute, was opened in Bangkok in 1952. It admits students who have had ten years of general education plus three years' vocational training. The course is of two years' duration, offering diplomas in the following fields: building trades (all branches), auto-mechanics, radio service, electrical trade, metal work, industrial arts, printing, photography, surveying, tailoring, food and nutrition, dress-making, accountancy, secretarial work, and lastly the vocational teacher's course.

In the provinces, colleges have been set up modelled on the Bangkok Technical Institute. In 1955 one was built at Songkla, in 1956 another came up at Nakorn Rachasima, and yet another followed at Chiangmai in 1957. As far as these newly-built provincial technical colleges are concerned, instruction

had to be limited at the beginning to the higher vocational level, the course being of three years' duration, with ten years' general education as the entrance qualification. In certain fields, however, with the provision of adequate personnel, standards have been raised to the diploma level. Up to the present time, these colleges have been able to give diploma courses only in some of the fields mentioned above.

The significance of technical colleges does not lie in their popularity, which is reflected by the large number of students, but in the fact that while some of their graduates have been able to obtain reasonable positions in government offices and organizations, most other have found jobs in private firms or set up their own private businesses and on the whole their performances have been creditable.

As all the technical colleges of the type described above admit only those who have passed the first stage of secondary education and those with further schooling in the vocational line, a technical institute with different prerequisites was established in 1959 at Thonburi admitting only students who have completed general education, that is, those who have finished the science section of the pre-university course, or at present the science section of the upper secondary forms. The course is of three years' duration, and the subjects offered are auto-mechanics, electrical trade, metal work, electronics, and building construction. So far this technical college has turned out only one or two lots of graduates. It is not as yet possible to assess their performance.

3. *Short-course schools*

One such school, called the Bangkok Vocational School, has been in existence for some time, though in the beginning it gave instruction only in typing, shorthand, accounting, photography and men's hair-dressing. Later when the increase in the number of students came to a point where a great number, after completion of the first stage of secondary education, failed in entrance examinations for further studies, two more such schools were set up in Bangkok and Thonburi offering courses in various crafts.

4. *Private vocational schools*

The majority of private institutions teaching vocational subjects offer short courses, and the subjects taught include the following: watch repairing, radio and television service, hair-dressing, dress-making, cosmetology, typing, shorthand, building construction, printing, carpentry, electrical trade, driving and auto-mechanics.

Some of these private schools offer exactly the same courses as the government vocational schools and arrange for their students to take the final examination along with those of the Government

schools, the subjects offered in these cases being handicrafts, accountancy, and secretarial work.

It must be mentioned here that, with a view to expanding and modernizing technical education and vocational training for agriculture and industry to meet the country's immediate and future requirements, the Thai Ministry of Education in August 1962 requested the International Bank for Reconstruction and Development (World Bank) for assistance to finance the development of vocational secondary education. In September 1964, a formal request for the loan, together with the necessary application documents which had been prepared by officials of the Ministry with the assistance of a UNESCO/World Bank project preparation mission, was submitted to the World Bank. The original project proposed a six-year programme comprising the expansion of twenty-six existing upper secondary trades and industries schools and the vocational teachers college; the opening of vocational teacher training courses at two technical institutes; the expansion of nine upper secondary vocational agriculture schools and one agriculture teacher training college (to include a secondary vocational school); the institution of two-year diploma courses at four of the schools; and technical assistance in the form of foreign experts and fellowships to sustain both the industrial and agricultural training programmes. The estimated cost of the project, after deducting the recurrent costs for the administration of the project and the operation of the project schools which were originally included, was US\$37,995,000. The project was appraised by a World Bank appraisal mission and found feasible after certain alterations designed to adjust it to the country's teacher resources and to anticipated and urgent requirements of qualified manpower.

The revised project is a three-year programme providing for the expansion of 14 existing trades and industries schools; the expansion of one vocational teachers college (The Thewes Vocational Teacher College in Bangkok); the expansion of nine existing vocational agriculture schools; the expansion of an agriculture teacher training college (The Bang-Pra Agriculture Teacher Training Centre in Cholburi) and of a vocational school attached to it; technical assistance in the form of foreign experts for the vocational and agricultural teacher training programmes; the services of one project adviser and one equipment specialist to assist in the implementation of the project; and the services of an architectural firm to survey existing facilities, develop economical building standards, prepare master plans, design the project school buildings and supervise their construction. The total cost of the revised project is estimated to be US\$21,848,000, with foreign currency costs at US\$10,935,000. It is at present being contemplated that this project will be financed by a US\$6,000,000 loan from the World Bank at 4½ per cent per annum interest rate, a US\$8,000,000 loan from the Bank

of Thailand, and a budgetary allocation of about US\$8,000,000.

In the field of higher education, many universities have now been established in Thailand. Those offering courses in science, engineering and industry are the following:

1. Chulalongkorn University

This was the first university of Thailand and was inaugurated by Royal Command in 1916. In 1935, the Chulalongkorn University Act was passed authorizing the University to confer degrees in the field of medicine, arts, science and engineering. In 1942, the Faculty of Medicine was separated from Chulalongkorn University and formed into another university called the University of Medical Sciences.

At present Chulalongkorn University consists of the following faculties and school:

- a) the Faculty of Education;
- b) the Faculty of Commerce and Accountancy;
- c) the Faculty of Political Science;
- d) the Faculty of Science;
- e) the Faculty of Engineering;
- f) the Faculty of Architecture;
- g) the Faculty of Arts;
- h) the Graduate School.

In addition there are two institutes attached to this University, namely, the SEATO Graduate School of Engineering, and the Department of Science's Chemistry Institute.

Bachelor's degree courses are of four years' duration with the exception of those of the Faculties of Science and of Architecture which are of five years'. Students automatically obtain diplomas upon completion of their third year. Master's degree courses are of two years' duration after completion of the courses leading to the Bachelor's degree.

The Faculty of Science provides its undergraduates with opportunities to choose from among the following courses: physics, chemistry, zoology, botany, mathematics, chemical technology and geology. Another possible course leading to the Bachelor's degree is one in general science (mainly meant for those choosing careers as teachers in secondary schools).

The Faculty of Engineering offers its students a Bachelor's degree course in any one of these: civil engineering, electrical engineering, mechanical engineering, sanitary engineering, industrial engineering, survey engineering, and mining engineering.

The Faculty of Architecture offers Bachelor's degree courses of five years' duration, awarding diplomas to those who have duly completed their third year.

The Graduate School is responsible for the organization and supervision of education beyond the Bachelor's degree level. Now Master's degree courses, each of two years' duration, are offered in several fields.

The SEATO Graduate School of Engineering was founded within the compound and framework of Chulalongkorn University on 30 July 1958 under the sponsorship of SEATO member states, though plans are afoot for its operation as an independent Institute. Most of its instructors are foreign personnel. Eligible as candidates for admission are those, both Thai and foreign, with a Bachelor's degree in engineering. At present, the School offers two-year Master's degree courses in three fields: highway engineering, hydraulic engineering, and structural engineering.

The Department of Science's Chemistry Institute is located within the compound of the Department of Science, Ministry of Industry. It offers a diploma course in Practical Chemistry of three years' duration.

2. Chiangmai University

On 29 March 1960, the Council of Ministers passed a resolution for the founding of the Chiangmai University, which would be ready to admit candidates in 1964. In the initial stage, it was decided to create only three faculties, namely, the Faculty of Humanities, the Faculty of Science, and the Faculty of Social Sciences. Agriculture will be taught in the Faculty of Science in its appropriate Section of Agricultural Science. The Faculty of Social Sciences will give instruction only in business administration or commerce and accountancy at the beginning. Later on, this Faculty may teach economics, political science, law, and sociology as well.

3. Khonkaen University

This first north-eastern university is situated at Khonkaen in the north-eastern region of Thailand. The first batch of students was admitted into the University in the academic year 1964. Arrangements, however, had to be made to keep them in Bangkok for one year, because the necessary buildings were not completed in time. In the initial stage, only courses leading to the Bachelor's degree in agriculture and engineering are being given. However, the faculties already established are the Faculty of Science and Arts, the Faculty of Agriculture, and the Faculty of Engineering. The Faculty of Science and Arts is now giving instruction only in science subjects and languages in order to lay a concrete foundation for the students for their future careers, such as agriculture, engineering and medicine. Later, the students may be able to take degree courses in science.

4. University of the South

A university at present being formed in the southern region of Thailand will be known as the University of the South. In the initial stage, only two faculties are being planned, namely, the Faculty of Engineering and the Faculty of Medicine. The Faculty of Engineering is being established at the University headquarters in Pattani and will be admit-

ting its first batch of students in the academic year 1967. Only a four-year Bachelor's degree course in mechanical and electrical engineering will be offered at this stage. Civil engineering course will be added in 1971. The Faculty of Medicine will be established at Songkhla Hospital and is planned to admit its first lot of students in 1970.

In the matter of training facilities for people in actual industries such as managers, foremen and skilled operatives, the only institution available in the country at present is the Thailand Management Development and Productivity Centre attached to the Ministry of Industry. Details of this Centre have been given in the previous chapter. For small-scale and handicraft industries, the Small Industry Service Institute, at present being organized in the Ministry of Industry, will be giving training to their managers and skilled workers in the very near future. A plan is now being worked out to set up an organization to give training to actual industrial workers so as to elevate them professionally.

d. Success or failure in mobilizing manpower

Because active industrialization along with mobilization of manpower for industries in Thailand has been quite a recent event, it is, therefore, not possible to assess results at this stage. However, it can be definitely stated that up to now there has been no serious shortage of manpower for industries in the country. This is due partly to the fact that most large industrial enterprises usually import experts, technicians and specially skilled workers provided by manufacturers or suppliers of machinery and equipment into the country. These experts, apart from supervising the erection and test run of the machinery, usually undertake the training of local staff and workers in the running of the plants. The aptitude of Thai people for mechanical things often helps to make this training easy and of short duration. In some cases where many factories of the same type are being put up at the same time, such as in the case of sugar, spinning and weaving and gunny-bag factories, however, there was a temporary shortage of skilled workers and some "labour snatching" from each other by giving higher wages, or other incentives was resorted to.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

a. Existing industries

As active industrialization in Thailand is comparatively recent, industrial statistics and data are at present still very scarce and sometimes unreliable. Managers of private factories are often adverse to giving facts and figures concerning their factories even to industrial officers, for fear of their being used either

by their competitors for business rivalry or by Government officials for tax collecting purposes. It is partly because of this that the Act on Factories of 1929 was repealed in 1960. In the new Factories Act (No. 2) of 1960, it is now compulsory for the manager of any licensed factory to submit a report regularly showing the annual operations and production of the factory to industrial officers of the Ministry of Industry. With public enterprises, however, operating and financial data are readily available; but public enterprises account for only a small part of the country's industrial sector.

In chapter VI there is some discussion of the present position of some major industries in the country and in table 20 the number of registered factories in various industries during the last nine years has been given. In order to give some idea of the impact these factories are making on the economy of the country, table 27, giving the gross domestic product originating from manufacturing in the country's industrial sector during the period 1957-1965, is appended here. These national income estimates, which were prepared by the Office of the National Economic Development Board, are grouped according to the International Standard Industrial Classifications of the United Nations. The value added in manufacturing shown was estimated from total output of state enterprises, corporations, registered partnerships and other private establishments. For government enterprises, corporations, and registered partnerships, the value added was determined from accounts submitted to the Revenue Department, the Comptroller General's Department and the Planning Office, NEDB. For all other manufacturing, the total production was estimated in different ways depending on available data: the quantity of raw material consumed by a manufacture was in some cases used as the basis for estimating the value added of that manufacture. In other cases, production values were determined through excise taxes or through employees' incomes. Once production values were estimated, the appropriate ratios of value added to production were applied to each manufacturer. These ratios were derived from the financial statements of government enterprises, private corporations and registered partnerships. It will be seen from this table that the total value added of manufacturing products has been climbing steadily and has almost doubled in nine years.

In order to give some idea of the relative importance of the public and private sectors in manufacturing industries, table 28, showing the gross fixed capital formation in the public and private sectors in manufacturing industries for the period 1957-1965, is given below. The significance of the private sector in the manufacturing field is amply demonstrated in this table. It will be noticed that during the past few years there has been a marked increase in investment in the manufacturing industries from the private sector.

TABLE 27. GROSS DOMESTIC PRODUCT ORIGINATING FROM
MANUFACTURING, 1957-1965
(million baht)

	1957	1958	1959	1960	1961	1962	1963	1964	1965
Food	2,312.8	1,915.5	2,251.5	1,880.7	2,370.8	2,705.1	2,510.8	2,614.5	3,044.1
Beverages	400.4	396.4	541.6	642.6	689.3	794.9	880.8	998.4	1,103.9
Tobacco	852.6	849.9	799.8	879.0	865.9	996.8	1,008.5	1,024.1	1,194.2
Textiles	83.0	101.6	131.3	160.0	170.7	191.3	254.9	303.1	358.8
Footwear, other wearing apparel and made-up textile goods	238.0	237.2	250.8	265.7	279.0	287.3	296.8	307.9	320.8
Wood and cork products, except furniture	257.0	248.0	299.6	289.2	293.8	348.4	472.0	505.4	565.3
Furniture and fixtures	72.8	76.4	75.9	87.5	86.4	100.1	100.5	105.6	113.0
Paper and paper products	24.1	19.8	23.0	24.0	21.4	18.8	24.4	27.9	28.2
Printing, publishing and allied industries	132.9	146.2	118.6	132.1	148.3	148.7	176.4	193.7	214.0
Leather and leather products except footwear	103.2	101.2	108.6	118.9	120.6	120.4	124.7	126.7	130.7
Rubber products	151.1	161.7	171.0	224.4	239.2	210.5	219.9	229.8	246.0
Chemicals and chemical products	289.1	335.0	382.7	421.4	459.0	467.1	521.6	564.2	613.4
Non-metallic mineral products except products of petroleum and coal	189.5	234.9	250.8	264.4	373.1	424.4	486.8	542.6	626.1
Basic metal industries	11.8	13.5	17.0	16.9	18.1	16.6	8.0	8.7	8.7
Electrical machinery, apparatus, appliances and supplies	14.3	14.0	26.2	27.1	32.5	40.4	29.1	30.7	31.6
Transport equipment	234.9	230.4	223.5	241.7	253.3	245.9	277.1	291.3	307.5
Metal, machinery and others	142.1	147.3	158.5	206.2	220.4	320.4	481.8	694.8	777.8
Total value added	5,509.6	5,229.1	5,830.5	5,882.0	6,642.0	7,437.2	7,874.3	8,569.4	9,684.3

Source: Office of the National Economic Development Board.

TABLE 28. GROSS FIXED CAPITAL FORMATION IN THE PUBLIC AND PRIVATE SECTORS IN MANUFACTURING INDUSTRIES, AT CURRENT PRICES, 1957-1965
(million baht)

	1957	1958	1959	1960	1961	1962	1963	1964	1965
a) Public sector	95.2	89.3	64.4	47.0	146.9	255.8	288.3	272.4	340.1
b) Private sector	1,555.0	1,492.8	1,685.9	1,907.1	2,070.5	2,256.9	3,153.2	3,699.0	3,761.8
Total	1,650.2	1,582.1	1,750.3	1,954.1	2,217.4	2,512.7	3,441.5	3,971.4	4,101.9

Source: Office of the National Economic Development Board.

The following is a resume of the present status of some of the country's major industries:

1. Petroleum-refining industry

At present there are in operation in Thailand three oil refineries. The largest refinery is the 36,000 barrels per day plant at Sriracha on the east coast of the Gulf of Thailand, belonging to the Thai Oil Refinery Company (TORC), a private enterprise with backing from the Shell Oil Company. This refinery came into operation in September 1964, and is now producing the bulk of the country's requirement of gasoline, kerosene, jet fuels, light and heavy diesel oils, bunker fuel oils, liquified petroleum gas, and asphalt. The second largest refinery in operation is the 5,000-barrels-per-day plant situated on the outskirts of Bangkok and belonging to the Ministry of Defence. This refinery has just recently come on stream. It is being let to a private company who, under the terms of the lease agreement, will operate it for fifteen years before handing it back to the Government together with a new 15,000-barrels-per-day plant which the company is obliged, under the stipulation of the same lease agreement, to build immediately at its own expense. This 5,000-barrels-per-day plant and the new 15,000-barrels-per-day plant will turn out similar petroleum products to those produced by the 36,000-barrels-per-day TORC refinery. The smallest refinery of the trio is the 1,000-barrels-per-day plant situated in the district of Fang in the north of Thailand. This refinery, which is also owned by the Ministry of Defence, was erected some ten years ago. Unlike all the other refineries, which use imported crude, this small refinery uses domestic crude found in the district. In fact, the building of this refinery was a direct result of the discovery of the small oil deposit in Fang some time ago. Unfortunately, the yield of this deposit at present is very much below the original estimate and well under the designed capacity of the refinery, resulting in the involuntarily intermittent working of the plant. Subsequent explorations in the neighbouring areas has resulted in some encouraging finds. However, it will still need some time and a sizable additional investment before these new deposits can supply the need of this refinery.

Apart from these three existing oil refineries, two so-called asphalt producing plants were approved by the Government a little while ago. These two

plants will process 7,000 and 3,000 barrels of imported crude per day respectively, producing, apart from asphalt suitable for road making, some reformates, gasoline, kerosene, diesel oils and liquified petroleum gas, and in one plant also some lubricating stocks. These two plants are both built on the eastern coast of the Gulf of Thailand in the Sriracha area.

With these four oil refineries and two asphalt plants in operation there will be enough gasoline, kerosene, aviation fuels and diesel oils produced locally to satisfy the country's normal requirement for some time to come. The position with regard to heavy fuel oil, liquified petroleum gas and asphalt will, however, be quite different; serious difficulties will be encountered in finding ways and means to dispose of the inevitably large surpluses. Petro-chemical projects will have to be seriously considered as one way of getting rid of some of these surpluses.

In the field of oil exploration, the Thai Government in the past has carried out some active investigation, but without much success. The policy in this matter is now to let private enterprises undertake explorations under concessions from the Government. The first of such concession was granted in 1962 for exploration in a certain area in the north-eastern region of the country. A second concession was approved in 1964, also in the north-eastern region. Up to now no drilling has been made in either of these areas, the work so far undertaken being confined mainly to ground and aerial surveys. Five more applications for oil exploration concessions are at present being considered by the Government. These applications cover very wide areas, in the north, north-east, east, south, and even in the Gulf of Thailand.

Large deposits of oil-rich shale exist in the north-western area of the country bordering on Burma. For some time now a private company has been exploring these areas under a concession granted by the Government. It has been found that the oil content of the shale found in some of these areas reaches a very high figure of over 26 per cent, while the lowest so far discovered is somewhere around 14 per cent. Plans for the working of these deposits have already been drawn up by foreign experts working with the concession-holder, and only some difficulties concerning excise duties at present levied on locally refined petroleum products remain to block these plans from being put into execution.

2. *Sugar industry*

Although some sugar consumed in Thailand is produced from coconut trees and from palm-trees of a certain type, most of the sugar produced in the country at present is from sugar cane. For some time after the Second World War the amount of cane sugar produced in the country was far short of the country's requirement and large amounts had to be imported from abroad every year. To improve the situation, the Thailand Sugar Corporation Limited was created thirteen years ago for the sole purpose of encouraging the growing of more sugar cane and the production of enough sugar for local consumption. This is a private company with a registered capital of 50 million baht. Originally it was intended that the Corporation's shares should be equally subscribed by cane growers, cane sugar factory owners and cane sugar dealers. However, owing to financial difficulties experienced by the country's cane growers and, to a lesser extent, by the cane sugar factory owners, the planned subscription from these two quarters fell well short of the target, necessitating financial contribution by some government agencies. The Ministry of Industry, through its Sugar Organization, and the Ministry of Economic Affairs together subscribed a little less than 50 per cent of the Corporation's registered capital.

Mainly through the efforts of this Corporation the country's cane sugar industry has developed during the past thirteen years from a small industry, still depending on imports to make good the large shortage, to an exporting industry. The Corporation, apart from giving sugar cane growers and cane sugar factory owners technical and financial assistance, acts as a clearing house for the locally produced sugar. In order to keep the price of local sugar at a reasonable level, the Corporation was given the sole right to import sugar from abroad to make up the shortage. Later, when the amount of sugar produced locally exceeded the domestic consumption, the Corporation made every effort to export the surplus. The Corporation's efforts in this direction were quite successful in spite of the great difference between the local price and the world price.

The amount of sugar produced during the past five years together with production figures for some other major manufacturing industries are shown in the accompanying table 29. In order to understand the importance of the increase in sugar production during the past few years it must be realized that the domestic consumption of cane sugar is at present about 150,000 metric tons per year.

The amount of sugar produced in the country became large enough to meet domestic requirements for the first time in 1961, and the import of sugar from abroad ceased from that year. In 1962, production still climbed and consequently there was quite a large amount of sugar left at the end of the year. During 1963 production was considerably less than in

the past year; this was mainly owing to the considerable over-production in 1962 and the consequently low price of sugar and sugar cane. However, production in 1963 was still high enough to permit, with the excess quantity carried over from 1962, an export of 35,000 metric tons of raw sugar and 5,000 metric tons of white sugar. Production in 1964 increased again and reached 167,973 metric tons which was about 34.3 per cent more than that in the previous year. This increase was due to the low production figure in 1963 and the consequently high price of sugar and sugar cane. The high price of sugar in the export markets at the beginning of 1964, however, made it possible to export 33,186 metric tons of raw sugar and 8,800 metric tons of white sugar during the year. Because of the unusually high price at which the sugar cane farmers could sell their cane in 1964, total sugar cane production in the country for the 1965 sugar production season became abnormally high resulting in a record production of sugar of 319,976 metric tons which was about 2.5 times the domestic consumption. Great efforts were made to export as much as possible of the huge surplus. Considerable difficulties were encountered because the world market price during the year was very low. However, with the help of subsidies from cess money, exporters were able to export altogether about 58,000 metric tons of raw sugar and 25,000 metric tons of white sugar, leaving about 87,000 metric tons still to be disposed of in the following year. In 1966 (December 1965 to April 1966), the total production in the country was considerably lower than in the previous year, amounting to only 265,400 metric tons. It is, however, still about 100,000 tons more than the country's present consumption. During 1965 the Government of Thailand applied to the Government of the United States of America for a raw sugar export quota to the United States and received an allocation of 15,468 short tons per year for the six-year period beginning in 1966. Up to now, 5,000 metric tons of white sugar and 43,650 tons of raw sugar, including the 15,468 short tons to the United States, have been exported this year.

Due to the rather high guaranteed price of sugar cane and the small size of the country's sugar factories, the cost of production of sugar in Thailand is still very high compared with world market price. Exports so far have been made possible by giving subsidies to exporters from cess money collected from cane sugar producers. From October 1966 on, the collection of cess money will no longer be permitted by law, and the sugar industry will henceforth have to fend for itself as best as it can.

The recent establishment of sweetened condensed milk factories in the country will help by consuming a sizable quantity of locally produced sugar.

3. *Gunny-bag industry*

This industry started in Thailand in 1952, fourteen years ago, when the first gunny bag factory

situated in Nondhaburi, just outside Bangkok, and owned by the Government, started operation. The capacity of this factory at that time was only about 2 million bags per year. Great difficulties, mostly due to strong competition from imported products, had to be fought by this "pioneer" plant. The next two years saw the establishment of two more factories, one at Nakorn Rajsima in the north-east and another at Saraburi about 115 kilometres north of Bangkok. Both these factories are now owned by the Government. The combined production of the three factories so far established, increased steadily from 3,464,021 bags in 1956 to 10,816,000 bags in 1962.

The fourth factory was erected in Rangsit District, about 40 kilometres north of Bangkok, and came into operation in 1963. The capacity of this factory is 15 million bags per year. Formerly it was privately owned, but in 1965 it became the property of the Government.

From 1963 to the present, four more factories have come into operation making the total number of factories now working eight, four of which are government-owned. It is estimated that all the eight factories will produce in 1966 a total of over 49 million bags. At the same time, four more factories with a total capacity of 20 millions bags per year are now being built. When all the twelve factories are in full production it is estimated that the combined production may reach a high figure of 95 million bags per year which is about twice the country's present requirement.

Gunny bags are required in Thailand mainly for rice, maize, sorghums, castor and other oilseeds, tapioca chips and meal and sugar. At present the total requirement is estimated to amount to about 45 million bags per year. It will be seen from table 29 that Thailand will be self-sufficient in gunny bags for the first time this year.

Jute and kenaf required for gunny bags, especially kenaf, are grown in large quantities in Thailand every year, and the large amount left over after the requirement of the gunny bag industry is met is exported. While the amount of jute grown is relatively small when compared with that of kenaf, it, nevertheless, contributes significantly to the well-being of the gunny bag industry, for it provides the finer and stronger fibres necessary for making sewing twine. It is estimated that the production of kenaf in Thailand in 1966 will reach a record high of 500,000 metric tons.

4. Cement industry

The first cement factory was established in Thailand in 1913, about half a century ago. This factory is owned by the Siam Cement Company, a private enterprise. Since 1913, this Company has extended its activities enormously. Apart from its first cement factory situated on the outskirts of Bangkok, it has owned a second and much larger cement plant in

Tha Luang District, Saraburi Province, for a number of years now, and in 1964 started building its third cement plant, this time in Tung Song in the southern part of the country. It also owns a small blast furnace and steel making plant in Tha Luang District. The Concrete Products and Aggregate Company, one of its subsidiaries, has for some years been producing and marketing many types of concrete construction materials, such as precast concrete products, which includes plain and steel-reinforced cement pipe, prestressed concrete products including foundation piles, hollow concrete piles, telegraph and electric poles, fence posts, bridge girders, floor elements, and flat slabs. Corrugated asbestos fibre cement roofing sheets of the ordinary type as well as the popular twin corrugated type, plain ceiling boards, wire-mesh reinforced wall boards (used in place of timber and brick wall in house construction), and low pressure asbestos cement pipe for water supply have been produced for some time now by the Siam Fibre-Cement Company, another subsidiary of the Siam Cement Company.

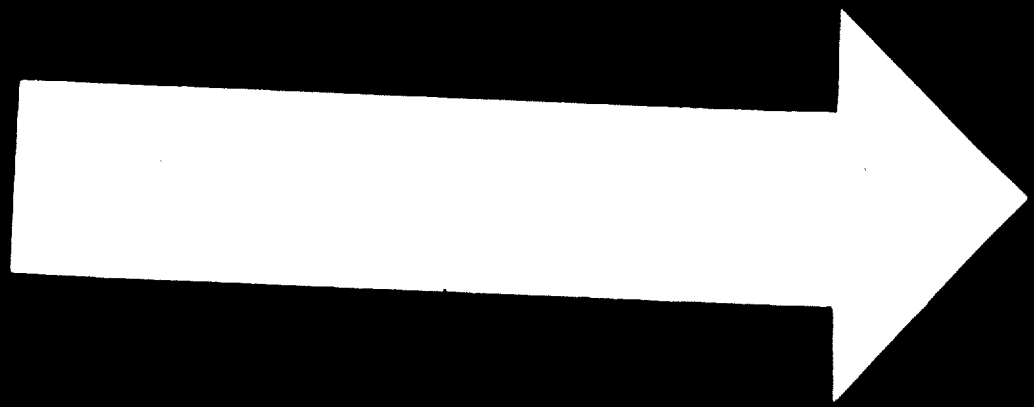
Apart from the three cement factories owned by the Siam Cement Company, there is another cement plant which was first put up by the Irrigation Department to provide cement for the construction of the Department's Yanhee dam. This plant, which is situated in Taklee District, Nakorn Sawan Province, in the northern part of the country, is owned by the Jolapratarn Cement Company, a private enterprise.

Since the establishment of the first cement factory in the country in 1913, cement production has climbed steadily all the time, except during the Second World War. The combined production of all the factories passed the one million ton mark for the first time in 1963, and in 1964 the production increased by 46,565 metric tons or about 4.6 per cent over that in 1963. In 1965 production climbed further to 1,247,998 metric tons, with an increase of nearly 18 per cent over that of the previous year. When the new factory at Tung Song in southern Thailand comes into operation in November 1966, the cement supply in the country will increase by 1,000 metric tons per day. It is expected that the total production will reach two million tons in the next few years.

Thai cement was first exported as far back as 1917, when it was sold to Singapore, Penang and Malaya. Since 1953, the export of locally produced cement has become more extensive. In 1961, an international tender of 120,000 tons to the Republic of Vietnam was awarded to the Siam Cement Company.

5. Textile industry

This industry became more active after the end of the Second World War, spurred on by the great shortage of textile products during the war. However, during the first decade after the war, the local



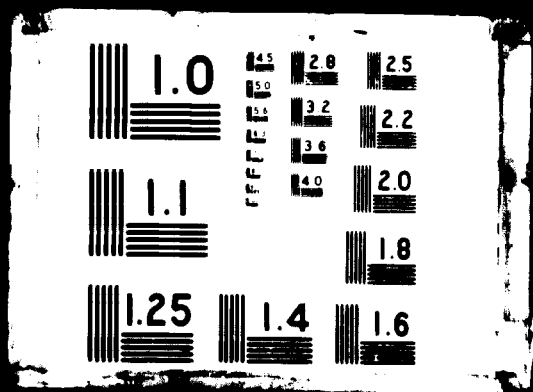
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textile industry was very much hampered by imported products. The Ministry of Industry, realizing the importance of the textile industry to the economy of the country, made great effort to assist the industry in all possible ways during those trying years. From 1959 onward the industry has made great progress resulting in great savings of foreign currencies which would otherwise have been used for imports.

During the war, the number of spindles in the country totalled only some 10,000. By 1961, the number of spindles had increased to 92,516 and the cotton yarns produced by them during the year amounted to 10,395 metric tons. During the next two years the number of spindles had increased by 19,040 making a total of 111,556 spindles in 1963, and the amount of cotton yarn produced in 1963 climbed to 13,493 metric tons. By the end of 1965 the number of spindles had reached 227,796 and the cotton yarns produced during the year was estimated to be 29,303 metric tons. During 1966, 64,800 more spindles will come into operation and in the next two years 30,400 more will be added making a total of 322,996 spindles by the end of 1968. For synthetic fibre yarn, there were altogether 9,600 spindles in operation at the end of 1965. The number of spindles that have been authorized for installation during the next three years 1966-1968 is 29,200.

At present, enough coarse yarns, 32 counts and below, are being produced in the country and imports of them are no longer permitted. With more and more spindles being used to produce finer yarns, above 32 counts, it is expected that Thailand will be self-sufficient in cotton yarns in the very near future. Most of the yarn produced locally is used in the enterprises' own weaving mills, and only a comparatively small amount is manufactured for sale to weaving mills, especially small ones, which have no spinning facilities of their own.

In 1960, the total number of mechanized (power) weaving looms in the country totalled 5,080. In 1961, this number had increased to 6,963 and the cotton fabrics produced during the year totalled 86,588,452 square yards. By 1963, the number of mechanized weaving looms in the country had climbed to a total of 8,214 while the total number of hand-looms was reduced to 1,060. The production of cotton fabrics in 1963 was 140,045,682 square yards.

By the end of 1965, the number of mechanized weaving looms had reached 12,020, and the cotton fabric produced during the year was estimated to be 246,000,000 square yards. For weaving synthetic fabric, there were 1,116 looms at the end of 1965. The total amount of synthetic fabric woven by these looms during the year came to about 5,500,000 square yards.

Up until only a few years ago, most of the cotton fabric produced in the country was grey (unbleached) shirting of a rather thick variety, the remainder being made up of mosquito netting fabric, drill, and the like. The production of white shirting and poplins was started only recently. In 1961, the production of poplins in the country amounted to only 1,858,000 square yards, while imports during the year were 44,981,000 square yards. By 1963, local production went up to 14,335,000 square yards, and imports during the year dropped to 32,854,000 square yards. Not only had the amount produced increased greatly, but the quality of the products had improved and finer fabrics suitable for shirt and blouse making were being catered for. In the latter half of 1963 alone, 3,400 new looms for poplins were approved by the Government.

The production of poplins has been much encouraged by the establishment of new and modern bleaching, dyeing and finishing plants during the recent years. There are at present 12 large bleaching and dyeing plants, including those in integrated spinning and weaving mills, with a total capacity of 125,000,000 square yards annually. In addition there are approximately 100 small establishments. Regarding fabric printing, there are estimated to be over 100 small printing plants with a capacity totalling approximately 40,000,000 square yards per year.

b. New industries being planned

Because of the Government's policy of letting private enterprises carry out the actual development of industries freely, it is not possible to predict correctly what new industries are being planned and are going to be developed in the future. Knowledge of new industry planning in the private sector is, therefore, currently limited to those that have applied for promotional privileges from the Board of Investment. However, the private sector planning group organized recently by the National Economic

TABLE 29. PRODUCTION IN SOME MAJOR INDUSTRIES, 1961-1966

Type of industry	1961	1962	1963	1964	1965	1966
Sugar (metric tons)	150,000	151,344	125,031	167,973	319,976	265,400 ¹
Gunny bag (pieces)	8,842,091	10,815,942	23,128,987	33,511,424	39,892,310	49,147,000 ¹
Cement (metric tons)	800,284	967,475	997,231	1,059,136	1,247,998	...
Textile (thousand square yards)	86,588	109,437	140,046	189,399	246,000 ¹	...

Note: ¹ Estimated.

... not yet available

TABLE 30. NEW INDUSTRIAL PROJECTS IN THE PUBLIC SECTOR

Type of industry	Location	Raw materials	Present status	Plant capacity	Total cost estimated (baht)	Remarks
1. Cold storage	Chumphon province, South Thailand	Fish	In operation	500 tons	30 million	
2. Fibre-board	Bangna district, Saseprakara Province	Hard and soft woods	Under construction	Not less than 12,500 tons per year	50 million	
3. Preserved foods	Ban Pong, Rajburi province	Livestock and fruits	In operation	20 tons per day	80 million	
4. Crepe rubber	Nakhon district, Nakhon Sribhannara province	Rubber	In operation	140,000 kgs. per year	1 to 2 million	
5. Neutral glass	Bangna district, Saseprakara province	Sand	Under consideration	5 tons per day	19.5 million	
6. Fertilizers	Maemoh district, Lampang province	Lignite	Under construction	60,000 tons ammonium Sulphate per year and 30,000 tons urea per year	120 million	Now owned by the Chemical Fertilizers Company Limited, a private enterprise with government participation

Development Board, and already described in chapter I, is now initiating studies of planned industrial expansion by sectors for integration in the next national development plan.

In the public sector, however, more reliable data are available for new industrial projects. They are shown in the accompanying table 30.

IX. EXPORT OF MANUFACTURED GOODS AND SEMI-MANUFACTURES

a. Present balance of trade

The following table 31 shows Thailand's total exports, imports and balance of trade during the past eleven years 1955-1965. From this table it can be definitely stated that the country's balance of trade during the past decade has been very unfavourable, total imports exceeding total exports by a considerable margin every year. In fact, this unfavourable trade balance has continued without break since 1952. The reason for this trade imbalance is said to be owing mainly to Thailand's increasing need of imported capital goods for its stepped-up development. The lower prices obtained during recent years for exported commodities is another important factor. Since about 90 per cent of exports from Thailand are in the form of primary products, these lower prices makes the total exports of the country rise very slowly in spite of great efforts to export ever-increasing quantities each year.

TABLE 31. TOTAL EXPORTS, IMPORTS AND BALANCE OF TRADE, 1955 - 1965
(million baht)

Year	Total export (1)	Total import (2)	Balance of trade (3)	(3) as percentage of (1)
1955	7,120.5	7,502.6	382.1	5.4
1956	6,923.2	7,655.1	731.9	10.6
1957	7,539.6	8,537.0	997.4	13.2
1958	6,446.6	8,237.0	1,790.4	27.8
1959	7,560.4	8,988.3	1,427.9	18.9
1960	8,614.3	9,622.0	1,007.7	11.7
1961	9,997.0	10,287.3	290.3	2.9
1962	9,529.2	11,503.7	1,974.5	20.7
1963	9,676.3	12,802.8	3,126.5	32.3
1964	12,339.2	14,253.4	1,914.2	15.5
1965	12,940.8	15,218.7	2,277.9	17.6

Source: Department of Customs, Ministry of Finance.

In spite of the poor balance of trade, Thailand's balance of payments during the past decade has fortunately been favourable, resulting in stable economic conditions in the country. However, the country's exports have to depend mainly on a few primary products whose prices in the world market have been rather unstable lately, and efforts to raise the total value of the country's exports, to meet the quickly rising imports, have not met with much success. The tendency for ocean freight rates to increase is another important obstacle to Thailand's export drive. On the other hand, it is expected that

TABLE 32. EXPORTS CLASSIFIED BY CATEGORIES, 1955-1965
(million baht)

Category of exports	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Food	3,668.2 (51.5)	3,454.7 (49.9)	4,155.3 (55.1)	3,597.7 (55.8)	3,453.6 (45.7)	3,914.5 (45.4)	5,206.0 (52.1)	4,703.1 (49.3)	5,263.0 (54.4)	7,163.7 (58.0)	6,782.1 (52.4)
Beverages and tobacco	8.1 (0.1)	63.3 (0.9)	198.2 (1.4)	94.2 (1.5)	20.8 (0.3)	24.6 (0.3)	16.4 (0.2)	34.7 (0.4)	44.0 (0.5)	82.7 (0.7)	94.3 (0.7)
Crude inedible materials	3,248.3 (46.6)	3,105.3 (44.9)	2,946.6 (39.0)	2,509.6 (38.9)	3,770.1 (49.9)	4,394.8 (51.0)	4,362.5 (43.6)	4,352.3 (45.7)	3,910.3 (40.4)	4,544.2 (36.8)	5,031.9 (38.9)
Animal and vegetable oils and fats	7.6 (0.1)	10.8 (0.2)	8.7 (0.1)	6.6 (0.1)	11.1 (0.2)	1.9 (0.0)	11.5 (0.1)	17.0 (0.2)	6.0 (0.1)	4.0 (0.0)	6.8 (0.0)
Chemicals	13.5 (0.2)	15.9 (0.2)	21.0 (0.3)	10.4 (0.2)	9.2 (0.1)	11.9 (0.1)	9.8 (0.1)	11.2 (0.1)	17.4 (0.2)	19.9 (0.2)	20.7 (0.2)
Manufactured goods	121.4 (1.7)	179.3 (2.6)	177.4 (2.4)	122.7 (1.9)	117.6 (1.4)	138.1 (1.7)	186.0 (1.9)	211.0 (2.2)	244.4 (2.5)	248.7 (2.0)	670.0 (5.2)
Machinery and transport equipments	35.5 (0.5)	51.6 (0.7)	36.5 (0.5)	47.5 (0.7)	111.1 (1.5)	40.5 (0.5)	120.7 (1.2)	95.1 (1.0)	72.1 (0.7)	119.1 (1.0)	61.0 (0.5)
Miscellaneous transactions and commodities	17.9 (0.3)	42.3 (0.6)	85.9 (1.2)	57.9 (0.9)	66.9 (0.9)	88.0 (1.0)	84.1 (0.8)	104.8 (1.1)	119.1 (1.2)	156.9 (1.3)	274.0 (2.1)
Total export	7,120.5	6,923.2	7,539.6	6,446.6	7,560.4	8,614.3	9,997.0	9,529.2	9,676.3	12,339.2	12,940.8

N.B. Figures in brackets are the exports as percentage of total export for the year.

Source: Department of Customs, Ministry of Finance.

TABLE 33. PRINCIPAL MANUFACTURED AND SEMI-MANUFACTURED GOODS EXPORTED FROM THAILAND, 1955-1965
(f.o.b. value in baht)

Item	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Soaps and detergent	2,314,141	2,012,101	1,451,712	1,238,265	1,291,850	1,948,380	2,315,729	1,811,888	6,072,258	8,242,180	6,755,136
Leather (bovine, cattle and equine)	2,134,511	1,563,621	2,304,023	1,685,915	3,981,312	4,179,993	2,722,665	3,083,681	3,429,516	3,168,926	4,470,924
Silk woven fabrics	4,457,162	4,520,085	5,686,994	8,301,224	10,244,531	17,018,766	21,562,781	24,261,214	33,951,097	33,096,869	32,138,099
Portland cement	3,294,166	5,390,481	9,679,601	10,279,798	12,442,646	10,951,779	51,297,516	62,669,800	54,515,590	35,926,601	40,944,500
Asbestos boards (for building)	—	5,000	9,100	96,770	1,294,367	2,407,113	1,883,501	1,534,098	6,296,409	3,204,203	4,208,143
Glass bottles	271,760	6,125,152	2,900,231	2,739,187	1,466,760	3,376,974	3,759,218	2,601,484	2,991,304	3,787,635	1,112,897
Glass tumblers	5,000	363,058	399,702	478,165	1,116,650	979,688	1,426,057	1,272,444	1,006,781	1,154,284	839,209
Cut ruby	1,858,733	622,855	672,810	479,014	1,277,502	2,431,890	2,773,949	3,770,712	6,116,591	9,620,851	16,332,898
Cut sapphires	2,917,279	4,091,709	5,376,481	6,046,718	9,294,993	10,389,899	15,288,049	18,285,023	23,030,006	32,639,683	45,346,855

Cut zircon	5,433,416	4,415,318	3,634,333	3,595,267	3,194,666	2,845,072	2,112,502	2,466,725	1,667,811	1,424,136	2,851,805
Silverware	1,759,171	1,079,024	2,567,025	2,530,081	3,184,516	3,627,263	2,055,580	2,610,853	1,275,127	699,900	779,299
Silver nickelware											
articles	25,665,724	16,951,576	15,805,999	12,904,704	13,079,101	12,397,223	10,274,404	12,103,244	12,623,644	11,068,704	10,046,662
Galvanized sheets			1,094,585	450			3,421,637	1,661,352	9,249,006	8,214,426	2,160,170
Iron nails		267,407	163	36,969	11,900	7,825	27,055	124,657	1,634,021	983,482	108,809
Bronze tableware		5,608,470	5,665,140	6,848,656	6,672,225	5,449,313	3,703,550	4,579,750	2,960,118	2,696,262	3,057,124
Dry cells (for flashlight)	6,200	74,285	12,164	229,340	34,341	278,891	253,449	375,187	2,174,508	5,069,829	5,061,167
Printed sarong			141	69,803	661,757	1,940,838	7,573,824	9,123,449	14,365,216	14,424,076	11,687,070
Shawls, scarves, etc.			60,476	419,549	1,548,319	1,549,134	1,703,464	1,744,228	1,582,670	1,580,654	1,929,132
Badminton											
shuttle-cocks	1,863,068	2,920,087	2,205,924	4,482,400	3,429,931	2,489,180	2,603,618	2,627,916	2,614,150	2,642,433	1,692,365
Badminton rackets and frames	558,318	381,381	327,357	1,226,902	249,970	453,284	385,364	347,242	495,454	581,457	432,594
Glycerine	7,312,546	5,571,339	4,435,412	3,596,655	2,607,410	2,371,224	1,549,222	685,935	1,471,433	1,514,028	1,966,462
Dentifrices		1,000	2,040	5,600	300	16,749	206,926	76,791	1,074,502	1,172,574	1,671,196
Maize meal and flour											
Rice flour	74,787,468	6,830,397	1,331,042	893,777	1,777,431	2,848,478	2,117,007	13,613,557	28,767,954	41,970,831	34,861,178
Rice meal					1,715,633	1,332,729	4,688,478	8,582,691	6,639,005	10,380,933	9,939,386
Rice vermicelli						53,339	142,384	352,797	2,307,216		13,475
Shredded cassava (tapioca)	7,320,188	12,089,228	15,587,782	20,459,023	26,556,848	25,090,700	26,683,484	29,104,259	27,880,335	26,927,134	16,459,520
Cassava (tapioca) flour						26,352	6,914,079	10,110,398	76,323,838	252,420,422	315,241,013
Cassava (tapioca) meal	52,864,291	94,602,593	127,236,613	177,383,080	193,646,408	219,979,042	278,149,548	158,806,973	203,649,755	229,156,893	222,568,590
Cassava (tapioca) waste						50,467,637	149,780,811	244,883,222	143,060,760	140,925,526	60,724,246
Sugar (refined)		17,004,508	9,223,977	12,012,061	29,511,285	14,006,156	10,805,177	8,500,756	15,146,045	29,745,282	77,211,678
Raw sugar	6,782	2,401,879	5,706,400	97,139	815,198	7,987,438	2,622,951	33,430,230	54,582,802	21,605,940	34,261,348
Molasses									65,839,626	189,446,047	66,203,745
(inedible)		11,472	16,152	7,172,265	10,916,435	18,046,098	24,211,478	14,808,450	15,966,966	22,383,971	37,759,365
Tobacco leaves		48,489,302	92,431,130	84,739,184	15,746,882	20,615,648	12,349,691	30,500,400	41,246,676	78,592,768	88,602,344
Charcoal	8,728,099	8,443,748	8,272,381	9,613,526	13,792,081	18,349,007	13,506,995	11,064,348	12,549,536	17,260,872	15,015,808
Coir fibre						18,882	908,861	2,140,114	3,684,778	5,847,246	5,669,890
Groundnut cake		9,187,743	4,801,713	4,952,177	12,178,446	6,473,131	12,471,455	18,389,052	14,175,487	21,109,883	23,704,834
Bean cake	5,041,089	1,262,884	582,857	1,250	1,214,544	2,348,712	544,017	647,011	264,164	625,463	2,169,150
Copra cake	6,980,743	5,787,542	5,264,988	4,385,301	2,098,505	5,252,876	5,379,640	8,018,618	7,388,149	7,388,802	12,299,683
Soyabean cake							269,122	599,408	7,364,371	13,480,540	3,048,946
Other oil-seed cake and meal						2,000	3,068	66,353	1,548,810	2,112,720	1,416,904
Groundnut oil		8,046,041	3,585,208	4,178,430	6,823,612	1,270,083	10,746,488	16,232,671	4,781,744	1,983,088	4,580,015
Teak (milled)	237,137,416	268,392,578	201,048,218	182,583,342	176,264,987	239,203,551	222,645,100	143,927,936	117,691,500	140,975,587	112,144,559
Other timbers milled	75,765,954	76,912,605	85,373,011	68,265,112	51,124,686	695,337,014	65,832,888	57,084,216	67,883,515	77,852,364	64,080,918
Total	528,483,225	621,594,291	624,819,135	644,274,278	621,273,578	815,871,638	989,725,597	977,803,908	1,109,280,244	1,514,835,505	1,403,569,111

Source: Department of Customs, Ministry of Finance.

TABLE 34. PRINCIPAL MANUFACTURED AND SEMI-MANUFACTURED GOODS EXPORTED FROM THAILAND, 1955-1965

Item	(by quantity)										
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Soaps and detergent (kg)	129,886	117,740	161,531	143,521	89,170	131,508	146,200	111,927	441,514	641,441	461,893
Leather (bovine cattle and equine) (kg)	98,706	106,370	131,845	129,883	281,261	268,940	213,482	235,511	274,761	227,939	260,568
Silk woven Fabrics (sq. yd.)	50,688 (kg.)	8,739 (kg.)	24,357 (piece)	107,900	133,800	264,700	354,500	415,500	582,300	570,200	525,900
Portland cement (metric ton)	3,178	9,856	15,463	13,738	17,711	24,202	156,916	179,463	143,600	102,320	105,580
Asbestos boards (for building) (kg)	—	3,500	4,200	70,950	723,715	1,414,303	1,127,140	908,881	3,473,505	1,572,932	2,261,244
Glass bottles (kg)	471,616 (unit)	3,366,741	841,829	1,344,115	804,854	1,882,258	2,121,833	1,162,540	1,530,328	2,148,276	576,525
Glass tumblers (unit)	1,250 (kg.)	307,968	355,319	647,653	2,289,651	1,262,195	2,454,367	1,893,889	1,382,691	1,445,776	1,107,004
Cut ruby (carat)	12,409	5,829	5,847	5,258	9,208	91,628	46,553	33,281	46,107	78,447	133,179
Cut sapphire (carat)	46,871	99,661	159,198	201,136	313,631	440,991	2,401,624	2,602,257	3,290,357	3,083,195	2,206,463
Cut zircon (carat)	444,602	393,674	342,910	335,760	271,334	224,702	128,374	138,129	80,970	73,632	180,463
Silverware (kg)	1,319	851	2,224	1,884	2,590	2,575	1,592	1,742	865	573	809
Silver holloware articles (kg)	27,066	17,460	14,703	11,787	11,608	11,166	8,283	8,769	9,137	7,126	9,357
Galvanized sheet (kg)	—	—	200,255	60	—	—	799,799	340,330	1,971,167	1,762,670	461,604
Iron nails (kg)	—	62,750	110	8,640	3,936	1,621	6,052	32,438	489,971	287,260	46,290
Bronze tableware (kg)	—	25,498	27,720	39,297	40,391	48,808	43,758	35,843	29,071	27,137	30,829
Dry cells (for flashlight) (unit)	7,444	37,440	14,400	231,588	25,544	318,730	194,060	258,806	1,416,444	5,350,148	3,580,593
Printed sarong (unit)	—	—	1	2,945	53,463	122,437	459,668	603,538	994,437	932,499	781,733
Shawls, scarves etc. (unit)	—	—	1,794	7,885	24,191	19,505	27,600	30,241	26,201	25,274	60,164
Badminton shuttle-cocks (units)	748,642	1,068,664	827,688	1,684,080	1,121,628	907,970	1,019,618	1,022,708	1,047,500	1,012,572	699,710
Badminton rackets and frames (unit)	33,775	24,114	20,547	91,612	16,146	45,458	54,550	28,688	53,332	60,668	44,189
Glycerine (kg.)	828,130	792,329	742,092	631,010	394,178	337,567	308,664	177,976	314,377	270,000	350,000
Dentifrices (kg.)	—	40	340	270	11	1,770	6,102	2,094	21,269	25,653	41,470
Maize meal and flour (kg)	—	—	—	20	1,647,665	2,633,246	1,979,620	11,723,287	2,439,457	31,891,489	26,973,251
Rice flour (kg)	69,399,877	4,428,339	754,169	333,690	715,400	525,190	2,569,378	3,762,688	2,972,210	4,888,536	4,750,534
Rice meal (kg)	—	—	—	—	—	103,783	242,672	496,320	1,300,260	—	1,743
Rice vermicelli (kg)	2,480,140	4,118,921	4,862,910	6,706,007	9,044,203	9,742,863	9,677,724	9,427,150	9,249,372	9,613,192	6,237,126
Shredded cassava (tapioca) (kg)	—	—	—	—	—	32,670	8,398,537	12,667,393	93,421,735	339,417,735	400,526,300

Cassava (tapioca) flour (kg)	29,359,365	56,481,578	76,990,007	124,707,931	149,248,462	176,860,222	227,606,215	110,581,725	121,520,430	152,431,920	141,918,392
Cassava (tapioca) meal (kg)	—	—	—	—	—	64,563,898	188,415,437	267,658,224	189,783,900	201,327,800	79,004,700
Cassava (tapioca) waste (kg)	—	28,275,504	21,052,675	24,475,230	44,573,842	24,988,185	18,567,634	9,586,216	22,390,822	45,519,873	97,811,211
Sugar (refined) (kg)	—	30,000	16,000	40,005	1,179	17,904	17,785	7,231,210	10,894,292	9,532,062	25,229,340
Raw sugar (kg)	2,400	1,207,560	3,073,580	51,975	448,265	5,696,146	1,513,863	31,784,436	41,588,608	39,357,499	58,605,050
Molasses (inedible) (kg)	—	5,160	20,760	17,896,000	34,019,628	61,169,666	90,871,498	48,179,516	36,642,920	36,614,199	131,197,606
Tobacco leaves (kg)	—	4,608,108	6,215,681	5,780,746	1,234,513	1,696,231	1,132,730	2,628,236	3,750,413	6,147,307	6,001,487
Charcoal (kg)	31,381,997	33,754,184	32,748,202	36,815,190	44,388,548	45,288,165	46,872,407	47,496,421	49,218,659	55,779,125	55,905,653
Coir fibre (kg)	—	—	—	—	—	25,100	535,216	888,172	1,342,226	2,399,833	1,777,830
Groundnut cake (kg)	—	5,800,980	2,511,701	2,935,613	7,194,632	3,428,321	6,656,851	11,181,748	8,560,898	12,762,118	13,159,008
Bean cake (kg)	—	2,653,475	254,620	2,500	604,110	1,293,625	295,494	385,200	160,670	363,920	1,272,446
Copra cake (kg)	—	5,555,789	6,132,263	4,304,845	1,655,513	4,816,442	5,290,707	6,243,380	5,994,284	6,027,463	8,932,974
Soyabean cake (kg)	—	—	—	—	—	—	130,998	332,490	4,515,780	8,719,499	1,953,646
Other oil-seed cake and meal (kg)	—	—	—	—	—	1,000	3,040	50,040	1,741,315	2,200,280	1,485,181
Groundnut oil (litre)	—	1,326,188	440,207	536,003	949,746	164,856	1,396,345	2,314,681	738,090	343,452	704,529
Teak (milled) (cub. m.)	76,661	81,246	57,382	57,149	54,373	70,660	56,450	34,501	27,552	31,884	26,399
Other timbers (milled) (cub. m.)	81,477	86,550	90,604	90,333	63,205	112,572	66,425	59,344	68,515	79,026	63,908
Total	143,890,763	151,943,458	159,115,154	230,433,209	302,471,305	311,053,509	624,424,660	584,931,929	203,818,470	985,153,950	1,077,463,886

Source: Department of Customs, Ministry of Finance.

the country's need of manufactured products, especially capital goods, will continue to climb for some time to come. This problem of unfavourable balance of trade is now receiving urgent and serious consideration by the Government, and committees have recently been formed to probe ways and means of improving the position.

b. Principal manufactured and semi-manufactured goods exported

Table 32 shows Thailand's exports classified by categories during the last eleven years, 1955-1965. It will be noticed that food and crude inedible materials constitute the main part of the country's export trade, the two categories accounting for over 91 per cent of the total export. Manufactured goods contribute only a very small percentage, from 1.4 to 5.2 per cent; this is not surprising considering Thailand has always been an agricultural country and industrialization in the country began only a short time ago. However, although the part played by manufactured goods in the country's exports is still very small, it has been increasing appreciably, especially during the past few years. Tables 33 and 34 show the principal manufactured and semi-manufactured goods exported from Thailand during the years 1955-1965. It can be seen from these tables that, with only a few exceptions, these exports have been increasing considerably lately. It is expected that these increases will become even more marked in the future.

c. Export-potential industries

Regarding the development of "export-potential" industries, it is the aim of the Thai Government to encourage the increasing production of goods that can be exported, so as to diversify the country's exports, as much as possible. Although no specific industries have yet been scheduled for this purpose, it is thought that the possibilities are as follows:

1. "Promoted" industries

If these industries are to be of greater benefit to the country, their products must also be exported, because the local market alone is sometimes too small for economical and efficient operation. Moreover, the present policy of free trade often creates difficulties for local entrepreneurs, since a good portion of their already small local market is being supplied with foreign imported goods. It is, therefore, planned to encourage these "promoted" industries to enter foreign neighbouring markets as much as possible, so as to ensure full production with subsequent lower costs.

2. Handicraft industries

Many of the handicraft products at present produced in Thailand are popular with foreigners as souvenirs and presents. In many cases, however, production is still insufficient to satisfy the large

demand in foreign markets. Therefore, there is still room for future expansion in this field.

Apart from the above there are still some other manufactured and processed products which could be exported or their present export market could be further increased. Some well-known local fruits such as pineapple, longan and rambutan could be canned expressly for export. The sale in foreign markets of locally produced sports goods, such as the well-known Thai badminton rackets and shuttlecocks, could be increased by extensive advertising.

d. Standardization and quality control

At present there are still no specific measures for quality control of manufactured goods. However, there is in use a basic law for the prevention of adulteration of food and medicine. In order to effect some quality control of manufactured products in the future, the Ministry of Industry is at present actively engaged in the revising of its Factory Act so as to include quality control as well. Regarding the standardization and quality control of exports, a law called the "Export Standards Act, B.E. 2503" was enacted in 1960 and is still in force.

1. Standardization and quality-control law for exports

The Export Standards Act of 1960, as its name implies, deals only with exports. It empowers the Minister of Economic Affairs to designate any commodities as "standardized commodities" and establish standards for them. A "Standards Committee", consisting of thirteen members and headed by the Under-Secretary of State for Economic Affairs, was constituted by the Council of Ministers, according to the provision of the Act, to give advice to the Minister of Economic Affairs on matters pertaining to standards and to carry out duties concerning these standards entrusted to it by the Minister. The Act decrees that exporters of "standardized commodities" must register with the Office of Standards set up under the provisions of the Act and no one who has not thus registered shall be allowed to export these "standardized commodities". The "standardized commodities" before being exported must be inspected and must be accompanied by standards certificates issued by the Office of Standards. Under this Act, no person shall be allowed to operate any surveyor business unless authorized by the Office of Standards, and a licensed standards inspector is prohibited from trading directly or indirectly in the commodities the standards of which he has been authorized to inspect.

2. Organizational structure for enforcing the law

Under the Export Standards Act of 1960, the Minister of Economic Affairs, in the execution of this Act, is vested with the power to appoint competent officials, official standards inspectors, standards-

certificate issuing authorities, and to issue ministerial Regulations fixing fees, and rules and regulations. He is also empowered to set up the Office of Standards and appoint the chief of this Office, as well as the chief of each branch office.

3. *Standards and specifications adopted*

Up to now only ten export commodities have been designated as "standardized commodities"; they are salt, castor seeds, maize, kapok fibre, kenaf and jute, tapioca (cassava) chips, tapioca (cassava) meal, teak conversions, sorghums, and silverware. Appropriate export standards have also been established for these ten commodities; appendices A to J attached show these standards. It will be noted that nine out of the ten export commodities so far controlled are agricultural and forest products. At present work is being prepared to declare one more manufactured goods, namely, Thai silk fabrics, as "standardized commodities".

4. *Manufacturers' associations and other organizations collaborating with the Government*

At present there are no manufacturers' associations which collaborate with the Government in maintaining standards and specifications for products in various industries. However, there is a government organization, the Applied Scientific Research Corporation of Thailand, which has been set up just recently to deal, among other things, with standards and specifications, especially of manufactured goods. This Corporation, together with the Department of Science of the Ministry of Industry, will endeavour to set up appropriate standards and establish proper methods of quality control of manufactured products in the future.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING, AND PROMOTING EXPORTS OF MANUFACTURED GOODS

a. **Broad strategy of action**

Thailand's broad strategy for accelerating industrial development is the encouragement of private-sector investment. The Thai Government will concentrate on the building and maintenance of infrastructure, the promotion of surveys and investigations of natural resources, and the provision of technical and other assistances to small-scale and cottage industries. The Government does not at present contemplate undertaking comprehensive planning and will not interfere in any way in the operation of private businesses. The Government, has, however, initiated some measures for quality control as a means of encouraging a wider demand for locally manufactured products.

Much of the resources of the Government is being spent on infrastructural projects which will facilitate private investment. The various policy measures adopted and already discussed in previous chapters are designed to create an economic environment conducive to private industrial investment. A balanced series of public institutions to stimulate both large and small private enterprises is being initiated.

Thailand's economy has advanced satisfactorily in recent years without the appearance of critical scarcities which would necessitate emergency programmes. Industrialization is expected to assume an increasingly significant role in raising incomes and creating employment in future balanced growth. The intensification of industrial development planned for the future will, however, require greater capital outlay and intensified efforts by the Government to maintain and even improve the necessary climate for private investment.

The diversification of manufacturing will be encouraged by measures which are compatible with the strategy described above.

The promotion of exports of manufactured products will be intensified as the production of these commodities increases. The Ministry of Economic Affairs and the Board of Trade will co-operate closely with the Ministry of Industry and the Board of Investment in finding suitable measures for expanding the foreign trade of the country in this growing and important field.

b. **External assistance needed**

As Thailand is very desirous of intensifying its industrialization, assistance in this direction is always welcome from all quarters. Some of the assistance that may be given by developed, as well as developing, countries concerns the establishment of joint-venture industries for the exploitation of raw materials and employment of manpower, on a basis of international division of labour, so as to overcome the handicap of the smallness of the domestic market. Specific industries and specific areas for which industrial branch agreements are required will have to be discussed as occasions arise. Another form of assistance that may be given by developed countries is the provision of technical know-how and capital, and institutional support to entrepreneurs to encourage their investment. Developed countries and international organizations can also help by providing facilities for fellowships and in-plant training for new or planned Thai industries. Developed countries can assist the infant industries by encouraging the import of some of the manufactured and semi-manufactured goods into their countries. The questions as to when and where these assistances are required, and in what form, and for what purpose, are being studied by competent officials. When these questions have been answered, the intended source of assistance will be approached.

Appendix A.
Standards for salt

1. Terms defined:
"Salt" means the salt product of sea water.
2. The standards requirement for salt shall be as follows:
It shall have a minimum sodium chloride content of 88 per cent by weight.
3. Where salt is transacted on a sample basis, its quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers.

Appendix B.
Standards for castor seeds

1. Terms defined:
 - (1) "Castor Seeds" means seeds of *Ricinus communis* whose seed walls have been decorticated.
 - (2) "Sound Seeds" means seeds which are not damaged or broken.
 - (3) "Damaged Seeds" means seeds which are immature, rotten, mouldy or burned by fire.
 - (4) "Broken Seeds" means seeds broken into pieces or depressed and their endosperms containing oil.
 - (5) "Oil" means oil enclosed in the castor seeds in the natural state.
 - (6) "Foreign Material" means all matter other than castor seed.
2. The standards requirements for castor seeds shall be as follows:
 - (1) They shall be sound seeds with maximum limits of tolerance for the following admixtures:

(a) damaged seeds	2.0 per cent by weight
(b) broken seeds	4.0 per cent by weight
(c) foreign material	0.5 per cent by weight
 - (2) The minimum limit of oil content shall be 47 per cent by weight.
 - (3) The maximum limit of moisture content shall be 7 per cent by weight.
3. Where there are differences or disputes regarding sound seeds, damaged seeds, or broken seeds, the latest samples provided by the Office of Standards shall be used as a basis for determination.
4. Where castor seeds are transacted on a sample basis, their quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers.
5. Where castor seeds are exported in gunny bags, the gunny bags used for packing shall be in good and sound condition suitable for export, and none of them shall be broken, leaking, patched or darned. The mouth of the bags shall be tightly sewn across and reverse not less than eleven stitches each way with double jute twine.

Appendix C.
Standards for maize

1. Terms defined:
 - (1) "Maize" means seeds of *Zea Mays* shelled from the cob.
 - (2) "Sound Seeds" means seeds which are not immature, damaged, weevilled, broken, or seeds of other colours.
 - (3) "Seeds of Other Colours" means seeds which are not of the colour agreed upon.
 - (4) "Immature Seeds" means seeds which have not fully developed.
 - (5) "Damaged Seeds" means rotten or mouldy seeds or those containing no starch.
 - (6) "Weevilled Seeds" means seeds damaged by weevils or other insects.
 - (7) "Broken Seeds" means seeds broken into pieces other than damaged seeds.
 - (8) "Foreign Material" means all matter other than maize.
2. The standards requirements for maize shall be as follows:
 - (1) They shall be sound seeds with maximum limits of tolerance for the following admixtures:

(a) seeds of other colours	0.5 per cent by weight
(b) immature seeds	0.7 per cent by weight
(c) damaged seeds	1.2 per cent by weight
(d) weevilled seeds	0.5 per cent by weight
(e) broken seeds	0.3 per cent by weight
(f) foreign material	0.5 per cent by weight
 - (2) The maximum limit of moisture content shall be 15 per cent by weight.
3. Where there are differences or disputes regarding sound seeds, immature seeds, damaged seeds, weevilled seeds, broken seeds or the colour thereof, the latest samples provided by the Office of Standards shall be used as a basis for determination.
4. Where maize is transacted on a sample basis, its quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers.
5. Where maize is exported in gunny bags, the gunny bags used for packing shall be in good and sound condition suitable for export, free from any smell affecting the quality of the content therein, and none of them shall be broken or leaking. The mouth of the bags shall be tightly sewn across and reverse not less than eleven stitches each way with double jute twine.

Appendix D.
Standards for kapok fibre

1. Terms defined:
 - (1) "Kapok Fibre" means natural fibre from kapok pod (*Ceiba pentandra*).

- (2) "Ordinary Kapok Fibre" means kapok fibre which has been separated from other parts of the kapok pod and the fibre is dispersed by the processes of spinning and winnowing.
 - (3) "Noppen" means kapok fibre in which, through the process of spinning but not winnowing, most of the fibre is still clinging together.
 - (4) "Old Kapok Fibre" means used kapok fibre, or brittle fibre, or fibre having a darker colour.
 - (5) "Foreign Material" means all matter other than kapok fibre or parts of the kapok pod.
2. Kapok fibre shall be divided into two types as follows:
 - (1) ordinary kapok fibre
 - (2) noppen
 3. Ordinary kapok fibre shall be divided into two grades as follows:
 - (1) special grade
 - (2) first grade
 4. Kapok fibre shall have a natural, creamy-white colour, free from foreign material, having moisture content not exceeding 12.5 per cent by weight, and shall not be old kapok fibre. In case there are parts of kapok pod, namely, pods, stalks, seeds, the maximum limits of tolerance shall be as follows:
 - (1) ordinary kapok fibre, special grade: 1.0 per cent by weight.
 - (2) ordinary kapok fibre, first grade: 2.0 per cent by weight.
 - (3) noppen: 7.0 per cent by weight.
 5. Where there are differences or disputes regarding sound ordinary kapok fibre, noppen, and the colour thereof, the latest samples provided by the Office of Standards shall be used as the basis for determination.
 6. Where kapok fibre is transacted on a sample basis, its quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers.
 7. Kapok fibre shall be packed by the following method:
 - (1) Kapok fibre shall be wrapped neatly with new hessian cloth, the ends of which are sewn firmly together with jute twine;
 - (2) A bale of kapok fibre which has already been wrapped with hessian cloth shall be fastened lengthwise by steel bands with a minimum width of 1.5 centimetres and a minimum thickness of 0.55 millimetre; at least 6 bands.
 8. Size and weight of the bale shall be as follows:
 - (1) Size: shall not exceed 0.51 cubic metre (18 cubic feet) and not less than 0.45 cubic metre (16 cubic feet).
 - (2) For each net weight of 100 kilogrammes of kapok fibre, a minimum limit of tolerance of 10 kilogrammes is allowed.

- (3) The maximum total weight for packing materials shall not exceed 5 kilogrammes. This is to be followed, with an exception only where the buyers have agreed otherwise, and the exporter has so declared in his application for the standards certificate.

9. The standards inspection shall be made on the minimum basis of 10 per cent of the total number of bales to be certified. A sample of not less than 20 grammes shall be drawn from each bale to be inspected.

Appendix E.

Standards for kenaf and jute

1. Terms defined:
 - (1) "Kenaf and Jute" means crude fibre of kenaf (*Hibiscus cannabinus*) and jute (*Corchorus capsularis* or *Corchorus olitorius*) obtained by process of retting.
 - (2) "Length" means the natural length of kenaf and jute.
 - (3) "Foreign Material" means all matter other than kenaf and jute.
 - (4) "Colour" means natural colour of kenaf and jute.
 - (5) "Softness" means softness of kenaf and jute.
 - (6) "Hard Root End" means stiff portion at the base of kenaf and jute.
 - (7) "Hard Top End" means stiff portion at the tip of kenaf and jute.
2. Kenaf and jute shall be classified into four grades, namely:
 - (1) "Super"
 - (2) "A"
 - (3) "B"
 - (4) "C"
3. Kenaf and jute of each grade shall be strong, not in the state of putrefaction, and not easily broken, and the maximum limit of their moisture content shall be 14 per cent by weight.
4. The grade requirements for kenaf and jute shall be as follows:
 - a. *Minimum length;*

for grade Super:	1.50 metres
for grade A	1.00 metres
and B:	
for grade C:	0.75 metres
 - b. *Maximum tolerance for admixture of foreign material;*

for grade Super:	2 per cent by weight
for grade A:	3 per cent by weight
for grade B:	4 per cent by weight
for grade C:	5 per cent by weight
 - c. *Colour and Softness;*

for grade Super:	shreeny white and very soft
for grade A:	white and soft

- for grade B: grayish white and moderately soft
- for grade C: dark and slightly soft.
5. Kenaf and jute of grade Super and grade A shall not consist of any hard root end whatever, whereas grade B shall not consist of hard root ends of more than 10 centimetres in length, and grade C can consist of hard root ends of any length.
 6. Kenaf or jute of grade Super, grade A, and grade B shall not consist of any hard top end whatever, whereas grade C can consist of hard top ends of any length.
 7. Where there are differences or disputes regarding colour, softness or strength, the latest samples provided by the Office of Standards shall be used as a basis for determination.
 8. Where kenaf or jute are transacted on a sample basis, their quality, with the approval of the Office of Standards, shall not be inferior to those agreed upon with the buyers.
 9. Kenaf and jute shall be packed in bales bound by a rope made of kenaf or jute of one or two centimetres in diameter. To bind the bale, fasten one end of the rope to one end of the bale first and then round up the bale in the form of loop totalling 10 to 12 rounds and finish up by fastening the remaining end of the rope tightly to the other end of the bale.
 10. Size and weight of the bale shall be as follows:
 - (1) Size: 48 centimetres in width and 120 centimetres in length with a maximum limit of tolerance of 5 centimetres;
 - (2) Weight: 180 kilogrammes (including the weight of the rope) with a maximum limit of tolerance of 5 kilogrammes.
 11. The standards inspection shall be made on the minimum basis of 5 per cent of the total number of bales to be certified. As regards the inspection of colour, softness, hard root end, hard top end and strength of kenaf and jute, the latest samples provided by the Office of Standards shall be used as a basis for inspection.

Appendix F.

Standards for tapioca chips

1. Terms defined:
 - (1) "Tapioca Chips" means processed cassava roots (*Manihot utilisima*, Pohl) which have been dried but not ground.
 - (2) "Fibre" means the part of cassava roots containing no starch.
 - (3) "Foreign Material" means all materials other than tapioca chips, fibre or soil.
2. Tapioca chips shall have a light colour without the mixture of foreign material and an unusually strong smell.

3. Tapioca chips shall be divided into two grades and the standards requirements for each grade shall be as follows:

- (1) Special grade tapioca chips shall contain starch, including carbohydrates which can be dissolved in water, not less than 72.0 per cent by weight and the maximum limit of their moisture content shall be 13.0 per cent by weight with maximum limit of tolerance for the following admixtures:

- (a) soil: 2.0 per cent by weight
- (b) fibre: 4.0 per cent by weight

- (2) First grade tapioca chips shall contain starch, including carbohydrates which can be dissolved in water, not less than 70.0 per cent by weight and the maximum limit of their moisture content shall be 14.0 per cent by weight with maximum limits of tolerance for the following admixtures:

- (a) soil: 3.0 per cent by weight
- (b) fibre: 5.0 per cent by weight.

4. Where there are differences or disputes regarding colour, the latest samples provided by the Office of Standards shall be used as a basis for determination.
5. Where tapioca chips are transacted on a sample basis, their quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers and the maximum limit of their moisture content shall be 14.0 per cent by weight.
6. Materials used for the packing of tapioca chips exported shall be gunny bags which shall be in good and sound condition suitable for export, free from any smell affecting the quality of the content therein, and none of which shall be broken or leaking. The mouth of the bags shall be tightly sewn across and reverse not less than 11 stitches each way with double jute twine.

Appendix G.

Standards for tapioca meal

1. Terms defined:
 1. "Tapioca Meal" means product of cassava derived from the grinding of cassava roots (*Manihot utilisima*, Pohl), but does not include tapioca flour.
 2. "Fibre" means the part of cassava roots containing no starch.
 3. "Foreign Material" means all materials other than tapioca meal, fibre, soil and moisture.
2. Tapioca meal shall be divided into two grades and the standards requirements for each grade shall be as follows:
 - (1) Special grade tapioca meal shall contain starch, including carbohydrates which can be dissolved in water, not less than 72.0 per cent by weight with maximum limits of tolerance

for the following admixtures:

- (a) soil: 2.0 per cent by weight
 - (b) fibre: 4.0 per cent by weight
 - (c) moisture: 13.0 per cent by weight
- (2) First grade tapioca meal shall contain starch, including carbohydrates which can be dissolved in water, not less than 70.0 per cent by weight with maximum limits of tolerance for the following admixtures:
- (a) soil: 3.0 per cent by weight
 - (b) fibre: 5.0 per cent by weight
 - (c) moisture: 14.0 per cent by weight
3. All grades of tapioca meal shall have a light colour without the mixture of foreign material and an unusually strong smell.
4. Where there are differences or disputes regarding colour, the latest samples provided by the Office of Standards shall be used as a basis for determination.
5. Where tapioca meal is transacted on a sample basis, its quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers.
6. Tapioca meal must be exported in gunny bags. The gunny bags used for packing shall be in good and sound condition suitable for export, free from any smell effecting the quality of the content therein, and none of which shall be broken or leaking. The mouth of the bags shall be tightly sewn across and reverse not less than 11 stitches each way with double jute twine.

Appendix H.

Standards for teak conversions

1. Terms defined:

- (1) "Teak Conversions" means converted timber derived from the sawing of teak (*Tectona grandis*), but does not include teak squares, Parquet, and veneers for use in the manufacture of plywood.
- (2) "Sap" is the outer band of the living cells in a tree which are engaged in sap conduction and food storage. On the cross section of a log, the sap-wood appears in that portion between the heartwood and the bark.
- (3) "Heartwood" is that portion of the wood between the sap-wood and the pith or heart-centre.
- (4) "Pith or Heart-Centre" is the small soft core occurring in the structural centre of a log around which the growth of a tree is formed. It is softer than the surrounding heartwood, but the softness has not been induced by decay.
- (5) "Wavy Grain" means a wavy growth of the fibres usually appearing in flat sawn timber.
- (6) "Curly Grain" means a wavy growth of the fibres which is difficult to plane and to work.
- (7) "Sound Knot" is a knot solid across its face and is as hard as or harder than the surrounding wood to which it is firmly joined.
- (8) "Unsound Knot" is a knot which is softer than the surrounding wood because it contains decay.
- (9) "Loose Knot" when in an unsound knot, the decay is so advanced that the decayed portion will disintegrate leaving a hole in the knot, then the knot becomes a loose knot or hollow knot.
- (10) "Beeholes" are holes in the wood caused by the larvae of *Xyletus ceramica*.
- (11) "Small Beeholes": A beehole is called a small beehole when the average diameter of the hole does not exceed 0.8 centimetre (5/16 inch).
- (12) "Large Beeholes": A large beehole has an average diameter exceeding 0.8 centimetre (5/16 inch).
- (13) "Pinholes" are tiny holes in the wood caused by wood-boring insects which may be in clusters or scattered about on the surface of the log or sawn pieces. Pinholes are about the size of pinheads or smaller.
- (14) "Split" is a longitudinal separation of fibres which extends to the opposite face or the adjoining end of a piece.
- (15) "Cracks" are caused by surface checks. When a crack reaches an advanced stage, it causes a permanent separation of wood fibres, but the separation does not extend to the opposite face or the adjoining end of a piece.
- (16) "Inbark" is the bark enclosed in the stem of a tree by later growth.
- (17) "Black Streaks" are lines blackish in colour, and are present in some pieces. Black Streaks (as differentiated from "Black Stripes") are considered a defect because they indicate the liability to develop into cracks.
- (18) "Discoloration" is stain, or variation from the natural colour of the wood, caused by fungus attack or by oxidation due to long exposure.
- (19) "Cut full" means sawing pieces into slightly above the nominal size to allow for subsequent shrinkage and further waste in planing and dressing.
- (20) "Sawn Square" means really careful sawing so that the cross-cut ends and the longitudinal edges of the pieces are at right angles to one another.
- (21) "Bark-Pockets" are marks occurring in pieces caused by the loosened inbark.
- (22) "Defect" is a feature natural or induced that reduces the economic value of a piece of timber by decreasing its strength or affecting adversely its working or finishing qualities or its appearance, such as: sap, wavy grain,

- curly grain, sound knots, unsound knots, loose knots, bee-holes, pinholes, splits, cracks, inbark, black streaks, discoloration, and bark-pockets.
2. Teak conversions shall be classified into eight kinds of dimensioned stocks as follows:
 - (1) *Boards* length 91.44 cm (3 ft) and up
width 15.24 cm (6 in) and up
thickness 1.27 cm (1/2 in) up to 5.72 cm (2 1/4 in)
 - (2) *Board ends* length 15.24 cm (6 in) up to under 91.44 cm (3 ft.)
width 15.24 cm (6 in) and up
thickness 1.27 cm (1/2 in) up to 5.72 cm (1 1/4 in)
 - (3) *Decks* length 3.05 cm (10 ft) and up
width 10.16 cm (4 in) up to 12.70 cm (5 in)
thickness 5.08 cm (2 in) up to 7.62 cm (3 in)
 - (4) *Margin pieces* length 2.44 cm (8 ft) and up
width 15.24 cm (6 in) and up
thickness 5.08 cm (2 in) up to 7.62 cm (3 in)
 - (5) *Fitches* length 2.13 cm (7 ft) and up
width 17.78 cm (7 in) and up
thickness 12.70 cm (5 in) and up
 - (6) *Planks* length 91.44 cm (3 ft) and up
width 15.24 cm (6 in) and up
thickness 6.35 cm (2 1/2 in.) and up
 - (7) *Plank ends* length 15.24 cm (6 in) up to under 91.44 cm (3 ft)
width 15.24 cm (6 in) and up
thickness 6.35 cm (2 1/2 in) and up
 - (8) *Scantlings* length 15.24 cm (6 in) and up
width 2.54 cm (1 in) up to under 15.24 cm (6 in)
thickness 1.27 cm (1/2 in) up to under 15.24 cm (6 in)
 3. Boards, board ends, planks, plank ends, and scantlings, shall be classified into five grades with the following names:
 - (1) European First Class.
 - (2) European Good Second Class or Intermediate.
 - (3) European Second Class or Ordinary.
 - (4) Indian First Class.
 - (5) Indian Second Class.
 4. The standards requirements for each of the grades of teak conversions named in 3 above shall be as follows:
 - A. *EUROPEAN FIRST CLASS*
 - (1) Must be free from sap, heart-centre, pinholes in clusters of more than five, unsound knots, loose knots, splits, cracks, and inbarks.
 - (2) In any piece bearing wavy grain, curly grain, black streaks, and/or discoloration, the aggregate length of these defects together shall not exceed 5 per cent of the length of the piece.
 - (3) Any piece which is not less than 2.74 metres (9 ft) in length or not less than 22.78 cm (9 in) in width and which is free from wavy grain, curly grain, and discoloration in accordance with (2) above, but has black streaks, must not have more than one sound knot of up to 1.90 cm (3/4 in) in diameter or more than one bee-hole of up to 0.80 cm (5/16 in) in diameter.
 - (4) Any piece which is not less than 1.83 metres (6 ft) in length and not less than 15.24 cm (6 in) in width must not have more than one sound knot of up to 1.90 cm (3/4 in) in diameter or more than one bee-hole of up to 0.80 cm (5/16 in) in diameter, and the number of pieces carrying such defects must not exceed 5 per cent of the total number of pieces of the same kind and grade to be certified.
 - B. *EUROPEAN GOOD SECOND CLASS OR INTERMEDIATE*
 - (1) Must be free from heart-centre, unsound knots, loose knots, splits, and cracks.
 - (2) In any piece bearing wavy grain or black streaks, or both, the aggregate length of these defects together shall not exceed 50 per cent of the length of the piece.
 - (3) In any piece bearing discoloration, the length of the discoloration shall not exceed 10 per cent of the length of the piece.
 - (4) No piece shall have more than one sound knot of up to 1.90 cm (3/4 in)

in diameter or one beehole of up to 1.27 cm (½ in) in diameter.

- (5) If any piece which is not less than 10.16 cm (4 in) in width, contains sap-wood, this sap-wood must not be more than 1.27 cm (½ in) in width and more than 0.63 cm (¼ in) in thickness, and the number of pieces carrying such sap-wood must not exceed 10 per cent of the total number of pieces of the same kind and grade to be certified.
- (6) In any piece which is less than 10.16 cm (4 in) in width and is free from all other defects except sap-wood, the sap-wood must not be more than 1.27 cm (½ in) in width and more than 0.63 cm (¼ in) in thickness.
- (7) Any piece which is not less than 1.83 metres (6 ft) in length shall not contain more than two sound knots of up to 1.27 cm (½ in) in diameter, or two beeholes of up to 0.63 cm (¼ in) in diameter, or a combination of one sound knot and one beehole of the afore-mentioned sizes, and the distance between the two defects in each piece must be at least half the length of that piece.
- (8) Any piece which is not less than 2.44 metres (8 ft) in length and not less than 10.16 cm (4 in) in width, or which is not less than 1.83 metres (6 ft) in length and not less than 20.32 cm (8 in) in width, shall not contain more than two sound knots, or two beeholes, or a combination of one sound knot and one beehole, of sizes as specified in (4) (irrespective of the distance between the two defects).
- (9) Any piece which is not less than 3.05 metres (10 ft) in length and not less than 25.40 cm (10 in) in width shall not contain more than three sound knots, or three beeholes, or a combination of altogether three sound knots and beeholes, of sizes as specified in (4), but all the three defects must not be on the same side of the piece.
- (10) All pieces must have one broad side and one edge clear of defects.

C. EUROPEAN SECOND CLASS OR ORDINARY

- (1) Must be free from heart-centre, unsound knots, loose knots, and splits.
- (2) No piece shall have more than two sound knots each of up to 1.90 cm (¾ in) in diameter or two beeholes each of up to 1.27 cm (½ in) in diameter,

or a combination of one sound knot and one beehole of the afore-mentioned sizes.

- (3) If any piece which is not less than 10.16 cm (4 in) in width, contains a sap-wood, this sap-wood must not be more than 1.27 cm (½ in) in width and more than 0.63 cm (¼ in) in thickness, and the number of pieces carrying such sap-wood must not exceed 20 per cent of the total number of pieces of the same kind and grade to be certified.
- (4) In any piece which is less than 10.16 cm (4 in) in width and is free from all other defects except sap-wood, the sap-wood must not be more than 1.90 cm (¾ in) in width and more than 0.63 cm (¼ in) in thickness.
- (5) Any piece which is not less than 2.44 metres (8 ft) in length and not less than 10.16 cm (4 in) in width, or which is not less than 1.83 metres (6 ft) in length and not less than 20.32 cm (8 in) in width, shall not contain more than three sound knots or three beeholes, or a combination of altogether three sound knots and beeholes, of sizes as specified in (2), but all the three defects must not be on the same side of the piece.
- (6) Any piece which is not less than 3.05 metres (10 ft) in length and not less than 15.24 cm (6 in) in width, or which is not less than 1.83 metres (6 ft) in length and not less than 24.45 cm (10 in) in width, shall not contain more than four sound knots or four beeholes, or a combination of altogether four sound knots and beeholes, of sizes as specified in (2), but all the four defects must not be on the same side of the piece.
- (7) No piece shall have cracks which are more than 0.32 cm (⅛ in) in width each and which are more than 30 per cent of the length of the piece in aggregate length.

D. INDIAN FIRST CLASS

- (1) Must be free from heart-centre and splits.
- (2) In any piece which contains sap-wood, this sap-wood must not be more than 1.90 cm (¾ in) in width and 1.27 cm (½ in) in thickness, and the number of pieces carrying such sap-wood must not exceed 30 per cent of the total number of pieces of the same kind and grade to be certified.

- (3) In any piece which contains sound knots and/or beeholes, but no unsound knots or loose knots, each of the sound knots must not exceed 2.54 cm (1 in) in diameter and the aggregate of the diameters of all the sound knots must not exceed 5.08 cm (2 in), and each of the beeholes must not exceed 1.90 cm (¾ in) in diameter and the aggregate of the diameters of all the beeholes must not exceed 3.81 cm (1½ in), and the total number of such sound knots, or such beeholes, or of a combination of such sound knots and such beeholes, must not exceed three.
 - (4) Any piece which is not less than 2.44 metres (8 ft) in length and not less than 15.24 cm (6 in) in width, or which is not less than 1.83 metres (6 ft) in length and not less than 20.32 cm (8 in) in width, shall not contain more than five sound knots or five beeholes, or a combination of altogether five sound knots and beeholes, of sizes as specified in (3), but all the five defects must not be on the same side of the piece.
 - (5) In any piece which contains unsound knots or loose knots, but no sound knots, the diameter of these unsound knots or loose knots shall not be more than half of that for sound knots prescribed in (3) and (4).
 - (6) No piece shall have cracks which are more than 0.32 cm (1/8 in) in width each and which are more than 40% of the length of the piece in aggregate length.
- E. INDIAN SECOND CLASS**
- (1) Must be free from heart-centre and splits.
 - (2) In any piece which contains sap-wood, this sap-wood must not be more than 2.54 cm (1 in) in width and 1.90 cm (¾ in) in thickness, and the number of pieces carrying such sap-wood must not exceed 50 per cent of the total number of pieces of the same kind and grade to be certified.
 - (3) In any piece which contains sound knots and/or beeholes, but no unsound knots or loose knots, each of the sound knots must not exceed 3.17 cm (1¼ in) in diameter and the aggregate of the diameters of all the sound knots must not exceed 9.52 cm (3¾ in), and each of the beeholes must not exceed 1.90 cm (¾ in) in diameter and the aggregate of the diameters of all the beeholes must not exceed 7.62 cm (3 in), and the total number of such sound knots, or such beeholes, or of a combination of such sound knots and such beeholes, must not exceed four.
 - (4) Any piece which is not less than 2.44 metres (8 ft) in length and not less than 15.24 cm (6 in) in width, or which is not less than 1.83 metres (6 ft) in length and not less than 20.32 cm (8 in) in width, shall not contain more than six sound knots or six beeholes, or a combination of altogether six sound knots and beeholes, of sizes as specified in (3), but all the six defects must not be on the same side of the piece.
 - (5) In any piece which contains unsound knots or loose knots, but no sound knots, the diameter of these unsound knots or loose knots shall not be more than half of that for sound knots prescribed in (3) and (4).
 - (6) No piece shall have cracks which are more than 0.32 cm (1/8 in) in width each and which are more than 50 per cent of the length of the piece in aggregate length.
5. The standards requirements for decks, margin pieces and fitches, which shall be called "standard grade", shall be as follows:
 - (1) Must be free from sap, heart-centre, unsound knots, loose knots, splits and cracks.
 - (2) In any piece carrying discoloration, the length of the discoloration must not exceed 5 per cent of the length of the piece.
 - (3) No piece shall have more than one sound knot of up to 3.81 cm (1½ in) in diameter or one beehole of up to 1.27 cm (½ in) in diameter.
 - (4) In any piece which contains more than one sound knot or more than one beehole, the aggregate of the diameters of the sound knots must not exceed 3.81 cm (1½ in) and the diameter of each beehole must not exceed 1.27 cm (½ in), and the total number of sound knots and/or beeholes together must not exceed two. None of these sound knots or beeholes shall be in the middle of the edge of the piece.
 - (5) All pieces must have one broad side and one edge free of defects specified in (3) and (4).
 6. All kinds of dimensioned stocks shall be well manufactured, sawn square and free from warps or twists, and shall contain no rotting or decayed parts, or any pluggings or any attempts to cover up defects.
 7. Any piece of any kind of dimensioned stock, which is not less than 3.05 metres (10 ft) in

- length, is bent, the maximum deviation of the most bent part from the straight line drawn between the two ends of the piece must not exceed 2.54 cm (1 in).
- 8 All decks and margin pieces shall be cut full, allowing 0.32 cm ($\frac{1}{8}$ in) both in width and thickness for subsequent working.
 - 9 Teak conversions of the grades European First Class, European Good Second Class or Intermediate and European Second Class or Ordinary shall be sawn parallel to the general direction of the grain of the log. If they are sawn obliquely, the obliquity to the general direction of the grain must not exceed 10 degrees when the width of the piece is considered.
 - 10 For the assessment of defects value, the following rules shall be applied:
 - (1) unless otherwise specified in this Standards, each of the defects enumerated in 1.(22) shall be counted as one unit of defect;
 - (2) a bark-pocket shall have a defect value of one-third of that of a small beehole;
 - (3) an unsound knot or a loose knot shall have a defect value of twice that of a sound knot;
 - (4) a sound knot or a beehole which occurs at a corner and appears on any two sides of all grades (except European First Class) of teak conversions shall be counted as one sound knot or one beehole only;
 - (5) the diameter of a knot or a beehole shall be the mean of its longest and shortest diameters.
 - 11 Where there are differences or disputes regarding defects, or other characters of teak conversions, the latest samples provided by the Office of Standards shall be used as a basis for determination.
 12. Where teak conversions are transacted on a sample basis, their quality, with the approval of the Office of Standards, shall not be inferior to the samples or the conditions which have been agreed to by the buyers.
 13. Where the teak conversions are to be packed or fastened into bundles, they must be correctly packed or fastened with strong and durable materials suitable for export.
- (5) "Broken Grains" means grains broken into pieces other than damaged grains.
 - (6) "Foreign Material" means all matter other than sorghums.
2. The standards requirements for sorghums shall be as follows:
 - (1) They shall be sound grains with maximum limits of tolerance for the following admixtures:

(a) damaged grains	5.0 per cent by weight
(b) weevilled grains	1.5 per cent by weight
(c) broken grains	8.0 per cent by weight
(d) unhusked grains	3.0 per cent by weight
(e) foreign material	1.5 per cent by weight
 - (2) The maximum limit of moisture content shall be 15.0 per cent by weight.
 3. Where there are differences or disputes regarding damaged grains, weevilled grains, broken grains, or unhusked grains, the latest samples provided by the Office of Standards shall be used as a basis for determination.
 4. Where sorghums are transacted on a sample basis, their quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers.
 5. Where sorghums are exported in gunny bags, the gunny bags used for packing shall be new Heavy Cee gunny bags of the same size and weight as those used for packing rice, and shall be in good and sound condition suitable for export, free from any smell affecting the quality of the content therein, and none of them shall be broken or leaking. The mouth of the bags shall be tightly sewn across and reverse not less than eleven stitches each way with double jute twine.

Appendix J.

Standards for Thai silverware

1. Terms defined:
 - (1) "Thai Silverware" means plain silverware, niello silverware colour-enamelled silverware manufactured in Thailand.
 - (2) "Plain Silverware" means articles manufactured from silver metal, other than niello silverware or colour-enamelled silverware.
 - (3) "Niello Silverware" means articles manufactured from silver metal and decorated with black niello enamel inlay.
 - (4) "Colour-Enamelled Silverware" means articles manufactured from silver metal and decorated with colour enamel inlay.
 - (5) "Niello Enamel" means chemical compound which contains metal silver to the extent of not less than 8 per cent by weight and is used for niello enamelling of niello silverware.

Appendix I.

Standards for sorghums

1. Terms defined:
 - (1) "Sorghums" means grain sorghums whose husks have been removed.
 - (2) "Sound Grains" means grains which are not damaged, weevilled, or broken.
 - (3) "Damaged Grains" means rotten, mouldy, sprouting or immature grains or those containing no starch.
 - (4) "Weevilled Grains" means grains damaged by weevils or other insects.

- (6) "Colour Enamel" means chemical compound which is used for colour enamelling of colour-enamelled silverware.
2. The standards requirements for Thai silverware shall be as follows
- (1) Thai silverware shall be manufactured from standardized metal silver, i.e., metal silver with not more than 7.5 per cent by weight of other metal impurities.
 - (2) All parts of Thai silverware shall be strong, durable and well finished.
 - (3) The niello enamel used in the niello silverware and the colour enamel used in the colour-enamelled silverware shall adhere strongly to the silver metal and the inlay so formed shall be clean and well finished.
 - (4) All connections, or joints in Thai silverware, no matter in what way they are made, shall be strong, durable and well finished.
- (5) The enamel inlay of Thai silverware shall be clear, distinct, and well finished.
 - (6) Thai silverware shall be in good and sound condition and shall not be damaged in any way.
3. Where there are differences or disputes regarding the stipulations in 2(2), (3), (4), (5), or (6) above, the latest samples provided by the Office of Standards shall be used as a basis for determination.
 4. Where Thai silverware is transacted on a sample basis, its quality, with the approval of the Office of Standards, shall not be inferior to that agreed upon with the buyers.
 5. Thai silverware shall be well wrapped and packed. The wrapping used shall be of clean material which shall not cause tarnish to the wrapped Thai silverware, and the packing employed shall be strong enough to give full protection from damage to the Thai silverware.

D03930

A COUNTRY STUDY ON THE REPUBLIC OF VIET-NAM

I. PLANNING AND PROGRAMMING FOR INDUSTRIALIZATION

a. Brief history of industrial planning and programming

A central planning organization has been in existence since 1948. Before 1955, it constituted part of various ministries which were successively called the Ministry of Economic Affairs and Planning (1949), the Ministry of Public Works and Planning (1950), the Ministry of Planning and Reconstruction (1951), the Ministry of Finance and the Economic Affairs (1952), the Ministry of Planning and Reconstruction (1954), and the Ministry of Finance and Planning (1955).

Finally, by a presidential decree dated 14 November 1955, the General Directorate of Planning was set up and attached to the Executive Office of the President of the Republic.

Some modifications have since been made to the original structure of the General Directorate of Planning. From 1 November 1963, it has been attached to the Office of the President of the Council, and recently it was placed under the authority of the Deputy Prime Minister responsible for Planning.

The General Directorate of Planning has drawn up two five-year plans, each of which made some provision for industrialization programmes. The aim of the first plan (1957-1961) as regards industries was to develop those industries processing local products, so as to expand industrial production by 25 per cent in five years.

The aim of the second plan is to develop basic industries, at the same time pursuing the long-term objectives of the first plan.

b. Machinery for planning

In accordance with the presidential decree No. 157 of 14 November 1955 and an arrêté of 25 January 1956, the General Directorate of Planning consists of the following agencies, headed by a Director-General:

Administrative Service
Directorate of Studies and Planning
Directorate of Technical Assistance.
Co-ordination and Control
Group of Experts and Assistants.

Note: The exchange rate used in this study is US\$1 = 60 piastres.

The Directorate of Studies and Planning is divided into three sections, known as the Service of Economic Studies, the Service of Technical Studies and the Service of Social Studies. Each section is in turn divided into two bureaus.

The Directorate of Technical Assistance, Co-ordination and Control is made up of the Technical Assistance Service and the Service of Co-ordination and Control.

The Group of Experts and Assistants is composed of national experts appointed by the President of the Republic and foreign experts assigned by international organizations.

The Directorate of Studies and Planning is headed by a director and acts through its three services and six bureaus. The task of the Directorate is to study the following subjects:

- general economic matters,
- economic aspects of the Plan,
- financial aspects of the Plan,
- the agricultural development plan,
- forest, fishery and livestock matters,
- secondary industries,
- the industrial development plan,
- the handicrafts development plan,
- related matters,
- transportation (land, sea, and air),
- power (electric, hydro-electric, fuel, etc.).
- multi-purpose projects,
- questions relating to medical assistance,
- education and social work
- social security,
- salaries and wages,
- vocational training and guidance,
- distribution of manpower and full employment.

The Directorate of Technical Assistance, Co-ordination and Control deals with the following matters:

- documentation on technical training;
- training fellowships;
- preparation of report to the National Fellowships Commission and implementation of the Commissions' decisions;
- assessment of results obtained from technical training and fellowships;
- liaison with national and international organizations on matters of technical assistance;
- study and implementation of technical assistance programmes arranged through agencies of

the United Nations, the Colombo Plan, and bilateral agreements;
 representation at international technical conferences;
 liaison with various departments in studying the programmes and projects;
 co-ordination of these programmes;
 inter-ministerial meetings, aimed at harmonizing projects;
 supervision of project implementation;
 study of work projects requiring the participation of the Director-General of Planning.

The Director-General is also assisted by a group of experts and assistants made up of Vietnamese experts and experts assigned by international organizations. The Vietnamese experts are appointed by the President of the Republic upon the recommendation of the departments or directorates concerned, as representatives of these departments and directorates in the group.

II. INDUSTRIAL POTENTIAL

a. Industrial feasibility surveys

There has as yet been no general census of industries but partial sample surveys have been undertaken by various national organizations.

1. *Manpower survey*

A survey programme aimed at gathering together information on the manpower situation has been drawn up and carried out by the Ministry of Labour. The surveys were carried out in 1957, 1960 and 1961 in the public and private sectors, covering workers in commercial and industrial enterprises in Saigon and in the provinces, and also civil servants and plantation workers.

The survey principles and methods were formulated in collaboration with the National Statistics Institute (NSI) and the ILO. Three main lines of procedure were adopted:

- a systematic survey of all enterprises having more than ten workers;
- a simple survey of enterprises paying a licence fee of 200 piastres or more;
- an estimate of the number of workers in enterprises paying a licence fee of less than 200 piastres.

According to these surveys, 33,760 enterprises in the capital are classified as follows:

- 2,003 enterprises with more than ten workers;
- 22,424 enterprises paying an annual licence fee of more than 200 piastres;
- 9,333 enterprises paying an annual licence fee of less than 200 piastres.

2. *1961 industries survey*

This survey was undertaken by the NSI. The sampling method was used for establishments subject

of fixed licence fees of less than 200 piastres (sample rate of 1 in 20 in Saigon and 1 in 10 in the provinces). For establishments subject to fixed licence fees of 200 piastres or more, the questionnaires were sent by post. The direct interview method was used for all the other establishments.

From the domestic point of view, the aim of this survey was to assemble the necessary information on the country's economic activities to provide government and business circles with the basic data needed to guide the economy of the country.

On the international level, it contributed to the world programme of basic statistics collection recommended by the United Nations Economic and Social Council.

The survey covered a total of 132,971 establishments, which corresponded to about 70 per cent of the number of licences in the provinces of south Viet-Nam, 80 per cent in the delta area of central Viet-Nam and 58 per cent in the highlands of Central Viet-Nam.

3. *Survey of employment in industry in 1961*

This sample survey of the city of Saigon and the provinces was also undertaken by the NSI. The method used varied according to the size of the enterprise: small and medium-scale enterprises were surveyed by direct interview and large enterprises were dealt with by sending questionnaires through the post.

The sample rate also varied according to the size of the enterprise. Firms employing more than ten persons were subjected to a systematic survey and the others were selected at rates varying from 1 in 5 to 1 in 20.

4. *Survey of employment in industry in 1964*

This survey was carried out in Saigon and Gia-Dinh. The methods used were those of direct interview and of sending questionnaires through the post. All the enterprises engaged in the various branches of economic activity in the city were approached, and all replied.

5. *Three-monthly surveys of industrial production in Viet-Nam*

These sample surveys have been made every three months since 1963. Questionnaires are distributed by survey offices or sent by post.

The number of firms covered in the sample is of the order of 200, belonging to branches 1, 2, 3, 4 and 5 of the International Standard Industrial Classification (ISIC). These firms account for 75 per cent of the country's total industrial production.

The surveys are designed to provide information on production, so that the index of industrial production may be calculated.

6. Industry census

Within the framework of the next five-year plan, the General Directorate of Planning is carrying out a census of industries in order to establish a list of priority industries which are to be encouraged.

b. Resources survey

Some data on the main agricultural resources are shown in table 1, and data on mineral sources in table 2.

TABLE 1. MAIN AGRICULTURAL RESOURCES, 1963

Product	Area (hectares)	Production (tons)	Exports (tons)	Imports (tons)
Rice	2,539,000	5,306,000	322,570	
Rubber	145,000	76,200	68,928	
Jute	860	1,300		127
Kenaf	4,500	3,600	69	
Tobacco	8,000	8,700		2,510
Sugar cane	29,600	943,000		
Coconuts	43,800	145 million coconuts		
Wood	3,300,300 ^a	364,750		
Groundnuts	35,287	32,186		

Source: Viet-Nam Statistics Yearbook.

^a Exploitable forest area.

TABLE 2. MINERAL RESOURCES: PRODUCTION, EXPORTS, AND IMPORTS, 1963

(tons)

Product	Production	Exports	Imports
Coal	104,090	20,595	
Salt	127,534		12,950 ^a
Phosphate	70,755 ^b		

Source: USOM Annual Statistical Bulletin

^a Source An-Hoa-Nong-Son

^b 1960 production figure

c. Infrastructure

1. Transport

(a) Road transport

The situation regarding road development from 1962 to 1964 is shown in table 3.

TABLE 3. PRODUCTION OF ROAD DEVELOPMENT IN VIET-NAM, 1962-1964

(km)

Year	Asphalt	Macadam	Earth	Total
1962	4,853	3,566	9,629	18,048
1963	5,166	3,705	10,690	19,561
1964	5,405	3,739	10,570	19,814

Source: Ministry of Public Works

The length of roads newly asphalted under the terms of the second five-year plan has exceeded the target by 100 km (5,405 compared with 5,300). The Ministry of Public Works anticipates that a further 450 km will be added before December 1966. As a result of the damage caused by recent floods

in central Viet-Nam, however, it is feared that a large part of this effort will have to be transferred to the rebuilding of damaged roads.

(b) Railways

The length of railways is of the order of 1,250 km, and the main line runs from Saigon to Dong-Ha (central Viet-Nam). The amount of freight transported in 1963 was 398,000 tons and the number of passengers 1,368,000.

In the second five-year plan, emphasis is placed on the modernization of existing lines, the reconstruction of stations and the replacement of steam locomotives by diesel-electric locomotives, rather than on extending the length of track.

(c) Air transport

Air transport is little used as a means of internal transport, since its cost is too high compared with that of other means of transport.

Almost all the air traffic goes through Tan-Son-Nhat airport, a few kilometres from Saigon. This is a category A international airport which can receive supersonic aircraft.

Another objective of the second plan is to modernize about twentyfive provincial airfields and to extend their sphere of activities. The construction of new airfields does not come within the country's future economic needs.

(d) Waterways and sea transport

The three main seaports in Viet-Nam are Saigon (south Viet-Nam), Tourane (central Viet-Nam), and Tan-Chau (near the Cambodian border).

Sea transport plays a leading role in the country's external trade. In 1962, it accounted for a total tonnage of 2,086,000 tons of goods transported, of which 90 per cent passed through the port of Saigon.

Under the second plan, the port of Tourane is to be expanded and the equipment and facilities in the ports of Saigon and Tourane are to be modernized.

It is estimated that the length of navigable waterways was 4,800 km in 1962. Navigation on the canals of the south Viet-Nam plain is hampered by the annual silting up; with alluvial deposits from the Mekong. The second plan provides for dredging to remove about 25 million cubic metres of alluvium, the excavation of 200 km of new canals in the delta region, and the modernization of the signalling system.

2. Electric power

The installed capacity in Viet-Nam in 1964 was estimated at about 219,000 kW, the sources being as follows:

Eight thermal stations	94,000 kW
Danhim hydro-electric station	80,000 kW
Private sector	45,000 kW

Consumption is of the order of 450,106 kWh. Three other projects envisaged in the second plan are:

Danhim (second stage)	80,000 kW
Thu — Duc station	33,000 kW
An-Hoa — Nong-Son	25,000 kW
	138,000 kW

It is anticipated that the completion of these projects will bring the installed capacity up to 300,000 kW (excluding the private sector), which could mean an annual production of $1,300 \times 10^6$ kWh.

III. INDUSTRY POLICY

a. Investment laws and regulations

1. Basic legislation

Before 1963, the presidential declaration of 5 March 1957 defined investment policy and laid down the advantages to be granted to new investors. The various terms of this declaration were described in a memorandum dated 11 September 1957.

Since 1963, conditions for private investment in Viet-Nam have been fixed by Decree-Law No. 2/63 of 14 February 1963, which applies to new investments by Vietnamese or foreign persons, whether individuals or corporate bodies.

The advantages provided by this Decree-Law are granted to the following types of enterprises:

- enterprises whose activities are included in the list of priority activities;
- enterprises whose planned investment includes actual initial investment expenditure amounting to more than 500,000 piastres for agricultural concerns or 1 million piastres for industrial and other enterprises.

A commission known as the Investments Commission is responsible for studying and advising upon all matters connected with the execution of Decree-Law No. 2/63.

In particular, it has the following functions:

- to examine investment applications;
- to give its opinion on the advisability of approving an application;
- to follow the operations of enterprises which have been approved, during the period in which they enjoy the concessions;
- to give advice on the interpretation of the provisions contained in Decree-Law no. 2/63.

The tax concessions provided for in the Decree-Law are briefly as follows:

- exemption from capital duty;
- exemption from duties on loan agreements for a period of two years from the time of approval under the Decree-Law;
- exemption from payment of the provisional sum due as stockholder's tax up until the first distribution of dividends;
- exemption from import duties on equipment and spare parts;

exemption from land tax on installations up to and including the third year following the financial year in which the plant came into operation;

exemption from land tax on crops up to and including the second harvest year;

exemption from area and volume rents for mining or quarrying operations up to the third production year;

exemption from taxes on incomes derived from trade and manufacture for five years, and on incomes derived from agricultural operations with deferred yield up to the second harvest year inclusive;

exemption from stockholders' tax on dividends distributed from profits exempted from profits tax;

exemption from stockholders' tax in cases where the capital is increased by incorporating reserves;

exemption from tax on the salaries and wages of technicians for a period of two years;

exemption from provisional reserves.

Other advantages of a general financial nature provided in the Decree-Law are:

- the principle of non-nationalization;
- the principle of non-discrimination;
- the remittance of profits and withdrawal of capital;
- additional amortization.

2. Other pertinent laws and regulations

(a) Control of capital issue

Capital issue is regulated by Vietnamese law, which authorizes the formation of companies of the following types:

Associations of persons:

General partnerships

Sleeping partnerships

Private companies

Associations of capital:

Limited companies

Partnerships limited by shares.

General partnerships

Companies of this type were fairly numerous in Viet-Nam until 1953. They had the fiscal advantages that the distributed profits were not subject to stockholders tax.

By an ordinance of 31 July 1953, general partnerships were grouped together, purely for taxation purposes, with associations of capital. The profits acquired by the partners in a general partnership are now wholly subject to two schedule taxes, the tax on incomes derived from trade and the stockholder's tax, and a surtax.

These taxes are payable by each of the partners personally. For that reason, general partnerships no longer present any advantage and they have almost all been converted into private companies.

Sleeping partnerships

These associations consist of active partners and sleeping partners. The active partners, who have ideas but little capital, have unlimited liability, while the sleeping partners, who have capital, are liable only for the amount of capital they provide.

Under the present circumstances in Viet-Nam, this type of company is rather attractive. It allows young entrepreneurs to obtain from friends the financial means they need to develop an enterprise.

Private companies

The basic legislation on private companies is contained in the act of 7 March 1925.

In a private company, the number of members is not limited. It may be as little as two. It is worth noting that the members are not engaged in trade, as they are in the case of general partnerships. If the company goes bankrupt, this does not mean that they too go bankrupt.

In Viet-Nam, there is no law fixing the minimum amount of registered capital, but the Investments Commission takes the amount of capital provided into account in studying the application file. This type of company is recommended when the capital is from 5 million to 50 million piastres.

The establishment of a private company involves the following formalities:

Drafting of the articles. It is recommended that an approach be made to the Industrial Development Centre or to specialists for drafting the article.

Registration of the articles in quadruplicate within six months of their date.

Filing of two original copies of the articles at the registry office of the commercial court, the other two copies remaining with the directors of the company.

Publication of extracts from the articles in a journal of legal announcements. Here again, it is recommended that the assistance of the Industrial Development Centre or specialists be sought in drafting these extracts.

Depositing of two forms at the registry office, signed and certified by the directors and accompanied by two copies of the journal in which the extracts were published, duly registered.

Depositing of a notification of existence (completion of an official form) and a certified true copy of the articles at the Fifth Registration Office Companies.

Depositing of a certified true copy of the articles at the Office of Direct Taxation (Corporate Bodies).

Depositing of one copy of the articles at the office of the Secretary of State for Finance Statistics Department).

Depositing of one copy of the articles at the Office of Control of Direct Taxation (Licence Department).

Request for budgetary registration of the company at the Directorate of Taxation.

Copies of the articles are generally required by the company's bank, the Post Office and the Prefecture of Saigon.

Limited companies

The publishing rules are identical to those for private companies. Limited companies issue shares which may be of the bearer or registered type. The Act of 28 November 1960 stipulates that shares held by foreigners in Vietnamese companies must be of the registered type. Vietnamese nationals can purchase either bearer or registered shares, whichever they prefer.

According to prevailing Vietnamese law, the management of a limited company must be carried out by a board, which may delegate its powers to a managing director. While the board of directors is the managing body, it is the general meeting of shareholders which is the deliberating body.

Partnerships limited by shares

There are no companies of this type in Viet-Nam.

Formation expenses

Obviously, if a new company obtains the approval of the Investments Commission to enjoy the concessions provided for in the act of 14 February 1963, the formation expenses will be minimal. They will nevertheless be higher for a limited company than for a private company.

As an illustration, below is the approximate amount of duties and expenses involved in establishing a private company which has not received the approval of the Investments Commission and whose assets are contributed entirely in cash.

<i>Capital: 25,000,000 piastres in cash</i>	
Articles	1,500
Registration fee for articles	300,000
Stamps and endorsements on the articles	1,710
Publication	3,500
Registration in journals	136
Entry and registration in the Register of Commerce	2,700
Fees	37,500
	<hr/>
	347,046 piastres

In cases where the concessions provided for by the investment law are granted, the duties and expenses will be as follows:

Articles	1,500
Registration fee for articles	—

Stamps and endorsements on the articles	—
Publication	3,500
Registration in journals	—
Entry and registration in the Register of Commerce	2,700
Fees	37,500
	45,200 piastres

(b) *Import of capital goods*

As a result of the continuing deficit in Viet-Nam's balance of trade, the Government has to apply a system of control over imports of capital goods.

Any prospective importer must obtain permission from the General Directorate of Mining, Industries and Handicrafts (Ministry of Economic Affairs) and the General Directorate of Trade (Ministry of Economic Affairs).

Investors whose projects are accepted by the Investments Commission are automatically entitled to import the capital goods listed in the project, after obtaining an import licence. The licence application must be submitted to an approved commercial bank, which forwards it to the Ministry of Economic Affairs.

As far as methods of financing are concerned, three sources are used: private American aid, foreign loans (German, Japanese, and so on), and the company's own foreign exchange.

Under the first system, the imports requested must be approved by USOM Viet-Nam, and imports worth more than US\$10,000 must be approved by the Office of Small Business, Washington, USOM finances imports of equipment only from the restricted free world, that is to say, from the free world minus the following developed countries: Australia, Belgium, Canada, Cuba, Denmark, France, Germany, Italy, Japan, Luxembourg, Monaco, the Netherlands, New Zealand, Norway, South Africa, Spain, Switzerland, Sweden and the United Kingdom.

Under the second system, the import application must be countersigned by the foreign embassy concerned (Germany, Japan, and so on).

If the final user of the imported goods himself provides the foreign exchange, he can import directly from the foreign supplier without going through a commercial importer.

Five-sevenths tax. A national defence and economic development tax was introduced by the Decree-Law of 29 December 1961. This tax is equivalent to five-sevenths of the value of fund transfer operations at the official rate. The American dollar would thus be equivalent to 60 piastres instead of 35 piastres (official rate).

(c) *Location of industrial enterprises*

There is no fixed location for industrial enterprises. Industrial sites are chosen taking into account

the transport of raw materials, finished products, workers and so forth.

Nevertheless, the Government has established a number of industrial districts at An-Hoa — Nong-Son, Bien-Hoa and Thu-Duc, to assist the development of certain industries.

(d) *Licensing of factory establishments*

If a factory is to be established in an industrial district, the licence is issued by the district's administrative body. Outside these districts, industrial installations are divided into three categories (Decree No. 35 BKT of 18 February 1959):

- Class 1 : dangerous establishments
- Class 2 : noxious establishments
- Class 3 : non-noxious establishments

The licence request must be submitted to the local government (mayor, provincial chief etc.) together with two plans, one on a scale of 1:100 and the other on a scale of 1:10,000. The local government carries out a *commodo et incommodo* enquiry within a time limit of three months for establishments of class 1, two months for class 2 and one month for class 3. The decision can be made by the local government authorities if the establishment concerned falls into class 2 or 3. For establishments in class 1, the documentation and the results of the *commodo et incommodo* enquiry must be forwarded to the Ministry of Economic Affairs for a decision to be made.

(e) *Control of raw materials*

In the case of local raw materials, there are no difficulties. If the raw materials are imported, the regulations are similar to those for capital goods.

(f) *Control of power supply and transportation*

Power can be supplied by plants attached to factories, by Electricite du Viet-Nam, or by the various companies exploiting electricity in Viet-Nam. The quantity and price depend upon the region concerned.

Transportation prices are controlled by the following Orders:

- Order of 28 August 1958 for Saigon-Cholon;
- Order of 25 March 1959 for road transport;
- Order of 23 September 1960 for river transport;
- Order of 21 January 1954 amended by the Order of 8 October 1953 for sea transport;
- Order of 27 March 1959 for transport to central Viet-Nam.

The transportation of paddy and its by-products is controlled by two Orders of 30 July 1955 and 8 June 1956.

(g) *Control of import of technical know-how*

The import and payment of technical know-how is considered by the Investments Commission for each case separately.

(h) *Company law administration*

See section (a) above.

b. Conditions governing public and private investment1. *Fields of investment open to different types of investor*(a) *Public sector*

The Government generally leaves individuals the freedom to invest as they wish. Nevertheless, the Government itself invests in the following cases:

to provide certain facilities relating to national defense or public utility, such as railways, water and power distribution, the construction of low-income housing and so forth.

to establish certain fundamental industries whose nature is such as to facilitate present and future development of other secondary industries, an example of this being the industrial complex (mining and chemical) of An-Hoa — Nong-Son.

to satisfy the needs of the population for certain essential goods such as coal and cement.

to take action in sectors of investment where private initiative is not yet sufficient or has not proved entirely satisfactory for the economic development of the country.

it is with these considerations in mind that the State has participated as principal shareholder in a number of enterprises of an industrial nature such as textile mills, air transport organizations, paper, sugar and glass works and has contemplated setting up other enterprises.

(b) *Private sector*

The Government encourages private investment. See chapter III.A.

(c) *Foreign investment*

Enterprises set up by foreign investors are treated the same as Vietnamese enterprises. In order to protect small businessmen and for reasons of security, however, foreign investors are prohibited by the Ordinance of 6 September 1956 from carrying out the following types of activities:

activities of a public utility nature;
small business occupations normally reserved for the deprived class in Viet-Nam;

The following eleven types of activity: fish and meat trade; small wares and grocery trade; charcoal and firewood trade; petroleum, gasoline and lubricating oil business (excluding import companies); pawnbroking; trade in cotton fabrics, silk (less than 10,000 metres) and thread; scrap iron trade; rice milling; trade in cereals; transportation of passengers or goods by motor vehicles, boats or junks; brokerage business.

2. *Investment services*

(a) *The Industrial Development Centre* (IDC) was established on 16 November 1957 as an autonomous public body having legal status. The task of the Centre is to promote the industrial development of the country. It does this by promoting the expansion of existing enterprises and the establishment of new enterprises by providing them with technical and financial assistance. It also manages a number of public and semi-public enterprises.

(b) *The Financing Company for the Development of Industry in Viet-Nam* (FCDIV), was established on 7 November 1961. The function of the Company is to contribute to the formation and development of private-sector industries in Viet-Nam by supplying them with capital. For that purpose, the Company has been authorized to issue medium- and long-term loans, to participate financially in companies and to provide industrial enterprises with technical assistance.

The creators of the FCDIV intended that the Company should act as a development bank similar to such private development banks as the IFCT in Thailand, the ICICI in India, the CDC in Taiwan and the DBT in Turkey.

Unfortunately, the financial aid which had been promised and which would have allowed normal loan operations to be performed has not been received, and the FCDIV has therefore been forced to abandon this idea at least for the present, and confine its activities to those of an investment company.

As one of its activities, the FCDIV participates financially in industrial enterprises which have been set up and which are seeking new capital. Its other activity is to promote industries in cases where private initiative is lacking. It endeavours to establish new enterprises and continues operations until these enterprises are functioning normally, at which time it gives the shares over to the public.

3. *Procedure to be followed by an entrepreneur in establishing a new industry*

Anyone wishing to set up a new industrial enterprise or extend the sphere of activity of an existing enterprise must complete the formalities described in the following sections.

(a) *Request for agreements in principle*

The prospective investor must submit his request to the Ministry of Economic Affairs, together with a summarized draft plan indicating the broad lines of the project, in order to obtain agreement in principle to his investment application.

(a) *Request for concessions*

After obtaining authorization in principle, the investor must draw up a project in accordance with forms available at the Industrial Development Centre,

40 Nguyen Hue, Saigon. The forms are then submitted (twelve copies) to the Centre.

One of the functions of the Investments Commission is to examine investment applications. The composition of the Commission is as follows:

The Secretary of State for Economic Affairs or his representative	President
The representative of the Secretary of State for Finance	Member
The representative of the Secretary of State for Rural Affairs	Member
The Director-General of Planning	Member
The Director-General of Taxes	Member
The Director-General of the National Exchange Office	Member
The Director of the Industrial Development Centre	Rapporteur

The application is assessed by the Investments Commission according to the following criteria:

- the contribution which the project would make to increasing national revenue.
- the utilization of local raw materials, particularly farm surpluses.
- the improvement of the balance of payments and of the employment situation.
- the degree of technicality and efficiency of the project, and its location.

(c) *Import licence application*

See section A.2 (b) above.

(d) *Application for building permit*

Once the entrepreneur has obtained the approval of the Investments Commission, he must apply to the local government authorities for a building permit.

(e) *Licence application*

The final step which must be taken by the entrepreneur is to submit an application to the licence office, enclosing the licence fee.

c. Customs duties and taxes

1. Customs duties on raw materials and components

The two basic aims of customs policy in Viet-Nam are to improve the balance of trade and to protect newly established industries. With these aims in mind, the customs tariff was completely remodelled by two presidential decrees nos. 19/61 and 20/61 dated 30 December 1961 and having effect from 1 January 1962.

According to the provisions of these decrees, raw materials and components are exempted from all duties and taxes or are subjected only to a low rate of duty.

Semi-finished products, which require additional processing by local manpower, are also subject to a low rate of duty. Finished products and items likely to compete with locally-produced goods are more heavily taxed, while the duty on luxury articles is very high or even prohibitive.

In order to illustrate the present system, two lists are given on the following pages showing raw materials which are (a) exempt from all duties and taxes, (b) subject to an import duty of 15 per cent.

(a) *Raw materials exempt from all duties and taxes*

- Metallurgical ores, slag and ash.
 - Mineral fuels: coal, lignite, peat; coke and semi-coke of coal, lignite and peat.
 - Natural bitumen and natural asphalt, bituminous shales and sands, asphaltic rocks.
 - Inorganic chemical products, inorganic or organic compounds of precious metals, radioactive elements, rare earth metals and isotopes.
 - Chemical elements: sulphur, hydrogen, alkali metals, mercury.
 - Inorganic acids and oxygenated compounds of metalloids: chlorhydric acid, phosphoric acid, sulphuric acid, nitric acid, boric acid; sulphur dioxide, phosphorus pentoxide, arsenic trioxide.
 - Halides, oxyhalides and sulphur compounds of metalloids: chlorides, oxychlorides and sulphides of metalloids.
 - Inorganic metallic bases, oxides, hydroxides and peroxides: ammonia; sodium hydroxide, potassium hydroxide; oxides, hydroxides and peroxides of strontium, barium, magnesium, etc.
 - Metallic salts and peroxy salts of inorganic acids: fluorides, chlorides, chlorites, chlorates, bromides, iodides, sulphides, sulphites, sulphates, nitrites, etc.
 - Fertilizers: natural, mineral, chemical (nitrogenous, phosphate, potassium).
 - Wool in bulk.
 - Fine or coarse hair in bulk.
 - Waste of wool and hair.
 - Teased wool and hair.
 - Crude flax.
 - Crude ramie.
 - Cotton in bulk.
 - Cotton linters.
 - Cotton waste.
 - Common metals, crude, in ingots and other primary forms, their waste and scrap: pig-iron, copper, nickel, aluminium, lead, zinc, tin.
 - Paper pulp.
- (b) *Raw materials subject to 15 per cent import duty:*
- Some mineral products: iron pyrites, sulphur, graphite, quartz, clay, chalk, barium sulphate and carbonate, magnesium carbonate, hydraulic cement.
 - Mineral oils and their distillation products: coal, lignite, peat, coke and semi-coke, gas-carbon, lighting gas, tar (excluding petroleum oils, petroleum jelly and paraffin, on which a heavier duty is imposed).
 - Common metals in bars, angles, shapes and sections, and solid rods: pig-iron, copper, nickel, aluminium, lead, zinc, tin.

Oxides and hydroxides of iron and cobalt, oxides of tin, lead and titanium.

Waste of paper and paperboard.

Cotton thread not put up for retail sale.

The following lists show how components are affected by the customs tariff. Machinery components enjoy the same measures of encouragement and support as raw materials. Apart from a number of components which are free of import duty, the rate of duty is 15, 30 or 45 per cent according to the particular case, as shown below.

(a) *Components exempt from duties and taxes*

Components for all kinds of meters and instruments for measurement, control, regulation and analysis.

Components for radiology equipment and electro-medical apparatus.

Parts for telegraph and telephone equipment.

Parts for generators, engines and rotary transformers.

(b) *Components subject to 15 per cent import duty*

Components for cycles and motorcycles

Components for steam engines, turbines, engines, propellers, pumps and compressors; cylinder blocks, crank cases, cylinder heads, piston rings, valves.

(c) *Components subject to 30 per cent import duty*

Components for cutting and sectioning equipment.

Components for weighing equipment and instruments.

Motor-car chassis parts.

(d) *Components subject to 45 per cent import duty*

Pistons, sleeves, crank-arms and crank-shafts for motor-car and motor-cycle engines.

Finally, Order no. 43/BTC/BKT/TV of the 7 January 1963 provides for the items mentioned below, imported in parts and assembled in Viet-Nam, to benefit from a reduction of 30 per cent on the total amount of duties and taxes applied to similar items imported complete and fully assembled:

sewing machine heads,
casings, transmission units and accessories for sewing machines,
radiotelegraphy receivers, radiotelephone receivers and radio broadcast receivers, whether or not combined with gramophone,
three-wheeled motor vehicles,
auto-cycles,
scooters,
watches, clocks, alarm clocks, travelling clocks.

2. Taxes affecting industry

The main taxes that an industrial enterprise may have to pay are listed below.

(a) *Company registration fee*

1.20 per cent of the declared capital.

(b) *Licence fee*

The licence fee is applied in six categories and is made up of four components:

fixed fee,
ad valorem fee,
additional rates,
accessory tax.

Category	Fixed fee (piastres)	<i>Ad valorem</i> fee (per cent)
1	25,000 - 100,000	10
2	8,000 - 20,000	8
3	2,000 - 7,000	6
4	600 - 1,800	5
5	180 - 500	4
6	30 - 160	3

The *ad valorem* fee is calculated on the current rental value of the property used for the industrial or commercial operation. The fixed fee and the *ad valorem* fee constitute the licence principal. The additional rates are fixed annually by the Ministry of Finance and are calculated on the licence principal (Saigon and provinces: 200 per cent). The accessory tax is set at 3.5 per cent of the licence principal and is levied on the recommendation of the Chambers of Commerce of Saigon and Tourane.

(c) *Production tax*

This tax of 6 per cent affects all production in Viet-Nam. It is calculated on the selling price of the products. The producer may deduct from the amount of tax to be paid, the value of taxes already paid for the acquisition of materials used in the manufacture of the finished products thus sold. Products intended for export are exempt from this tax.

(d) *Tax on built-up property*

This tax is made up the following five components:

A component proportional to the taxable area: 0.05 to 0.85 piastres per square metre.

A component proportional to the rental value of the taxable property: 6 per cent of the rental value, with a deduction of 25 per cent for costs of disencumbrance, management, insurance, maintenance, repair, rental risks and taxes.

Additional rates: 200 per cent of the two above-mentioned components.

Sewerage tax: 6 per cent of the rental value after deduction of 25 per cent.

Refuse collection tax: 3 per cent of the rental value after deduction of 25 per cent.

(e) *Tax on land plots*

This tax is made up of three components:

A component proportional to the taxable area: 200 to 10,000 piastres per hectare.

Additional rates: 200 per cent.

Sewerage tax: 6 per cent of the rental value after deduction of 25 per cent.

(f) *Tax on industrial, commercial, agricultural and land profits*

This tax is fixed at 16 per cent for private opera-

tors or for members of general partnerships, and 24 per cent for all other types of company.

(g) *Stockholder's tax*

The rates of this tax vary according to the location of the company's head office.

In Viet-Nam

Tax on dividends:

24 per cent for limited companies, private companies and partnerships limited by shares.

18 per cent for non-commercial companies, sleeping partnerships, particular partnerships and general partnerships.

	Per cent
Tax on percentages	30
Tax on attendance fees	30
Tax on loan interest	18

Outside Viet-Nam

Tax on dividends	30
Tax on percentages	30
Tax on attendance fees	30
Tax on loan interest	30

(h) *Mortmain tax*

Mortmain tax is levied at one per cent per year.

(i) *Personal income tax*

Income tax is applied in a progressive manner as follows:

Annual income (piastres)	Per cent
1—10,000	1
10,001—20,000	2
20,001—30,000	3
30,001—40,000	4
40,001—50,000	5
50,001—60,000	6
60,001—70,000	7
70,001—80,000	8
80,001—90,000	9
90,001—100,000	10
100,001—200,000	15
200,001—300,000	20
300,001—400,000	25
400,001—500,000	30
500,001—600,000	35
600,001—700,000	40
700,001—800,000	45
Over 800,000	50

Enterprises which qualify for the concessions granted under Decree-Law no 2/63 are exempt from certain taxes (see chapter III.a.).

IV. MARKET ANALYSIS AND SURVEYS

The Government has not yet undertaken any market analysis or surveys. Some private organizations have, however, carried out market analyses to determine the potential market before going into

business. The best known private organization active in this field is the Viet-Nam Studies Centre, but the surveys are kept secret and it is difficult to learn the results.

V. MOBILIZATION OF CAPITAL FOR INDUSTRIAL DEVELOPMENT

a. Capital investment in industry

1. Capital formation

There is a lack of statistics on capital investment, but according to an unpublished document prepared by the National Revenue Committee (of the Viet-Nam National Bank) the gross capital formation in 1960, 1961 and 1962 was as shown in table 4.

TABLE 4. GROSS CAPITAL FORMATION, 1960-1962
(million piastres)

	Government	Private	Total
1960			
Capital goods	237	3,641	3,878
Transport equipment			928
Machinery and other equipment			2,950
Construction and works	1,013	1,668	2,681
Buildings	329	1,616	1,945
Works	684	52	736
Total gross fixed capital formation	1,250	5,309	6,559
1961			
Capital goods	265	3,719	3,984
Transport equipment	—	—	841
Machinery and other equipment	—	—	3,143
Construction and works	1,208	1,569	2,777
Buildings	390	1,563	1,953
Works	818		824
Total gross fixed capital formation	1,473	5,288	6,761
1962			
Capital goods	367	5,645	6,012
Transport equipment	—	—	1,350
Machinery and other equipment	—	—	4,662
Construction and works	1,112	1,540	2,652
Buildings	364	1,530	1,894
Works	748	10	758
Total gross fixed capital formation	1,479	7,185	8,664

According to the same document, the percentage of capital formation in relation to national product were 10 per cent in 1960 and 1961 and 11 per cent in 1962. The two figures should in fact be higher, since these statistics do not take account of the work carried out by the peasants themselves, such as irrigation work, the clearing of land and the construction of embankments.

Sufficient data are not available at the moment to specify the sectors in which investments are made, but an indication can be given (table 5) of the industrial investments approved by the Ministry of Economic Affairs. These approved investments are not necessarily carried out subsequently, however, because of the difficulties that the investors encounter in practice.

TABLE 5. INVESTMENTS IN INDUSTRY, 1956-1963
(million piastres)

Sector	1956	1957	1958	1959	1960	1961	1962	1963
Pharmaceuticals	26.28	53.65	37.39	87.82	131.37	219.61	259.10	317.03
Textiles	173.0	38.0	201.0	376.0	642.0	439.0	356.0	120.0
Food, beverages and tobacco	3.17	31.85	86.59	33.83	46.09	193.10	26.30	69.41
Metals and machinery	6.33	355.31	31.54	5.27	37.73	1.53	2.03	18.65
Electricity	12.87	31.00	91.44	26.23	131.71	899.92	1,955.60	203.16
Chemicals, cement and ceramics	34.50	4.35	20.82	6.46	128.20	64.65	45.08	108.57
Rubber, paper, leather etc.	0.29	2.19	2.28	39.39	199.48	114.60	23.19	17.85
Total	256.44	516.85	491.06	575.00	1,176.58	1,932.41	2,667.38	2,684.67

2. Sources of investment financing

(a) Loans from international organizations

Up to the present, the Republic of Viet-Nam has not received any substantial financial aid from international institutions such as IBRD and IMF because of the following factors:

the heavy dependence of Viet-Nam's balance of payments and its economic and financial position upon external aid;

the weakness of Viet-Nam's debt-carrying capacity, this capacity being one of the criteria for eligibility for IBRD loans;

the fact that parity between the piastre and the United States dollar has not yet been officially recognized by IMF so that Viet-Nam has not yet been given the right to draw on the Fund's resources;

the fact that the persistent deficit in Viet-Nam's balance of payments calls for a long-term financing remedy, whereas IMF loans are in Fund currency for a term of three to five years and are intended only to finance temporary deficits in the balance of payments.

(b) Bilateral aid and government loans

The main countries which have provided aid to Viet-Nam are the United States, France, Japan and West Germany.

United States. Economic assistance from the United States is provided in two main forms—the AID programme and the Food for Peace programme. In addition, the United States makes loans through the Eximbank and the Development Loan Fund. Table 6 shows the amounts of United States aid supplied to Viet-Nam from 1954/57 to 1964.

Between 1956 and 1963, the six principal loan allocations were: for defence US\$25 million, aid

to projects US\$25 million, telecommunications US\$1,599,000, railways US\$5,308,000, water supply \$4,060,000 and electric power US\$3,553,000. The rate of interest on these loans is 3 to 4 per cent per annum and they are payable over 15 to 20 years.

France. In 1960, Viet-Nam received two loans from France, namely, the "Pinay" loan (70 million NF, interest rate 3 per cent, repayment in 15 years) for the installation and importation of French capital goods for the An-Hoa—Nong-Son industrial complex, and the loan of 110 million NF (interest rate 3 per cent, repayment in 5 years according to the Assurance Credit Francais procedure) to finance expenditure on imports of French equipment.

Japan. In 1961, Japan provided a loan of US\$7.5 million at a rate of 5.75 per cent repayable in 7 years for the purchase of capital goods and services in Japan, in connexion with the Danhim dam project.

West Germany. In 1963, the Federal Republic of Germany granted a loan of 15 million DM at a rate of 3 per cent, repayable in 12 years, for the purchase of German consumer goods. A further loan of 50 million DM was provided for work on the An-Hoa—Nong-Son industrial complex.

b. Structure of the capital market

A stock exchange has not yet been established and capital is provided mainly by loans from banks and from two credit institutions, the FCDIV and the IDC.

c. Measures taken to promote savings

Among the measures taken to encourage private savings, mention must first be made of the introduction of post office current accounts and savings banks. Of particular interest is the savings bank of Saigon and the savings bank set up by the Credit Commercial

TABLE 6. UNITED STATES ECONOMIC AID TO VIET-NAM, 1954-57-1964
(million US dollars, United States Fiscal Year)

Type of aid	1954/57	1958	1959	1960	1961	1962	1963	1964 (Preliminary)	Total 1954-1964
Grants	773.3	187.3	187.6	169.1	131.4	143.2	187.6	159.3	1,948.8
Loans	50.0	1.5	19.5	11.4	13.2	—	—	—	95.6
Total economic aid	823.3	188.8	207.1	180.5	144.6	143.2	187.6	159.3	2,044.4
AID	783.9	179.1	200.6	169.0	132.6	110.7	133.2	122.0	1,831.0
Food for Peace	39.4	9.7	6.5	11.5	12.0	32.5	64.4	37.3	213.3

du Viet-Nam with capital wholly subscribed by the State; the latter bank has introduced the system of prize drawing for its depositors.

Second, mention should be made of Decree-Law no. 131-SL/CT of the 21 April 1964, which regulates the issue of Treasury bonds with a view to channelling private savings towards the public banks. The same Decree-Law provides for the Treasury bonds to be either in registered or bearer form, but the first issue of these bonds was entirely in the registered form. These Treasury bonds may be discounted and deposited with the commercial banks which, in turn, have the power to deposit them with the national bank at 95 per cent of their nominal value.

In order to encourage the flow of funds towards the industrial sector, the Government has proposed easing the exchange of agrarian reform bonds for shares in public or semi-public industrial companies.

d. Mobilization of private capital

For some years now, the mobilization of capital has been deteriorating considerably because of the insecurity prevailing in the countryside and the political climate in Viet-Nam.

e. Inflow of foreign capital

The volume of foreign investments has shown a marked fall in recent years, as the following statistics show:

1958—1959	:	1,224.61	million piastres
1960	:	322.38	„ „
1961	:	41.53	„ „
1962	:	68.02	„ „
1963	:	43.39	„ „

(Source: Industrial Development Centre)

This fall is due mainly to the insecurity and to the strict exchange control policy necessitated by the chronic deficit in the balance of trade.

In order to counteract this decrease in foreign investment, the Government promulgated Decree-Law no. 2/63, which grants various concessions to industrial entrepreneurs (see chapter III.a.)

f. Measures for servicing external public debts

The servicing of external debts in Viet-Nam consists only of loan servicing. In other words, it covers quarterly repayments plus interest for loans in dollars, and the settlement of annual drafts for loans in French francs (also for the partial repayment of funds and the payment of accumulated interest).

The rates and the terms of these loans are described below.

Development Loan Fund loans

3.5 per cent per annum on loans of:
US\$17,500,000 for 30 years,
US\$12,700,000 for 20 years,
US\$9,700,000 for 15 years.

Eximbank loans

3 per cent per annum if repayable in US dollars,
4 per cent per annum if repayable in piastres, on a loan of US\$50,000,000 for 40 years.
3.5 per cent per annum on a loan of US\$3,300,000 for 32 years repayable in any currency.

Japanese loans

5.75 per cent per annum on a loan of US\$7,500,000 for 7 years.

French loans

3 per cent per annum on a loan of 70 million NF for 15 years.
3 per cent per annum on a loan of 110 million NF for 7 years.

g. Measures taken to encourage joint ventures between domestic and foreign entrepreneurs

The Government places no restriction on the formation of joint ventures. The partners are free to establish their own conditions for collaboration. In order to facilitate the arrangement of joint ventures, the Industrial Development Centre acts as a liaison agency bringing together foreign investors and interested local parties.

h. Public ownership

The Government plays the role of pioneer and pilot in the industrial sector and does not participate in financing or management except in cases of necessity, either to counteract the lack of investment capital in the private sector or to promote the sound administration of private enterprises which are short of management talent.

At present, there are only five State-owned companies in Viet-Nam: The Nong-Son Mining Company, the Saigon Public Transport Company, the State Railway Company, the Tan-Mai Sawmill Company, and the Long-Tho Chalk Company.

The policy of the Government is to convert some of these companies into mixed-capital companies when conditions permit, that is, when private capital can replace some of the government capital.

Nationalization has not yet been applied to any industrial enterprises but some firms were taken over by the revolutionary Government because of malpractices, frauds and illicit gains made under the previous régime. The companies and stock thus confiscated are managed by the Government on a temporary basis until such time as they can be sold to the private sector.

For the future, the principle of non-nationalization is guaranteed for fifteen years by article 12 of decree-Law no. 2/63.

If, for some extremely important reason, foreign enterprises are nationalized, article 18 of the Decree-Law stipulates that compensation for the share contributed by foreign capital will be immediately trans-

ferable while compensation for the share provided by the domestic capital of the foreign entrepreneur will be transferable in accordance with the exchange regulations in force.

The policy regarding public ownership is thus governed more by necessity than by the fear of foreign influence.

i. Remittance of profits

Enterprises qualifying for the concessions provided by Decree-Law no. 2/63 can remit profits in accordance with the following provisions:

Foreign residents and non-residents who have invested domestic or foreign capital in Viet-Nam must obtain from the National Exchange Office authorization to remit abroad the annual net profit and the amount of capital disinvested. With regard to profits, however, the amount which can be remitted annually must not exceed 20 per cent of the amount of capital invested at the time the enterprise was formed together with subsequent increases of capital. The repatriation of capital is allowed when the enterprise enjoying the concessions provided by Decree-Law no. 2/63 has been in operation for more than five years for foreign capital and twenty years for domestic capital.

These remittances are made:

- (a) up to the amount of capital invested at the time the enterprise was formed plus subsequent increases of capital;
- (b) in the same currency as that in which the investment was made for foreign capital, or in the currency of the investor's country for domestic capital;
- (c) in annual instalments not exceeding 20 per cent of the amount of capital invested at the time the enterprise was formed plus subsequent increases of capital.

j. Areas of industrial activity open to foreign investors

See chapter III. b.

k. Steps taken to encourage foreign investment in the country

See chapter III. a

l. Measures and regulations affecting the import of technical know-how

See chapter III. a. 2 (g).

VI. INSTITUTIONAL ARRANGEMENTS FOR INDUSTRIAL PROMOTION

Among the important institutions responsible for developing the national economy, there are two whose main activities are oriented towards development of

the industrial sector. These are the Industrial Development Centre (IDC), an autonomous public body established and given legal status by Decree No. 478 BKT of 16 November 1957, and the Financing Company for the Development of Industry in Viet-Nam (FCDIV), a private limited company founded on 22 November 1961 by the Professional Association of Saigon Banks.

o. The industrial Development Centre

1. Organization and functions

The Decree establishing the IDC gives the Centre the following tasks:

- (a) to set up and to encourage the establishment of new industrial enterprises;
- (b) to give technical and financial aid to existing industrial enterprises in order to expand or improve their production;
- (c) to advise and guide national and foreign entrepreneurs in investment matters and, to the extent possible, to give them the information they need concerning technical, economic and financial questions;
- (d) to carry out studies as requested and to draw up projects based on these studies.

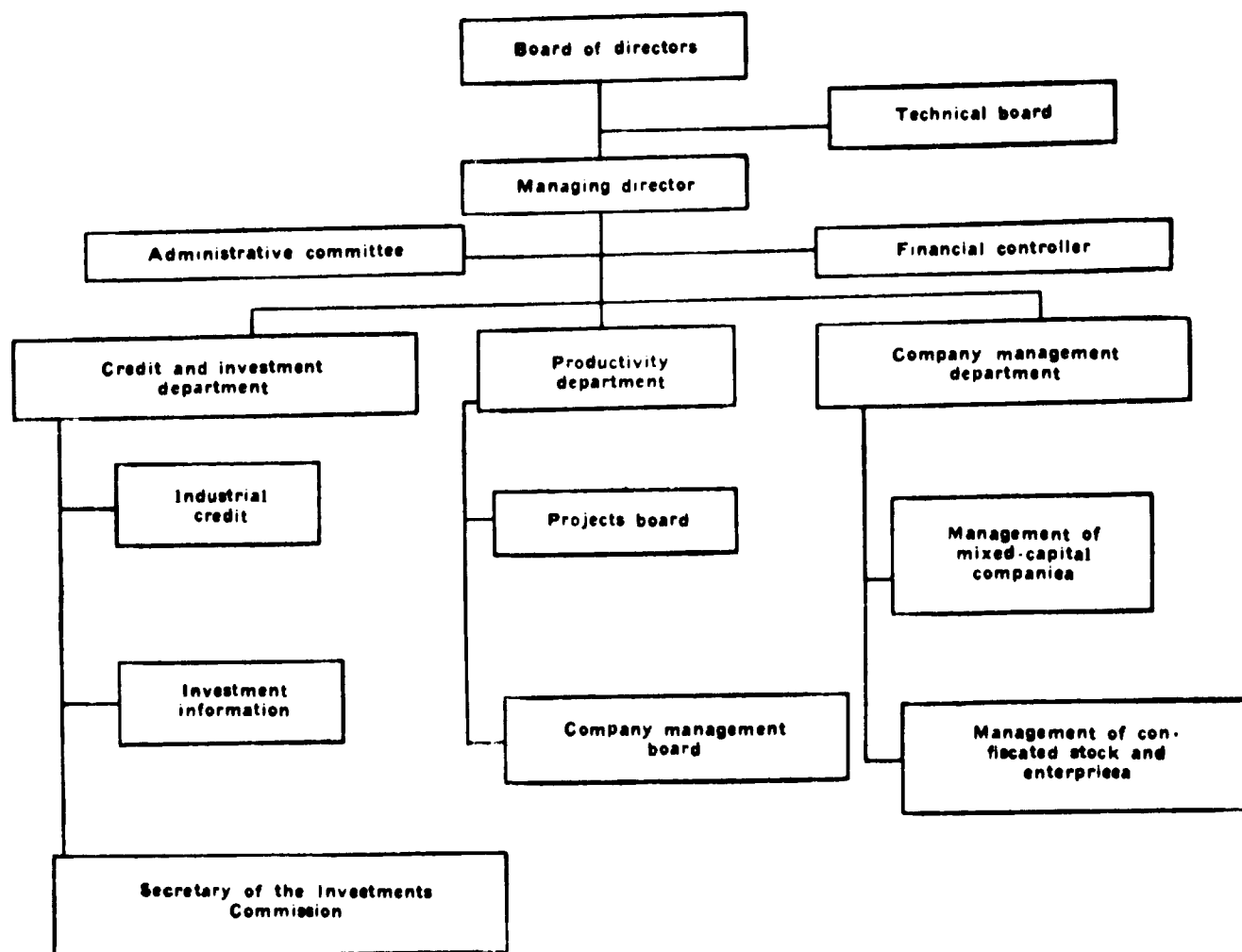
To perform these functions, the IDC has an independent budget which is financed from the following sources:

- (a) initial appropriations, subsidies and loans of cash and equipment from the national budget or the budgets of autonomous public bodies;
- (b) subsidies, advances and loans of cash and equipment from foreign aid;
- (c) grants and bequests.
- (d) private loans or investments;
- (e) income of the IDC itself.

The IDC is governed by a board of directors made up of a chairman and five members appointed by the President of the Republic each year. Routine management is entrusted to a managing director appointed by presidential decree. To assist the managing director, a technical board is set up, composed of experienced experts, a financial and banking expert, and on occasions other experts for specific studies.

Decree-Law no. 2/63 relating to investment assigns the IDC the additional role of secretariat of the Investments Commission. Very recently, another ministerial order dated 14 August 1964 gave the IDC responsibility for managing enterprises taken over from groups of persons who had been gaining wealth through fraudulent practices before the revolution of November 1963.

The structure of the IDC is shown in the following organigram.



2. Activities and results obtained

(a) Industrial loans

The IDC specializes in the field of medium-term loans (five to seven years), particularly to finance purchases of capital goods and sometimes to finance construction work. The annual rate of interest for ordinary loans (or equipment loans) varies from 4.5 to 6.5 per cent and that for special loans (or loans granted to finance the payment of the five-sevenths surtax for national defence and economic development) is fixed at 3 per cent.

The total amount of loans granted during the seven years in which the IDC has been operating is estimated at more than a thousand million piastres (1,035,051,000 piastres).

In addition, the IDC has invested capital in a number of mixed-capital companies on behalf of the Government to a total value of 514,573,677 piastres.

(b) Industrial information

Apart from giving information directly through consultations and indirectly through replies to enquiries received by post, the IDC also endeavours to provide entrepreneurs with practical guides to the various aspects of industrial operations, such as finan-

ce, economy, taxation, foreign exchange and legislation. These guides are published in three languages so that they may be of direct interest to Vietnamese-, French- and English-speaking readers. Finally, the IDC arranges film shows and seminars on industrial management for entrepreneurs, the aim being to acquaint industrialists with the theory and practice of improving industrial productivity. They have been enthusiastically received by industry. The IDC is considering setting up an audio-visual centre, the main aim of which would be to disseminate more widely the concepts and present-day methods of industrial management.

(c) Technical assistance

Where technical assistance is concerned, the IDC prepares industrial investment projects at the request of entrepreneurs. This work is carried out free or for a token sum. To date, about twenty industrial projects have been formulated and placed at the disposal of industrialists.

At the project implementation stage, the entrepreneurs concerned can also obtain technical assistance from the IDC in choosing a site, calling for international tenders, installing machinery and improving product quality.

(d) Secretariat of the Investments Commission

In its role as secretariat of the Investments Commission, the IDC helps investors to complete the required formalities in order to obtain the tax concessions provided by Decree-Law no. 2/63 of 14 February 1963. Up to the end of 1964, fifty-six requests were submitted to the Commission, which approved thirty-one and rejected the remainder.

(c) Management of mixed-capital companies or confiscated enterprises

The IDC is given responsibility for the temporary management of certain mixed-capital companies as well as twenty-six confiscated enterprises. The centre will continue to manage these concerns until such time as it has completed its study of the appropriate means for returning these enterprises to the private sector.

Since the establishment of a stock exchange is still at the project stage, the transfer or sale of the share certificates will be done by auction.

Finally, the IDC also arranges the exchange of agrarian reform bonds for shares in mixed-capital industrial enterprises.

b. The Financing Company for the Development of Industry in Viet-Nam (FCDIV)*1. Organization and function*

The FCDIV was established on 22 November 1961 as a limited company with a capital of 200 million piastres, of which the three Vietnamese banks contributed 105 million piastres, or 52.5 per cent. The board of directors comprises seventeen members, three of whom are Vietnamese.

The aims of the Company are as follows:

to establish, or to participate in the establishment of any Vietnamese or foreign companies wishing to engage in industrial activities in Viet-Nam;

to provide these companies with advances, loans or financing arrangements;

to guarantee the sale of shares to the public, and to purchase, sell or exchange, on its own behalf or on behalf of third parties, all shares and debentures created or to be created by the industrial enterprises in which the Company participates;

in brief, to mobilize private savings and various local financial resources and to attract foreign capital and foreign technical know-how with a view to channelling them into industrial activities in Viet-Nam.

For its financial resources other than the 200 million piastres capital, the FCDIV intends to negotiate long-term loans either from government organizations or from international institutions.

With these resources, the Company is required to carry out the following financial operations: provision of medium- and long-term loans and loans con-

vertible into shares, participation in capital, arranging of guarantees, issue of shares and debentures on behalf of companies, arranging of capital structures on behalf of existing enterprises, and so forth.

Finally, in giving its assistance, the FCDIV takes into account the criteria of a micro-economic nature, such as profitability and competitive capacity, and of a macro-economic nature, such as foreign exchange savings and industrial planning.

In practice, the Company supplies medium-term loans (five-seven years) at an interest rate of 6.4 per cent per annum. In other words, the loans given by the FCDIV may be regarded as IDC loans available from a private organization.

2. Results obtained

The value of the technical assistance provided by the FCDIV to the industrial sector up to the end of 1964 is estimated at 341 million piastres, of which 139 million piastres was in the form of loans and 202 million piastres in the form of capital participation.

The breakdown of this total of 341 million piastres was as follows: food industry 121 million, textile industry 90 million, oil refining 73 million, engineering 40 million, chemical industry 9 million and plastics industry 8 million.

VII. TECHNICAL TRAINING: MANPOWER DEVELOPMENT**a. Manpower surveys**

Manpower surveys have, so far, been carried out by the Ministry of Labour. The first survey was made in 1957 and the second in 1960. In both cases the sample survey method was used. In 1961, a follow-up operation based on more accurate and more complete methods and data was carried out in the capital and in the plantations. The sections of the surveys dealing with industry are quoted in table 7.

TABLE 7. NUMBER OF INDUSTRIAL ESTABLISHMENTS AND WORKERS, 1960 AND 1961

Industry	Number of establishments		Number of workers 1960
	1960	1961	
Food and beverages ..	3,060	3,330	19,370
Tobacco	20	20	2,360
Textiles	1,060	1,390	42,000
Clothing and footwear ..	1,940	2,090	6,840
Wood and furniture ..	1,220	1,120	7,800
Printing etc.	500	580	5,120
Rubber goods	160	90	1,190
Chemical products	400	660	3,970
Non-metallic mineral products (including petroleum and coal)	540	720	8,850
Metal products, machinery and transport equipment	1,660	1,460	10,110
Electrical equipment ..	250	310	1,200
Other	1,030	1,360	5,090
Total	11,840	13,130	113,900

The surveys showed also that the proportion of workers employed in the industrial sector (including small industries) represented only about nine per cent of the total number of persons employed in the total economic activity in the country.

b. Future needs for trained personnel

It has not yet been possible to estimate the needs for trained personnel, as no systematic survey has yet been carried out because of the insecurity and the lack of qualified staff. Despite these difficulties, the General Directorate of Planning made a study in 1963 on the need for trained personnel in various fields.

This study was based on the information provided by various ministries for the public sector and by the professional associations of industry and of employers for the private sector. The figures shown in table 8 are no doubt open to question but they do provide a very rough basis for estimation.

TABLE 8. ESTIMATED NEEDS FOR TRAINED PERSONNEL IN THE PUBLIC AND PRIVATE SECTORS IF THE PLAN IS PUT INTO EFFECT, 1962-1966

Sector	Senior staff	Technicians
Post and telecommunications	16	418
Food, agriculture, forestry, livestock	264	257
Public works and architecture	154	187
Aviation and navigation	23	77
Pharmacy	61	29
Electricity and electronics	147	260
Mining and metallurgy	9	4
Chemistry	108	176
Science and education	2,690	12,506
Textiles	73	172
General training, Polytechnic College of Arts and Crafts	15	—
Higher commercial studies, economics, finance and company management	77	151
Medicine	109	414
Meteorology	12	17
Statistics	5	16
Bridges and highways and land survey	27	119
Engineering	50	128
Fisheries	186	389
Others (potteries, tanneries, printing works etc.)	183	389
	4,029	15,320

c. Training programmes planned

No general training plan has yet been formulated but partial plans have been drawn up and launched. These plans are all oriented towards the immediate needs of the national economy for technicians. They promote the training of operatives in public works, arts and crafts, electricity and agriculture, as well as agronomists, chemical engineers and semi-qualified staff.

The fact that there is no general plan is due to the lack of precise knowledge of the actual needs together with the lack of security and political stability, which make any forecasts of economic expansion difficult.

Nevertheless, a thorough systematic study is being made to prepare the way for formulation of the third five-year plan, which will begin in 1967 and which will place considerable importance on questions of manpower.

d. Success or failure in mobilizing manpower

The efforts made to mobilize manpower, especially at supervisory level, have not met with the anticipated success for the following reasons:

It is difficult to estimate the exact number of students abroad, particularly in France, as many students change their field of study or speciality without advising the Government.

There is a lack of systematic control of graduates. Many of these refuse to return home once their studies are finished. It is estimated that only 10 per cent of the students return after graduation. A large number of qualified personnel are called up for military service.

VIII. DEVELOPMENT OF MAJOR INDUSTRIES

Introduction

No real census of industry as such has yet been made in Viet-Nam. The reasons behind this situation are, first, the lack of qualified staff to carry out such a survey, and, second, the fact that movement is hampered by the insecurity and industrial firms are not yet able to provide valid data themselves.

Two types of data are collected by the National Statistics Institute (Ministry of Economic Affairs), the methods used being as follows:

Monthly statistics. The Institute records variations in the output of a few dozen major industrial products by means of information provided either directly by the producers or indirectly through government agencies such as the Directorate of Industries and Handicrafts, the Excise Duty Office and the Directorate of Mining.

Annual statistics. Since 1962, the Institute has sent out questionnaires every year to industrial firms having a turnover of more than 2 million piastres (thus including, of course, enterprises of a small-scale or semi-industrial nature). On the basis of the questionnaires returned, the Institute then endeavours to arrive at the total value of industrial production.

With this incomplete and summary information, the broad lines of the industrial sector in Viet-Nam will be indicated below, using as working documents the second five-year plan 1962-1966, the reports of the Investments Commission, customs statistics publications and so on.

a. Existing industries

1. Present industrial situation

The division of the country following the 1954 Geneva agreements deprived Viet-Nam of most of its industrial potential.

The industrialization programme laid out in the first five-year plan (1957-1961) was quite modest. It aimed at complementing the development of agriculture by setting up industries to process agricultural products. It also provided for the local manufacture of some consumer goods in current use to help improve the balance of trade.

With the exception of a few rare enterprises set up since the colonial period, industry has arisen mainly from the import trade, with importers becoming industrialists. Products which were previously imported are now assembled or made up locally. As the former importer gains confidence in his new sphere of activity and his staff acquires sufficient technical ability, the scale of operations carried out locally increases. There is a progression from simple assembly work involving little technical know-how, scant equipment and a low added value, to complex manufacturing operations.

2. Existing industrial sectors

The following ten principal sectors of industry are in existence in Viet-Nam: (a) extractive industries, (b) engineering, (c) metallurgical industry, (d) electrical industry, (e) chemical and related industries, (f) textile industry, (g) rubber industry, (h) leather industry, (i) industries processing agricultural products, (j) power production industry.

(a) Extractive industries

The remote mountainous regions have not been surveyed since the time of the French occupation. Explorations have, however, revealed the presence of mica at Dai Loc, and the Hoa My iron ore deposits have been studied.

Among all the outcrops known and unknown, some could prove to be of value and suitable for exploitation. Nong-Son provided an example of this. Perhaps the mica at Dai Loc will provide another.

(i) Non-son mine

The reserves of the Nong-Son mine have been estimated at 11 million tons. Boring work is being continued and the probable reserves in the immediate vicinity of Nong-Son are estimated at 25 million tons. The local conversion of coal into cheap power will pave the way for the development of basic industry, which is a large consumer of power.

Production capacity: 300,000 tons per annum

Actual production (t.p.a.):

1960	27,300
1961	57,300
1962	71,000
1963	100,000

1964	120,000
From 1965	250,000 (estimated)
From 1966	300,000 (estimated)

Investment in equipment: 1,527,100,000 piastres
 Total fixed capital investment: 2,646,000,000 piastres
 Number of workers: 1,080 (from 1964 onwards)
 Value added: Very high. The cost price of the coal ex mine is at present of the order of 500 piastres per ton. The following figures are obtained for the value added:

1960	13,650,000 piastres
1961	18,650,000 piastres
1962	35,500,000 piastres
1963	50,000,000 piastres
1964	60,000,000 piastres

Value of imports substituted by local production: US\$1,919,000 per annum.

(Source: *Le Complexe Industriel An-Hoa-Nong-Son*)

(ii) Salt works

Apart from some scattered salt pans along the coast which satisfy local consumption, there are two large salt works, one at Ca-Na, and the other at Hon Khoi.

The first of these is a 550 hectare concession which produces 60,000 tons of salt per year. The salt produced can be used for industrial purposes because of its high sodium chloride content (98 per cent). Most of the production is exported to Japan. Mechanization is being introduced in order to adjust productivity to foreign market prices and it should be possible to double production in the coming years.

At Hon Khoi, the operations are still carried out by the manual method and great difficulties are encountered in marketing the salt because of its poor quality and high price.

The exports of salt in 1962 and 1963 were as follows:

	Quantity (tons)	Value (US dollars)
1962	36,250	161,500
1963	20,595	90,300

(Source: Second five-year plan and customs statistics)

(iii) Phosphates

Phosphate of animal origin are extracted in three islands of the Paracel Island group.

From 1958 to 1960, Viet-Nam imported 221,596 tons of fertilizer having a total value of 510,119,000 piastres. The breakdown for the three years is as follows:

	Quantity (tons)	Value (piastres)
1958	51,678	128,245,000
1959	99,163	224,664,000
1960	70,755	157,210,000

The exploitation of phosphates in the Paracel Islands was included in the first five-year plan. Up to April 1962, the Fertilizer Company extracted 13,000 tons of fertilizer, of which 5,000 tons was in block and 8,000 tons in power. (The produced

fertilizer contains 20 per cent P₂O₅, 30 per cent lime and trace quantities of nitrates, magnesium and such others)

Production capacity: 50,000 tons per annum

Reserves: 20 million tons

Actual production (up to April 1962): 13,000 tons:
5,000 tons in blocks

8,000 tons in powder

Fixed capital: 10 million piastres

Number of workers: 130

Value added: 3,900,000 piastres

Value of imports substituted by local production from 1960 to 1962: about US\$1,000,000.

The company is at present encountering some difficulty as a result of the high operating cost, and it has ceased operations for the past two years. The company had reached a position where it needed a government subsidy of the order of 850 piastres per ton of fertilizer produced in order to continue. The Government is now studying a rational project for exploiting the phosphates in the Paracel Islands.

(Source: Second five year plan and the IDC)

(iv) *White sand*

Viet-Nam has abundant resources of white sand, which is used as a raw material for the glass industry. The sand deposits are found at Cam Ranh, Tourane and Hue in central Viet-Nam, and in layers stretching from Ba Ria to Chan Thanh.

Catraco, a company specializing in the exploitation of "Thuy Trieu" (Khanh Hoa) white sand, is at the moment under government control.

Registered capital: One million piastres

Investment in equipment: 1,116,000 piastres

Number of workers: 250 to 500

Production capacity: Very high

Exports: 1963 150,360 tons

1964 231,765 tons

Value of exports in 1964: about US\$800,000

The profits of this company have reached 10 million piastres per year.

Local glass-works consumed 2,743 tons of this white sand in 1964.

(b) *Engineering industries*

At present, there is no actual engineering industry as such in Viet-Nam. It is difficult to see how engineering industries could be established except for some articles that are in sufficient demand to warrant series production, such as bicycles, power-looms, pumps and simple machine tools.

The engineering industry is made up of a large number of highly competitive enterprises. There is a multitude of small workshops which work intermittently and which produce very inexpensive goods that are often of deplorable quality. This hampers the modernization and development efforts of responsible firms which are trying to maintain a certain minimum quality.

(i) *Bicycles*

Of the firms producing bicycles, none are even of medium size. Bicycle parts are manufactured or assembled in small workshops and the resulting product is cheap and of mediocre quality.

At the present time, almost all the components are manufactured at Cholon; only the chain-links and the ball-bearings are imported. The manufacture of wheel-rims is being investigated, and orders have been placed for the purchase of machinery to produce spokes.

Components for bicycles and auto-cycles are manufactured by twenty-one large-scale enterprises, which had the following combined output in 1963:

Bicycle frames	14,800
Wheel-rims (pairs)	7,000
Bolts and screws	457,732
Other parts	44,000
Cables	1,937,955

(Source: National Statistics Institute)

Capital: about 120 million piastres (for 21 enterprises)

Number of workers: about 950 (for 21 enterprises)

In addition, there are two small factories manufacturing trishaws. Only the wheel-rims and the spokes are imported. The combined production of these two enterprises is 1,000 units annually.

(ii) *Assembly of scooters, auto-cycles, sewing-machines and motor coaches*

Four makes of scooter and auto-cycles are assembled in Saigon, namely, Vespa, Lambretta, Puch and Velo-solex. The only operation of note carried out locally is the construction of the bodywork for Lambretta and Vespa three-wheel scooters, for which only the chassis and the cabin are imported. The output in 1963 totalled 2,677 scooters, 8,169 auto-cycles and 1,526 three-wheeled scooters.

Necchi brand sewing-machines are assembled, the frame being made at Saigon and the table at Cholon. In 1963, 12,801 units were produced.

Coaches are no longer imported; they are made either by converting the bodywork of lorries or by building on new imported chassis. In this way, the coaches can be built to suit standard Vietnamese dimensions, the seats being made narrower. There are about four factories at Saigon, Cholon and Gia Dinh.

(c) *Metallurgical industries*

(i) *Foundries*

At Saigon and Cholon, there are thirty foundries of widely varying sizes. They manufacture a large variety of products and production is still of a small-scale nature, since the smallness of the production runs does not permit the application of industrial methods. The raw material is partly scrap-iron and partly new imported pig-iron. The production in 1960 amounted to 3,000 tons, and in 1961 it was 3,500 tons (Source: second five-year plan)

(ii) *Nails*

The nail industry at present supplies the entire needs of the country. The total production capacity of the thirty-seven firms concerned is over 7,000 tons per year, while the country's needs are estimated to be less than 4,000 tons per year. Production in 1962 was 2,716 tons, and in 1963 it rose to 3,304 tons. (Source: National Statistics Institute)

(iii) *Aluminium*

There are sixty-five small-scale establishments manufacturing hardware, saucepans, kettles, and certain bicycle parts. Prices are determined by the raw material, which accounts for more 90 per cent of the cost price of the articles. The production in 1963 amounted to 931 tons. (Source: National Statistics Institute)

At the present, the aluminium industry in Viet-Nam is largely sufficient for the country's needs and it could sell surplus production in neighbouring countries if its prices were competitive.

(iv) *Metal furniture*

At Saigon and Cholon, there are twenty or so small factories specializing in the manufacture of metal furniture, including chairs, beds and filing cabinets. This sector of industry is flourishing and meets the country's needs for these products.

(v) *Tinplate*

About six enterprises specialize in the production of tinplate, some of them supplying only their own requirements. Production in 1963 amounted to 329,000,000 bottle-tops, 1,221,419 iron containers and 678,873 tin cans. The industry is expanding rapidly.

(d) *Electrical industries*

The electrical industries are fairly well developed. Imports in this sector amounted to US\$10 million in 1960 and US\$4.3 million in 1963.

There are about fifteen firms assembling lamps, radios, batteries and the like, using imported components. There are also some factories manufacturing batteries, electric wire and welding sets.

Other radio assembly plants are currently being installed and this should open the way for a small industry of components and the manufacture of transformers, potentiometers, small motors and so on. The production of electrical equipment in 1962 and 1963 is shown in table 9.

TABLE 9. PRODUCTION OF ELECTRICAL EQUIPMENT, 1962 AND 1963

Item	Production in 1962	Production in 1963
Batteries	3,809,000 units	5,202,000 units
Electric fans	3,541,000 units	5,372,000 units
Electric wire	3,428,000 metres	7,557,000 metres
Battery lamps	116,000 units	156,000 units
Electric lamps	1,068,000 units	702,000 units
Radios (assembled)	23,484 units	24,893 units

Source: National Statistics Institute.

(c) *Chemical and related industries*(i) *Paper*

There are at present six small paper mills and two large ones, all established during the period 1958 to 1964. Some of these mills base their production on pulp manufactured by themselves from local raw materials (used paper, straw) and the others use imported pulp.

Average local consumption, 1962-1963:

Newsprint paper	15,400 tons
Ordinary paper	8,200 tons
Other paper	11,400 tons
Paperboard	2,300 tons
	37,300 tons

Local production 1964:

Writing paper	21,000 tons
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Paper pulp:

Chemical pulp (bagasse, straw)	1,000 tons
Mechanical pulp (fir)	6,600 tons

Paper mills under construction:

Cogido and Cobogido are scheduled to start production in 1965 at the following rate:

Straw and bagasse pulp	9,000 tons
Paper (1966)	7,000 tons
Paperboard	5,000 tons

Cong Ty Ky Nghe Giay is scheduled to start producing paper in 1966.

Magico is also scheduled to start production in 1966, at the following rate:

Bagasse pulp	5,000 tons
Paper	5,000 tons

(ii) *Glass*

Seven small firms and one large one are producing glassware, including pharmaceutical ampoules, syringes, thermos flasks, cups, teapots, bottles and plates.

Production in 1963 was as follows:

Pharmaceutical ampoules	145,804,807
Bottles	7,621
Thermos flasks	138,383
Other	1,112 tons

(Source: National Statistics Institute)

According to customs statistics, the value of exports was US\$19,100 in 1962 and US\$70,000 in 1963.

(iii) *Cement*

Imports of cement into Viet-Nam amounted to 393,370 tons in 1962 and 437,119 tons in 1963. It is expected that annual consumption will reach 550,000 tons in a few years' time.

Ha-Tien cement works

The Ha-Tien cement works is a mixed-capital enterprise.

When the cement works was still at the project stage, the French Government provided a long-term loan of US\$15 million for the purchase of capital goods needed for the construction of the two plants at Ha-Tien and Thu-Duc. The share of foreign exchange to be provided by the Government for the purchase of building materials and raw materials was estimated at about US\$1,829,000.

In 1961, the Vietnamese Government, represented by the management of the Ha-Tien cement works programme, entrusted the installation of the clinker and milling plants of the Ha-Tien cement works jointly to the PIC Company of Fontainebleau and the Société Française d'Entreprises de Dragages et de Travaux Publics. The PIC Company was made general contractor for the cement works while the other company carried out the civil engineering and building work.

The PIC Company was assisted by the consulting engineers, Etablissements Poliet et Chausson, and for the supply of some specific items of equipment it obtained the collaboration of Fives Lille-Cail, Fives-Penhoet, Merlin Gerin, Neyrpic and Wanson.

The cement works comprises two plants, one at Kien-Luong and the other at Thu-Duc.

Kien-Luong plant (Ha-Tien)

Prepares the crude paste Clay extraction
Limestone quarrying
Firing

Thu-Duc plant

Produces the cement Drying of moist additives in fuel-heated rotary tube
Milling of clinker
Storing of cement

Production capacity: 300,000 tons per annum
Actual production in 1964: 75,305 tons
Investment in equipment: US\$18,500,000
Capital: 1,763,000,000 piastres
Number of workers: 350
Value of imports substituted: about 160 million piastres (1964)

(iv) Plastic goods

Plastic goods are currently being manufactured by fifteen establishments. The production in 1963 was as follows:

Polyethylene	711 tons
Nylon thread	331 tons
Polystyrene	153 tons
PVC	509 tons
Cellulose acetate	10 tons
PVC compound	395 tons
Polystyrene brushes	20 tons
Combs, stoppers	26 tons

(Source: National Statistics Institute)

(Source: Ha-Tien cement works and the IDC)

Local production is sufficient for the country's needs. Efforts must be made to develop existing enterprises with a view to introducing wider diversification.

Plastics gain from being used in situations where they have the greatest advantage. They are thus important for petrol pipes and not for shoes.

(v) Caustic soda and hydrochloric acid

Two private companies formed in 1960 and 1962 manufacture caustic soda, hydrochloric acid and chloride of lime. The necessary raw materials are provided by local sea salt and lime.

Caustic soda is produced by electrolysis of a sodium chloride solution. Hydrochloric acid is obtained by synthesis, using the chlorine and hydrogen given off at the two electrodes. The import situation from 1960 to 1963 is shown in table 10.

TABLE 10. IMPORTS OF SOME BASIC CHEMICALS, 1960-1963

Product	Imports (tons)			
	1960	1961	1962	1963
Caustic soda, solid, 98%	1,941	4,887	3,262	6,717
Caustic soda, liquid, 50%	25.5	—	0.4	434
Hydrochloric acid, commercial, 32%	2,031	1,046.6	2,379.3	2,613
Hydrochloric acid, pure	178.3	26.6	—	—
Calcium hypochlorite	236	699	—	104

Local production capacity:

First plant (in operation):

Caustic soda solution, 50% 1,500 tons per annum
Hydrochloric acid 2,700 tons per annum
Chloride of lime (bleaching powder) 180 tons per annum

Second plant (to come into operation in 1966):

Caustic soda solution, 50% 2,210 tons per annum
Hydrochloric acid, 31% 1,350 tons per annum
Chloride of lime (30% Cl) 300 tons per annum
Benzene hexachloride (12-14%) 300 tons per annum

In the months of November and December 1963, the first plant produced 360 tons of caustic soda.

(vi) Toothpaste

In Saigon-Cholon, there are four companies manufacturing toothpaste. Not only are they able to supply the entire needs of the country, but they suffer from a lack of adequate markets. Total production was estimated at 79 tons in 1963.

(Source: National Statistics Institute)

(vii) Industrial gases

There are two large private companies specializing in production of the industrial gases, oxygen, acetylene and carbon dioxide. These companies supply the current needs of the country.

Production of these gases in 1962 and 1963 was as follows:

	1962	1963
Carbon dioxide	505,000 kg	491,332 kg
Oxygen	580,356 m ³	694,317 m ³
Acetylene	98,356 m ³	124,298 m ³

(Source: National Statistics Institute)

A small amount of oxygen is also exported, the value being US\$200 in 1962 and US\$100 in 1963.

(f) Textile industry

Because of the large number of workers it employs, the textile industry takes first place in Vietnamese industry. Large-scale enterprises with modern equipment were already in existence in 1960 (the investment of the textile industry in equipment amounted to US\$15,495,000 in the period 1955-1963).

(i) Cotton spinning

It is estimated that Viet-Nam's requirements of yarn and fabric were 13,800 tons per year up to 1963.

In 1964, the three large factories (Sicovina, Vimytex, Vinatexco), with a combined total of 110,000 spindles, produced 10,640 tons of yarn. Another company (Sicovina) intends to install a further 20,000 spindles during 1966, which will bring the total number of spindles to 130,000. The estimated production for 1966 is 12,000 tons.

Production of yarn:	1962	5,160 tons
	1963	8,500 tons
Imports of yarn:	1962	4,437 tons
	1963	6,821 tons

Production in 1967 with 130,000 spindles will account for only 73 per cent of the cotton yarn used in the country, that is, about 15,600 tons per year.

(ii) Weaving

This is one of the most advanced sectors of industry in Viet-Nam. There are at present five large producers of cotton fabrics, about twelve medium-size producers of rayon fabrics and about sixty small-scale weaving co-operatives. The investment in this sector amounted to about 2,345 million piastres in the period 1956-1963.

Cotton weaving

Equipment (1964): 2,920 automatic looms (industry) and 6,000 handlooms (small industry).

Production	1962	64.6 million metres
	1963	92.5 million metres
	1964	95.7 million metres

Production in 1964 satisfied almost the entire local demand.

Rayon weaving

Rayon weaving is carried out by fourteen industrial enterprises equipped with 1,047 power looms. Their production is estimated at 10 million metres

per year. In addition, about 60 million metres per year are produced by small-scale co-operatives, which have about 8,600 handlooms. The total production of rayon fabrics covers all the requirements of the home market.

Weaving of synthetic fibres

Number of factories: 5

Equipment: 533 looms, of which 175 are automatic and 14 are high-speed knitting machines.

Total production: 7,000,000 metres per annum

Imports of synthetic fabrics have been restricted since 1964.

Silk weaving

Equipment:		300 wooden handlooms
Production:	1960	300,000 metres
	1961	400,000 metres
	1962	600,000 metres
	1963	800,000 metres

Weaving of fishing-nets

Number of establishments: 5

Equipment: 67 looms

Production	1960	288 tons
	1961	504 tons
	1962	513 tons
	1963	850 tons

Manufacture of jute sacks (kenaf)

Number of establishments: 2

Equipment: 115 looms

Capital: 90,000,000 piastres

Production:	1960	2,893,000 sacks
	1961	3,677,000 sacks
	1962	3,013,000 sacks
	1963	4,424,000 sacks

Production meets the country's entire requirements.

Manufacture of woollen blankets

Equipment: 60 looms

Production: 900,000 blankets per year after end-1965 expansion

Capital: 36,000,000 piastres

Investment in equipment: US\$408,000

Number of workers: 358

Value of imports substituted: 52,788,000 piastres

Saving of foreign exchange: US\$310,068

Production in 1963 covered about 35 per cent of local market requirements and this figure will rise to almost 100 per cent in 1966 when expansion has been completed.

Manufacture of woollen knitwear

Number of factories: 50

Equipment: 415 knitting-machines

Production:	1960	732,000 pieces
	1961	920,000 pieces
	1962	700,000 pieces
	1963	512,000 pieces

Manufacture of underwear	
Equipment:	237 looms
Production:	1962 6,000,000 pieces
	1963 5,400,000 pieces
Manufacture of towels	
Equipment:	2,100 powerlooms and handlooms
Production:	1961 3,500,000 metres
	1962 4,300,000 metres
	1963 4,600,000 metres
Manufacture of socks	
Equipment:	50 automatic power- looms plus 300 handlooms
Production:	1961 369,000 dozen socks
	1962 350,000 dozen socks
	1963 300,000 dozen socks
Manufacture of mosquito netting	
Equipment:	582 looms
Production capacity:	11,000,000 metres per year (1,000,000 mosquito nets per year)
Manufacture of elastic fabrics	
Equipment:	1,200 looms
Production capacity:	year 19,000,000 metres per
Production:	1962 19,373,000 metres
	1963 15,350,000 metres

(g) *Rubber industry*

This industry represents a vivid example of a manufacturing activity in Viet-Nam using a wide range of local raw materials. The production range includes all articles that can be made from rubber, with a few exceptions such as rubberized fabrics which require advanced techniques. Some articles have a large market and can thus be manufactured on a production line basis (rice-mill sandals, "Japanese" sandals), while the other items produced cover a multitude of assorted products including motor-car accessories and flooring, which have a limited market. In spite of this, the rubber industry in Viet-Nam still uses only a tiny fraction of the rubber harvested (2 to 3 per cent).

(i) *Retreading*

Retreading is carried out in Saigon-Cholon by fifteen enterprises of which three are large, the processing capacity being 120,000 to 150,000 tyres per year. Production is sufficient to cover home demand.

Value of production:	1962	US\$213,800
	1963	US\$284,500

(Source: National Statistics Institute).

(ii) *Bicycle tyres*

Bicycle tyres are manufactured by about seventy-five companies. Production and consumption figures are shown in table 11.

In addition, two other projects are planned with capitals of 256 million and 264.7 million piastres.

When completed, they will have a combined production capacity of the order of 342,000 motor-car and scooter tyre sets per year.

TABLE 11. PRODUCTION AND CONSUMPTION OF BICYCLE AND AUTOCYCLE TYRES, 1962 AND 1963 (US dollars)

Year	Production	Imports	Consumption
1962	298,700	1,704,300	2,033,000
1963	813,800	520,100	2,209,400

Source: National Statistics Institute.

(h) *Leather industries*

There are about forty tanneries situated around Saigon Gia-Dinh, but only four large establishments have modern equipment.

Production 1962:	Leather, alum tanning: 274,136 feet
	Leather, vegetable tanning: 24 tons
1963:	Leather, alum tanning: 342,564 feet
	Leather, vegetable tanning: 37 tons
Exports 1962:	US\$1,900
1963:	US\$2,700

(Source: National Statistics Institute).

The market for leather goods is very limited in Viet-Nam, being restricted to the towns. The development of the leather industry will run parallel with the increase in the level of living of the people. The army could play a leading part by placing orders with local industry.

(i) *Industries processing agricultural products*(i) *Beverages*

At Saigon, there are five firms specializing in the production of beverages, but only two large foreign firms have a substantial production capacity.

Beer and aerated waters

Saigon possesses the largest brewery in south-east Asia. One of the raw materials, malt, has to be imported, and imports in 1962 and 1963 were as follows:

1962:	1,010 tpm. with a value of US\$832,000
1963:	6,701 tons, with a value of US\$1,711,200

Malt can be obtained from rice, and all necessary steps should therefore be taken to accelerate the establishment of malt production by this method. Production of drinks in the years 1960 to 1963 is shown in table 12.

TABLE 12. PRODUCTION OF BEVERAGES AND ICE-CREAM, 1960-1963

Year	Beer (hl)	Aerated drinks (hl)	Mineral water (hl)	Ice-cream (tons)
1960	516,000	—	—	—
1961	520,000	254,000	—	100,000
1962	598,404	380,763	7,291	120,803
1963	735,906	448,002	10,315	143,135

Exports of drinks were as follows (value in US\$):

	Beer	Aerated drinks	Mineral water
1962	248,300	—	5,000
1963	448,800	6,000	—

(Source: National Statistics Institute)

Alcohol

At Cholon, there is a large distillery manufacturing alcohol from rice. The plant also treats molasses obtained from sugar manufacture.

The equipment of the plant includes a distillation column which makes possible the production of absolute alcohol for pharmaceuticals and perfumes. There is a market for alcohol in the countries of south-east Asia.

Capital of the Société Française des Distilleries de Production (hl):

l'Indochine: 375,975,000 francs

Number of workers: 1,270

	1962	1963
Syrup	1,641	1,848
White alcohol	76,127	82,340
Rum	18,496	13,101
Chinese wines	391	544
Perfumes	305	570

Exports: Local rum: US\$ 3,100 (1963)

Chinese wines: US\$15,500 (1962)

(ii) Food preservation

There are six food-packing factories, five at Saigon-Cholon and one at Phan Thiet. Production is on a small scale and the quality is not as good as that of imported products. In addition, two large plants for the preservation of fruit juice, milk and frozen food are planned and will soon be ready for operation. The first of these, the "Merry Realm Juice Milk Industry" will have an annual production of 3 million 180-cc bottles. Its investment cost is estimated at 6 million piastres, of which US\$56,106 is for equipment. The second plant is to have an annual production capacity of 300 tons of frozen seafood intended for export. The cost amounts to 4 million piastres, of which US\$5,000 is for the importation of corks from Portugal. The over-all consumption of preserved foods is summarized in table 13.

It will be useful to encourage the establishment of food-packing factories in areas where the raw materials are produced, so that the products may be preserved in as fresh a state as possible.

(iii) Sweetened condensed milk

Viet-Nam's present requirements of sweetened condensed milk are estimated at 48 million cans per year. Two private companies are engaged in the manufacture of sweetened condensed milk using imported ingredients (fats powdered milk), and a third is due to start operations in 1965. The combined production will then be 900,000 cartons (each containing 48 cans) and this will nearly meet the country's requirements.

First company, established 1959

Production capacity: 300,000 cartons of 48 cans per year

Estimated value of production: 120,000,000 piastres

Total investment: 83,000,000 piastres

Investment in equipment: US\$815,000

Number of workers: 90

Second company, established 1962

Production capacity: 360,000 cartons of 48 cans per year

Estimated value of production: 228,161,000 piastres

Total investment: 80,000,000 piastres

Investment in equipment: US\$713,000

Number of workers: 50

Third company, planned for 1965

Production capacity: 240,000 cartons of 48 cans per year

Total investment: 58,000,000 piastres

Investment in equipment: US\$236,000

(iv) Sugar

Four large sugar-mills have been established or are in the process of construction in Viet-Nam. The country's needs for white sugar are estimated at 70,000 tons of sugar per year. The Hiep Hoa sugar-mill refines 15,000 tons of sugar per year. The three other large sugar-mills, when completed, will produce 45,000 tons per year [see section B.3 (n) (i) below].

TABLE 13. PRODUCTION AND CONSUMPTION OF PRESERVED FOOD PRODUCTS, 1962 AND 1963
(Estimated value in thousand US dollars)

Preserved food product	Production		Imports		Exports		Domestic consumption	
	1962	1963	1962	1963	1962	1963	1962	1963
Fish	165	455	—	—	—	44	165	441
Meat	20	139	8.3	76.2	—	7	28.3	208.2
Tomatoes	—	7.3	—	—	—	—	—	7.3
Peas	—	24.5	—	—	—	—	—	24.5
Asparagus	—	2.2	—	—	—	—	—	2.2
Fruit	—	19.9	—	—	—	—	—	19.9
Frozen shrimps	40	23	—	—	—	—	—	—
Sodium glutamate	65.6	451.3	—	—	65.6	—	—	451.3
Powdered egg	389.3	443.4	—	—	389.3	443.4	—	—

(v) *Duck feathers*

In Viet-Nam, three factories treating duck feathers are in operation. Actual production has not come up to installed capacity because of the lack of export markets.

Exports 1962: US\$914,500 (570.3 tons)
1963: \$658,800 (512.9 tons)

(vi) *Oils*

In and around Saigon, there are a dozen or so large oil-works owned by private companies, treating principally copra and cinnamon. Rubber and citronella seeds are also pressed and, on occasions, other oilseeds (kapok). These oil-works operate on an industrial scale, some of them using old-fashioned pressing techniques and others employing up-to-date refining methods.

Production (tons):

	1962	1963
Coconut oil	2,246	1,157
Rubber and kapok oil	1,107	127
Groundnut oil	205	61

(Source: National Statistics Institute).

Exports of oils in 1962 and 1963 are shown in table 14.

TABLE 14. EXPORTS OF OILS, 1962 AND 1963

	1962		1963	
	Value (US\$)	Quantity (tons)	Value (US\$)	Quantity (tons)
Coconut and ground-nut oil	556,500	2,410.8	61,200	233
Oilseed cake	245,700	4,591.3	285,500	4,051

Source: General Directorate of Customs, foreign trade statistics for 1962 and 1963.

(vii) *Soap*

The soap industry is tied in with the production of oils, and numerous soap factories have been set up in Saigon. Some large factories have started soap manufacture on an industrial scale, producing yellow soap, toilet soap and soap powder. In one of these factories, glycerine is recovered, and Viet-Nam's requirements of this product are satisfied in this way.

Production (tons) 1963:	Ordinary soap	3,817
	Toilet soap	516
	Soap powder	17
Value added (piastres) 1963:	Ordinary soap	26,263,000
	Toilet soap	7,634,000
	Soap powder	70,000
		32,967,000

(Source: National Statistics Institute)

Exports: 1962 US\$ 7,500 (37.8 tons)
1963 US\$11,900 (65 tons)

(Source: General Directorate of Customs, foreign trade statistics for 1962 and 1963).

(j) *Electric power*

During the past few years, the National Electric Power Office (N.E.P.O.) has been able to repair and strengthen the small power stations which were damaged during the last war, and to bring electrification to some other places which had not previously enjoyed the benefit of electricity.

The present installed capacity is about 219,000 kW, producing 450 million kWh per annum. The breakdown of capacity is as follows:

Danhim hydro-electric power station (first stage)	80,000
Cho Quan thermal station	52,000
SIPEA thermal station	9,000
NEPO thermal station	6,000
Tan Son Nhat thermal station	8,000
Cau Kho thermal station	5,000
Cholon thermal station	8,000
SCEE thermal station	3,500
UNEDI thermal station	2,500
Other private generating plants ..	45,000

219,000 kWh

For some years to come, the Government will continue the programme of extending electricity supply to important centres and, at the same time, construct a number of power stations which will mainly feed Saigon and the future industrial districts in the country.

The following two projects have been launched with foreign aid.

(i) *Danhim*

This project comprises two stages. The first stage, which involves a capacity of 80,000 kW (half of the total installed capacity), is already completed, and the second stage should be in operation toward the end of 1965.

Expenditure on the first stage of the Danhim project totalled 2,940 million piastres, made up of US\$37 million for investment in equipment plus 720 million piastres.

(ii) *33,000 kW thermal station at Thu Duc and 66 kW high-voltage line around Saigon-Cholon*

The Government has borrowed a sum of US\$12,700,000 from the Development Loan Fund to be used together with about 150 million piastres from the NEPO for the construction of a 33,000 kW thermal station at Thu Duc and a 66 kW high-tension line around Saigon-Cholon, to satisfy the needs of the Saigon-Cholon area (lighting for the people and power for industry).

The total expenditure is expected to be 912,000,000 piastres, made up of US\$12.7 million for investment in equipment plus 150 million piastres.

b. New industries planned or being constructed**1. New industries to be established in the An-Hoa—Nong-Son industrial district****(a) Development plan for the An-Hoa—Nong-Son complex**

In order to utilize the coal at Nong-Son, an industrial complex is being established in the An-Hoa-Nong-Son area.

The complex will provide the country with products needed for its agricultural development (chemical fertilizers, electricity etc.) and basic items such as dry ice, cement, paper pulp and glass. By supplying gases and low-cost electric power, it will lend impetus to the development of the chemical and metallurgical industry (iron, copper, lead, graphite and the like).

Construction of the complex will be accomplished in three stages.

First stage, 1962 to 1966

The Nong-Son mine is already completed and two other projects are in the course of construction.

One 25,000 kW power station;

One fertilizer plant with a capacity of:

42,000 tons per year urea,

48,000 tons per year ammonium sulphate.

Second stage, 1966 to 1970

One dam at Nhon Trach on the Song Thu Bon

One glass-works utilizing the white sand of Nam O (Quang Nam)

One iron-ore treatment plant

One bamboo plantation

One caustic soda/chlorine plant

One dry ice plant

Third stage, 1970 onwards

One plant producing nitric acid, nitrogenous fertilizer and complex fertilizers

One cellulose pulp plant

One plastics plant

Metal mines in the Quang Nam and Quang Ngai region.

(b) First-stage investment**(i) Nong-Son mine**

Investment in the mine amounts to 115 million piastres plus US\$1 million (in foreign exchange) for equipment and machinery. For the coal and fertilizer transport system the investment amounts to 95 million piastres plus US\$0.8 million for the purchase of rail-wagons and trucks.

(ii) Investments in the complex

Investments in the complex at the first stage cover the following items:

the cost of studies and the purchase of industrial equipment and supporting workshops to a total of US\$27 million;

the cost of engineering and assembly, amounting to 381 million piastres;

the cost of social and economic infrastructure, amounting to 200 million piastres;

the cost of paying loans and financial charges during the period of construction and of establishing the working capital for start-up, amounting to 200 million piastres.

An approximate breakdown of the industrial investments in the complex is given in table 15.

TABLE 15. BREAKDOWN OF FIRST-STAGE INDUSTRIAL INVESTMENTS IN THE AN-HOA NONG-SON COMPLEX

Item	Foreign exchange (million US\$)	Total currency (million piastres)
Cost of studies	1.06	4.0
Power station	5.64	34.9
Gasification	5.70	53.0
Liquefaction	1.70	20.0
Ammonia	1.52	8.0
Urea sulphate	3.20	18.0
Sulphuric acid	0.90	6.0
High-tension lines and transformer stations	2.00	58.0
Supporting workshops	5.30	150.0
Start-up, housing estate, roads, social centres		200.0
Miscellaneous		30.0
	27.00	581.0

(c) Second- and third-stage investments

A description of the second- and third-stage projects is given in the following sections, (i) to (v).

(i) Nhon Trach dam

The Nhon Trach (Quang Nam) dam will be constructed on the river Thu Bon, with a height of 60 to 65 metres. It will be a multi-purpose dam, having an annual power production of 600 million kWh and an average power output of 65,000 kW. The production may be used to supplement that of the dams in the south (notably Danhim) in supplying power to Saigon. It may also be taken in isolation to meet the needs of central Viet-Nam itself.

The storage capacity of the dam will be 6,000 million cubic metres, with an area of 180 square kilometres, and it will provide an effective means of controlling floods and maintaining the flow of the river Thu Bon at 160 cubic metres per second. It will enable the adjacent plains to be developed by supplying irrigation water, the potential of which may be as high as 200,000 hectares.

(ii) Iron ore

The area has large deposits of iron ore which can be easily accessible by road and rail. The deposits at Mo Duc would be particularly easy to exploit, as the ore lies over an area of six square kilometres with a depth of up to six to ten metres. According to prospecting data so far available, the reserves are of the order of 100 million tons.

The ore is of the laterite type, which has a relatively low iron content (30-40% Fe). Boring

and analysis work is at present being carried out. With the help of specialized foreign firms, a simple and reliable technique will be worked out to convert the iron ore either into a richer ore for use in blast furnaces or into granulated or spongy iron without further concentration.

(iii) Bamboo plantation

A bamboo plantation will be established and used in conjunction with a caustic soda/chlorine plant to supply the projected cellulose pulp plant. A pilot plantation of *Zichostachyum Zollingerie* has been established at Nong-Son as part of the research directed toward finding a suitable species of bamboo for making pulp.

(iv) Dry ice

The possibility of purifying the surplus carbon dioxide gas obtained from the gasification plant and compressing it into dry ice will be studied. There is a large potential demand for dry ice for industrial refrigeration in the region (fishing boats, cold rooms for fish and lobster preservation, and so on).

(v) Glass

The ideal white sand for glass manufacture occurs in abundance in the Quang-Nam region. The sand at Nam O in particular has been much sought after by Japanese companies for a long time. A factory producing plate-glass could be established.

(Source: *Le Complexe Industriel de An-Hoa-Nong-Son*).

2. Industrial utilities

(a) Water supply

(i) Water supply for Saigon

The water supply system for the city of Saigon and the surrounding areas is particularly inadequate at the present time. This situation is due to the fact that the system was intended for a city of only 500,000 inhabitants. The population of Saigon has, however, increased beyond measure as a result of recent events and has now reached the figure of 2 million. In recent months, the volume of water used daily has been 165,000 cubic metres, or an average of 80 litres per person, while the minimum daily requirement for a city dweller should be of the order of 150 litres.

In addition to being inadequate in quantity, the water supplied by the city is not of the required quality, as it contains a high percentage of acidic and iron substances.

To combat this pressing situation, the Government plans to modernize the existing system in order to improve the living standard of the population. It was in this context that the programme to tap the waters of the Dong Nai at Bien Hoa was put into effect, to replace the present system of supply to the city.

The aims of this project are to supply drinking water in the required quantity and quality, and to

modernize and expand the existing system of piping drinking water to the city of Saigon and the nearby areas in a more rational manner.

To achieve these aims, the Government has undertaken the digging of five new Layne wells and the laying of pipes to increase the volume of water supplied to the population until such time as the Dong Nai water utilization project has been completed.

This work was supplemented in 1963 by the construction of a pumping station and the excavation of a canal linking the Dong Nai to the filtration plant, the construction of a filtration plant at Thu Due, and the improvement of the water supply network. The total expenditure is estimated at US\$17 million plus 1,000 million piastres. The work will be finished towards the end of 1965.

(ii) Water supply for the provinces

A group of projects parallel to the Saigon project is envisaged for the provinces, the aim being to provide the people with clean, soft and uncontaminated water at the rate of 100 litres per person per day. The improvement and expansion of the present water supply system in the larger centres is also planned. The total expenditure will be US\$4,450,000 plus 199,830,000 piastres, allocated in the following way:

Improvement and expansion of existing networks	US\$3,099,000 plus	133,580,000 piastres
Installation of new networks	US\$1,351,000 plus	66,250,000 piastres
Total	US\$4,450,000	199,830,000 piastres

(b) Power supply

(i) Work to be carried out with foreign aid

Installation of additional 4,000 kW capacity at Drayling power station (Banmethuot)

The annual production of this station will be increased from the present level of 2,500,000 kWh to 22,500,000 kWh. The expenditure on this project is estimated at 61 million piastres, comprising US\$1 million for investment in equipment plus one million piastres.

Construction of a 25,000 kW thermal station in the An-Hoa-Nong-Son industrial complex.

The thermal station will consist of four boilers, three in operation and one in reserve, with a total production of 130 tons of steam per hour. Approximately two-thirds of the electric power produced by this station will be used in the complex and a high-tension line will convey the rest to neighbouring towns and industrial centres (Danang, Hoi An, Tam Ky, Quang Ngai). Completion of the project will allow the price of domestic current to be reduced from 6 piastres to 2 piastres per kWh, and it will also facilitate the installation of small industries,

the pumping of water in the rice-fields, and the commencement of metal mining operations.

Total cost is estimated at 25,000,000 NF (for the importation of equipment) plus 35,000,000 piastres.

(ii) *Work to be carried out with NEPO funds*

The following projects are to be carried out with the funds of the National Electric Power Office: extension of existing facilities for power production and distribution in some provinces of central Viet-Nam;

electrification of the distribution network around important centres near Saigon;

installation of a high-tension line between Saigon and some provinces in the south.

(c) *Petroleum refining*

Viet-Nam's requirements of petroleum products in the next few years are estimated at about 800,000 tons per annum. (Imports of petroleum products in 1963 amounted to 632,413 tons).

The refinery project submitted to the Government some years ago by the Shell and Esso companies has been approved by the Government and is to be put into effect during the second plan period, 1962-1966.

The refinery, being a mixed-capital project, will be constructed at Nhatrang.

Production capacity: about 800,000 tons per annum

Total cost: 1,184,000,000 piastres

Expenditure in foreign exchange: equivalent of 888 million piastres in US\$ and £ (75%)

Expenditure in local currency: 296 million piastres (25%)

3. *Other industries*

(a) *Fertilizers*

The second stage of the plan provides for expansion of the company exploiting fertilizers on the Paracel Islands, by providing it with increased financial assistance: 50 million piastres for installation and operational expenditure and US\$1 million for the purchase of capital goods and cargo vessels.

In addition, a fertilizer plant producing urea and ammonium sulphate is planned in the An-Hoa Nong-Son industrial district. The production capacity will be 42,000 tons per year of urea plus 48,000 tons per year of ammonium sulphate. The estimated cost is 504,600,000 piastres, and the value of imports substituted will be US\$1,919,000.

The fertilizer plants will consist of a series of five units designed to produce urea and ammonium sulphate starting from coal and sulphur. These units are:

- air liquefaction and separation unit;
- gasification and gas purification unit;
- ammonia synthesis unit;
- urea and ammonium sulphate fertilizer unit;
- sulphuric acid unit.

(b) *Scooter and motor-car tyres*

Two projects have been formulated for the manufacture of scooter and motor-car tyres. The production capacities will be 222,000 scooter and motor-car tyre sets per year at one plant and 120,000 motor-car tyre sets per year at the other. The total investment will be 520,750,000 piastres, including US\$6,290,000 (US\$3,690,000 + US\$2,600,000) for equipment. Total production will be sufficient for domestic requirements.

(c) *Chemicals*

There are projects for the establishment of six plants manufacturing chemical products.

(i) *Undeca-phenol and melamine formaldehyde*

A new plant manufacturing these products will be set up in 1966. Production capacity: 480 tons per annum undeca-phenol and melamine formaldehyde. Investment: 14,500,000 piastres (including US\$150,000 for the importation of equipment).

(ii) *Sulphuric acid, alum, potash alum and sulphate fertilizers*

These substances will be produced by two new plants, the combined production capacity being as follows:

Sulphuric acid	3,440 tons per annum
Alum	3,326 tons per annum
Potash alum	720 tons per annum
Sulphate fertilizers	270 tons per annum

The total investment will be 27,622,750 piastres, including US\$153,500 needed for the importation of equipment.

(iii) *Caustic soda, hydrochloric acid, calcium chloride and bleaching solution*

These substances will be produced by two new plants, the combined production capacity being as follows:

Caustic soda	8,500 tons per annum
Hydrochloric acid	5,500 tons per annum
Bleaching solution	2,000 tons per annum
Calcium chloride (CaCl ₂ · 2H ₂ O)	600 tons per annum

The total investment will be 118 million piastres, including US\$1,486,200 needed for the importation of equipment. Production will be sufficient for local requirements.

(iv) *Ink*

A new plant will be set up to specialize in the production of ink under licence from Pilot. The production capacity will be 9,000 dozen bottles of ink per year, and the total investment 3 million piastres, including US\$4,000 for equipment. Production will be sufficient for local requirements.

(d) *Essential oils*

Two oil-works specializing in the refining of citronella oil and cinnamon oil are to be set up. The production capacity will be 36 tons per year

of citronella oil and 15 tons per year of cinnamon oil. The total investment will be 4,235,063 piastres, including US\$24,632 and 694,000 piastres for the importation of equipment.

(Source: General Directorate of Mining, Industries and Handicrafts)

(e) *Aluminium products*

Two projects for the manufacture of aluminium tubes for pharmaceutical products are planned. The production capacity will be about 14 million tubes per year and the investment 7,903,470 piastres, including US\$24,435 and 366,898 DM for equipment.

(f) *Metal industries*

(i) *Bolts and screws*

One plant manufacturing bolts and screws is to be constructed.

Production capacity: 800 tons per annum

Investment: 9,200,000 piastres (including 3,571,000 piastres needed for the importation of equipment).

Number of workers: about 44

Value of imports substituted by local production: about 16 million piastres

Saving of foreign exchange: US\$71,266 annually

(ii) *Expanded metal*

A project to increase the production of screens and expanded metal has been drawn up.

Production capacity: 35,000 rolls

Investment: 3,900,000 piastres, including US\$39,800 for equipment.

(iii) *Galvanized pipes*

There are two projects for the manufacture of galvanized pipes and pipes made of cast iron, bronze and so on.

Production capacity:

Galvanized pipes 5,500 tons per annum

Cast iron pipes 3,400 tons per annum

Aluminium pipes 400 tons per annum

Bronze pipes 200 tons per annum

Investment: 127,500,000 piastres, including US\$1,395,000 for equipment.

The capacity will be quite sufficient for local requirements. Imports of metal pipes amounted to 7,716 tons in 1962 and 2,764 tons in 1963.

(iv) *Metal tools*

Two projects are planned for the manufacture of metal combs (for textile machinery) and locks.

Production capacity:

Locks 594,000 per year

Combs 72,000 per year

Investment: 7,800,000 piastres, including US\$59,367 for equipment.

Production will be quite sufficient to cover local needs.

(g) *Cycle industries*

Two projects for the manufacture of bicycle parts are being put into effect. Details of the first project are as follows:

Production capacity:

Bicycles 5,000-15,000 per year

Auto-cycle wheels 25,650 pairs per annum

Bicycle wheels 135,000 pairs per annum
+ 30,000 tubes per annum

Investment: 19,000,000 piastres, including US\$267,665 for equipment.

Details of the second project, which was approved in August 1964 and is to be completed in 1965, are as follows:

Production capacity: 310,000 per year

Investment: 6,000,000 piastres, including 1,782,000 piastres for equipment.

Number of workers: 45

Value of imports substituted by local production: about 16,000,000 piastres

Annual saving of foreign exchange: US\$102,330

(h) *Electrical industry*

Three projects for the manufacture of electric wire, electrode rods, electric and telephone cables, electric meters and the like, were approved in 1964.

Production capacity:

Electric meters 20,000 per year

Electric cable 3,280 tons per year

Telephone cable 7,480 tons per year

Electric wire 8,800 tons per year

Electrodes 1,000 tons per year

Investment: about 569 million piastres, including 13,919,250 NF and US\$119,000 for equipment.

The total production and consumption figures for 1963 are as follows:

Consumption: US\$1.5375 million

Production: US\$0.2183 million

Imports: US\$1.3192 million

(i) *Wood industries*

(i) *Sawmills*

Investment in equipment and property: 20,000,000 piastres + 85,000,000 old francs.

The maximum production capacity of the existing sawmills in south Viet-Nam is estimated at 1,200,000 cubic metres of wood per year.

The production of logs is hampered greatly by the insecurity, however, and the volume of wood actually produced only amounts to about 350,000 cubic metres per year.

(ii) *Plywood*

The investment in equipment and property amounts to US\$333,000 plus 16 million piastres.

At the present time (March 1965), the production of plywood in south Viet-Nam is negligible,

and it is necessary to import fairly large amounts of this product every year. Imports of plywood from 1958 to 1962 are shown in table 16.

TABLE 16. IMPORTS OF PLYWOOD, 1958-1962

Year	Weight (tons)	Area (m ²)
1958	2,130	980,000
1959	2,260	1,035,000
1960	2,910	1,325,000
1961	1,380	630,000
1962	1,640	745,000

Restrictions on the import of plywood were introduced in 1961 in order to save plywood on the Vietnamese market. In order to alleviate this situation and to re-align the activities of the Tan Mai State Corporation, the Government decided to construct a plywood manufacturing plant on the land of the Tan Mai Corporation at Bien Hoa at the end of 1964.

Construction of the plant is now under way and, if all goes well, the first sheets of plywood will be produced in September 1965. The annual production capacity (on the basis of an eight-hour day, 300-day year) will be of the order of 300,000 m² of plywood sheet, with a thickness of 5 mm.

(iii) Okal (particle board)

The investment in equipment and property amounts to US\$305,400 plus 6,000,000 piastres.

A factory manufacturing particle board is already in existence at Tan Mai, Bien Hoa. As the local market is not yet accustomed to this product, the future of the factory, which is equipped with German machinery, will be determined by the success of export efforts.

The production envisaged for the local market is about 100,000 m², but new prospects have already been opened up on the markets of Hong Kong, Singapore and New Zealand, and it is thought that the production of Okal will be raised to 400,000 m² per year, or even higher.

(iv) Acrolith (wood wool board)

The investment in equipment and property amounts to 242,000 DM plus 6,000,000 piastres. This factory also is equipped with German machinery and belonged to the Tan Mai Corporation before being sold to the Vadaco company by the Government. The product is designed for use in the construction of cheap prefabricated houses.

The annual production capacity (on the basis of an eight-hour day, 300-day year) is 250,000 boards, 2m by 0.5m by 0.035m. This rate of output could easily be doubled or tripled.

(v) Neomica

Factories are being constructed at Da Nang to manufacture Neomica (polyester decorative plywood), with an annual production capacity of 100,000 m².

The promoters are, however, experiencing some difficulty in importing synthetic resins and decorative paper. At the moment, the factories are still waiting for the raw materials needed to commence.

(j) Bricks, tiles and prefabricated concrete

Three projects for the manufacture of bricks, tiles and prefabricated concrete have been approved.

The first project was approved in September 1964 and relates to the manufacture of prefabricated concrete using local raw materials (Ha Tien cement, sand).

Production capacity: 18,000 m² per annum

Investment: 10,500,000 piastres, including US\$70,000 and 800,000 piastres for equipment.

The second project was approved in December 1964 and relates to the manufacture of bricks and tiles.

Production capacity:

Bricks 11,000,000 per year

Tiles 680,000 per year

Investment: 4,571,850 piastres, including US\$35,100 for equipment.

The third project was approved for expansion in April 1964.

Production capacity: 14,000 tons per annum

Total investment: 8,933,800 piastres —

1st programme: 3,775,000 piastres;

2nd programme: 5,158,800 piastres.

Investment in equipment: US\$148,900 —

1st programme: US\$62,920;

2nd programme: US\$85,980.

These three projects will come into operation at the end of 1965.

(k) Paper industry

Two projects were approved in 1964 for the manufacture of wrapping paper, Renshi paper, paperboard, onion-skin paper and corrugated paperboard.

The first project for a production capacity of 5,500 tons of pulp per year and 5,500 tons of paper per year is under study.

The second project was approved in June 1964 and provides for a production capacity of 800 tons of corrugated paperboard per year. The total investment will be 10,500,000 piastres, including US\$100,000 for equipment.

(l) Glass industries

There are two projects for the manufacture of pharmaceutical ampoules and glass products (teapots, cups, light bulbs, bottles and so on).

The first project, which was approved in March 1964 and which concerns expansion of the production of glass products (cups, bottles, light bulbs, plates, bowls, teapots and so on), is already under way.

Production capacity: 2,500 tons per annum

Investment: 16,000,000 piastres, including US\$223,105 for equipment

Number of workers: 22
 Value of production: 16,000,000 piastres
 Annual saving of foreign exchange: US\$302,190

The second project, which was submitted by a new private company and approved in April 1964, and which relates to the manufacture of pharmaceutical ampoules, is now being carried out.

Production capacity: 1,600 tons per annum
 Investment: 28,000,000 piastres, including 12,000,000 piastres for equipment

Number of workers: 53
 Value of production: 35,000,000 piastres
 Annual saving of foreign exchange: US\$630,000

With effect from 1966, the production from these units will be of the order of 4,100 tons per annum.

(m) *Artificial leather*

This project was approved in December 1964.
 Production capacity: 600,000 metres per annum
 Investment: 11,355,840 piastres, including US\$91,664 for equipment

(Source: General Directorate of Mining, Industries and Handicrafts).

(n) *Food industries*

(i) *Sugar*

Four sugar-mill projects are at present being implemented. Viet-Nam's requirements of white sugar in the next few years are estimated at 70,000 tons per annum.

Production and imports in 1962 and 1963 were as follows:

	<i>White sugar</i>	<i>Brown sugar</i>
1962	64,142	
Imports (tons)		51,848
1963	61,046	
Imports (tons)		48,090

Quang Ngai sugar-mill project

Production capacity: 15,000 tons per annum
 Investment: 400,000,000 piastres, including US\$3,000,000 for equipment

Number of workers: 600
 Value of imports substituted: 360,000,000 piastres

Annual saving of foreign exchange: US\$2,600,000
 Scheduled time of completion: end 1966

Tuy Hoa sugar-mill project

Production capacity: 15,000 tons per annum
 Investment: 413,434,000 piastres, including US\$3,088,000 for equipment

Number of workers: 700
 Value of imports substituted: 400,000,000 piastres

Annual saving of foreign exchange: over US\$2,000,000

Binh Duong sugar-mill project

Production capacity: 15,000 tons per annum
 Investment: 400,000,000 piastres, including US\$3,000,000 for equipment

Number of workers: 600
 Value of imports substituted: 360,000,000 piastres

Annual saving of foreign exchange: US\$2,600,000
 Scheduled time of completion: end 1966

Expansion of Vinh Phu sugar-mill (approved 1964)

Annual production planned: 7,500 tons
 Investment: 95,000,000 piastres, including 55,000,000 piastres for equipment

Number of workers: 230
 Value of imports substituted: 200,000,000 piastres

Annual saving of foreign exchange: US\$1,800,000

When the above sugar-mills come into operation, it will no longer be necessary to import raw sugar for further refining. Sugar produced by small-scale producers will, however, be needed to satisfy the country's total requirements of sugar.

(ii) *Milk*

A project submitted by a private company for the manufacture of 'juice milk' was approved in October 1964 and is now being implemented.

Production capacity: 3,000,000 bottles of 180 cc capacity per year (10,000 bottles per day)
 Investment: 6,000,000 piastres, including US\$56,106 for equipment

(iii) *Frozen sea-food*

This project was submitted by a private company specializing in the manufacture and export of frozen seafood (fish, shrimps) and was approved in August 1964.

Production capacity: 300 tons per annum
 Investment: 4,000,000 piastres, including US\$5,000 for equipment

(o) *Textiles*

The textile mill projects being implemented or under study are described in table 17.

(p) *Cement-works*

A cement-works with a capacity of 100,000 to 150,000 tons is planned at Long Tho (Thua Thien), where there is already a hydraulic lime plant with a capacity of 18,000 tons of lime per year.

Production capacity: 100,000 to 150,000 tons cement per annum

Investment: 100,000,000 piastres
 Investment in equipment: US\$2,000,000

IX. EXPORT OF MANUFACTURED GOODS AND SEMI-MANUFACTURES

a. *Recent development of the balance of trade*

Table 18 shows Viet-Nam's balance of trade position in the years from 1955 to 1963. It can be

TABLE 17. TEXTILE MILL PROJECTS BEING IMPLEMENTED OR UNDER STUDY

Project	Operation			Investment			Production			Status of Progress	Remarks
	Spinning	Weaving	Wiping, Finishing	Total (million piastres)	Equipment	Quantity	Product	Year of Progress			
Projects being implemented											
Sicovina Thu Duc	20,000 spindles	400 looms		400	180 million VN\$	2,000	Yarn	Start-up 1966/67	Installation in progress Equipment being assembled		
Sakymen		35 looms		30	15 million VN\$	7,000,000 m	Cotton fabric	Start-up 1965/66			
My A		Rachet looms		7	3.5 million VN\$	600,000 m	Mosquito netting of cotton	Start-up 1965/66	Commencing operations		
Projects approved											
Synthetaine				30	20 million VN\$	320t	Wool yarn, fabrics for men	Approved 1964	Not yet constructed due to lack of capital		
Cty San xuat to hoa boc				1,000	13 million US\$	3,650t	Viscose rayon	Approved 1965			
Projects being studied											
Mitsubishi (Rayon and bamboo pulp)				1,200	13 million US\$	3,650t	Rayon, cellophane paper	Studied 1964			
Projects being considered for approval											
Vinatexco	20,000 spindles				1 million US\$	20,000,000 m	Finished fabrics	Submitted 1964/65	Extension		
Intertexco		96 looms			0.5 million US\$	10,000,000 m	Finished fabrics	Submitted 1964/65	Extension (40,000 spindles installed) Extension (300 looms installed)		
Thanh Tam Weaving-mill				140	1.5 million US\$	1,500,000 m	Nylon fabrics for men	Submitted 1963			
Viet Quang	15,000 spindles	100 looms			1.5 million VN\$	1,800,000 m	Fabrics for men	Submitted 1964			
V. N. Nylon Company and Far East Stretch and Finishing Co.				170	0.7 million VN\$	300t	Stretch nylon, nylon	Submitted 1965	Finishing of synthetic yarn, pre-weaving and production of nylon thread		

seen that there has been a persistent deficit: the value of exports amounts to only one-third of the value of imports and the trade deficit is financed by foreign aid.

TABLE 18. INTERNATIONAL BALANCE OF TRADE, 1955-1963
(values in million piastres)

Year	Value			Exports/Imports percentage
	Imports	Exports	Deficit	
1955	9,211.6	2,423.7		
1956	7,617.7	1,578.8		
1957	10,104.1	2,819.2	7,284.9	27.9
1958	8,125.0	1,932.1	6,192.9	23.8
1959	7,861.4	2,627.3	5,234.0	33.4
1960	8,441.9	2,994.1	5,417.7	35.6
1961	8,928.4	2,477.7	6,650.6	27.8
1962	9,259.2	1,981.3	7,277.8	21.4
1963	10,016.1	2,683.1	7,332.6	26.8
1964	10,416.0	1,692.0	8,724.0	16.2

The structure of the balance of trade shows certain symptoms common to all industrializing countries, with imports of industrial equipment rising at an increasing rate.

The external trade position calls for a policy of strict exchange control and restrictions of imports to absolutely essential products. It also justifies the practice of giving export subsidies.

b. Exports of manufactured and semi-manufactured products

All of Viet-Nam's exports fall into the category of agricultural products, the main items being rice and rubber. Manufactured and semi-manufactured products cannot be exported for reasons connected with quantity and quality: the quantity produced is not sufficient for domestic requirements and the quality does not come up to international standards. Moreover, the political situation in neighbouring countries such as Laos and Cambodia affects the volume of Viet-Nam's external trade to some extent. In fact, exports of certain manufactured products to these two countries have been falling considerably for some years.

c. Export industries

Table 19 shows export data for some industrial products for which figures are available.

TABLE 19. EXPORTS OF SELECTED INDUSTRIAL PRODUCTS,
1962 AND 1963

Product	1962		1963	
	Quantity (tons)	Value (1000 US\$)	Quantity (tons)	Value (1000 US\$)
Beer	1,309.3	248.2	2,316	448.8
Duck feathers	570.3	914.5	512.9	658.3
Vegetable oil	2,410.8	556.5	233	61.2
Cinnamon	204	152.9	328	252.6
Egg yolk	1,869.5	389.3	1,749	443.4
Salt	36,250	161.5	20,595	90.3
Tea	1,870.3	1,873.6	1,903	1,912.5
White sand	80,770	279.9	136,885	476.3

It should be noted that only the white sand and marine salt are exported in an unprocessed state and the remaining items are manufactured products.

In order to stimulate the export sector, the Export Development Centre was established on 28 November 1964. Several measures have been taken to promote exports, including the simplification of formalities in order to avoid time wastage, the provision of export subsidies, exemption from some duties and taxes, and the establishment of an industrial standards control bureau.

By following a rational external trade policy, it is hoped that an improvement in the balance of trade in general and of the export sector in particular will be achieved.

d. Measures taken for standardization and quality control

1. Laws and regulations

Although no system of industrial standardization has yet been adopted in Viet-Nam and the establishment of a standards bureau is still at the project stage, some legislation has been introduced to fix the standards of certain local products. The acts in question are the following:

Order of 29 March 1958 (amended by an order of 16 November 1959) concerning standards for cotton and silk fabrics.

Order of 6 December 1961 concerning permanent wave lotions.

Order of 9 January 1962 concerning toilet soap.

Order of 9 January 1962 concerning detergents.

Order of 18 January 1963 concerning bicycle frames.

With regard to quality control, the following enactments should be mentioned:

A decree of 2 May 1960 enforcing act no. 14/59 of 11 June 1959 relating to the control of food products.

Act No. 15/58 of 19 December 1958 fixing the control measures and procedures.

2. Organization

The study and publication of standards is undertaken on a provisional basis by the Directorate of Industries and Handicrafts (DIH), (Ministry of Economic Affairs).

The establishment of a standard involves the following eight stages:

Preliminary study of the question of standardization by the DIH

Meeting of the producers concerned.

Appointment of a study committee made up of representatives from private organizations and from the Government.

Drafting of an order fixing the standards.
 Consultation with interested parties.
 Revision of the draft order by the DIH
 Submission of the final draft to the Ministry of Economic Affairs.
 Publication of a definitive order fixing the standards in the official gazette and distribution of copies of the order to organizations concerned.
 The methods of applying sanctions are specified in each order.

3. *Remarks*

Standards which have been fixed by order are compulsory in nature and not simply indicative. The maximum penalty for infringing the standard regulations is closure of the factory concerned.

The standards established in this way are aimed directly at products which have a harmful effect on the health of consumers if they were manufactured in a defective way. In order to establish a system of industrial standards, the Ministry of Economic Affairs in collaboration with the Industrial Development Centre is carrying out detailed studies of the matter. The difficulties involved in establishing such a system are more or less of a technical nature, but the undeniable advantages will encourage the authorities concerned to complete their studies as soon as possible.

X. MEASURES FOR ACCELERATING INDUSTRIALIZATION, DIVERSIFYING MANUFACTURING, AND PROMOTING EXPORTS OF MANUFACTURED PRODUCTS

a. Broad strategy of action

In order to speed up the development and diversification of industry, the Government has adopted a strategy based on the following series of measures:

1. *Restoration of balanced import-export trade*

The Government seeks to reduce imports in order to effect savings of foreign exchange, and at the same time it endeavours to expand exports of the country's manufactured products. The Export Development Centre was organized for that purpose.

2. *Promotion of industrial development*

The Government gives particular attention to small-scale industries, providing them with technical assistance, loan facilities and raw material supplies. The Handicrafts Development Centre has the special function of encouraging the development of these industries. The Government also promotes exports of small industries' products that are competitive on the world market.

In order to encourage the establishment or expansion of large-scale industries, the Government seeks to attract domestic and foreign capital by granting tax concessions or by providing loans to large

industries (Industrial Development Centre). In this connexion, industries using local resources are given particularly favourable treatment.

3. *Establishment of new industrial districts*

Two new industrial complexes have been set up, the An-Hoa-Nong-Son complex and the Thu Duc — Bien Hoa complex. The construction of these complexes attracts new industries to the areas, and these industries thus have the benefit of much lower installation costs.

4. *Harmonization of industrial and agricultural development*

Almost 80 per cent of the active population of the country is engaged in agriculture and it would be useful if part of this excessive rural population could be channelled towards industry. The mechanization of agriculture would free a large number of workers. The diversification of agricultural production is essential for industrial development since most industries, especially processing industries, make use of agricultural products.

b. External assistance needed

Following the principle of the division of work, Viet-Nam needs the co-operation of other countries and international organizations for its industrialization process. The assistance required in the various fields is described briefly in the following paragraphs.

1. *Joint ventures*

The formation of joint ventures involving different countries, where the countries concerned provide each other with complementary resources, would be welcomed by Viet-Nam.

Many industries need international agreements to ensure them of a market and to stabilize the prices of their products. Industries for which Viet-Nam would appreciate agreements of this nature with developed countries include rubber, chemical fertilizers, and motor-car assembly. In this way, Viet-Nam would be able to establish modern industries with the help of advanced countries and, at the same time, Viet-Nam's manufactured products would be able to find a market in the developed countries, thanks to the various systems of preferences which these agreements would introduce.

2. *Manpower surveys*

The external assistance required by Viet-Nam in carrying out manpower surveys falls into two categories as follows:

Assistance in the form of trained staff:

Statisticians specializing in surveys in developing countries.

Manpower planners.

Population experts.

Assistance in the form of equipment:

Equipment for the setting up of general statistics training centres. The aim of these centres would be to train intermediate and senior level staff to replace foreign experts. The duration of training would be one to four years.

Training centres for economic programming and planning.

Equipment for technical laboratories.

3. Fellowships

Viet-Nam has already benefited from several fellowships granted under the terms of the Colombo Plan and bilateral or multilateral technical assistance agreements. The number of fellowships is still inadequate, however, in relation to the country's needs. Fellowships are required in special fields such as

statistics, national accounting, bank management and company management.

4. Technical know-how

Viet-Nam is keen to acquire technical know-how, capital and institutional support for entrepreneurs. Any external assistance in these fields would be welcome.

5. Imports of manufactured goods into developed countries

If markets are to be found for Viet-Nam's industrial products, the developed countries must help by opening their markets and eliminating all restrictions on external trade.

