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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

INDUSTRIAL DEVELOPMENT REVIEW SERIES

THAILAND

Prepared by the
Regional and Country Studies Branch
Division for Industrial Studies

The views and comments contained in this study do not necessarily reflect those of the Government of Thailand nor do they officially commit UNIDO to any particular course of action.

Preface

Within the framework of UNIDO country surveys and studies, a series of industrial development reviews on developing countries is prepared by the Regional and Country Studies Branch of the Division for Industrial Studies.

The reviews provide a general survey and brief analysis of each country's industrial development, both as a service to those within UNIDO and other international agencies concerned with industrial policy, planning, project development and implementation, and as a ready source of information for Governments. It is hoped that the reviews will prove useful as well to financial and industrial enterprises, both public and private, to research institutes and to aid agencies in developed countries. The reviews also aim at providing a basis for undertaking in-depth studies of specific aspects of industrial policies, strategies and programmes in the developing countries and at providing a basis for informed discussion and analyses of industrial development trends and policies.

The reviews draw on information provided by the UNIDO data base, material available from national and international statistical publications, and other sources. While up-to-date national statistics are not always available on every aspect of industrial development, the reviews will be updated periodically and efforts are being made to improve the UNIDO data base and to monitor industrial progress and changes in industrial policy on a regular basis.

The present review was finalized in May 1985 on the basis of information available at UNIDO headquarters. It is divided into two rather distinct parts. Chapters 1 and 2 are analytical in character, giving first a brief overview of the country's economy and its manufacturing sector and then a more detailed review of the structure and development of its manufacturing industries. Chapter 3 contains various kinds of reference material - which it is hoped will be useful to readers - on national plans and policies relevant to industrial development, on the country's natural, human and financial resources for industrial development and on the more important governmental and other institutions involved in industrial development. The document also

contains an "executive summary", relevant basic indicators, graphical presentation of manufacturing trends as well as a statistical appendix and other annexes.

It should be noted that the reviews are not official statements of intentions or policy by Governments or UNIDO, nor do they represent an official assessment by UNIDO of industrial development in the countries concerned. Readers are invited to comment on the findings and analyses and thereby assist UNIDO in improving and updating the reviews.

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Regional classifications, industrial classifications, trade classifications and symbols used in the statistical tables of this report, unless otherwise indicated, follow those adopted in the United Nations Statistical Yearbook.

Dates divided by a slash (1970/71) indicate a crop year or a financial year. Dates divided by a hyphen (1970-71) indicate the full period, including the beginning and end years.

In tables

Three dots (...) indicate that data are not available or are not separately reported;

A dash (-) indicates that the amount is nil or negligible; a blank indicates that item is not applicable;

One dot (.) indicates that there is insufficient data from which to calculate the figure.

References to dollars ($) are to United States dollars, unless otherwise stated.

The following abbreviations are used in this document:

ADB	Asian Development Bank
AIT	Asian Institute of Technology
ASEAN	Association of South East Asian Nations
ATI	Association of Thai Industries
BOI	Board of Investment
BOT	Bank of Thailand
CAD/CAM	Computer Aided Design/Computer Aided Manufacturing
DIP	Department of Industrial Promotion of the Ministry of Industry
DTEC	Department of Technical and Economic Co-operation
EIU	The Economist Intelligence Unit
EPZ	Export Processing Zone
ESC	Export Service Centre
ESCAP	Economic and Social Commission for Asia and the Pacific
GDP	gross domestic product
GNP	gross national product
IEAT	Industrial Estate Authority of Thailand
IFCT	Industrial Finance Corporation of Thailand
ILO	International Labour Organization
IMET	Institute for Management Education for Thailand
IMC	Industrial Management Corporation
IMF	International Monetary Fund
ISIC	International Standard Industrial Classification
JPPCC	Joint Public-Private Consultative Committee

MOC	Ministry of Commerce
MOI	Ministry of Industry
MVA	manufactured value added
NESDB	National Economic and Social Development Board
NIDA	National Institute of Development Administration
RESCOM	Industrial Restructuring Committee
SIFO	Small Industries Finance Office
SITC	Standard International Trade Classification
SSI	Small-Scale Industry
TDRI	Thailand Development Research Institute
TISI	Thai Industrial Standards Institute
TISTR	Thailand Institute of Scientific and Technological Research
TMA	Thailand Management Association
UNCTC	United Nations Centre for Transnational Corporations
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization

BASIC INDICATORS 1

The economy

GDP (1984): $42 million
Population (1984): 50.06 million
Labour force (1982): 25.7 million
GNP per capita (1983): $820

Average annual growth rate of GDP (per cent):	1960-70	1970-80	1981	1982	1983	1984	1985a/
	2.5	7.2	6.3	4.1	5.8	6.0	5.5

GDP by sector of origin (per cent):	1960	1970	1983
Agriculture	39.8	28.3	21.8
Industry	18.7	23.3	27.2
Manufacturing	12.6	16.0	18.6
Services	41.3	46.4	51.0

Inflation rate (per cent per year)	1980	1981	1982	1983	1984
	19.7	12.7	5.3	3.7	0.9

Currency exchange rate: (Baht equivalents to $1)	1980	1982	1983	1984	May 1985
	20.48	23.00	23.00	23.64	27.7

a/ Estimate.

BASIC INDICATORS 2

Resources and transport infrastructure

Resources:	
Cash crops:	Rubber, tapioca products, maize, tobacco, kenaf, beans, sugar, coconut, cotton
Livestock:	Cattle, water buffaloes, pigs, poultry (frozen chicken, important export)
Fisheries (1984):	Marine catch 1.9 million tons (Thailand is the largest fishing nation in Asia after Japan and the Peoples Republic of China. Thailand is world's third biggest exporter of frozen shrimps. Also freshwater fish abound.)
Forestry (1983):	Production: Teak and other woods 1,820,000 m^3; Firewood 772,000 m^3; Charcoal 292,000 m^3
Mining (1983):	Production: Tin 27,200 tons; fluorite 237,700 tons, tungsten 1,100 tons; lead 49,400 tons; lignite 1,866,100 tons
Energy production (major sources):	Natural gas, crude oil, lignite, hydropower, charcoal, bagasse
Transport:	
Roads:	44,500 km (national highways and provisional roads); 112,200 km (farm to market roads)
Railways:	4,487 km
Ports:	Bangkok, Songkhla, Laem Chabang Sattahip, Maptaphut
International airports:	Bangkok, Chiang Mai, Phuket, Hat Yai

BASIC INDICATORS 3

Foreign trade and balance of payments

Exports (1983)	total value:	$6,308 million		
	main goods:	rice, tapioca products, textile products, maize, sugar, precious stones, integrated circuits, tin, prawns		
	main destinations:	Japan, USA, Netherlands, Singapore, Hong Kong, Malaysia, FRG		
Imports (1983)	total value:	$9,160 million		
	main goods:	crude oil, non-electrical machinery, chemicals, electrical machinery, iron and steel, diesel oil and special fuels, vehicles and parts		
	main origins:	Japan, USA, Saudi Arabia, Singapore, FRG, UK		
Balance of payments on current account (1984):		$2.2 billion (deficit)		
External public debt[a] ($ million):		1974 512.9	1980 4,099.5	1983 7,060.3
Debt service ($ million):		195.1	813.7	820.9
	as percentage of GNP:	0.4	1.3	2.4
	as percentage of total exports:	1.9	5.3	11.3

a/ Debt outstanding and disbursed.

BASIC INDICATORS 4

The manufacturing sector

Manufacturing value added (1982):	$4,837 million			
(1983):	Baht 71.9 billion			
(MVA per capita (1982):	$98			
Employment in manufacturing (1980):	1,789,000 persons			
as percentage of total labour force (1980):	7.9 per cent			
Annual average growth rate of MVA (per cent):	1960-70	1970-75	1975-80	
	10.7	9.6	10.3	
	1981	1982	1983	1984
	6.4	4.4	7.3	6.5
Sectoral composition of MVA (per cent):	1960	1970	1980	
Mainly consumer goods	80.6	66.6	64.3	
Mainly intermediate goods	12.4	21.9	21.9	
Mainly capital goods	6.0	9.2	11.3	
Other manufactures	1.0	2.3	2.5	
Trade in manufactures[a/] (1982):				
Total value - exports:	$1,789.4			
imports:	4,465.4			
Share of manufactures[a/] (1982):				
in total exports:	26.3 per cent			
in total imports:	52.4 per cent			

a/ SITC 5-8, less 68.

BASIC INDICATORS 5

Trade in manufactured goods

In 1982

MANUFACTURED EXPORTS[a/] — Total value: $1,789.4 million

Principal manufactured Exports SITC	(Per cent of total)	Destination (in per cent) Developing countries	Developed market countries EEC	USA	Japan	Centrally planned developed countries
(84) Clothing	20.7	30.81	33.48	25.87	1.27	0.13
(65) Textile yarn, fabrics	19.3	43.41	28.32	8.69	11.98	0.05
(72) Electrical machinery, apparatus and appliances	17.8	50.07	5.45	42.62	1.05	0.23
(66) Non-metallic mineral manufactures, n.e.s.	13.5	27.63	18.74	13.02	21.45	0.01
(63) Wood and cork manufactures (excl. furniture)	3.2	23.92	30.57	25.60	11.48	0.00
(85) Footwear	3.2	55.95	11.14	31.16	0.16	0.00

MANUFACTURED IMPORTS[a/] — Total value: $4,465.4 million

Principal manufactured Imports SITC	(Per cent of total)	Origin (in per cent) Developing countries	Developed market countries EEC	USA	Japan	Centrally planned developed countries
(77) Machinery, other than electric	20.4	6.22	21.15	13.77	49.38	0.77
(72) Electrical machinery, apparatus and appliances	14.1	9.26	11.27	38.30	33.21	0.49
(67) Iron and steel	11.4	15.44	5.52	1.78	66.75	0.90
(73) Transport equipment	10.7	1.50	13.69	13.27	68.73	0.24
(51) Chemicals, elements and compounds	7.3	16.68	22.61	15.38	35.16	3.22

a/ SITC 5-8, less 68.

BASIC INDICATORS 6

Inter-country comparison of selected indicators

	Unit	Indonesia	Malaysia	Philippines	Singapore	Thailand	Middle-income countries Upper	Middle-income countries Lower
I. Demographic indicators								
Population (mid-1983)	million	155.7	14.9	52.1	2.5	49.2		
Population growth (1973-83)	per cent per annum	2.3	2.4	2.7	1.3	2.3	2.3	2.5
Infant mortality (1983)	per 1000	101	29	49	11	50	59	87
Area	'000 km^2	1,919	330	300	1	514		
Density (1983)	persons/km^2	81	45	174	2,500	95.7		
II. Economic indicators								
GDP (1983)	$ billion	78.3	29.3	34.6	16.6	40.8		
GNP per capita (1983)	$	560	1,860	760	6,620	820	2,050	750
GDP growth (1973-83)	per cent/annum	7.0	7.3	5.4	8.2	6.9	4.9	4.1
Agriculture (1983)	per cent of GDP	26	21	22	1	23	11	22
Industry (1983)	per cent of GDP	39	35	36	37	27	37	33
Manufacturing (1983)	per cent of GDP	13	19	25	24	19	24	16
Services (1983)	per cent of GDP	35	44	42	62	50	52	45
Exports of goods and non-factor services (1983)	per cent of GDP	25	54	20	176	22	25	21
Gross domestic investment (1983)	per cent of GDP	24	34	27	45	25	22	22
External public debt (1983)	per cent of GNP	28.9	38.6	30.4	7.6	18.0	31.7	33.6
III. Industrial indicators								
MVA (1982)	million $ at constant 1975 prices	6,072	3,287	5,510	2,431	4,837		
Share of MVA in GDP (1983)	per cent	13	19	25	24	19		
Growth of MVA (1973-83)	average annual per cent	12.6	10.6[a/]	5.0	7.9	8.9		
MVA share in world manufacturing value added (1981)	per cent	0.29	0.13	0.28	0.13	0.23		
Share of manufactured [b/] exports in total exports (1982)	per cent	3.6	22.8	22.9[c/]	48.2	25.9		

a/ 1970-82.
b/ SITC 5-8 less (67 + 68).
c/ Excluding export processing zones.

EXECUTIVE SUMMARY

Thailand, one of the five foundation members of ASEAN, has for two decades maintained a comparably high rate of economic growth, despite several handicaps - a relatively low level of industrial development and *per capita* income, and initially complete dependence on oil imports. But she has also enjoyed important advantages - immunity from war devastation and the psychological heritage of a colonial past, basic political stability, ethnic and religious homogeneity, ample natural resources of land (though not of minerals), and generally sound policy management by Government.

In the past thirty years, Thailand has been transformed from a predominantly agrarian into a semi-industrialized economy, with the contribution of manufacturing to GDP on the verge of overtaking that of agriculture. Despite the severity of the two oil shocks, economic growth was well sustained through the 1970s. Rapid growth of exports, of primary products but also increasingly of labour-intensive manufactures, maintained external balance in the face of diminishing dollar earnings from US expenditures in Thailand. In the latter half of the decade, growth accelerated further, propelled by private investment which was encouraged by incentives and industrial protection. But high rates of growth were now attained at the price of quickening inflation, a widening gap in the external accounts and increasing reliance on foreign borrowing. Thus, Thailand was presented with a difficult problem of adjustment when the economy was hit first by the second oil shock and then by prolonged international recession. Serious balance of payments deficits in 1980 and 1983 were contained by domestic policies of restraint, aided by World Bank structural adjustment loans and reduced dependence on oil imports through the development of offshore natural gas. The net effects were a marked slowdown of economic growth in the early 1980s but also reformulation of economic development strategy in favour of structural adjustment in all sectors of the economy, with greater emphasis on efficiency in production and marketing, more rational price policies and decentralization.

Thailand's industrial development has moved in the past thirty years through several phases, from an initially small manufacturing sector chiefly

consisting of industries processing primary products, to production of consumer goods for the domestic market in the 1960s and emphasis on exports of labour-intensive products (chiefly textiles and clothing, precious stones and electronics components) in the 1970s. The late 1970s, however, also brought increased protection and incentives for rather capital-intensive industries with a high import content which contributed to the growing trade and payments deficit. The latest phase, incorporated in the Fifth Five-Year Plan (1981/82 - 1986/87), shifts the emphasis towards import liberalization and resource-based and decentralized development epitomized by the ambitious Eastern Seaboard Development Programme.

While Thailand still enjoys a comparative advantage in labour-intensive manufactures, based on relatively low wages and a skilled workforce, a range of capital-intensive industries has been allowed to develop - motor vehicle assembly is the most conspicuous example - which cannot operate efficiently only for a small domestic market. One consequence is a low degree of capacity utilization in several such industries.

Thailand remains a predominantly private enterprise economy. But there are close links between business and the Government elite who are strongly represented in ownership and direction of the private corporate sector, and recent trends (especially in the Eastern Seaboard Development Programme) indicate increased government participation in industrial development. Direct foreign investment has been officially welcome but somewhat discouraged by complex administrative procedures and has made a relatively smaller contribution to domestic investment than in other ASEAN countries.

The tendency in most developing countries for industrial development to be concentrated in and around the capital city is evident in Thailand in extreme form, with Bangkok and the adjoining central region accounting for close to 90 per cent of value added in manufacturing. There is also evidence of increasing concentration in Bangkok of small-scale enterprises, but the statistical data are not entirely reliable.

For Thailand, as for other industrializing developing countries, prospects for the 1980s depend in considerable measure on the growth performance of the major industrial countries. But provided that external problems can be contained and domestic stability maintained, Thailand has every reason for confidence that it can continue into the 1980s the record of steady, if not quite so rapid, economic growth and sound economic management which it established in the two preceding decades.

1. THE THAI ECONOMY

1.1 Economic structure

Thailand, one of the five foundation members of ASEAN, has for two decades maintained a comparably high rate of economic growth, despite several disadvantages - a not very high level of industrial and per capita income, and initially complete dependence on oil imports. Table 1 compares the economy of Thailand with those of the other ASEAN countries. With a population of around 50 million, a little below that of the Philippines, but a substantially larger land area, Thailand enjoys a population density far below that of the Philippines. In degree of "openness", as measured by the ratio of exports to GDP, Thailand is midway between the Philippines and Indonesia but much below the Republic of Korea and Malaysia, let alone Singapore. Thailand's per capita income was above that of the Philippines in 1983.

Table 1. Some comparative indicators, selected Asian countries, 1983

	Population mid-1983 (million)	Area ('000 km^2)	Density (persons per km^2)	GDP 1983 (US $ billion)	GDP Annual average growth (per cent) 1973-83	GDP per capita (US $) 1983	Exports/ GDP ratio (per cent)	Manufacturing/GDP ratio (per cent)
Republic of Korea	40.0	98	408	76.6	7.3	1,915	37	27
Indonesia	155.7	1,919	81	78.3	7.0	505	25	13
Malaysia	14.9	330	45	29.3	7.3	2,092	54	19
Philippines	52.1	300	174	34.6	5.4	665	20	25
Singapore	2.5	1	2,500	16.6	8.2	8,300	176	24
Thailand	49.2	514	96	40.8	6.9	832	22	19

Source: World Bank Development Report, 1985.

Thailand's good economic performance may be attributed to a number of factors. She emerged from World War II with the twin advantages of immunity from the physical devastation of war and the psychological handicap of a colonial past. Beneath the surface of considerable political turbulence, numerous military and some civilian Governments in rapid succession, the country has enjoyed a basic political stability, sustained by high ethnic and religious homogeneity and the unifying role of the monarchy. Ample natural

resources of agricultural and forest land, some minerals and later also natural gas, have provided the foundation for economic development propelled by private enterprise with restrained intervention and generally sound policy management by the Government.

In the past thirty years, Thailand has been transformed from a predominantly agrarian into a semi-industrialized economy. The contribution to GDP of the agricultural sector (including forestry and fisheries) which was estimated at over one-half in 1951 has fallen to one-fifth; that of industry has risen to nearly one-third and of tertiary activities to one-half (Table 2). What has happened to the structure of employment is not quite clear because the available statistics are very deficient. Estimates for the proportion engaged in agriculture in 1980 vary from as high as 76 per cent (World Development Report 1984) to as low as 66 per cent (World Bank Report 1983).[1/] The former figure is certainly too high, as a comparison with ASEAN and other developing countries prima facie demonstrates (Table 3). The overstatement probably results from inclusion of rural population engaged in non-agricultural occupations. According to a 1979 UNIDO review,[2/] rural

Table 2. Sectoral composition of GDP, 1951-1983

	Agriculture	Industry	Manufacturing	Services
1951	50.1	15.2	10.7	34.7
1960	39.8	18.7	12.6	41.3
1970	28.3	25.3	16.0	46.4
1975	31.2	24.3	17.6	44.5
1980	25.4	28.5	19.7	46.1
1981	23.9	28.5	20.1	47.6
1982	20.6	29.1	20.6	50.3
1983	21.8	27.2	18.6	51.0

Sources: NESDB, Economic Changes in Thailand 1950-70; World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983; EIU, Quarterly Report, 1983/84.

1/ World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983.

2/ Country Industrial Development Profile of the Kingdom of Thailand, 24 October 1979, UNIDO/ICIS.124.

Table 3. Structure of employment, selected developing countries, 1980

(per cent)

	Agriculture	Industry	Services
Thailand	70.8	12.4	16.9
Indonesia	58	12	30
Malaysia	50	16	34
Philippines	46	17	37
Singapore	2	39	59
Upper middle-income	30	28	42
Lower middle-income	56	16	28

Sources: World Bank, World Development Report 1984; ADB, Key Indicators of Developing Member Countries of ADB, April 1985.

households not engaged in agriculture represented about one-quarter and agricultural households about one-half of total households.

Table 4 presents estimates of the changing structure of employment during 1960-82. Agriculture's share of total employment declined from 83 per cent in 1960 to 68.5 per cent in 1982, and that of manufacturing increased from 3.7 per cent to 8.1 per cent during the same period.

Table 4. Structure of employment, 1960-1982

	Agriculture		Industry		Manufacturing		Services		Total labour force	
	million	per cent	million	per cent	million	per cent	million	per cent	million	per cent
1960	10.3	83.0	0.7	5.8	0.5	3.7	1.4	11.2	12.4	100.0
1971	12.7	75.6	1.6	9.4	1.0	5.9	2.5	15.1	16.8	100.0
1980	15.9	70.8	2.8	12.4	1.8	8.0	3.8	16.9	22.5	100.0
1982	17.0	68.5	2.1	8.5	2.0	8.1	5.8	23.2	24.8	100.0

Sources: EIU 1984; ADB, Key Indicators of Developing Member Countries of ADB, April 1985.

Thai agriculture, entirely dominated by rice a generation ago, has become much more diversified into cash crops such as tapioca, maize, sugar and rubber, chiefly through extension of cultivated area. Thailand remains the world's largest exporter of rice, but there is little scope for further extension of area under cultivation which has already led to serious depletion of forest resources. Further growth in agriculture depends on raising yields through improvements in farm technology. To a degree unusual even in developing countries, urban and industrial development has been concentrated in the metropolitan area in and around Bangkok with a population of over 5 million, the next largest city (Chiang Mai) having little more than 100,000. In recent years, it has been Government policy to seek to correct this bias by dispersal of industry, most conspicuously through an ambitious Eastern Seaboard Development Programme.

1.2 Recent economic trends

Through the two decades 1960-80 Thailand experienced a rate of economic growth well above that of comparable (middle-income oil importing) countries (Table 5). Her average rate of growth of per capita income of 4.1 per cent - which implied a more than twofold increase over the period - was exceeded, among east Asian countries, only by the Republic of Korea. Largely in consequence thereof, the incidence of poverty is estimated to have fallen from about 57 per cent in the early 1960s to about 31 per cent in the mid-1970s. But growth of employment, estimated at 2.7 per cent per annum during the 1970s did not match the rate of growth of the labour force (3.0 per cent); there is evidence of some increase in open and probably in disguised unemployment.

Despite the severity of the two oil shocks for an economy wholly dependent on imported oil - the dramatic decline in Thailand's terms of trade shown in Table 5 - economic growth was well sustained through the 1970s. Rapid growth of exports, of primary products but also increasingly of labour-intensive manufactures maintained external balance in the face of diminishing dollar earnings from US military expenditures. Growing flows of factor and non-factor service activities expanded, and transport and communications were modernized throughout the country.

Table 5. Growth of income, population and terms of trade: Thailand and selected other developing countries, 1960-1980

	Per capita income 1982	Average annual per capita income growth 1960-82	Average annual GDP growth		Average annual population growth		Terms of trade (1975 = 100)	
			1960-70	1970-80	1960-70	1970-82	1960	1980
	(US $)	(per cent)	(per cent)		(per cent)			
Thailand	790	4.5	8.4	7.1	3.1	2.4	121	69
Indonesia	580	4.2	3.9	7.7	2.1	2.3	98	108
Philippines	820	2.8	5.1	6.0	3.0	2.7	112	83
Rep.of Korea	1,910	6.6	8.6	8.6	2.6	1.7	99	95
Malaysia	1,860	4.3	6.5	7.7	2.8	2.5	150	83
Middle-income economies	1,520	3.6	6.0	5.4	2.6	2.4	109	91

Source. World Bank, World Development Report 1984.

In the latter half of the decade, growth accelerated further, propelled by private investment which was encouraged by incentives and industrial protection, but also by rapid expansion in public consumption and capital expenditure. High rates of growth, however, were now attained at the price of quickening inflation, a widening gap in the external accounts and increasing reliance on foreign borrowing. Concern about inflation provided further reason to defer unpopular increase in energy and public service prices. Thus, Thailand was presented with a difficult problem of adjustment when the economy was hit first by the second oil shock and then by prolonged international recession.

The year 1980 was critical, with a surge of inflation (when domestic oil prices were finally raised) and a serious balance-of-payments deficit (Table 6). In the following two years, the situation was brought under control by fiscal and monetary restraints which quickly helped bring down imports, aided by a 10 per cent devaluation of the baht, two World Bank structural adjustment loans, a substantial flow of remittances by Thai workers in the Middle East, reduced dependence on imported oil with the discovery and development of offshore natural gas reserves and continuing good performance of most of Thailand's major exports. Partly because of this rapid growth of

Table 6. Balance of payments, 1978-1983

($ million)

	1978	1979	1980	1981	1982	1983
Exports of goods	4,044	5,234	6,449	6,902	6,835	6,308
Imports of goods	-4,904	-6,785	-8,352	-8,931	-7,565	-9,160
Balance of trade	-860	-1,551	-1,903	-2,029	-730	-2,852
Net services and other earnings	-439	-783	-760	-1,185	-1,076	-1,074
Transfers	144	247	593	645	801	1,132
Balance on current account	-1,155	-2,087	-2,070	-2,569	-1,005	-2,864
Capital movements	1,361	1,976	2,044	2,477	1,441	1,539
Net errors and omissions	-232	20	-180	135	-517	540
Overall surplus/deficit	-26	-91	-206	43	-82	188
International reserves	2,557	3,129	3,055	2,753	2,652	2,556
External public debt						
Outstanding (disbursed only)	1,820	2,832	4,128	5,169	...	7,060
Service payments	121	150	191	225	...	821

Source: IMF.

exports, the country's external debt-service ratio (to exports of goods and non-factor services) remained moderate, around 10-15 per cent, despite heavy borrowing in the late 1970s.

The net effect of these developments was a marked slowdown in economic growth in the early 1980s (Table 7). While the performance of agriculture improved slightly, the growth rate of manufacturing dropped from 11 to 6 per cent per annum. The Fifth National Economic and Social Development Plan, drawn up and initiated in 1981 in a period of great economic uncertainty, emphasized structural adjustment in all sectors of the economy - increased efficiency in production and marketing, more rational price policies and decentralization - rather than economic growth and projected a rate of growth of GDP of around 6 per cent per annum over the five years 1981/82 - 1985/86. Even this has been recognized as unduly optimistic. It is estimated that the real economic growth in 1984 was 6.0 per cent; the 1985 growth is forecast at 5.5 per cent.

Table 7. Gross domestic product (at 1972 prices), 1970-1984
(billion baht)

	1970	1975	1980	1983	Growth rates (average per annum) 1970-75	1975-80	1980-83	1984
Agriculture	48.3	62.1	72.8	80.9	5.1	3.2	3.5	3.8
Industry	36.2	51.0	87.6	99.5	7.1	11.4	4.2	...
(Manufacturing)	(23.3)	(36.8)	(60.6)	(71.9)	(9.5)	(10.5)	(5.9)	(6.8)
Services	65.6	90.4	132.5	147.9	6.6	7.9	3.6	...
GDP	150.1	203.5	292.0	328.3	6.2	7.5	3.9	6.0

Sources: 1970-80: World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983.
1983: National Income of Thailand 1983.
1984: Business Asia, March 1985.

In November 1984 the baht was devalued by 14.8 per cent to offset its appreciation with the US dollar, relative to other partner country currencies, and its adverse effects on the balance of payments. The de facto peg to the US dollar was replaced by a managed float. While the balance of payments continued to cause concern, the improved outlook in world markets for Thai exports, resumed inflow of private capital and favourable seasonal conditions for Thai agriculture made for a reassuring outlook for the two remaining years of the Fifth Development Plan period.

1.3 Overview of the manufacturing sector

Thailand emerged from World War II with a small manufacturing sector consisting mainly of processing of primary products - rice, sugar, rubber, timber - for export as well as the domestic market and production of some basic consumer goods, largely by small- and medium-size firms. The collapse of the Korean War commodity boom in the early 1950s suggested a need to strengthen the manufacturing sector. After rather unsuccessful attempts to promote manufacturing through public enterprise, policy shifted in the 1960s towards encouragement of private investment through improvement of transport and other information infrastructure and moderate tariff protection. As the limitations of import substitution in a relatively small domestic market

became apparent, Thailand, like other developing countries at a similar stage of industrial development, embarked in the early 1970s on an outward-looking policy of promoting exports of labour-intensive manufactures. With the advantage of the late-comer in exemption from quota restrictions on the major textile and clothing exporters, such as Hong Kong and the Chinese province of Taiwan, Thailand experienced a decade of very rapid growth of exports, production and employment in these industries, as well as in more traditional processing industries, such as timber and rubber, in precious stones and jewelry, and from the mid-1970s in electronics assembly. The mid-1970s, however, also brought pressures on Government to use its policy instruments of tariffs and investment incentives in favour of relatively capital-intensive industrial projects producing for the domestic market, from oil refining and vehicle assembly to chemicals, metal products and machinery.

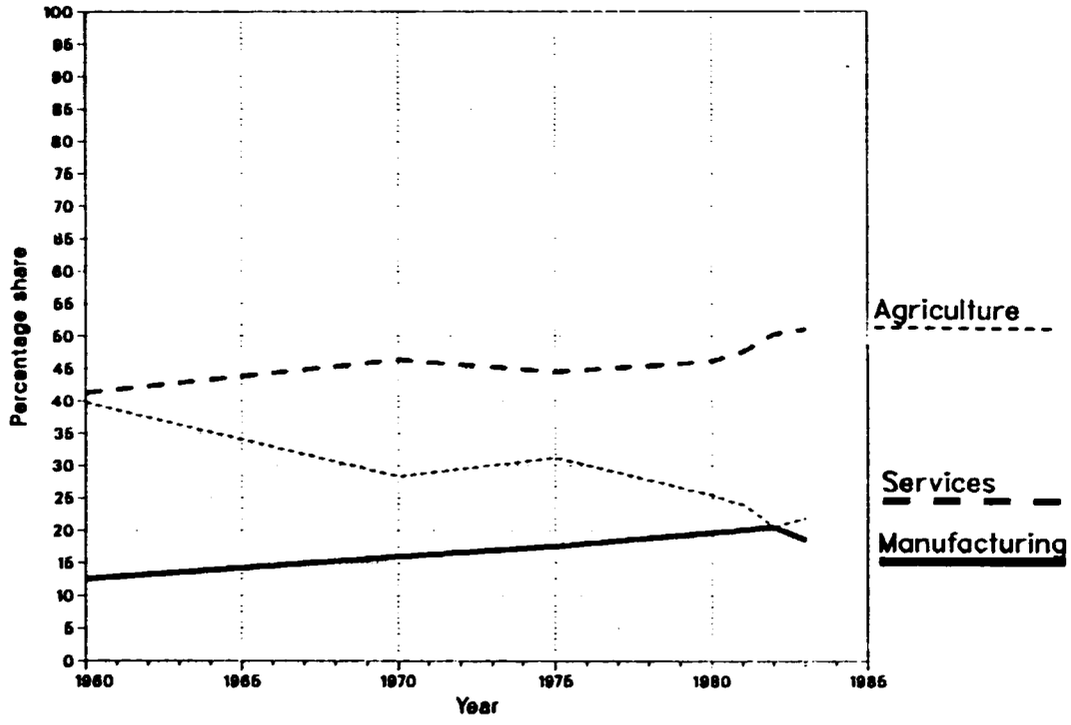
By 1980, these developments had greatly changed the structure of Thailand's manufacturing sector. The relative importance of processing industries (food, in 1960 accounted for 34 per cent of value added) had diminished in favour of labour-intensive exports which had risen to 11 per cent and intermediate and capital goods which by 1980 accounted for almost one-third. The share of consumer goods production for the home market had remained virtually unchanged at around 20 per cent. Much of this new capacity, however, was relatively capital-intensive, high-cost and higly concentrated. All these considerations, lent urgency by the slowdown of growth and problems of internal and external imbalance, led to a rethinking of industrial policy in the Fifth Plan, with new emphasis on international competitiveness, and on resource-based and decentralized development.

Any impact of these new policies on Thailand's industrial development lies in the future. In the mid-1980s, Thailand's manufacturing sector still has most of the characteristics of a semi-industrialized, predominantly agricultural economy. The contribution of manufacturing to GDP is still slightly below that of the agricultural sector. A large part of manufacturing still consists of cash-crop processing, much of it by small-scale enterprises scattered through the country. Modern manufacturing is almost entirely confined to the Bangkok area. The export sector, though highly successful, is narrowly based on four industries - textiles, clothing, precious stones and integrated circuits. There is as yet little domestic production of capital

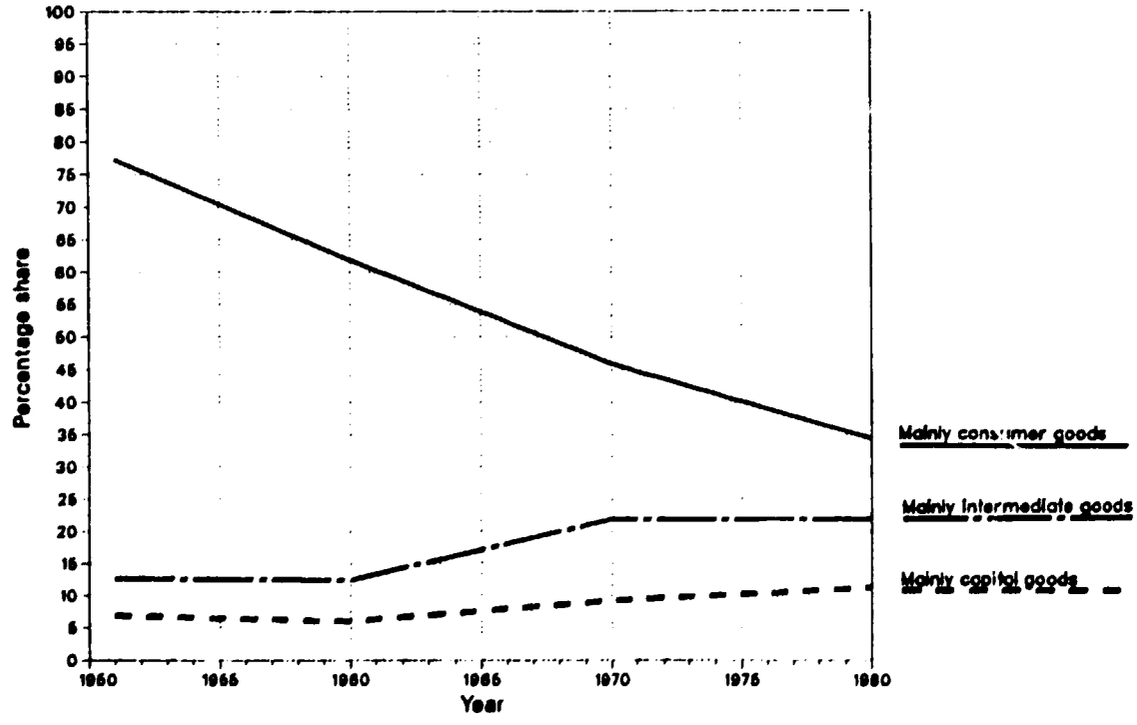
equipment, and what there is of it is on too small a scale for efficiency. As a result, the whole sector is highly dependent on imports of raw materials (especially fuels) and equipment, so that rapid industrial growth, not least for import substitution, tends to threaten external balance through disproportionate rise in the import bill. But these weaknesses are now well appreciated by policy-makers. To remedy them is a prime objective of industrial policy for the rest of the 1980s.

MANUFACTURING TRENDS

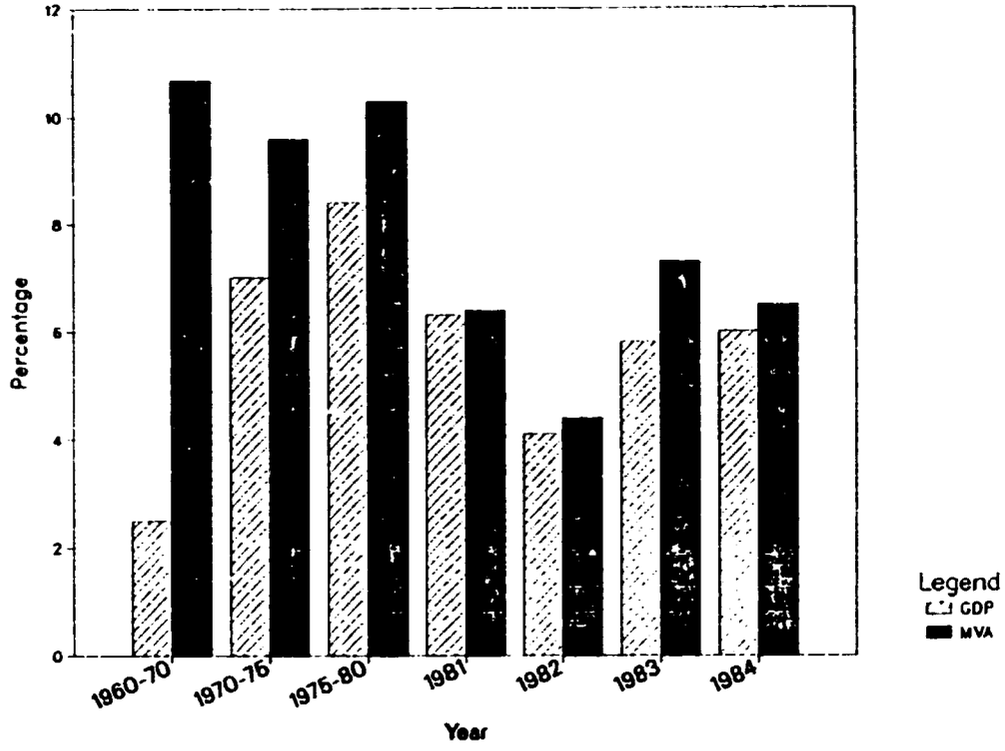
GDP BY ECONOMIC SECTOR, 1960-1983



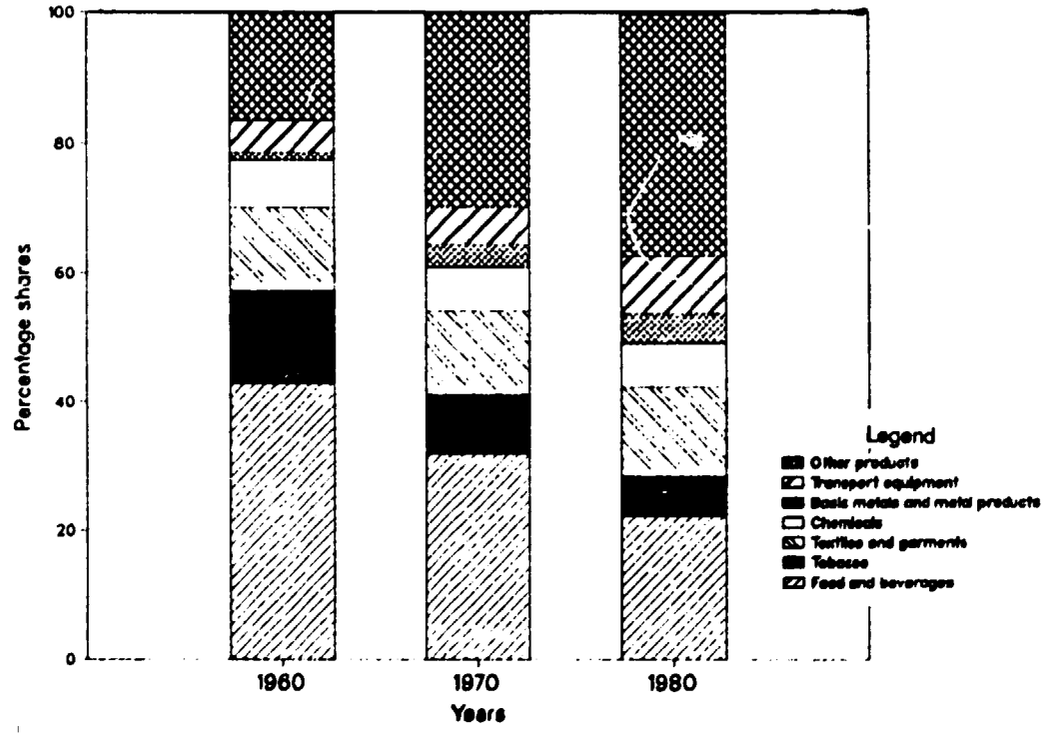
MANUFACTURING VALUE ADDED BY END USE, 1951-1980



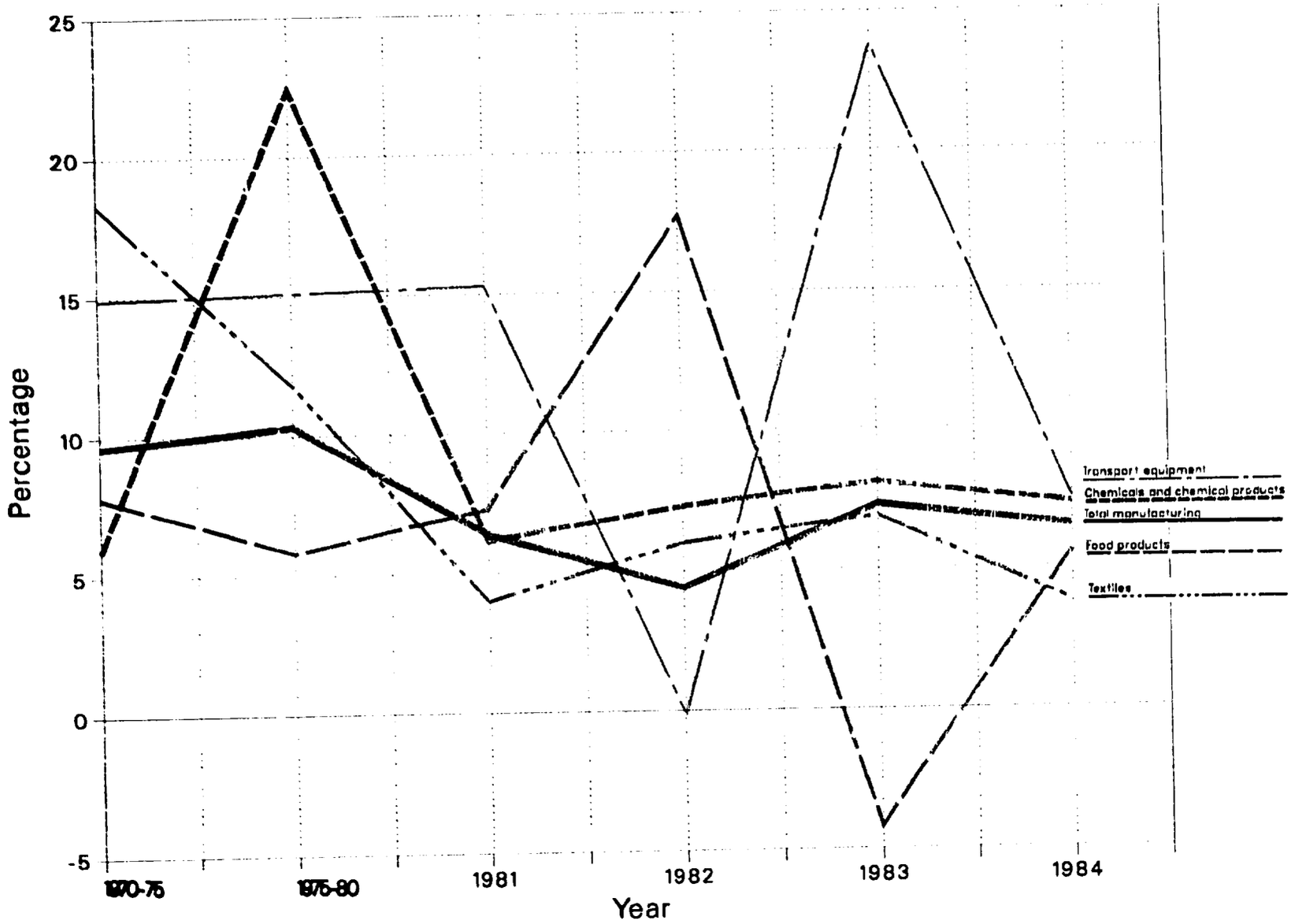
ANNUAL RATES OF GROWTH OF GDP AND MVA, 1960-1984



COMPOSITION OF MVA BY MAIN BRANCHES, 1960,1970 and 1980

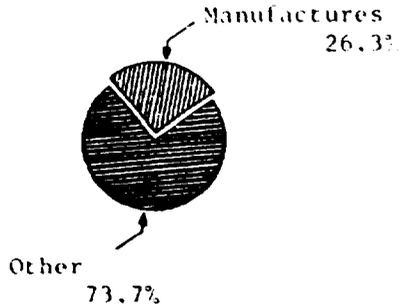


GROWTH OF VALUE ADDED BY BRANCH OF MANUFACTURING,1970-1984

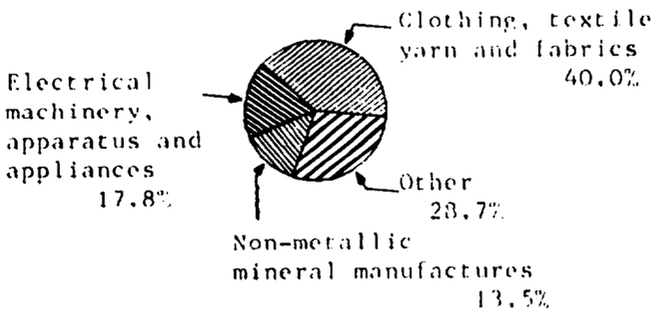


MANUFACTURED EXPORTS AND IMPORTS IN 1982

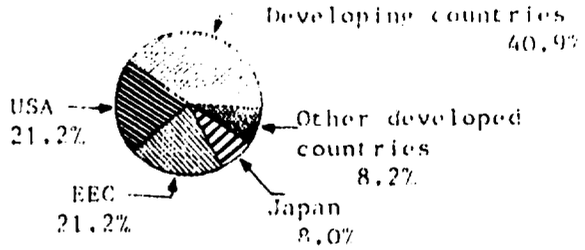
SHARE OF MANUFACTURES IN TOTAL EXPORTS



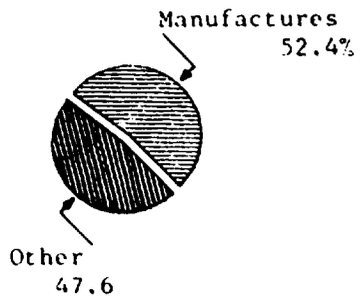
COMPOSITION OF MANUFACTURED EXPORTS



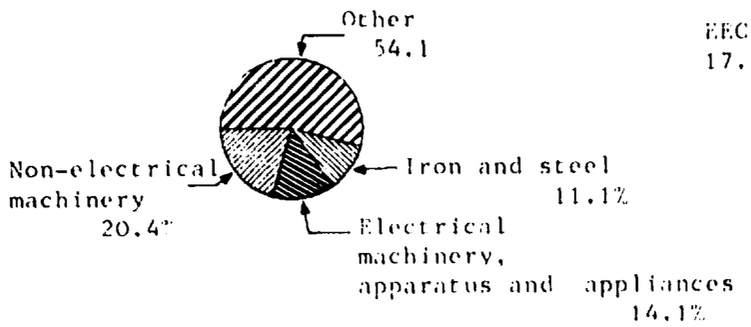
DESTINATION OF MANUFACTURED EXPORTS



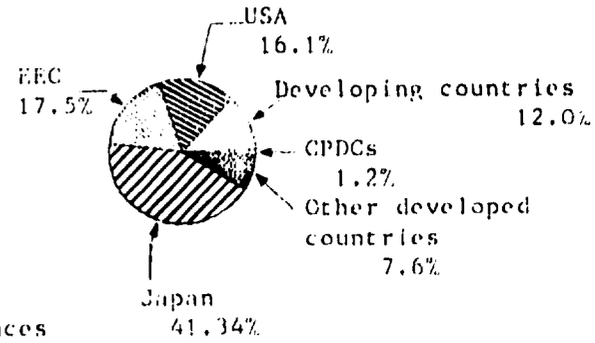
SHARE OF MANUFACTURES IN TOTAL IMPORTS



COMPOSITION OF MANUFACTURED IMPORTS



ORIGIN OF MANUFACTURED IMPORTS



2 STRUCTURE AND PERFORMANCE OF THE MANUFACTURING SECTOR

2.1 Growth and structural change

Table 8 shows in some detail the structural changes of the manufacturing sector, in terms of value added, which have accompanied the industrial development of Thailand in the three decades to 1980.[1/] The relative importance of the cash-crop processing industries declined steeply after 1960, only rubber recovering somewhat from the decline of the 1950s. Consumer goods production for the textile sector, increased significantly up to 1970 but declined marginally thereafter. The most striking change during the 1970s was the emergence of industries producing labour-intensive manufactures for export, the four chief branches - textiles, clothing, electronics assembly (chiefly integrated circuits) and Thailand's speciality, precious stones - accounting for 11 per cent of all manufacturing production by 1980. The main change in the intermediate products category was the development of oil refining in the 1960s, although non-metallic minerals (other than precious stones, i.e. chiefly construction materials) and metal products also showed some increase in relative importance.

It needs to be remembered that a constant share in a total which was growing at an average annual rate of 10 per cent by no means implied stagnation. Table 9 which presents growth rates of value added of branches of manufacturing during the 1970s and early 1980s indicates that there were very few branches which registered a growth rate much below 10 per cent during the second half of the 1970s. Among them were food processing, beverages and tobacco, furniture and other wood products, leather and metal products, all of them industries which had approached saturation of the domestic market by 1970 and failed to develop significant export markets. The fastest growing branches were the four labour-intensive export industries; textiles (although showing significantly slower growth in the 1980s), clothing and non-metallic minerals (precious stones) chiefly in the first half, electrical machinery (integrated circuits) chiefly in the second half. Other industries which

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1/ Table A-9 presents a diagram of industrial structural change based on the calculation of the structural indices for 1965-80 (1965=100), derived from value added in 1975 constant prices.

Table 8. Structure of manufacturing sector, 1951-1980

(per cent)

	1951	1960	1970	1980
Processing of primary products	63.3	61.9	45.9	34.3
Food	23.7	34.2	22.0	13.7
Beverages	7.1	8.6	10.3	9.2
Tobacco	19.6	14.5	9.2	6.2
Wood	8.1	3.8	2.8	2.5
Other consumer goods (primarily for domestic market)	14.0	18.9	18.1	19.1
Furniture	1.3	1.4	1.5	1.1
Paper	-	0.3	0.7	1.4
Printing	5.8	3.9	2.5	2.5
Leather	1.6	0.5	0.6	0.4
Textiles	1.1	4.9	7.9	6.3
Garments	4.2	7.9	4.9	7.4
Labour-intensive exports	...	...	...	11.3 a/
Textiles	...	...	...	2.9
Garments	...	...	...	3.9
Precious stones	...	...	0.7	3.0
Integrated circuits	...	...	...	1.5 a/
Intermediate goods	12.7	12.4	21.9	21.9
Chemicals	9.9	7.3	6.8	6.7
Petroleum refinery	-	-	7.5	6.7
Other non-metallic minerals	2.7	4.0	5.8	3.8
Basic metals	0.1	0.4	1.3	2.4
Metal products	...	0.7	2.3	2.3
Capital goods	6.9	6.0	9.2	11.3
Non-electrical machinery	...	0.5	2.0	1.2
Other electrical machinery	...	0.6	1.4	1.2
Transport equipment	6.9	4.9	5.8	8.9
Miscellaneous	3.2	1.0	2.3	2.5
Total manufacturing value added	100.0	100.0	100.0	100.0

Source: UNIDO Data base.

a/ Estimate.

Table 9. Growth of value added by branch of manufacturing, 1970-1984

(per cent per annum at constant 1972 prices)

	1970-75	1975-80	1980	1981	1982	1983	1984
Food	7.8	5.8	-3.0	7.3	17.7	-4.2	5.6
Beverages	1.9	12.0	-12.8	-7.9	2.9	13.1	12.6
Tobacco and snuff	7.2	6.0	12.5	6.5	-17.3	6.7	5.5
Textiles	18.3	11.8	14.6	4.0	6.0	6.9	3.8
Wearing apparel and made-up textile goods	19.6	15.7	11.1	15.5	12.1	7.5	4.8
Wood and cork	5.2	-2.5	-14.4	2.5	-5.3	8.4	5.5
Furniture and fixtures	-	5.7	2.3	16.1	1.2	14.2	9.3
Paper and paper products	8.5	23.0	13.9	2.5	-0.8	6.4	3.1
Printing, publishing and allied industries	14.9	10.2	-1.4	13.2	0.2	-5.5	5.0
Leather and leather products (and footwear)	8.5	-0.7	-7.6	11.6	11.1	3.5	8.2
Rubber and rubber products	17.6	12.3	3.8	-1.1	-10.1	10.6	3.2
Chemicals and chemical products	5.9	22.4	20.5	6.1	7.3	8.1	7.3
Petroleum refining and coal	14.9	2.2	-8.7	3.5	0.2	3.0	3.7
Non-metallic mineral products	12.9	9.1	3.5	8.4	2.9	8.9	9.1
Basic metals	...	11.7	6.4	-16.5	-10.1	1.1	9.5
Metal products (excluding machinery and transport equipment)	4.6	4.0	2.3	-3.2	0.5	9.4	9.6
Non-electrical machinery	3.7	12.2	10.5	11.0	6.1	9.9	10.3
Electrical machinery and supplies	10.7	21.5	13.1	6.9	-7.2	15.2	9.2
Transport equipment	14.9	15.1	9.8	15.3	-0.1	23.8	7.5
Miscellaneous, n.e.s.	9.9	11.2	16.9	26.1	18.2	16.4	16.7
Total manufacturing value added	9.6	10.3	4.8	6.4	4.4	7.3	6.5

Sources: World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983; ADB, Key Indicators of Developing Member Countries of ADB, April 1985.

showed rapid growth over most of the period were paper and rubber products and transport equipment.

No satisfactory figures on the growth of employment in manufacturing by branches are available. The figures in Table 10, taken from a recent World Bank report, suffer from deficiencies in census and labour force survey data, as indicated by the figure of 10 per cent for the annual rate of growth of total employment in manufacturing during the 1970s, which would imply that there was no increase in labour productivity during the period. If any reliance can be placed on the relative growth rates of employment in major

Table 10. Employment in manufacturing sector, 1960-1980

	Employment			Growth		Shares		
	1960	1970	1980	1960-70	1970-80	1960	1970	1980
	(in '000)			(per cent per annum)		(per cent)		
Processed food beverages and tobacco	126.3	145.7	356.0	1.4	9.3	26.8	21.3	19.9
Textiles, apparel and leather	137.4	205.9	462.2	4.1	8.4	29.2	30.2	25.8
Wood, furniture and fixtures	89.8	90.2	282.0	0.0	12.1	19.1	13.2	15.8
Minerals, metals, and metal products	42.1	89.3	226.3	7.0	9.7	8.9	13.1	12.6
Transport equipment	49.2	92.2	310.1	6.5	12.9	10.4	13.5	17.3
Total	471.0	682.6	1,789.0	3.8	10.1	100.0	100.0	100.0
Labour force	13,749	16,132	22,728	1.6	3.5	3.4a/	4.2a/	7.9a/

Sources: World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983; Census Reports, 1960, 1970; Labour Force Surveys, 1975 and 1979; NESDB.

a/ Per cent of total labour force.

branches of manufacturing shown in the Table, they suggest that employment grew most rapidly in the wood processing and transport equipment category, with the other four branches showing similar rates of growth.[1/]

Something can also be said about the sources of growth of manufacturing output during the period 1966-80. Table 11 shows World Bank estimates of the relative contributions of domestic demand, exports and import substitution. Growth of domestic demand clearly was the dominant force in each sub-period. Export demand became important in the second half of the 1970s. Import substitution contributed almost one-third in the late 1960s but made no further net contribution after 1972; indeed its contribution became "relative" in the sense that domestic demand ran ahead of domestic productive capacity, so that the share of imports in domestic supplies rose again.

1/ The weakness of the figures is highlighted by the apparent acceleration in the annual rate of growth of employment in food processing, beverages and tobacco from 1.4 per cent in the 1960s to 9.3 per cent in the 1970s, a decade during which the share of all three industries in manufacturing value added declined markedly.

Table 11. Sources of growth of manufacturing output, 1966-1980
(Percentage contribution to increase)[a/]

	1966-72	1972-75	1975-78	1978-80
Domestic demand	64.1	91.0	79.5	72.2
Import substitution	29.4	0.5	-7.[illegible]	-7.4
Export demand	6.5	8.5	28.2	35.2

Source: World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983.

a/ Domestic demand effects greater than 100 indicate that domestic demand grew faster than production and either the import share increased (negative import substitution), or surpluses available for export were reduced (negative demand expansion), or both, to meet domestic demand in excess of domestic supply capacity.

During the early 1980s, growth of manufacturing production, with that of the economy as a whole, slowed down. Table A-1 presents the only available statistics for those years for a limited number of products. The decline during 1980-83 was most marked for plywood (chiefly owing to curtailment of supply of sawn timber from Indonesia) and galvanized steel; the figures also show a slowdown of growth for a few other products, such as synthetic weaving and motorcycle assembly, but the coverage is inadequate to reflect the decline in the rate of growth of total manufacturing value added from 10.5 per cent during 1975-80 to 5.9 per cent in 1980-83 as shown in Table 7.

2.2 Performance and efficiency

There is little reliable direct statistical evidence about the relative efficiency of Thai manufacturing industries. The information given in Table 12 as well as the conclusions of a more recent study show that Thailand had the lowest average labour costs in the manufacturing sector compared with Singapore, Hong Kong, Malaysia, the Philippines and the Republic of Korea.[1/] That Thailand has been enjoying a comparative advantage in labour-intensive

1/ Coopers Lybrand and Associates, Eastern Seaboard: Industrial Opportunites Identification Study, June 1982.

Table 12. Wage levels in manufacturing in selected Asian economies, 1976-1982

($ per month)

	1976	1977	1978	1979	1980	1981	1982
Thailand	37.1	44.0	44.6	45.6	70.6	79.1	79.9
Philippines	60.8	68.7	74.6	78.3	79.9	...	...
Malaysia	99.4	111.3	127.8	146.2	...	...	...
Hong Kong	144.6	162.3	175.9	200.7	219.5	227.8	225.7
Singapore	123.9	131.2	150.4	173.8	198.9	236.7	256.1
Republic of Korea	106.8	142.9	192.0	246.9	241.8	258.7	276.4
Chinese Province of Taiwan	124.0	146.1	177.8	210.8	255.8	291.8	300.0

Sources: UN, Yearbook of Labour Statistics 1983; National sources.

manufactures is attested by her success in expanding exports of such products, and there is no evidence as yet that wages have been rising enough to undo this advantage. If the estimates of employment in Table 4 are accepted, an annual rate of growth of value added in manufacturing of 10.2 per cent during the 1970s was accompanied by a rate of growth in employment of 6.7 per cent, giving a rate of growth of average labour productivity of 3.5 per cent a year (Table 13). While average real wages in manufacturing have probably risen faster than this, the rate of increase in real unit labour costs has not, as far as one can judge from impressionistic evidence, been as high as in the other NICs of east and southeast Asia.

Table 13. Growth rates of output, employment and labour productivity, 1971-1980

(per cent per annum)

	Agriculture	Industry	Manufacturing	Services	Total economy
Output (value added)	4.14	9.80	10.22	7.52	7.14
Employment	2.52	6.42	6.75	4.76	3.30
Labour productivity (1-2)	1.62	3.38	3.47	3.76	2.84

Sources: Output: Table 7. Employment: Table 4.

Indirect evidence concerning the general level of international competitiveness of Thai manufacturing is provided by trends in effective rates of protection. Thailand had relatively low nominal tariff rates in the 1960s, around 25-30 per cent for most consumer and intermediate goods and 15-20 per cent for machinery and equipment. In 1971, rates for consumer goods were raised substantially and, after a selective downward revision in 1974 to counter inflationary pressures, again in the later 1970s. By 1978, there were nine industries with nominal rates of protection above 90 per cent, with the highest rates in the consumer goods, beverages and tobacco and transport equipment industries. Average effective rates of protection for import-competing industries rose from 45 per cent in 1974 to 89 per cent in 1978, and even for export industries there was a reversal from -40 to +40 per cent.[1/] According to a comparative international survey carried out by the World Bank, this escalation of tariff protection moved Thailand from a relatively low to a medium to high protection level. Since 1978, there has been an important reversal of policy, in favour of greater uniformity in nominal rates and lower average effective tariffs, as part of the industrial restructuring encouraged by the World Bank and incorporated in the Fifth Five-Year Plan. A major reduction of the highest tariff rates was carried out in 1982.

The most significant conclusion that emerges from this scattered evidence is that, while clearly enjoying the benefits from a continuing comparative advantage in a narrow range of labour-intensive industries, Thailand during the 1970s permitted a drift in her manufacturing sector towards industries which could not operate economically for the relatively small domestic market. The most conspicuous example is motor vehicle assembly. There are no fewer than twelve plants assembling passenger cars and seven assembling commercial vehicles. The daily output is less than 100 units, yet there are approximately 70 individual models on the market. Because of the small-scale of operations, vehicle assembly is extremely inefficient and costs are very high. This is an extreme case, but the problem is less only in degree in a range of other relatively capital-intensive industries, such as synthetic textiles, industrial chemicals, paper and base metals, whose expansion was

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1/ Source: World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983.

actively promoted by investment incentives. One result has been excess capacity. Table 14 shows that the degree of capacity utilization has been little above 50 per cent, and at times below 50 per cent, in several industries. Another consequence, as was mentioned before, has been heavy import dependence of ostensibly import-substitution industries. An example is oil refining which has achieved substitution of crude oil for product imports but, in the short run, at the price of heavy imports of capital equipment. As in other developing (and developed) countries, the interests that have become retrenched in protected and promoted industries, not unnaturally from their point of view, offer strenuous resistance to restructuring policies aimed at more efficient resource use in an internationally more competitive manufacturing sector. But the 1982 reforms show that progress can be made.

Table 14. Capacity utilization in selected manufacturing industries, 1974-80

(per cent)

Manufacturing sub-sector	1974	1977	1980
Sugar	58	...	...
Beer	45	...	75
Tobacco	...	...	...
Man-made fabrics, woven	...	93	88
Cotton fabrics	75	...	...
Gunny bags	73	...	62
Knitting	184	44	41
Plywood	29	...	72
Paper	75	66	80
Cement	93	100	95
Galvanized iron sheets	38	61	58
Detergents	69	89	...
Chemical fertilizers	...	...	...
Acetylene	...	...	...
Sulphuric acid	...	40	...
Petroleum products	78	92	82
Motor vehicle assembly	59	57	56
Motorcycle assembly	123	60	84

Source: Ministry of Industry and Bank of Thailand; World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983.

2.3 Exports and imports of manufactures[1/]

Thailand's traditional exports have been primary products - rice, rubber, maize, tapioca, tin and in recent years sugar and prawns - and they remain predominant. But during the 1970s the share of exports of manufactures grew very rapidly, from 6 per cent in 1970 to 32 per cent in 1980. They included a wide range of manufactures, but four categories outstripped all others - textiles, clothing, precious stones and integrated circuits. They accounted for 28 per cent of all exports of manufactures in 1977 and for 43 per cent in 1980 (Table 15). While exports of manufactures were deliberately promoted through the 1970s by various export incentives, market opportunities rather than policy measures appear to have provided the main impetus to this rapid growth. Partly because the incentives provided by the Board of Investment chiefly took the form of protection of domestic sales for exporting firms, promoted firms were on balance no more export-oriented than the manufacturing sector as a whole.

Table 15. Principal exports of manufactures, 1970-1984

(million baht)

	1970	1977	1980	1982	1983	1984a/
1. Textile	23	2,170	3,616	4,799)	...	...
2. Garments	18	1,693	4,894	8,005)	14,351	19,149
3. Precious stones	197	1,210	3,773	5,251	6,214	6,131
4. Integrated circuits		1,145	6,156	5,930	5,829	7,352
Total manufactured exports	808	21,955	43,065	63,205	61,358	76,107
Total exports	14,270	71,198	133,197	159,728	146,472	175,270
1-4 as percentage of total manufactured exports	22.0	28.3	42.3	37.9	43.0	48.0
Manufacture as percentage of total exports	5.7	30.8	32.3	39.6	41.9	43.4

Sources: World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983; Bank of Thailand, Monthly Bulletin, January 1985.

a/ Provisional.

1/ For statistical data on international trade, see Appendix Tables A.2 - A.8.

After the very rapid growth from a small base which occurred in the first half of the 1970s, the rate of growth of exports of manufactures inevitably slowed down in the second half, especially for textiles and clothing, but it was sustained by the emergence of electronics assembly (integrated circuits) as a new export industry and accelerated growth of exports of precious stones. As Table 15 indicates, the onset of the international recession brought an all round slow down in growth of exports of manufactures, from an annual rate of 40 per cent during 1977-80 to 10 per cent during 1980-82 and an actual decline of 3 per cent in 1983. During 1984 this negative trend was, however, quickly reversed. In 1984 (preliminary) exports of manufactures of Baht 76,000 million were recorded compared with Baht 61,000 million during 1983, in other words an increase of 24 per cent.[1/]

Major primary exports which suffered from declining world market prices (especially rubber and tin and, in 1983, also tapioca and sugar), exports of manufactures held up better and thus increased their share in total exports further to 25.2 per cent in 1980 and 26.3 per cent in 1982; the share in total exports of the four leading categories of exports of manufactures rose further from 14 per cent in 1980 to 18 per cent in 1983.

In Table A-7 Thai exports of manufactures in 1982 by destination are shown. A surprisingly high production, almost one-half, went to developing country markets, including (among the more important categories) chemicals, textiles, unexpectedly "electrical machinery" (i.e. integrated circuits) and some intermediate products, such as paper and rubber products. Among developed country markets, the USA was most important for footwear; the EEC for non-ferrous metals, wood and leather products, furniture and clothing; Japan accounted for only 10 per cent of total Thai exports of manufactures and exceeded 20 per cent only for chemicals, non-metallic mineral products ("precious stones") and furniture.

During the decade of the 1970s, Thai exports (fob) grew slightly faster than Thai imports (cif), but since imports exceeded exports by over 80 per cent in 1970 this still implied an ever widening deficit in the balance of merchandise trade. Table 16 shows that the share of consumer goods continued

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1/ Bank of Thailand, Monthly Bulletin, January 1985.

Table 16. Percentage distribution of imports by eccnomic classification, 1958-1981

	1958-60	1964-66	1970-72	1976-78	1979-81
Consumer goods:					
non-durable	28.09	18.79	11.38	7.06	6.38
durable	8.16	7.79	6.00	5.07	4.17
Total consumer goods	36.25	26.58	17.38	12.13	10.55
Intermediate products and raw materials:					
chiefly for consumer goods	10.88	13.47	17.73	16.50	15.95
chiefly for capital goods	7.17	7.15	10.16	11.31	9.86
Total intermediate products and raw materials	18.05	20.62	27.89	27.81	25.81
Capital goods:					
machinery	13.60	17.20	21.65	18.42	18.34
others	10.76	13.34	11.61	8.80	7.54
Total capital goods	24.36	30.54	32.81	27.22	25.88
Others:					
vehicles and parts	7.65	9.85	7.80	7.49	4.28
fuel and lubricants	10.70	9.72	9.64	21.90	28.37
others	3.01	2.69	4.47	3.45	5.10
Total of others	21.35	22.26	21.90	32.84	37.75
	100.00	100.00	100.00	100.00	100.00

Source: EIU 1984. (Bank of Thailand, Monthly Bulletin and Quarterly Bulletin, various issues.)

to decline, though much less rapidly than during the 1960s, but this was due not so much to further import substitution - as was mentioned above, import substitution for many products was negative because domestic demand outstripped domestic production - but to rapid growth of demand for imported raw materials, especially fuels (and lubricants), intermediate products and capital equipment. Between 1970 and 1980, imports of consumer goods rose two and half fold (in value), imports of capital good fourfold, imports of raw materials and intermediate goods sevenfold and imports of fuels and lubricants 25-fold.

Between 1980 and 1982, the various policy measures mentioned in section 1.2 above succeeded in restraining growth in the value of imports to 1 per

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cent a year (which implied a sharp cutback in real terms) but 1983 brought another surge by 22 per cent while exports fell by 8 per cent.

Table 17 shows imports as per cent of domestic production for major categories of manufacturing during the period 1975-80. The high figures for chemicals and petroleum, basic metals and machinery are indicative of the still relatively small role of heavy industries in Thailand's manufacturing sector.

Table 17. Share of imports in manufacturing output, 1975-80[a/]

Industry group	Imports as percentage of domestic production		
	1975	1978	1980
Food processing	1.6	2.5	5.2
Beverage and tobacco	1.4	2.2	5.8
Textiles	12.7	10.2	5.0
Leather products	2.3	2.6	2.7
Wood products	1.4	6.5	5.5
Pulp, paper and paper products	24.8	26.5	15.7
Chemicals and petroleum	66.0	83.0	56.5
Rubber and plastic	13.2	6.9	7.8
Non-metallic mineral products	9.5	10.7	15.4
Basic metals and metal products	59.9	54.5	43.6
Machinery	206.1	173.0	144.0
Transport equipment	49.4	35.2	38.0
Precision equipment and others	31.2	46.6	15.5
Total	23.4	25.6	25.2

Source: NESDB, Ministry of Commerce Classification based on 1975 input-output table.

a/ As measured by gross production.

2.4 Ownership and investment patterns

Thailand remains a predominantly private enterprise economy, and this applies also to its manufacturing sector. As in other countries in the region, much commercial and manufacturing enterprise in Thailand is owned by persons of Chinese descent, but these are so well integrated that, in contrast to, e.g., Malaysia or Indonesia, this is not a national issue. At least as

significant are the close links in Thailand between business and the bureaucratic elite who are strongly represented in ownership and direction. After the generally unsuccessful experiments of the 1950s, public enterprise has not been important in Thai manufacturing, but the large Eastern Seaboard Development Programme which will involve government participation, and in some cases government equity in several major projects may change the picture somewhat in the next decade.

While it has been official policy to welcome foreign direct investment, and tax holidays and other incentives have been available to foreign investors, the administrative procedures for approval of applications have generally been complex and often discouraging. As Table 18 shows, the annual inflow of direct foreign investment has been small, relative to other ASEAN

Table 18. ASEAN countries' inflows of direct foreign investment, selected years

	Direct investment ($ million)	Average annual inflow ($ million)	Average annual inflow per capita[b/] ($)
Indonesia			
Realised foreign investment (1967-81)	10,727	715	5.4
Malaysia[a/]			
Paid-up capital in approved projects (1968-79)	919	77	6.5
Philippines			
Central Bank approved and implemented equity investment (1970-81)	1,396	116	2.7
Singapore[a/]			
Foreign owned gross fixed assets (1968-81)	3,772	269	117.0
Thailand			
Net inflow of direct investment including loans from related companies (1970-80)	977	89	2.1

Source: EIU (various national sources).

a/ Manufacturing only.

b/ Based on 1975 population.

countries. Even in 1981, when it reached a peak of nearly $300 million, it contributed only 3 per cent of gross domestic investment.

More generally, capital formation in the private sector of the Thai economy has been financed predominantly from domestic savings, although the foreign contribution (chiefly in the form of portfolio capital) has been rising in recent years, from about 10 per cent in 1977 to 20 per cent in 1980. These figures apply to the whole economy; no separate figures for the manufacturing sector appear to be available, but there is no reason to believe that they would differ greatly.

2.5 Size and geographical distribution of manufacturing enterprises

As in other developing countries, Thai manufactuirng is divided into a modern medium to large-scale sector and an informal sector of small-scale and cottage industry. The statistical evidence about the relative size and growth of the two sectors in terms of value added and employment and their distribution between the Bangkok area and the rest of the country, is extremely scanty and difficult to interpret.

According to one set of data, shown in Table 19, there were in 1972 some 63,000 small-scale factories (total assets less than $50,000 equivalent), well distributed among the various regions (including only 25 per cent in the greater Bangkok area); fewer than 2,000 medium-size factories (assets of $50,000-500,000); and 370 large-scale factories (assets of more than $500,000) of which 72 per cent were concentrated in the Bangkok area. A more recent World Bank report[1/] cites data in terms of employment, not number of firms, for 1970 and 1978. These put the share of small-scale firms (fewer than 10 employees) in total manfuacturing employment at three-fifth and in total manufacturing value added at one-fifth. They also suggest that between 1970 and 1978 there was a very large increase in employment in small-scale firms in the Bangkok area, from 95,000 to 409,000, raising the share of Bangkok in total small-scale manufacturing employemnt to nearly one-half. But these data are derived from labour force survey figures which, for reasons indicated in section 2.1 above, are suspect.

1/ World Bank, Managing Public Resources for Structural Adjustment, August 1983.

Table 19. Registered manufacturing firms by size and location, 1972

	Small-scale factories[a/]		Medium-scale factories[b/]		Large-scale factories[c/]		Total	
	No.	per cent	No.	per cent	No.	per cent	No.	per cent
Greater Bangkok area	15,457	24.6	1,163	59.8	265	71.6	16,885	25.8
Central region	8,374	13.3	319	16.4	70	18.9	8,763	13.4
Northeast region	18,351	29.2	195	10.0	15	4.1	18,561	28.5
Northern region	13,221	21.0	112	5.8	7	1.9	13,340	20.5
Southern region	7,510	11.9	156	8.0	13	3.5	7,679	11.8
Total	62,913	100.0	1,945	100.0	370	100.0	65,228	100.0

Source: Factory Control Division, Industrial Works Department, Ministry of Industry.

a/ Total assets less than B.1 million ($50,000 equivalent).

b/ Total assets over B.1 million but less than B.10 million ($500,000 equivalent).

c/ Total assets over B.10 million ($500,000 equivalent).

The regional concentration of Thai manufacturing industry in and around Bangkok, already evident in the data for 1972 in Table 19, is further highlighted in Tables 20 and 21. Table 20 based on an independent study for 1976, shows that 136 out of a total of 168 large-scale factories (over 199 employees) were located in the Bangkok and surrounding Central region. (It also suggests surprisingly, that these two regions contained an even higher percentage of small-scale firms, with fewer than 10 employees; this may reflect imperfect enumeration of small-scale and cottage industry in rural areas.) Table 21 shows that the degree of regional concentration of manufacturing increased still further during the 1970s. It shows that of total value added in manufacturing, the share produced in Bangkok and the Central region increased from 85 to 89 per cent, at the expense of the shares of all the other regions. This degree of regional concentration can have few parallels in Asian countries. It compares, for example, with the situation in Malaysia where the area in and around Kuala Lumpur (Federal Territory and Selangor) accounted in 1980 for only 42 per cent of value added in manufacturing.

Table 20. Regional distribution of factories by size, 1976

(Number, percentages in parentheses)

Employemnt	Bangkok	Centre	North	Northeast	South	Total
Less than 10	6,809 (67.8)	2,813 (58.9)	720 (56.8)	723 (52.6)	739 (61.8)	11,804 (63.2)
10 - 49	2,813 (28.1)	1,449 (30.3)	447 (35.2)	556 (40.5)	382 (31.9)	5,649 (30.3)
50 - 199	362 (3.6)	428 (9.0)	90 (7.1)	89 (6.5)	61 (5.1)	1,040 (5.6)
Over 199	48 (0.5)	88 (1.8)	12 (0.9)	6 (0.4)	14 (1.2)	168 (0.9)
Total	10,042 (100.0)	4,778 (100.0)	1,209 (100.0)	1,374 (100.0)	1,196 (100.0)	18,659 (100.0)

Sources: Saeng, Sanguanruang, "A Study of Entrepreneural Development Programme in Thailand", April 1978; and NESDB.

Table 21. Value added in manufacturing by region, 1970 and 1978

(1972 prices)

	1970		1978	
	Baht billion	Per cent	Baht billion	Per cent
Bangkok	11.95	51.2	32.90	54.3
Centre	7.86	33.7	20.83	34.4
Subtotal	19.81	84.9	53.73	88.7
North	1.31	5.6	2.20	3.6
Northeast	1.43	6.1	3.07	5.0
South	0.78	3.3	1.61	2.7
Total	23.32	100.0	60.60	100.0

Source: World Bank, Managing Public Resources for Structural Adjustment, August 1983.

Concern about this excessive concentration of industry in the Bangkok area, with its undecirable economic, ecological and social effects, has made regional dispersal of manufacturing a major objective of industrial policy by successive Thai Governments. By far the most important initiative in this

context is the Eastern Seaboard Development Programme which is a key feature of the Fifth National Five-Year Plan. One of the main goals of this ambitious scheme which derives its name from its proposed location along the eastern side of the Gulf of Thailand and southeast of Bangkok is to offset the high degree of concentration of industry in and around the congested national capital. The main activities are to be concentrated in two zones, a major one centred on processing of natural gas from offshore deposits in the Gulf and related petrochemical activities, the other around a proposed new deep sea port south of Bangkok designed for light industry. The former will include a natural gas separation plant already under construction which, in turn, will provide feed stock for a large petrochemical complex consisting of an ethylene cracker and five downstream plants. All these are to be completed by 1987. (A smaller petrochemical plant using imported ethylene to produce low density polyethylene has been operating in the area since September 1982.) In addition there is to be a very large fertilizer plant with a capacity to produce 510,000 tons of urea, 400,000 tons of ammonia and 650,000 tons of NPNPK annually, using natural gas as well as potash from local resources. Extensive infrastructure development will be needed, including the new deep sea port, a new rail link from Bangkok, new water and electricity supply, as well as a new town, Chonburi, to house the greatly enlarged population.

The programme which is expected to be phased over two decades is by far the largest ever envisaged for Thailand. The major industrial projects are planned as joint ventures with heavy reliance on imported technology and capital. Table 22 presents a tentative summary of the financial magnitudes (based on a probably unduly optimistic time table).

Table 22. Eastern Seaboard Development programme: Capital costs by type, 1981-2001

(baht million, at 1981 prices)

	1981-1985	1986-1990	1991-1995	1996-2001	1981-2001
Industrial investment	35,250	32,150	1,100	-	68,500
Infrastructure & services	10,000	9,600	6,400	4,500	30,500
Total	45,250	41,750	7,500	4,500	99,000

Source: NESDB.

The increasing attention to promotion of industrial development in the provinces beyond the Bangkok area is also manifested by the establishment by the Department of Industrial Promotion, Ministry of Industry, of Regional Industrial Promotion Centres in Chiang Mai in the North, Khon Kaen in the Northeast and Songkhla in the South. Similarly, the Industrial Finance Corporation of Thailand (IFCT) has recently set up offices in these three regions.

A detailed plan for the development of the Upper-South part of Thailand has been prepared with assistance of the Japan Industrial Co-operation Agency. The plan calls for the exploitation of the abundant resources in Phuket, Trang and Surat Thani, and the linking with a road system of the Phuket Seaport at the Andaman Sea with Tha Thong Port a Surat Thani at the Gulf of Siam. An industrial estate at Tha Thong Port and two in the Phuket area are planned.

2.6 Recent developments and prospects

For Thailand, as for other newly industrializing countries, the 1970s were a period of export-oriented industrial development which sustained high rates of overall economic growth even in a much more slowly growing world economy. The international recession, aggravated in the case of oil-importing countries by the effects of the second oil shock, brought a slowdown of economic growth in the early 1980s and forced a reconsideration of industrial development strategy. While some of Thailand's labour-intensive export industries, especially garments and jewelry, were well founded on high labour skills and low labour costs, to a high import content, all of them collectively constituted a narrow base for industrial development and faced more restricted and competitive world markets in the 1980s. At the same time, the high levels of effective protection required by many of the import-substitution industries built up in the preceding two decades pointed to serious inefficiencies in resource allocation. There were other features of the industrial and economic development of the 1970s - barely adequate generation of employment opportunities for the growing labour force, wide disparities in income and wealth, urban congestion and rural poverty in some of the less developed regions of the country - which demanded new policy emphases.

All these considerations came together in influencing the formulation of the Fifth National Five-Year Plan (1982-1986), with its restructuring objectives of greater efficiency and competitiveness more broadly based on domestic resources and higher priority for social and regional balance.

The growing emphasis on export-oriented industrial promotion in Thailand, which has been the theme of policy over the past years, emerged even more clearly in the middle of 1984. This came with a definite shift in government policy in relation to industrial restructuring, moving away from an industry by industry approach to a broader strategy based on three groups of enterprises, export-based manufactures, rural-based industries and agro-industries. Over the last few years, Thailand had been attempting to push several of its import substituting industries established in the early stages of industrialization in the 1960s to become more efficient and therefore more competitive in export markets by reducing levels of tariff protection and seeking a rationalization of industrial structures. This operation had begun with the textile sector and had moved on since to deal with the automobile and electrical industries. However, the emphasis in the restructuring strategy on tariff reductions, reducing the tariffs from the range of 0-150 per cent down to a range of 5-60 per cent, had serious implications for Thailand's balance of trade which deteriorated badly in 1983. In these circumstances and following the removal of the 18 per cent credit expansion limit, it was necessary to increase import duty surcharges on luxury goods to control import demand, a move directly counter to the broader restructuring strategy. Thus, the new emphasis seeks to move away from dependence on tariff structure, rather intensifying the stress on assisting industrialists in marketing, investment and finance. This involves, inter alia, the Industrial Finance Corporation of Thailand (IFCT) in technical and financing services.

The mid-term review of the Plan in March 1984 led Thai economic planners to scale down expectations in the light of recent economic performance, especially following the measures of demand restraint which became necessary after the trade and payments deficits of 1983. Overall annual economic growth over the plan period is now expected to be 5.5 (instead of 6.5) per cent, and manufacturing growth 5.5 (instead of 7.5) per cent. The extremely optimistic original plan target of 22 per cent annual growth in exports had to be revised

downward drastically, even allowing for more favourable prospects in the remaining two years, to an annual rate of around 8 per cent, though it is hoped that import growth can be correspondingly restrained and the trade deficit held in check.

The ambitious Eastern Seaboard Develoment Programme has also encountered difficulties. A shortfall relative to expected natural gas flows from the Gulf has delayed many parts of the programme and given rise to some concern about the adequacy of supplies in the longer term. The petrochemical complex, especially the ethylene and the downstream plants, face questions of adequacy and demand, at least initially, unless export markets can be found. The World Bank, in a recent assessment, has pointed out that the Thai Government has moved cautiously in developing the programme, adopting a flexible approach with frequent reappraisals of investment options. But it also issued a warning that each major project should be assessed on its own economic merits, in terms of its feasibility and appropriate timing, given overall public and private finance constraints. and in particular, that regional development criteria should not be the decisive factors influencing these decisions.

In a recently completed comprehensive study on the country's future large-scale industry sector prepared for NESDB[1/] summary assessments along following lines are made in respect of the future medium-term development of large-scale industry in selected manufacturing subsectors.

Food industry is seen as developing in the future primarily as a natural growth of already established industries, mainly as medium-scale operations. Further processing of maize and livestock industries have been pointed out as areas which could be further exploited.

In the textile and clothing industries some additional large-scale investments are envisaged in up-stream operations consisting of plants for the production of synthetic fibres and spinning mills, once the structural problems and the problems associated with over-capacity have been solved.

1/ 'Study on large-scale industrial investments in Thailand' prepared by the Consultants for Trade and Industry AB (Sweden), Asian Engineering Consultants Corp. Ltd. (Thailand), NIDA (Thailand), and Louis Berger International, Inc. (US), October 1984.

The proposed fertilizer plant to be set up by National Fertilizer Corporation[1/] is highly sensitive to assumptions about future price development and capital investment, which make the economic rate of return highly dependent on these parameters, thereby also potentially creating certain difficulties in raising the equity and other financing for the project. The comparatively low economic rate of return of this project according to the feasibility study may be offset by the national benefits from this project if considered instrumental to an overall strategy to modernize the Thai agricultural sector.

In conjection with the fertilizer production, it may be considered to establish a plant for urea-based production of melamine, a resin used for the production of dinnerware, household articles, furniture, and in the paint and textile industries. For reasons of economies of scale, such a project would have to be a major supplier not only to Thailand, but also to other ASEAN countries.

Further in the chemical sector, the NESDB report suggests that detailed studies should be carried out in order to analyze the feasibility of production of ethanol from tapioca and the production of active pharmaceutical ingredients from a multi-purpose sysnthesizing plant.

In the non-metallic mineral products industry several new cement factories are expected to come on stream over the next 10 to 15 years. With respect to the proposed ASEAN rock salt soda-ash project so many obstacles are involved that it is suggested consideration be given to a postponement of the project.[2/]

1/ The National Fertilizer Corp. is one of the so called, "national companies" set up in late 1982 bringing together the Government, commerical banks and private sector industry representatives. These public and private sector joint ventures have emerged to undertake large capital-intensive projects of national significance that neither the Government nor the private sector could do alone.

2/ It was announced in April 1985 by the Council of Economic Ministers that the Thai Government had abandoned the rock salt, soda-ash plant project. (Financial Times, 9 April 1985.)

The pulp and paper industry appears to offer great potential to Thailand. Several projects would be potentially viable in this area including a pulp mill, integrated pulp and paper mills for industrial paper, printing and writing paper, and newsprint. Such a programme, however, relies heavily on the success of an afforestation programme. Considering anticipated world-wide scarcity of wood in 10 to 15 years time, such a programme should be of interest to international investors.

The iron and steel industry in Thailand would need to be upgraded and expanded. The NESDB report, however, did not believe that the proper solution would be a huge integrated steel plant.[1/] Rather, the next five years should be devoted to a restructuring of the existing industry, the improvement of quality of products, and the building up of quality casting and forging capacity. For the 1990s a phased development in stages might be considered involving a cold rolling mill, a mini-plant for flat steel products, and a sponge iron plant based on lignite and utilizing new technology such as plasma technology which has recently been developed in this field.

Considering known metal mineral resources other than iron, no large-scale industrial investments can be foreseen in this field at present. However, ongoing exploration activities should be given continued priority support and might result in future large-scale projects based on lead, zinc and copper.

In engineering industries several apparently viable projects are being considered. Great caution, however, should be given to projects in the automotive industry until the restructuring of this industry has developed further. Ship yards, ship repair and shipbreaking are all activities which appear to be in line with Thailand's comparative advantage. However, they should be allowed to start at a small- or medium-scale and develop from this starting point. The same condition prevails for other sectors with an apparently good potential for Thailand, such as production of agricultural machinery, turbines for mini-hydro systems, equipment and components for telecommunications and electricity distribution.

1/ It was announced in April 1985 by the Council of Economic Ministers that the Thai Government had shelved the plans for an integrated steel complex. (Financial Times, 9 April 1985.)

The NESDB study presents a list of some 40 identified large-scale industrial projects for the period up to the year 2000. The list includes projects for which feasibility studies have already been conducted as well as projects which have not been subject to close scrutiny or even not yet been studied at all. The project list given in Table 23 thus shows in very approximate figures, estimated investment costs; the figures should in many cases only be considered indicative as to size of investments.

For Thailand, as for other industrializing developing countries, prospects for the 1980s depend in considerable measure on the growth performance of the major industrial countries. But provided external problems can be contained and domestic social stability maintained, Thailand has every reason for confidence that it can continue into the 1980s the record of steady, if not quite so rapid, economic growth and sound economic management which it established in the two preceding decades.

Table 23. Large-scale industrial investment projects for the period up to year 2000

Project description	Total investment (millions of baht)
Food products	
Suphan Bury Sugar Mill	1,900
Textile and clothing	
Synthetic fibre plants, 20,000 tons per year, three untis at Baht 1,500 million each	4,500
Spinning mills, 100,000 spindles each, three units at Bhat 1,000 million each	3,000
Gas and oil	
Second gas separation plant	4,000
LNG production project	30,000
TORC III	11,000
Bangchak military refinery, rehabilitation project	1,500
Bangchak military refinery, expansion project	14,000
Chemicals	
Petrochemical complex	
- Upstream unit including utilities	10,000
- Downstream units	7,500
Aromatics complex	10,000
Methanol plant	4,000
Fertilizer plant	13,000
Ethanol plant	1,000
Multi-purpose drug synthesizing plant	1,000
Rock salt-soda ash project	8,700
Non-metallic mineral products	
Siam Cement Co.Ltd., cement	3,600
Siam City Cement Co., Ltd., cement	2,500
Jalaprathan Cement Co., Ltd., cement	3,400
UTCI, cement for export	5,200
Six additional cement plants 19664-1990	21,000
Flat glass plant	2,000
Pulp and paper	
Siam kraft, kraft paper production	1,000
Bangkok Newprint complex	3,800
Thai Pulp Co., Ltd., 75,000 tons pulp per year	3,000
Forest Industry Organization (FIO), pulp production	3,000
Pulp plant, 100,000 tons per year	4,000
Integrated pulp and paper mill, 120,000 tons printing and writing paper per year	7,500
Integrated pulp and paper mill, 120,000 tons industrial paper per year	7,500
Newsprint complex II	4,000
Basic metals	
Integrated steel plant	60,000
Sponge iron, 400,000 tons per year	2,700
Cold rolling mill, 500,000 tons per year	1,500
Mini-plant for flat production, 400,000 tons per year	6,000
Metals and miscellaneous products	
NMB, computer key-boards etc.	2,000
AMD Inc., semi-conductors	1,300
Siam Nissan, diesel engines	2,200
Isuzu, diesel engines	900
Yamaha, motorcycle engines	900
Yontrakit group, "all-Thai" cars	2,000
Thai Airways Int., aircraft maintenance center	2,000
Cha-am Pineapple Tinplate Co., tinplate plant	1,000
Grand total	279,100

Source: NESDB. Study on Large-Scale Investment in Thailand, October 1984.

3. PLANS, RESOURCES AND INSTITUTIONS FOR INDUSTRIAL DEVELOPMENT

3.1 Industrial development plans and strategies

(a) Plans and policy directions

The importance of industrial development has been a key element in the structural transformation of the Thai economy. The emphasis placed on this strategic sector is observable from the policies pursued during the Third, Fourth and Fifth National Economic and Social Development Plans (1972-76, 1977-81 and 1982-86, respectively).

The current Fifth Plan stated that "the industrial sector must be restructured in order to serve the Fifth Plan's objectives of restoring the country's economic and financial positions, dispersing economic activities to provincial areas ...."[1/]. Corresponding to this policy statement, targets of industrial development were set up in the Plan. Industrial restructuring was planned not only to contribute to structural changes of the economy but also as a tool to reduce the trade deficit by expanding industrial exports and to disperse development through decentralization of industries.

The main industrial policy directions were the promotion of export-oriented industries and dispersion of manufacturing industries to provincial areas. The Government, in its efforts to achieve a more equitable distribution of income, is committed to a programme of rural industrialization and a more labour-intensive industrialization strategy, without jeopardizing the efforts to improve productivity of both import substitution and export-oriented industries. More specifically:

(a) Cottage industries will be promoted so that they can expand to the level of small-scale industries;

(b) The spread of small-scale industries will be encouraged and supported by increasing their number, size and variety of production; and

(c) Agro-industry using local raw materials, industries producing exportable materials, and industries producing light machinery will be supported.

1/ NESDB. The Fifth National Economic and Social Development Plan 1982-86.

During the Fourth Plan, the attempts to promote industrialization outside Bangkok metropolitan area met with little success. In the Fifth Plan, small- and medium-scale industries as well as cottage industries were adopted as a means for rural development. However, to develop rural industries a number of crucial problems have yet to be overcome. So far, the promotion of rural industries has not been very effective. The most important problems are related to production, marketing, raw materials, technology, skills of workers and finance which have important bearing on the healthy growth and competition of rural industries.

Present policy directions for the forthcoming Sixth Plan (1987-91) - and for the remaining part of the Fifth Plan period - identify three major groups of priority industries:

(i) Export-oriented industries;

(ii) Small and rural industries or industries located in areas outside Bangkok and its surrounding area;

(iii) "Leading" sectors:
(a) Engineering industry
(b) Agro-based industry

(b) Policy instruments

The Government promotes private investment and influences industrial growth, inter alia, through the use of various policy instruments.[1/]

The Investment Promotion Act of 1977 authorizes the Government to provide measures such as guarantee, special permission, favorable income tax and import taxes on raw materials and machinery as well as temporary import surcharge on competitive products.

The Board of Investment provides special investment promotion schemes to high priority industries, such as export industries, industries in rural areas or in Investment Promotion Zones (IPZ). Four zones have growth poles in Chieng Mai Province, Nakonratchasima Province, Khon Kaen Province, and Songkhla Province.

1/ See also Annex B "Recent Trends in Investment Promotion in Thailand".

The import tariff was found to be biased towards domestically produced finished consumer goods in the 1970s. Several changes had been made since the implementation of the Fifth Plan which intended to correct the tariff structure towards more uniform nominal tariff rates and lower average effective tariff rates. In addition to the import tariff, an import surcharge can be imposed temporarily by the Board of Investment.

Price control has been administered by the Ministry of Commerce through the Price Setting and Anti-Monopoly Act of 1979. This measure, however, has had a limited role in influencing industrial activitics. As of July 1981, only petroleum products, white sugar, and condensed milk remain under control.

The factory control regulations exercised by the Minister of Industry covers the establishment and expansion of factories as well as the use of local content regulations in production. New entrants and expansion of 30 industrial branches are under control. Specific levels of domestic contents in production is required in motor vehicle assembly, motorcycle assembly, electric wire, cable production, steel wire, steel products and milk products.

Import-export control is imposed by the Ministry of Commerce and at times at the request of the Board of Investment.

(c) Promotion of manufactured exports

Tax rebates and tax exemptions: Exemptions from duties and taxes on imported inputs are granted by the Customs Department. Tax rebates on some costs of production are administered by the Customs Department. The system was improved during the Fifth Plan period. The tax rebate rate is set by the Fiscal Policy Office.

Subsidized export credit: Exporters are supported financially by the rediscounting facilities of the Bank of Thailand and the newly established Export Development Fund. An export credit guarantee scheme is in the planning process.

Electricity cost rebate: Enterprises producing for export can benefit from a reduction in the cost of electricity at a rate of 3 1/3 per cent.

Bonded factories and export processing zone: There are 12 bonded factories under the Board of Investment regulation. There is also one Export Processing Zone, within the Lat Krabang Industrial Estate, managed by the Industrial Estate Authority of Thailand. The EPZ offers complete exemption from import-export duties and business taxes.

3.2 Resources for industrial development: natural, human and financial

(a) Natural resources

(i) Agricultural resources

Rice forms the core of the Thai economy as the main staple food. It has been the country's largest single foreign exchange earner for well over a century. Although the national average rice yield has remained low, recent trends clearly indicate certain structural changes in production. At present, rice cultivation is undertaken in what is classified as intensive irrigated areas, wet season irrigated areas and rainfed areas. Intensive irrigated areas, which enable farmers to produce at least two crops a year, have increased significantly during the last 10 years. Furthermore, there is ample evidence that yields in both intensive and wet season irrigated areas have risen sharply during the same period. About two million hectares of paddy land now benefit from wet season flood control to keep fields free of excess water which would damage crops. Nevertheless, the remaining six million hectares represent rice production in rainfed areas where limited access to modern technology and inputs results in low yields.

Rice production in 1984/85 was estimated at 19.0 million tons (against 18.8 million in 1983/84). Output from the main crop (in 1983/84) was expected to be 16.7 million tons and the second crop 2.3 million tons. It was estimated that a surplus of at least 4.4 million tons would be available for export[1/] (Tables 24 and 25).

1/ Bangkok Post, Annual Supplement, 31 December 1984.

Table 24. Production of major agricultural commodities, 1983/84 and 1984/85
(million tons)

	1983/84	1984/85
Rice	18.78	19.00
Maize	3.88	4.40
Cassava	20.00	21.03
Rubber	0.58	0.60
Sugar cane	23.10	22.50

Source: Bangkok Post, Annual Supplement, 1984.

Table 25. Exports of main agricultural commodities, 1983 and 1984

	January-October 1983		January-October 1984	
	'000 tons	million baht	'000 tons	million baht
Rice	3,862.8	21,000	3,028.5	17,600
Maize	2,136.9	7,000	1,673.7	5,400
Tapioca products	5,416.8	13,800	4,178.6	13,900
Rubber	455.3	10,300	469.7	9,800
Sugar	1,039.4	4,400	1,160.0	4,600

Source: As Table 24.

At the same time, modern technology has opened up new or formerly arid land to crop cultivation. The Northeast and Southeast, previously considered two of the least fertile areas, are now producing tapioca in such quantities that the starchy root now is close to rice as the leading foreign exchange earner.

Like rice, cassava, the plant from which tapicoa is made, has a long history in Thailand. A major export crop grown the South throughout the 19th Century, became less important in the earl, 900s as farmers turned their attention to rubber. Cassava cultivation on a major scale was not resumed until 1958, when it was taken up by farmers in the Northeast. Foreign demand for tapioca then increased dramatically. Thailand is now the world's largest exporter, supplying 95 per cent of the world's needs. Local factories process it into flour, which is used industrially, and into chips and pellets sold as animal feed.

The world sugar shortage of the mid-1970s triggered a boom in Thai sugar-cane production; in 1982 it ranked as the number three foreign exchange earner. It was significantly weaker in 1983 and 1984 due to lower world market prices. Indeed, sugarcane production dropped by 27 per cent from 24 million tons in 1982/83 to 22.5 million tons in 1984/85 (est.). Sugar exports in the first 10 months of 1984 totalled 1.04 million tons, against 1.16 million tons during the same period 1983.

In addition to raw cane and granulated white sugar, molasses, a by-product of sugar manufacturing, has been gaining importance. World markets have been requiring molasses in increasing quantities as an ingredient in animal feed. Additional amounts are refined locally to produce ethyl alcohol.

Compared with rice, tapioca and sugar, maize is a newcomer on the Thai farming scene. In 1983/84, 3.9 million tons were produced (much of which went to European and Japanese animal feed markets) and 4.5 million tons are expected in 1984/85. Other crops are kenaf and jute which are mainly grown in the Northeast. Kenaf and jute production dropped by 19 per cent from 233,000 tons in 1983/84 to 188.400 (176,400 tons kenaf and 12,000 tons jute) in 1984/85 primarily as result of earlier lower prices. The current demand for kenaf is estimated at 280,000 tons. High world kenaf prices meanwhile, pushed kenaf exports to 56,750 tons in the first 9 months of 1984 against the 5,400 tons exported in 1983. The local price of kenaf consequently increased sharply which in turn encouraged farmers to cut kenaf trees before they were fully grown, causing the fibre quality to drop.

Thailand is the world's third largest producer of natural rubber after Malaysia and Indonesia. Production in 1984 was about 620,000 tons an increase of 40,000 tons over the 1983 figures (Table 26). This high output is due largely to a vigorous replanting scheme inaugurated by the Government in 1971. Since it takes six years before a newly planted tree can be tapped, the first effects of the replanting programme are only now being realized. Rubber plantations at present occupy 154,000 hectares mainly in the South.

Table 26. Natural rubber production, major exporting countries, 1983 and 1984
(million tons)

	1983	1984 (est.)
Malaysia	1,562,000	1,573,000
Indonesia	997,000	1,050,000
Thailand	587,000	620,000
India	168,000	183,000
World production	4,000,000	4,140,000

Source: International Rubber Study Group (IRSG).

Thailand's numerous garden variety beans are important export items, in fresh, frozen or tinned form. Included are mung beans, soya beans and black matpe beans - the source of the famed Far Eastern beansprouts associated with oriental cooking. The soya bean is processed into vegetable oil in hundreds of small factories. Other crops grown for their oils include coconuts, peanuts, castor seeds and mint.

A great number of tropical and temperate fruits thrive in Thailand's humid climate. They include mangoes, durians, watermelons, papayas, rambutans, tamarinds, pomegranates, palm fruits, oranges, pomeloes, jack fruits, strawberries and more than 20 kinds of banana. Garden crops are equally plentiful ranging from vegetables for local consumption to a variety of mushrooms for export. These, together with fruits, are processed by Thai packers or shipped fresh or frozen to foreign markets. By far the most important of the country's fruit exports is tinned pineapple, of which

Thailand is the third largest producer after Hawaii and the Philippines. Flowers are also an important export crop. Thailand is currently the world's biggest supplier of orchids.

In the past, beef production was a profitable farming sideline but in recent years growing demand brought about by the increase in population and urbanization and by a rising standard of living has led to specialization in livestock breeding and commercial stockfarming using scientific methods. High quality cattle and pigs have been imported to improve Thai animals through crossbreeding. Studies indicate that cattle breeding will increase in importance in the late 1980s. To feed the growing herds there are plans to sow vast areas of the Northeast with grass that can withstand extremely dry conditions and to promote beef production on these new pastures. It has also been shown that cattle thrive on coconut plantations if the space between the trees is planned with suitable grass. An increase in beef cattle production will be of great importance in sustaining the fast-growing leather and tanning industry.

(ii) Fisheries

The country ranks among the world's ten largest marine fishing nations and, after Japan and China, the largest in Asia. More specifically, Thailand is the world's third biggest exporter of frozen shrimp; squid and cuttlefish are also major export items.

Also freshwater fish abound. Besides the many varieties which breed naturally in rivers, lakes and streams, there are those raised by rice farmers in their flooded paddy fields and harvested together with the rice. In addition, the Inland Fisheries Department is vigorously promoting freshwater pisciculture by farmers with large ponds. Freshwater prawns are also plentiful.

The problems of Thai marine fisheries are the declaration of the exclusive economic zones by neighbouring countries, and the high operating costs and depletion of marine resources due to overfishing. Since the peak of over 2 million tons in 1977 the marine catch has successively dropped. The marine catch in 1984 total around 1.9 million tons. Thailand has tried to

ease the problem with joint fishery ventures with other countries such as Bangladesh, Pakistan and Australia. India and Brunei are also interested in this cooperation. The Thai fishing fleet has been increasingly modernized and is currently equipped with highly-sophisticated fishing gear, while its boats are active in so distant waters as the Gulf and the seas off the Chinese, Australian and African coasts.

The Asian Development Bank granted in 1983 an 80 million baht loan for four large fishery projects to promote fresh-water farming of fish and prawns, to promote breeding of shrimps in cages along the coastal area in Rayong, to breed salt-water shrimps in Songkhla Lake, and to breed fresh-water fish in Pathum Thani.

(iii) Forestry

A survey of forest areas in Thailand in 1961 revealed that 57 per cent, or 29,12 million hectares, of the country was covered by forests. Subsequent satellite photo surveys have showed that forest areas in Thailand have diminished by 1974 to 19.04 million hectares or about 37 per cent of the country's total land area and by 1982 to only 13.12 million hectares or about 30.5 per cent of total land area. Thus, during these 21 years deforestation had claimed more than half of the existing forest areas or an average of 770,000 hectares per year. Most of the devastated forest areas are located in the Northeast, the North, the upper part of the Central Plains and the West where farmers have cleared the land to plant upland crops (Table 27).

Table 27. Forest area by region, 1961-1982

	Total land area	Forest area							
		1961		1973		1978		1982	
	sq. km.	sq.km	per cent	sq.km	per cent	sq.km	per cent	sq.km	per cent
North	169,644	120,388	71	113,595	67	94,937	56	87,756	52
Northeast	168,854	71,199	42	50,671	30	31,221	18	25,886	15
Central	103,901	56,006	54	39,006	38	31,413	30	26,516	26
South	70,715	26,035	37	18,435	26	17,603	25	16,442	23
Total	513,115	273,628	53	221,707	43	175,224	34	156,600	31

Source: Royal Forest Department.

In view of the depletion of forest resources and the Government's restrictions on cutting, the growth rate of forestry output declined from an annual average of 5.3 per cent during the Second Five-Year Plan (1967-1971) to 2.7 per cent during the Third Five-Year Plan (1972-1976). When it became evident that heavy timber cutting and encroaching farmland were consuming the country's forests at a dangerous rate, the Government took further action. In 1978 it prohibited the further expansion of arable land at the expense of forested land and banned the export of most kinds of logs and sawn wood.

The export restrictions had the initial effect of making more wood available for local processing. Exports of plywood, veneer, parquet, wood carvings, furniture and household utensils, which had earned only 36 million baht in 1970, increased to 86.5 million baht in 1977 and 1,333 million baht in 1979, at which level it has since remained (1,336 million in 1983).

Thus, Thailand's wide variety of hard and softwood forests created the basis for a well-diversified wood industry. Tropical evergreens, hill evergreens, mangroves, etc., are processed to produce firewood, stick lack, gum benzoin and other gums, gamboge, guttapercha, rattan (used in the

Table 28. Output of main forest products, 1977-1983

('000 cubic metres)

	1977	1979	1981	1982	1983
Teak	138.0	179.6	73.2	58.1	58.2
Other woods	3,202.4	2,293.7	1,725.3	1,646.9	1,761.5
Firewood	1,057.4	825.2	643.0	857.2	772.5
Charcoal	286.9	418.0	256.9	340.7	291.9

Source: As Table 27.

manufacture of cane furniture), bamboo (used both for furniture and paper), dyes, tanning bark and a huge variety of medicinal herbs, leaves and roots.

The increasingly limited local supply of wood has had the effect of sharply increased imports of wood and lumber since the late 1970s in order to

satisfy the needs of the Thai wood processing industry. It also appears that the secondary wood processing industry could be boosted by the use of substitutes such as rubber wood and coconut timber for the traditionally accepted timber species.

In the meantime the Royal Forest Department is carrying out various reforestation projects. The current rate of depletion is about 5,000 sq.km. per year, whereas average annual forest plantation (1979-1982) only amounted to 600 sq. km.

Whether Thailand should have a comparative advantage in the future in the fields of forest-based industries is entirely dependent on the success of the reafforestation activities. Given an appropriate resource base Thailand has already proven its international competitiveness in wood-based industries such as veneer and furniture. However, considering the huge problems involved in changing this negative trend, Thailand is likely to remain one of the "timber deficit" countries of South East Asia at least up to the end of this century.

However, in spite of the ongoing depletion of the forests, the productive forest areas are still sufficiently large to support some large-scale industries.[1/] Assuming a 15 year growth cycle of certain coniferous trees and further assuming a pulp mill entirely fed by coniferous trees, such a pulp mill producing 100,000 tons a year would only require a reafforestation programme amounting to 50 sq. km. per year to keep the supply and demand of wood in balance. A reafforestation programme of the same size order would also be capable of supporting a seizable joinery or furniture industry. These examples illustrate that the great problem in depletion of forests lies with the fuel wood requirements by the rural population rather than with the industry. If the development of wood-based industries can be coupled with appropriate afforestation or reafforestation programmes, Thailand should still have some opportunities in this field.

(iv) Mineral resources

Mineral reserves in Thailand are varied and, in many cases, very rich (Tables 29 and 30). Mining production in 1980 earned a record 11.4 billion

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1/ There are at present three large-scale projects being considered.

Table 29. Estimates of mineral reserves, 1979

('000 tons)

Antimony	301	Fluorite	760
Copper	67,500	Gypsum	36,000
Lead	1,563	Kaolin	44,835
Manganese	1,171	Lignite	251,000
Tin	863	Phosphate	86
Tungsten	27	Potash	over 270,100
Zinc	4,240	Silicon Sand	9,552

Source: Board of Investment, Investors Guide 1984.

Table 30. Mining production, 1978-1983

('000 tons)

	1978	1979	1980	1981	1982	1983
Tin (in concentrates)	41.2	46.4	46.0	43.0	35.6	27.2
Fluorite	259.8	259.9	304.3	271.0	280.6	237.7
Tungsten ore	6.2	3.5	3.2	2.3	1.7	1.1
Lead ore	3.9	20.5	24.8	40.7	43.7	49.4
Manganese ore	67.2	35.4	54.3	10.9	7.7	5.9
Iron ore	88.1	103.1	85.0	62.5	26.8	40.3
Lignite	638.9	1,356.5	1,487.2	1,686.0	1,963.8	1,866.1

Source: Department of Mineral Resources.

baht from exports receipts. In 1983 it was down to 5.3 billion baht (Table 31). For centuries, tin was the biggest moneymaker among Thai minerals; remains so today with the country ranking third behind Bolivia and Malaysia as the top producers. In 1984 (January-August), tin exports increased from the previous year by 7 per cent from 12,000 tons to 12,900 tons. However, the average export price (fob) of tin in the eight-month period stood at only 280,650 baht per ton, down 6 per cent from the same period in 1983. As a last resort and in a bid to keep prices from falling further, the International Tin Council has assigned quotas to member countries, including Thailand. (Thailand has an annual production capacity of 30,000 tons.)

Table 31. Exports of principal minerals, 1982-1984

	1982		1983		Jan.-Aug. 1983		Jan.-Aug. 1984	
	tons	million baht	tons	million baht	tons	million baht	tons	million baht
Tin	25,542	7,883	17,724	5,265	11,989	3,581	12,870	3,612
Fluorite	175,017	312	180,000	301	101,068	166	147,000	234
Barite	285,874	297	176,200	187	100,387	113	111,387	163
Tungsten	1,413	200	1,337	41	1,579	68	1,481	169
Antimony	2,796	39	3,037	43	2,038	28	3,917	71
Lead	37,636	174	42,737	203	24,400	111	34,796	143
Ash and other slag	5,413	37	5774	24	3,470	13	5,759	25

Source: As Table 24.

Zinc reserves of 3.5 million tons (25 per cent content) became an important mineral resource when the Padaeng Industry Co. zinc smelter at Tak province (a Thai - Belgium joint venture) started operation in 1984 with annual capacity of 60,000 tons of high grade zinc ore.

Gemstones, among them sapphires, have also long been mined in Thailand. Thailand's coloured gems market is considered the world's largest.

In addition, many different minerals, ores and metals are being exported. The major minerals, in terms of tonnage, are flourite, barite, gypsum, manganese and tin. Wolfram and antimony are also important exports.

Minerals mined but not exported include limestone, marble, lignite, potash, kaolin, ball clay, feldspar and quartz, all of which are used by local manufacturers. There are also unexploited minerals. A single province, Nakorn Ratchasima in the Northeast, processes enough confirmed deposits of rock salt to supply projected world needs for 40,000 years. The Northeast also has what is probably the world's largest deposit of potash. The geological formation in which these ores were found suggests that Thailand is rich in uranium deposits.

(v) Energy resources

Thailand energy consumption increased rapidly as the country entered the industrializing period of the 1960s and 1970s. The average growth rate of energy consumption was around 13 per cent during the 1960-78 period.[1/] Similar to other oil importing countries, it has experienced an unfavourable foreign trade and payments situation caused by the rise in oil prices in 1973/74 and 1978/79. After the first oil shock, Thailand's energy resources development has progressed remarkably (Table 32). In 1980, the share of energy imports in total imports was 31 per cent, absorbing 15 per cent of the country's export earnings.[2/]

Table 32. Energy consumption by source, 1970-81
(million litres of crude oil equivalent)

	1970	1975	1977	1978	1979	1980	1981
Petroleum products	5,290	8,874	10,720	11,538	12,226	12,611	11,936
Hydroelectric	603	1,206	1,113	753	1,148	578	1,052
Lignite	171	260	247	270	440	570	660
Bagasse	307	671	903	1,062	1,136	708	1,046
Fuelwood	57	46	47	37	439	612	665
Charcoal	68	11	21	20	1,265	1,618	1,905
Paddy husk	46	46	42	46	51	50	107
Natural gas	...	...	...	...	...	...	100
Total	6,542	11,114	13,093	13,726	13,705	16,747	17,471

Source: World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983.

The natural gas reserves in the Gulf of Thailand have been estimated at around 16.5 trillion cu. feet.[3/] The off-shore gas-tapping first operated in November 1981 at Union Oil's Erawan field and gas was delivered to shore by the 260 mile trunkline and through a 110 mile line to the Bangkok area.

1/ World Bank, Thailand: Managing Public Resources for Structural Adjustment, August 1983.

2/ Source: Department of Mineral Resources (Bangkok Post Annual Supplement, 31 December 1984).

3/ World Bank, Thailand. Managing Public Resources for Structural Adjustment, August 1983.

Indigenous production of natural gas, condensate and crude averaged 77,651 barrels per day of the equivalent of oil or more than 30 per cent of total oil consumption for the fiscal year ending 30 September 1984. During this period production of gas totalled 77,842.4 million cubic feet, of condensate 80.7 million barrels and of crude 4.3 million barrels.[1/]

The combined natural gas and condensate production from the Union Oils Co. of Thailand's Erawan and Baanpot gas fields in the Gulf of Thailand was about 250 million cubic feet per day and 9,000 barrels per day respectively, in late 1984 compared with the averages for the previous year of 160 million cubic feet and 6,500 barrels per day, respectively. Crude production at the Sirikit oil field in Kamphaeng Phet Province was 20,000 barrels per day in late 1984 - more than three times that of previous year's average. Natural gas and condensate outputs will rise further when Union Oils two additional Gulf of Thailand gas fields - Platong and Satun - commence operations, raising total gas production to 350 million cubic feet and condensate production to between 14,000-18,000 barrels per day by the end of 1985. The gas production capacity is estimated at 500 million cu feet a day by 1986, when the dependence on imported oil will be reduced to 50 per cent of total energy supply (75 per cent in 1980).

Thailand has concluded an agreement with Japanese companies, signed in 1984, for a joint venture for exporting liquified natural gas.

Parallel with the activity in the oil and gas sector Thailand has stepped up its exploration and development of lignite e.g. for electricity generation (see Table 30). Reserves are now estimated at at least 1,800 million tons, mainly in the north of the country. By 1987 the station at Mae Moh is scheduled to expand its generation capacity from the present 225 mW to 825 mW.

(b) Human resources

Thailand population totalled 49.26 million in mid-1983. The population growth rate of 1.6 per cent in 1983 was subjected to be reduced to 1.5 per cent target of the Fifth Plan by 1986. The working age population numbered

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1/ OPEC Bulletin, No. 1/83.

23 million of whom around 70 per cent were engaged in agriculture, 18 per cent in service and 12 per cent in manufacturing.

The official unemployment rate was 5 per cent. Seasonally unemployed numbered another 4 million and among the employed labour underpaid employment was estimated at 5.6 million.[1/] The number of people entering the job market is about 800,000 annually. Some Thai labour emigrated to the Middle East job market since it offered good employment prospect and high remuneration. The minimum daily wage in Bangkok and its zone of eight provinces was 66 baht in October 1983.

A recent study indicated that participation rates in primary schools reached 96 per cent of the primary school age group in 1979 and the adult literacy rate was 88 per cent.

Over the past few years, the Government has made efforts to adapt the educational system to the development needs of the country. Agricultural and technical schools to train extension workers and middle-level technicians have been given priority over many other programmes in the Fourth and Fifth Plans.

In the urban areas, apprenticeship and on-the-job training to develop industrial manpower resources is being encouraged. Radio and television are being used as means of extending nonformal education. They also serve as audio-visual aids for primary and secondary schools.

At present there are 14 universities and 36 teachers training colleges in Thailand, three-fourths of them built since 1960. In keeping with a government plan to decentralize education, many universities have been established in provincial centres on a status equal to universities in Bangkok. Thus, besides the long-established Chiang Mai University, there is the University of Khon Kaen in the northeast and the Prince of Songkhla University in the southern city of Pattani, to name a few.

Thailand is one of the founding members of the Asian Institute of Technology whose campus is located 40 kilometres north of Bangkok. A number of Thai students are receiving post-graduate education in specialized subjects.

1/ Bangkok Post, Economic Review 1983.

(c) Financial resources

Thailand has 17 local commercial banks with extensive national networks, 13 foreign commercial banks and ten foreign bank representative offices.

The Bank of Thailand is the central bank. It sponsors preferential lending programmes, of which two are of special interest:

(i) A five per cent discount facility to commercial banks for re-lending as working capital finance to exporters.

(ii) Low-interest loans to the Industrial Finance Corporation of Thailand (IFCT) for re-lending at preferential rates to exporters or industrial enterprises based in upcountry areas.

The Bank of Thailand and the Ministry of Finance are currently working out details of an export credit guarantee scheme.

The Industry Finance Corporation of Thailand (IFCT) is a semi-official development finance bank, which lends money on a long-term basis to medium- and large-scale enterprises. IFCT derives its funds from a variety of public and private sources. It borrows from the World Bank and the Asian Development Bank. Furthermore, since a substantial amount of its funds also come from the Government (through participation of Krung Thai Bank) and from loans by the Bank of Thailand (BOT), IFCT follows closely Government guidelines with respect to industrial policy.

IFCT role in financing industrial development in the country has been increasing rapidly. During the first half of 1984, loans of Baht 1 billion were disbursed for 66 projects, with another Baht 2 billion likely to be disbursed in the second half of the year. This compares with lending of Baht 1.04 billion for just 53 projects in 1982 and Baht 1.58 billion for 70 projects in 1983. Part of the new lending has been directed specifically at small-scale projects for which the demand in 1984 significantly exceeded the amount originally allocated for the year. In addition an industrial credit guarantee scheme is about to start which will guarantee working capital and overdrafts for businesses with fixed assets of less than Baht 10 million. An important part of recent lending was made to agro-industries.

3.3 Institutional infrastructure for industrial development

The National Economic and Social Development Board (NESDB) prepares the overall government plan as well as the more detailed plans for the various sectors. Because of the separation of budgetary powers from the planning process, the NESDB has primarily an advisory role. Actual budgeting allocation to the various agencies is determined on the basis of the priorities perceived by the Budget Bureau. Under the Fifth Plan the annual budget allocation requires that departmental programmes must be consistent with the Plan.

In the overall industrial planning as well as in the planning and implementation of large-scale industries the Ministry of Industry (MOI) has for historical reasons come to play a comparatively limited role, whereas NESDB has become more involved in these fields than was originally intended. It has been proposed that the role of the MOI should be strengthened. This may include the allocation of more responsibilities to the MOI for carrying out sectoral plans. While strengthening the industrial planning functions at the MOI, the focus of the NESDB functions would successively shift towards the co-operation of planning by the technical ministries, as well as the evaluation of plans and major projects. Besides playing an important role in the formulation of industrial policy, the Ministry of Industry (MOI) is primarily concerned with control and registration of industrial establishments. It issues licences to build factories, makes regulations regarding the conduct of industrial enterprises, and enforces zoning laws. MOI also has responsibility for promoting small- and medium-scale industries (SMI).

The Department of Industrial Promotion (DIP) provides assistance for the technical needs of cottage industries and small-scale industries. It also conducts training courses for managerial personnel through the Management Development and Productivity Division. The Textile Industry Division, also within DIP, serves to strengthen the country's textile industry by providing technical services. In the past, the Small Industries Finance Office (SIFO), as a joint venture between the DIP and the Krung Thai Bank, financed the

machinery and working capital needs of small-scale enterprises.[1/] SIFO is in the future expected to concentrate on providing financing to the cottage industries sector. The Industrial Service Division, provides technical assistance to the small- and medium-scale industries. DIP has, furthermore, Regional Industrial Promotion Centres in Chiang Mai, Khon Kaen and Songkhla.

Other important units of MOI are the Department of Industrial Works, the Thai Industrial Standards Institute (TISI) (see below), the Industrial Economics and Planning Division and the Office for Basic Industry Development.

Also under the MOI is the Industrial Estate Authority of Thailand (IEAT). The IEAT was established to develop and manage industrial estates of which there are two types designated in the IEAT Act of 1979:

- general industrial estates, and
- export processing zones.

The role of IEAT is to acquire land for estates, develop this land with appropriate infrastructure and then either sell or lease portions of these estates for the establishment of industrial plants. IEAT now operates two estates close to Bangkok, at Bang Chan and Lat Krabang. It has also entered into a joint venture with a private sector firm to operate another estate at Bang Po. Another estate is being developed at Laem Chabang (in the context of the Eastern Seaboard Development). The first industrial estate in the Northern region, at Lamphun Province, was opened in late 1984. Plans have been approved for the setting up of an export processing zone for agricultural commodities at Koral in the Northeastern region.

The Board of Investment (BOI) is responsible for the administration of the investment incentives. Its objective is to promote both foreign and domestic investment in various selected industrial, agricultural and service industries by granting (primarily fiscal) incentives. It grants mostly tariff and income tax exemptions, but it can also apply tariff surcharges and initiate import bans. The BOI is empowered to resolve, in conjunction with

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1/ The relationship between SIFO and Krung Thai Bank was severed in 1981. SIFO now operates independently as the Small Industrial Finance Corporation of Thailand, a private financial institution with substantial government participation.

various concerned ministries, any difficulty that a promoted enterprise may encounter. The BOI maintains an Investment Service Centre to assist both domestic and foreign investors in Thailand.

A recently adopted programme for strengthening the Board of Investment focused on the following:

- Creation of an investment climate where the BOI will co-operate with other units in providing services to the investors;
- Initiation of investment projects by speeding up studies on investment opportunities;1/
- Publicising investment opportunities;
- Improvement of the promotional privilege system by making it more transparent;
- Promotion of investment projects where efficiency can be improved;
- Promotion of direct or follow-up investment projects involving foreign technology;
- Provision of special preferences to projects which strengthen the country's balance of payments and trade and provide employment opportunities as well as raising workers' skills;
- Follow-up and evaluation of the results of the operations of the promoted projects;
- Publicising investment promotion policy and creating favourable attitudes towards it.

Specifically, the BOI has indicated several new activities aimed at fulfilling the above programme:

- Research on feasible investments which will be used as project profiles for promotion of foreign investment;
- Overseas campaigns which provide prospective investors with more up-to-date information on Thailand;
- Establishment of an information centre for interested investors; and
- Establishment of a technology transfer registration centre to handle technology transfer regulations.

1/ See Annex A "List of Pre-feasibility Study reports and Investment Opportunity Surveys with the Board of Investment".

In an attempt to enable both the private sector and public sector to jointly discuss and solve mutual problems the Government in 1981 set up the Joint Public/Private Consultative Committee (JPPCC) under the chairmanship of the Prime Minister. The Committee meets monthly to discuss pending problems and to initiate co-ordinated efforts of the private and public sector, for instance in the area of investment promotion.

NESDB serves as secretariat to the JPPCC and provides a major link between the Consultative Committee and government policy-makers. A similar role is played by NESDB regarding the Eastern Seaboard Committee and the Industrial Restructuring Committee (RESCOM).

The present Industrial Restructuring Committee was established in mid-1983 under the chairmanship of the Minister of Industry. The official secretariat is with the Ministry of Industry (Industrial Economics and Planning Division). The Industrial Planning Section, Economic Projects Division, NESDB provides the major analytical support to the Committee.[1/]

The Ministry of Finance influences economic activities in Thailand through taxes and tariffs. By means of tariffs administered by the Ministry of Finance's Customs Department, certain domestic industries are protected from foreign competition up to a point. This allows them to earn higher profit, and encourages additional investment in the sector. Because of the absence of comparable export subsidies, the system of tariffs discriminates against export industries, although the Fiscal Policy Office, through tax refunds, and the Customs Department, with its duty drawback and temporary admission schemes, have attempted to reduce the extent of this discrimination.

By its general credit policies, and policies to control the inflation rate, the Bank of Thailand (BOI) influences the availability of finance. It also provides rediscount facilities to selected industries and exporters on fairly concessional terms. Finally, with its control of the exchange rate, the BOT affects the competitiveness of Thai products - vis-a-vis the products of other countries.

1/ UNIDO assistance has been provided since 1983 to this supportive work.

The Ministry of Commerce (MOC) controls the imports and exports of certain goods and the prices of selected goods in Thailand. In 1977 a high level co-ordinating committee, the Export Development Committee was established. The MOC also maintains an Export Service Centre (ESC) which assists Thai exporters in solving their marketing problems and provides information to foreign buyers. The activities of the ESC will expand as a result of a recently passed law, which enables the MOC to levy a trade tax of one per cent on the value of imports and exports. The proceeds of such a tax would go toward promoting Thai exports, and would finance promotional activities of MOC.

The Thai Industrial Standards Institute (TISI) under MOI, has the triple function of establishing national product standards, promoting the implementation of these standards and granting licence and controlling the use of the TISI Standards Mark.

The Thailand Institute of Scientific and Technological Research (TISTR) was created in 1964 by special legislation (under the name of the Applied Scientific Research Corporation of Thailand - ASRCT) as a non-profit public corporation. It functions under the Ministry of Science, Technology and Energy. The TISTR management is conceiving the institute's role as primarily that of an industrial research organization adopting a quasi-commercial approach in providing specific assistance to Thai enterprises as well as guidance to the industrial sector regarding its potential development, e.g. through effective local resource utilization, and appropriate use of technological advances like genetic engineering and bio-technology, micro-electronics and solar energy. The Cabinet approved in 1983 that TISTR should establish a Packaging Centre on basis of a study prepared by a Belgian institution.

The National Institute of Development Administration (NIDA), established in 1966, undertakes research in the areas of economic, social and political development besides serving as graduate school in the area of administrative science and development. NIDA also assists in policy formulation, inter alia, through consultancy services. A comprehensive study "Management and Performance of Public Enterprises in Thailand", was, for instance, made in 1979 by NIDA.

A new economic research institution, the Thailand Development Research Institute (TDRI), is being established, with assistance, inter alia, of the Canadian Institute for Research on Public Policy. TDRI is an independent non-governmental research organization whose tasks include the undertaking of research on key socio-economic issues with particular emphasis on their inter-relationship and long-term impact on Thailand's future.

The Association of Thai Industries (ATI), established in 1967, deals with issues which affect Thai industry and performs an advisory role aimed at complementing the Government's efforts in socio-economic development. It attempts to supply the appropriate authorities with information and comments for the formulation of policies and serves as spokesman for industry in that context. It also endeavours to advise and assist Thai industries on matters pertaining to local and international markets. The Association of Thai Industries, as the major association bringing together leading members of the manufacturing sector in Thailand, has a very important role to play for the development of Thai industry, in identifying and helping to solve the industry's problems and in representing the industry at discussions with the Government. As such the ATI is included as one of the private sector associations (together with other associations, such as the Thai Bankers Association and Thai Chamber of Commerce) in the Joint Public/Private Consultative Committee (JPPCC).

Within ATI, there are 19 "Industry Clubs" grouping together members in one industrial sector, each with its own administrative committee and each holding regular "club" meetings. These "clubs" work closely with corresponding "clubs" in the other ASEAN countries.

The Thailand Management Association (TMA) is a private sector institution which carries out training courses in various management subjects. TMA co-operates closely with the Institute for Management Education for Thailand (IMET), a newly formed institute assisted through US bilateral assistance.

3.4 Technical assistance to industry

Estimates of technical assistance from bilateral and multilateral donors and non-governmental organizations to Thailand, based on commitments reported

to the Department of Technical and Economic Co-operation (DTEC), amounted to $179,000 in 1983. The major multilateral source continues to be the United Nations system. Available data on technical assistance reveals that only 4.9 per cent of these resources are channelled to industry.

UNDP is at the centre of the UN system's technical co-operation efforts. The current UNDP Country Programme coincides with the National Economic and Social Development Plan (1982-1986). United Nations Department of Technical Co-operation for Development (UN/DTCD) has been active in Thailand since 1978 by supporting the development efforts of the Government.

Technical assistance provided by UNIDO totalled $740,713 in 1984. UNIDO co-operates with Government counterparts such as Department of Industrial Promotion, Thailand Institute of Scientific and Technological Research, Industrial Estate Authority of Thailand, Thai Industrial Standards Institute, Board of Investment, National Economic and Social Development Board and Centre of Integrated Plan Operations. Major projects have been located in the textile and agro-industries, export promotion of finished wood products and the establishment of an industrial service institute. Priorities are assigned to the expansion of industries in the Northeast, Eastern Seaboard Development, industrial restructuring of selected sub-sectors and pharmaceuticals.

Bilateral technical co-operation with Thailand provides considerable scope for the future. Certain bilateral donors have intensified their activities in the field of technical assistance to Thailand. Technical assistance from developing countries, mainly from Singapore, the Republic of Korea and Yugoslavia, consists almost entirely of fellowships to raise the levels of manpower skills. Fellowships under the auspices of ASEAN sub-regional co-operation are assuming increased importance.

STATISTICAL APPENDIX

Table A-1. Production of selected manufactures, 1976-1984

	units	1976	1980	1983	1984
Textiles					
cotton weaving	million sq.yard	669.7	761.0	888.6	...
cotton knitting	million sq.yard	66.3	77.6	87.4	...
synthetic weaving	million sq.yard	347.5	672.3	850.9	...
synthetic knitting	million sq.yard	210.7	279.2	376.0	...
jute products	'000 metric tons	...	202.4	174.3	192.9
synthetic fibre	'000 metric tons	...	103.2	110.5	115.2
Wood products					
plywood	'000 sheets	2,859.7	4,414.5	3,990.0	...
Construction materials					
cement	'000 tons	4,422.1	5,337.0	7,263.5	8,240.0
Chemicals					
petroleum products	million litres	8,417.6	8,369.0	8,839.6	8,600.0
detergent	'000 tons	55.0	84.6	86.9	...
Iron and steel					
galvanized iron steel	'000 tons	88.8	124.0	123.7	132.5
tin plate	'000 tons	26.2	70.2	73.1	92.0
Transport equipment (assembly)					
passenger cars	'000 units	15.3	23.4	33.9	36.1
commercial vehicles	'000 units	32.9	50.5	75.9	74.9
motor cycles	'000 units	103.6	284.0	313.3	320.5
Electronic (assembly)					
Integrated circuits	million units	...	435	485	...

Source: Bank of Thailand, Monthly Bulletin, January 1985.

Table A-2. The composition and value of trade in 1981 and 1982

Description of traded goods (SITC)	Imports (Percentage of total trade)		Exports (Percentage of total trade)		Trade balance (Exports less imports in 1000 US $)	
	1981	1982	1981	1982	1981	1982
OILS AND FATS						
Animal oils and fats(411)	0.0	0.0	0.0	0.0	-2779.4	-2063.7
Fixed vegetable oils and fats(421/2)	0.3	0.2	0.2	0.2	-24278.9	-1864.4
Processed animal and vegetable oils and fats(431)	0.1	0.0	0.0	0.0	-6113.1	-3634.4
CHEMICALS						
Organic chemicals(512)	3.0	2.9	0.2	0.2	-285786.1	-234555.0
Inorganic chem., oxides and halogen salts(513/4)	1.0	0.9	0.1	0.1	-94595.8	-75077.0
Dyeing, tanning and colouring materials(531)	0.4	0.5	0.0	0.0	-41896.8	-40561.5
Medicinal and pharmaceutical products(541)	1.0	1.2	0.2	0.2	-91161.7	-91012.7
Plastics, cellulose and artificial resins(581)	2.3	2.1	0.2	0.2	-216298.2	-171615.6
FERTILIZERS						
Nitrogenous fertilizers & related materials(5611)	0.4	0.4	0.0	0.0	-42454.2	-1522.3
Phosphatic fertilizers and related materials(5612)	0.0	0.0	0.0	0.0	-1200.8	-1111.2
Potassic fertilizers and related materials(5613)	0.1	0.1	...	0.0	...	-7429.7
PETROLEUM						
Petroleum, crude or partly refined(331)	21.6	23.0	...	0.0	...	-1958699.5
Petroleum products(332)	7.6	6.7	0.0	0.0	-758388.7	-566722.1
RUBBER						
Crude rubber, synthetic and reclaimed(231)	0.2	0.2	7.3	6.1	482252.5	400412.0
Rubber materials, e.g.sheets, threads, piping(621)	0.1	0.1	0.0	0.0	-3233.8	-3239.7
Articles of rubber, e.g. tyres, tubes(629)	0.3	0.3	0.4	0.3	-4773.3	-5765.8
WOOD AND FURNITURE						
Wood, shaped or simply worked(243)	0.7	0.7	0.0	0.0	-65716.1	-58659.5
Pulp paper, including waste(251)	0.9	0.7	0.0	0.0	-85544.5	-55853.9
Veneers, plywood, improved wood(631)	0.0	0.0	0.2	0.2	11963.4	12264.7
Wood manufactures(632)	0.0	0.0	0.7	0.6	47412.4	41974.1
Paper and paperboard(641)	1.1	1.0	0.0	0.0	-104189.5	-86328.3
Articles of pulp, paper or paperboard(642)	0.2	0.2	0.1	0.1	-13714.2	-11194.3
Furniture(821)	0.0	0.0	0.5	0.5	29544.7	31396.7
TEXTILES AND CLOTHING						
Wool and other animal hair(262)	0.0	0.0	...	...	...	...
Cotton(263)	1.5	1.0	0.2	0.4	-134938.9	-61179.1
Jute(264)	0.0	0.1	0.1	0.0	-1065.5	-9612.8
Vegetable fibres, flax and hemp(265)	0.0	0.0	0.2	0.2	14454.2	10644.1
Synthetic and regenerated fibres(266)	0.3	0.5	0.1	0.1	-30397.0	-31804.3
Textile yarn and thread(651)	0.5	0.5	1.1	1.0	29630.8	25524.1
Woven cotton fabrics(652)	0.2	0.2	0.7	0.9	28268.8	45574.0
Woven textile fabrics(653)	1.1	1.0	2.2	2.2	41950.7	69480.8
Made-up articles chiefly of textiles(656)	0.1	0.0	0.6	0.5	35840.9	31609.0
Travel bags, handbags, etc.(831)	0.0	0.0	0.2	0.3	15853.5	19470.7
Clothing, excluding leather(841 less 8413)	0.0	0.1	4.8	5.3	327561.5	353993.9
Calf leather(6113)	0.0	...	0.0	...	-4.3	...
LEATHER AND PRODUCTS						
Other leather, including artificial(611 less 6113)	0.0	0.0	0.1	0.1	7134.3	7797.3
Leather manufactures(612)	0.0	0.0	0.0	0.0	544.1	2212.8
Apparel and accessories of leather(8413)	0.0	0.0	0.2	0.2	12508.7	11763.2
Footwear(85)	0.0	0.0	0.6	0.8	42662.4	55650.4
BUILDING MATERIALS AND GLASS						
Lime, cement, fabricated building materials(661)	0.1	0.0	0.2	0.2	1545.0	13744.4
Construction and refractory materials of clay(662)	0.0	0.0	0.2	0.2	8811.1	7100.3
Glass(664)	0.2	0.2	0.0	0.0	-16284.4	-13604.4
Glassware and pottery(665/6)	0.1	0.1	0.1	0.1	-7886.4	-3161.7

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Table A-2. The composition and value of trade in 1981 and 1982 (continued)

Description of traded goods (SITC)	Imports (Percentage of total trade)		Exports (Percentage of total trade)		Trade balance (Exports less imports in 1000 US $)	
	1981	1982	1981	1982	1981	1982
IRON AND STEEL						
Iron ore and concentrates(281)	...	...	...	...	...	...
Iron and steel scrap(282)	1.1	0.9	0.0	0.1	-104081.3	-70601.7
Pig iron and sponge(671)	0.1	0.1	...	...	...	...
Ingots and other primary forms(672)	1.1	1.5	0.0	...	-108252.0	...
Bars, rods, shapes, sections(673)	1.2	1.0	0.0	0.0	-119416.3	-84978.3
Universals, plates and sheets(674)	3.0	2.9	0.0	0.0	-297780.5	-249234.9
Hoop and strip(675)	0.1	0.1	0.0	...	-7974.3	...
Iron and steel wire(677)	0.1	0.1	0.0	0.0	-10201.9	-9503.9
Tubes, pipes and fittings(678)	0.4	0.3	0.4	0.4	-6332.1	1388.1
Unworked castings and forgings(679)	0.0	0.0	0.0	...	1.3	...
NON-FERROUS METALS						
Non-ferrous ore and concentrates(283)	0.0	0.0	0.8	0.4	52107.8	28073.6
Copper, blister, refined, alloys(6821)	0.1	0.1	...	...	...	...
Copper bars, shapes, sections, wire, etc.(6822)	0.3	0.4	0.0	0.0	-31398.1	-30393.3
Aluminium, unwrought or worked(684)	1.0	1.0	0.0	0.0	-99887.4	-87329.9
Lead, unwrought or worked(685)	0.1	0.1	0.0	0.0	-11938.5	-8448.2
Zinc, unwrought or worked(686)	0.4	0.3	0.0	0.0	-36764.9	-27594.2
Tin and alloys, unwrought or worked(687)	0.0	0.0	6.1	5.0	419196.5	342866.9
Wire products, e.g. cables, ropes(693)	0.1	0.1	0.0	0.0	-7256.0	-3884.0
SELECTED CAPITAL GOODS						
Hand tools used in agriculture(6951)	0.0	0.0	0.0	0.0	1000.1	1691.5
Tools for use in hand or machine(6952)	0.4	0.4	0.0	0.0	-42111.2	-31784.0
Power generating machinery, non-electric(711)	2.0	1.8	0.0	0.0	-200578.4	-149908.2
Agricultural machinery(7121/2)	0.1	0.1	0.0	0.0	-7881.0	-5054.6
Dairy equipment(7123)	0.0	0.0	...	...	...	...
Tractors(7125)	1.2	0.7	0.0	0.0	-121625.3	-60384.8
Office machines(714)	0.5	0.6	0.0	0.0	-49245.6	-50575.2
Metal working machinery(715)	0.4	0.3	0.0	0.0	-41395.2	-26382.1
Textile and leather machinery(717)	1.0	0.8	0.0	0.0	-95248.1	-68426.4
Machines for paper, pulp and paper articles(7181)	0.4	0.2	0.0	0.0	-41254.8	-20192.1
Industrial food-processing machinery(7183)	0.5	0.2	0.0	0.0	-45518.9	-15910.8
Machine tools for working minerals,wood,etc.(7195)	0.2	0.1	0.0	0.0	-19338.6	-9287.1
Electrical power machinery and switchgear(722)	3.3	3.6	4.2	4.4	-43137.0	-12633.8
MAJOR CONSUMER DURABLES						
Commercial road vehicles(732 less 7321)	3.7	3.2	0.1	0.1	-365406.5	-262334.5
Passenger motor cars(7321)	0.7	0.8	0.0	0.0	-71815.8	-64430.7
Television and radio sets(7241/2)	0.3	0.3	0.1	0.1	-23524.2	-21204.3
Domestic electrical equipment(725)	0.2	0.2	0.0	0.0	-21886.8	-14060.0
TOTAL OF ABOVE, IN MILLIONS OF US $	6966	5747	2314	2196	-4652	-3552
TOTAL TRADE (SITC 0 TO 9), IN MILLIONS OF US $	10055	8527	6849	6797	-3206	-1730

Source: Statistics and Survey Unit, UNIDO.Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Table A-1. Origin of imports by industry, 1982

Description of traded goods (SITC)	World total (1000 US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
OILS AND FATS							
Animal oils and fats(411)	2223.6	0.3	99.7	1.4	4.4	2.8	0.0
Fixed vegetable oils and fats(421/2)	14556.0	86.7	13.3	8.4	0.4	4.1	0.0
Processed animal and vegetable oils and fats(431)	4148.8	41.6	56.3	8.0	18.1	24.1	0.0
CHEMICALS							
Organic chemicals(512)	248668.0	17.0	79.1	17.0	20.8	37.9	2.2
Inorganic chem., oxides and halogen salts(513/4)	78633.1	15.9	72.3	10.2	28.1	26.8	6.4
Dyeing, tanning and colouring materials(531)	40934.0	10.8	85.5	4.0	37.0	25.8	1.3
Medicinal and pharmaceutical products(541)	102037.5	15.4	80.8	12.8	40.4	5.6	1.0
Plastics, cellulose and artificial resins(581)	82379.2	5.1	88.3	22.7	23.8	26.4	1.9
FERTILIZERS							
Nitrogenous fertilizers & related materials(5611)	31751.2	11.0	75.3	0.0	28.2	4.3	13.7
Phosphatic fertilizers and related materials(5612)	1143.4	0.0	100.0	85.0	15.0	0.0	0.0
Potassic fertilizers and related materials(5613)	7450.5	0.0	62.8	7.9	45.8	0.0	37.2
PETROLEUM							
Petroleum, crude or partly refined(331)	1958794.9	100.0	0.0	0.0	0.0	0.0	0.0
Petroleum products(332)	568054.1	90.9	7.8	2.2	1.5	0.8	0.0
RUBBER							
Crude rubber, synthetic and reclaimed(231)	12801.5	7.9	74.9	12.1	22.9	39.4	0.8
Rubber materials, e.g.sheets, threads, piping(621)	6366.8	8.1	60.6	17.3	18.7	21.1	1.0
Articles of rubber, e.g. tyres, tubes(629)	26784.4	10.3	83.1	12.7	22.4	44.7	0.4
WOOD AND FURNITURE							
Wood, shaped or simply worked(243)	59025.8	98.7	0.8	0.0	0.8	0.0	0.0
Pulp paper, including waste(251)	55966.0	13.5	81.3	46.4	0.3	2.6	0.8
Veneers, plywood, improved wood(631)	2073.3	40.7	37.0	4.5	26.1	0.8	1.4
Wood manufactures(632)	1514.5	48.9	48.1	15.7	3.5	12.8	0.0
Paper and paperboard(641)	89162.1	5.5	91.9	3.0	15.2	15.6	0.3
Articles of pulp, paper or paperboard(642)	18506.9	6.6	90.6	9.6	18.8	56.1	0.3
Furniture(821)	3619.0	6.5	90.0	23.0	23.1	39.2	0.5
TEXTILES AND CLOTHING							
Wool and other animal hair(262)	1214.0	0.9	99.1	0.1	7.5	0.0	0.0
Cotton(263)	88447.7	30.1	69.6	68.5	0.2	0.0	0.2
Jute(264)	11190.1	100.0	0.0	0.0	0.0	0.0	0.0
Vegetable fibres, flax and hemp(265)	90.5	89.5	10.5	0.0	0.0	10.5	0.0
Synthetic and regenerated fibres(266)	40519.9	10.6	64.0	13.1	0.9	33.1	0.0
Textile yarn and thread(651)	42190.4	30.2	33.7	2.0	2.9	25.7	0.7
Woven cotton fabrics(652)	18172.9	53.8	31.9	0.3	2.7	28.1	0.2
Woven textile fabrics(653)	83112.3	49.1	34.2	2.5	3.7	27.5	1.1
Made-up articles chiefly of textiles(656)	3969.3	43.0	25.8	8.4	6.6	4.9	16.7
Travel bags, handbags, etc.(831)	545.9	24.7	67.3	10.6	13.5	40.1	0.1
Clothing, excluding leather(841 less 8413)	4693.3	54.1	39.7	8.3	8.8	20.9	0.5
Calf leather(6113)	...	...	...	...	...	...	...
LEATHER AND PRODUCTS							
Other leather, including artificial(611 less 6113)	965.7	23.5	56.1	11.3	12.8	9.8	0.0
Leather manufactures(612)	1156.6	8.5	25.9	1.9	7.3	16.4	0.2
Apparel and accessories of leather(8413)	252.7	22.1	77.5	22.7	10.5	41.2	0.0
Footwear(85)	1955.6	7.2	67.9	1.3	3.5	6.5	0.0
BUILDING MATERIALS AND GLASS							
Lime, cement, fabricated building materials(661)	1869.8	4.1	92.5	11.8	46.2	25.5	0.0
Construction and refractory materials of clay(662)	3371.3	2.2	95.3	1.0	20.6	68.9	0.0
Glass(664)	16740.8	11.9	80.7	21.2	32.2	24.0	0.3
Glassware and pottery(665/6)	10806.4	31.1	63.5	11.5	27.8	21.5	0.8

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Table A-4. Origin of imports by industry, 1982 (continued)

Description of traded goods (SITC)	World total (1000 US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
IRON AND STEEL							
Iron ore and concentrates(281)	...	...	...	...	...	...	...
Iron and steel scrap(282)	78622.8	13.5	33.1	9.1	10.0	1.0	2.1
Pig iron and sponge(671)	7309.3	54.4	41.6	0.8	3.4	9.1	0.0
Ingots and other primary forms(672)	129404.4	42.0	55.5	1.8	0.2	29.6	1.0
Bars, rods, shapes, sections(673)	85204.3	2.3	90.6	0.4	3.9	84.6	0.6
Universals, plates and sheets(674)	249344.8	5.8	92.9	2.2	8.7	80.3	1.1
Hoop and strip(675)	6941.6	9.3	89.5	0.4	8.4	76.9	0.0
Iron and steel wire(677)	9505.3	32.1	64.2	1.9	6.6	52.1	0.0
Tubes, pipes and fittings(678)	22530.0	2.1	97.3	2.7	7.0	85.5	0.0
Unworked castings and forgings(679)	18.0	0.0	100.0	72.5	27.5	0.0	0.0
NON-FERROUS METALS							
Non-ferrous ore and concentrates(283)	1225.5	44.9	55.1	0.0	3.1	4.9	0.0
Copper, blister, refined, alloys(6821)	10115.4	87.6	12.4	0.3	2.1	8.5	0.0
Copper bars, shapes, sections, wire, etc.(6822)	30398.6	5.8	83.8	1.5	3.2	74.8	0.0
Aluminium, unwrought or worked(684)	89455.1	16.3	83.2	11.3	11.9	6.3	0.3
Lead, unwrought or worked(685)	8452.4	12.7	75.4	5.4	1.1	0.6	0.0
Zinc, unwrought or worked(686)	28390.3	16.6	83.4	0.2	5.4	6.9	0.0
Tin and alloys, unwrought or worked(687)	182.3	0.5	99.5	27.6	51.2	16.7	0.0
Wire products, e.g. cables, ropes(693)	6160.5	35.5	54.2	5.4	12.5	34.0	0.0
SELECTED CAPITAL GOODS							
Hand tools used in agriculture(6951)	596.6	29.6	60.8	1.7	6.8	41.2	2.5
Tools for use in hand or machine(6952)	32848.0	20.7	73.4	10.7	17.5	32.5	1.8
Power generating machinery, non-electric(711)	151381.0	2.5	95.3	4.5	10.8	79.4	0.5
Agricultural machinery(7121/2)	5874.9	36.7	63.0	1.8	3.8	9.6	0.0
Dairy equipment(7123)	560.7	5.2	94.8	0.3	87.2	0.0	0.0
Tractors(7125)	60780.3	17.9	80.8	2.9	13.8	62.0	1.1
Office machines(714)	51024.2	12.5	86.2	22.6	22.3	33.4	0.9
Metal working machinery(715)	27320.0	4.8	70.1	2.5	20.7	39.5	5.7
Textile and leather machinery(717)	70245.9	5.5	82.9	2.8	25.7	49.6	0.8
Machines for paper, pulp and paper articles(7181)	20731.8	1.7	95.2	6.7	37.5	44.4	0.9
Industrial food-processing machinery(7183)	16859.9	2.6	90.0	5.9	59.5	13.8	0.0
Machine tools for working minerals,wood,etc.(7195)	10017.1	1.1	94.1	4.9	36.5	48.7	1.3
Electrical power machinery and switchgear(722)	308840.1	8.7	89.2	65.0	9.3	12.9	0.7
MAJOR CONSUMER DURABLES							
Commercial road vehicles(732 less 7321)	271438.3	0.4	99.4	3.3	7.0	88.4	0.0
Passenger motor cars(7321)	64470.9	0.4	99.5	0.2	26.3	69.8	0.0
Television and radio sets(7241/2)	27462.5	31.6	58.1	0.2	2.9	55.0	0.0
Domestic electrical equipment(725)	15783.0	18.6	76.9	9.9	13.9	50.0	0.3
TOTAL OF ABOVE	5747355	51.7	44.7	8.8	7.8	22.3	0.7
TOTAL OF ALL MERCHANDISE (SITC 0 to 9)	8526726	40.5	55.4	13.3	11.5	23.5	0.7

Source: Statistics and Survey Unit, UNIDO.Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas". Selection of products shown in this table was based on the definition of the manufacturing sector used for production statistics (i.e. the ISIC) and the associated raw material supplies. Thus, not all products are regarded as manufactures according to the conventional definitions of manufactured trade (e.g. SITC 5 to 8 less 68).

Table A-4. Destination of exports by industry, 1982

Description of traded goods (SITC)	World total (1000 US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
OILS AND FATS							
Animal oils and fats(411)	159.9	1.5	0.8	0.5	0.0	0.4	0.0
Fixed vegetable oils and fats(421/2)	12691.6	8.7	86.6	24.8	34.2	25.2	0.0
Processed animal and vegetable oils and fats(431)	514.4	82.0	3.8	0.0	0.0	3.8	0.0
CHEMICALS							
Organic chemicals(512)	14112.9	4.1	95.4	0.8	5.3	88.8	0.0
Inorganic chem., oxides and halogen salts(513/4)	3556.1	97.2	0.4	0.2	0.1	0.0	0.0
Dyeing, tanning and colouring materials(531)	372.5	83.5	16.5	0.0	10.7	5.5	0.0
Medicinal and pharmaceutical products(541)	11024.8	67.2	29.3	0.6	13.0	1.6	0.0
Plastics, cellulose and artificial resins(581)	10763.6	71.1	28.7	0.4	11.5	14.8	0.0
FERTILIZERS							
Nitrogenous fertilizers & related materials(5611)	228.9	100.0	0.0	0.0	0.0	0.0	0.0
Phosphatic fertilizers and related materials(5612)	32.1	100.0	0.0	0.0	0.0	0.0	0.0
Potassic fertilizers and related materials(5613)	20.8	100.0	0.0	0.0	0.0	0.0	0.0
PETROLEUM							
Petroleum, crude or partly refined(331)	95.4	0.0	100.0	0.0	100.0	0.0	0.0
Petroleum products(332)	1332.0	98.4	0.2	0.2	0.0	0.0	0.0
RUBBER							
Crude rubber, synthetic and reclaimed(231)	413213.5	24.6	71.2	9.0	2.6	58.8	2.9
Rubber materials, e.g.sheets, threads, piping(621)	3127.0	45.4	54.4	1.3	34.4	1.7	0.0
Articles of rubber, e.g. tyres, tubes(629)	21018.6	56.1	43.3	12.5	21.1	2.3	0.0
WOOD AND FURNITURE							
Wood, shaped or simply worked(243)	366.3	5.6	88.5	0.0	0.0	88.5	0.0
Pulp paper, including waste(251)	112.1	97.3	2.7	0.0	2.7	0.0	0.0
Veneers, plywood, improved wood(631)	14337.9	24.9	74.4	5.0	51.1	4.3	0.0
Wood manufactures(632)	43488.6	23.6	76.0	32.4	23.8	13.9	0.0
Paper and paperboard(641)	2833.8	84.6	8.0	0.8	3.9	0.4	0.0
Articles of pulp, paper or paperboard(642)	7312.6	92.6	7.1	2.3	1.7	0.5	0.3
Furniture(821)	35015.7	21.2	78.7	20.2	30.0	22.0	0.0
TEXTILES AND CLOTHING							
Wool and other animal hair(262)	...	...	...	...	...	...	...
Cotton(263)	27268.6	78.3	11.6	0.0	11.3	0.2	0.0
Jute(264)	1577.3	64.0	31.9	10.2	1.2	1.0	0.0
Vegetable fibres, flax and hemp(265)	10734.7	19.5	75.7	11.1	9.0	49.3	0.4
Synthetic and regenerated fibres(266)	8715.6	95.7	3.8	0.2	0.0	1.2	0.0
Textile yarn and thread(651)	67714.4	53.3	45.2	3.8	21.1	15.0	0.1
Woven cotton fabrics(652)	63746.8	22.9	76.6	16.2	46.9	4.7	0.1
Woven textile fabrics(653)	152593.1	45.3	54.6	7.2	28.7	14.1	0.0
Made-up articles chiefly of textiles(656)	35578.4	53.4	44.7	4.3	11.5	13.3	0.0
Travel bags, handbags, etc.(831)	20016.5	39.0	60.9	6.5	26.6	2.2	0.0
Clothing, excluding leather(841 less 8413)	358687.1	31.3	68.5	26.6	32.6	1.3	0.1
Calf leather(6113)	...	...	...	...	...	...	...
LEATHER AND PRODUCTS							
Other leather, including artificial(611 less 6113)	8763.1	64.5	35.1	5.1	22.7	1.3	0.0
Leather manufactures(612)	3369.4	9.7	90.3	4.2	55.5	0.1	0.0
Apparel and accessories of leather(8413)	12015.9	16.0	84.0	5.5	58.8	1.3	0.0
Footwear(85)	57606.0	55.9	44.0	31.2	11.1	0.2	0.0
BUILDING MATERIALS AND GLASS							
Lime, cement, fabricated building materials(661)	15614.2	99.4	0.1	0.0	0.1	0.0	0.0
Construction and refractory materials of clay(662)	10471.6	32.8	67.2	1.4	62.9	0.0	0.0
Glass(664)	3136.3	97.2	2.8	0.6	0.7	1.4	0.0
Glassware and pottery(665/6)	7644.7	51.7	48.1	22.3	8.3	4.1	0.0

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Table A-4. Destination of exports by industry, 1982 (continued)

Description of traded goods (SITC)	World total (1000 US $)	Developing countries	Developed market economies				Centrally planned economies
			Total	USA	EEC	Japan	
		(Percent of world total)					
IRON AND STEEL							
Iron ore and concentrates(281)	...	...	...	...	...	...	...
Iron and steel scrap(282)	8021.1	3.6	96.4	85.7	0.0	10.7	0.0
Pig iron and sponge(671)	...	...	...	...	...	...	...
Ingots and other primary forms(672)	...	...	...	...	...	...	...
Bars, rods, shapes, sections(673)	226.0	89.7	10.3	0.0	7.8	2.5	0.0
Universals, plates and sheets(674)	109.9	72.7	0.2	0.0	0.0	0.2	0.0
Hoop and strip(675)	...	...	...	...	...	...	...
Iron and steel wire(677)	1.3	100.0	0.0	0.0	0.0	0.0	0.0
Tubes, pipes and fittings(678)	23918.1	89.9	10.1	2.8	0.0	0.0	0.0
Unworked castings and forgings(679)	...	...	...	...	...	...	...
NON-FERROUS METALS							
Non-ferrous ore and concentrates(283)	29299.0	4.9	94.7	5.6	72.9	12.5	0.0
Copper, blister, refined, alloys(6821)	...	...	...	...	...	...	...
Copper bars, shapes, sections, wire, etc.(6822)	5.3	100.0	0.0	0.0	0.0	0.0	0.0
Aluminium, unwrought or worked(684)	2125.2	79.1	15.8	0.2	0.0	8.5	0.0
Lead, unwrought or worked(685)	4.2	79.5	20.5	0.0	20.5	0.0	0.0
Zinc, unwrought or worked(686)	796.1	97.6	2.4	0.0	0.0	2.4	0.0
Tin and alloys, unwrought or worked(687)	343049.1	2.9	97.1	36.8	43.9	16.5	0.0
Wire products, e.g. cables, ropes(693)	2276.5	79.2	20.8	0.4	3.0	0.0	0.0
SELECTED CAPITAL GOODS							
Hand tools used in agriculture(6951)	2288.1	98.1	1.9	0.1	0.1	0.0	0.0
Tools for use in hand or machine(6952)	1064.0	81.3	18.3	7.1	0.6	0.0	0.0
Power generating machinery, non-electric(711)	1472.8	59.3	40.7	1.4	0.8	38.1	0.0
Agricultural machinery(7121/2)	820.2	99.8	0.0	0.0	0.0	0.0	0.0
Dairy equipment(7123)	...	...	...	...	...	...	...
Tractors(7125)	395.5	85.7	14.3	14.1	0.0	0.2	0.0
Office machines(714)	448.9	93.8	6.2	0.7	3.6	1.1	0.0
Metal working machinery(715)	937.9	97.2	2.7	0.2	0.0	2.4	0.0
Textile and leather machinery(717)	1819.5	97.7	2.2	0.0	0.2	1.7	0.0
Machines for paper, pulp and paper articles(7181)	539.7	59.0	41.0	23.6	1.9	15.3	0.0
Industrial food-processing machinery(7183)	949.1	99.7	0.3	0.1	0.0	0.0	0.0
Machine tools for working minerals,wood,etc.(7195)	730.0	92.5	7.5	0.1	2.1	0.0	0.0
Electrical power machinery and switchgear(722)	296206.3	49.5	50.4	45.2	4.8	0.3	0.0
MAJOR CONSUMER DURABLES							
Commercial road vehicles(732 less 7321)	9103.9	71.3	28.6	11.3	8.7	5.2	0.0
Passenger motor cars(7321)	40.2	65.7	34.3	0.0	12.4	18.1	0.0
Television and radio sets(7241/2)	6258.2	48.9	39.3	0.0	37.6	0.0	11.8
Domestic electrical equipment(725)	1722.9	96.9	3.1	0.0	1.4	0.2	0.0
TOTAL OF ABOVE	2195614	33.3	65.4	21.9	22.1	17.8	0.6
TOTAL OF ALL MERCHANDISE (SITC 0 to 9)	6796609	41.0	54.8	13.0	23.8	13.9	3.0

Source: Statistics and Survey Unit, UNIDO.Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas". Selection of products shown in this table was based on the definition of the manufacturing sector used for production statistics (i.e. the ISIC) and the associated raw material supplies. Thus, not all products are regarded as manufactures according to the conventional definitions of manufactured trade (e.g. SITC 5 to 8 less 68).

Table A-5. Product mix of traded manufactured goods, 1970, 1980 and 1982[a/]

SITC	DESCRIPTION OF TRADE GOODS	EXPORTS 1970 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1980 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1982 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1982 (1000 US $)	IMPORTS 1970 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1980 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1982 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1982 (1000 US $)
01	Meat and meat preparations	0.004	0.857	1.345	58171	0.028	0.009	0.014	821
02	Dairy products and eggs	0.784	0.223	0.248	10709	1.860	0.979	1.236	70631
032	Fish n.e.s. and fish preparations	0.001	2.286	3.467	149969	0.206	0.036	0.043	2480
0422	Rice,glazed or polished not otherwise worked	43.228	24.665	22.447	970851	0.000	...	...	...
046	Meal and flour of wheat or of meslin	0.133	0.014	0.036	1558	0.118	0.036	0.050	2868
047	Meal and flour of cereals,except above	2.115	0.446	0.499	21587	0.003	0.001	0.019	1077
048	Cereals preparat. & starch of fruits & vegetab.	0.092	0.262	0.365	15792	0.560	0.365	0.407	23241
052	Dried fruit	0.330	0.003	0.004	171	0.012	0.013	0.011	622
053	Fruit,preserved and fruit preparations	0.958	2.321	2.395	103575	0.039	0.019	0.009	518
055	Vegetables,roots & tubers,preserved or prepared	4.024	1.874	2.142	92658	0.110	0.091	0.090	5123
06	Sugar,sugar preparations and honey	2.407	4.291	13.880	600304	0.034	1.069	0.009	542
0713	Coffee extracts,essences,concentrates & similar	...	0.000	0.003	149	0.110	0.020	0.021	1173
0722	Cocoa powder,unsweetened	...	...	...	...	0.018	0.026	0.013	744
0723	Cocoa butter and cocoa paste	...	...	...	...	0.002	0.001	0.001	84
073	Chocolate and related food preparations	...	0.001	0.004	152	0.031	0.016	0.021	1224
074	Tea and mate	0.021	0.012	0.013	574	0.130	0.014	0.016	918
081	Feeding-stuff for animals	2.229	2.045	1.598	69117	0.109	0.972	1.171	66958
09	Miscellaneous food preparations	0.171	0.229	0.496	21471	0.453	0.322	0.284	16244
11	Beverages	0.067	0.027	0.037	1581	0.086	0.312	0.454	25921
122	Tobacco manufactures	...	0.000	0.014	592	0.010	0.059	0.076	4347
2219	Flour and meal of oil seeds,nuts,kernels	0.000	...	0.000	4	0.001	0.000	0.000	1
231	Crude rubber,synth. & reclaimed(excl.SITC 2311)	0.311	0.024	0.013	556	0.138	0.188	0.222	12678
243	Wood,shaped or simply worked	2.451	0.010	0.008	366	0.112	0.684	1.033	59026
251	Pulp and waste paper	...	0.000	0.003	112	0.802	1.100	0.979	55966
2626	Wool shoddy	...	...	...	...	0.000	0.000	...	...
2627	Wool or other animal hair,carded or combed	...	...	...	...	...	0.000	0.000	4
2628	Wool tops	...	...	...	...	0.000	0.001	0.001	41
2629	Waste of wool and other animal hair n.e.s.	...	...	...	...	0.000	0.000	...	...
263	Cotton	0.299	0.438	0.630	27269	2.030	1.889	1.547	88448
266	Synthetic and regenerated(artificial) fibres	0.002	0.122	0.202	8716	0.496	0.371	0.709	40520
267	Waste materials from textile fabrics(incl.rags)	0.000	0.000	0.000	1	0.006	0.010	0.003	152
332	Petroleum products	0.726	0.107	0.031	1332	4.853	13.967	9.938	568054
4	Animal and vegetable oils and fats	0.237	0.290	0.309	13366	0.153	1.126	0.366	20928
411	Animal oils and fats	0.004	0.006	0.004	160	0.073	0.054	0.039	2224
421	Fixed vegetable oils,soft(incl.SITC 422)	0.218	0.180	0.293	12692	0.020	0.969	0.255	14556
431	Animal and vegetable oils and fats processed	0.014	0.103	0.012	514	0.060	0.104	0.073	4149

Table A-5. Product mix of traded manufactured goods, 1970, 1980 and 1982 (continued)

SITC	DESCRIPTION OF TRADE GOODS	EXPORTS 1970 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1980 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1982 PERCENT IN TOTAL MANUFACTURES	EXPORTS 1982 (1000 US $)	IMPORTS 1970 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1980 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1982 PERCENT IN TOTAL MANUFACTURES	IMPORTS 1982 (1000 US $)
5	Chemicals	0.579	1.232	1.312	56741	14.759	16.470	18.499	1057368
51	Chemicals elements and compounds	0.060	0.183	0.409	17669	2.507	5.557	5.734	327735
52	Tar and chemicals from coal,petroleum,nat. gas	...	...	...	...	0.011	0.068	0.138	7866
53	Dyeing,tanning and colouring materials	0.003	0.053	0.076	3268	1.804	1.414	1.547	88427
54	Medicinal and pharmaceutical products	0.194	0.426	0.255	11025	3.082	1.517	1.785	102037
55	Essential oils and perfume materials	0.054	0.126	0.183	7897	0.910	0.679	0.834	47684
56	Fertilizers,manufactured	0.004	0.009	0.008	332	1.675	2.150	2.552	145869
57	Explosives and pyrotechnic products	...	0.000	0.000	0	0.154	0.112	0.086	4916
58	Plastic materials,regenerated cellul. & resins	0.003	0.305	0.249	10764	2.590	2.499	3.191	182379
59	Chemical materials and products n.e.s.	0.262	0.131	0.134	5787	2.025	2.474	2.632	150454
6	Manufactured goods classified by material	37.213	36.834	26.025	1125609	26.826	20.508	22.772	1301612
61	Leather manufactured n.e.s. & dressed fur skins	0.182	0.300	0.281	12132	0.044	0.057	0.037	2137
62	Rubber manufactures n.e.s.	0.121	0.837	0.558	24146	0.908	0.469	0.580	33151
63	Wood and cork manufactures(excl.furniture)	0.629	1.743	1.337	57830	0.121	0.067	0.083	4728
64	Paper,paper board and manufactures thereof	0.114	0.288	0.235	10146	2.204	1.522	1.884	107669
65	Textile yarn,fabrics,made-up articles	3.019	8.634	7.971	344745	7.263	2.653	3.513	200794
66	Non-metallic mineral manufactures,n.e.s.	4.172	4.884	5.585	241568	1.668	2.166	2.172	124145
67	Iron and steel	0.679	1.303	0.561	24256	7.926	7.959	8.933	510574
68	Non-ferrous metals	27.892	17.462	8.438	364928	2.231	3.124	3.133	179098
69	Manufactures of metal,n.e.s.	0.404	1.385	1.060	45857	4.462	2.490	2.437	139315
7	Machinery and transport equipment	0.281	9.755	8.337	360558	40.574	35.675	35.285	2016840
71	Machinery,other than electric	0.119	0.720	0.685	29646	19.422	14.996	15.917	909765
72	Electrical machinery,apparatus and appliances	0.143	8.665	7.359	318287	9.235	10.340	11.041	631066
73	Transport equipment	0.020	0.370	0.292	12625	11.917	10.339	8.328	476009
8	Miscellaneous manufactured articles	1.336	11.630	14.137	611422	5.333	3.650	4.700	268629
81	Sanitary,plumbing,heating & lightning fixtures	0.019	0.080	0.126	5434	0.365	0.103	0.110	6297
82	Furniture	0.007	0.770	0.810	35016	0.145	0.046	0.063	3619
83	Travel goods,handbags and similar articles	0.014	0.364	0.463	20017	0.053	0.006	0.010	546
84	Clothing	0.314	6.979	8.571	370706	0.468	0.045	0.087	4957
85	Footwear	0.004	0.455	1.332	57606	0.132	0.010	0.034	1956
86	Professional,scient. & controll. instruments	0.302	0.574	0.544	23544	1.751	1.867	2.436	139245
89	Miscellaneous manufactured articles,n.e.s.	0.676	2.409	2.291	99099	2.419	1.571	1.960	112011

	1970	1980	1982		1970	1980	1982	
TOTAL MANUFACTURES	279908	3820283	4325034		1133499	6563218	5715806	
TOTAL: SITC 5-8 LESS 68 b/	32237	1604134	1789401		966417	4802933	4465351	
TOTAL TRADED GOODS: SITC 0-9	685159	6369127	6796609		1293416	9450277	8526726	

Note:Data and SITC descriptions refer to SITC revision 1

a/ This table is based on the definition of trade in manufactures covering a list of 148 specifically identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.

b/ Definition of trade in manufactures SITC 5-8 less 68 is one of the most often found. It covers only items recognized as exclusively manufactured goods,i.e. with a high level of manufacturing content.

Source: UNIDO data base;Information supplied by the United Nations Statistical Office.

Table A-6. Origin of manufactured imports by branch, 1982[a/]

SITC	DESCRIPTION OF TRADE GOODS	WORLD TOTAL (1000 US$)	DEVELOPING COUNTRIES (PERCENT)	DEVELOPED MARKET ECONOMIES TOTAL (PERCENT)	USA (PERCENT)	EEC (PERCENT)	JAPAN (PERCENT)	CENTRALLY PLANNED DEVELOPED COUNTRIES (PERCENT)
01	Meat and meat preparations	821	0.92	98.07	67.87	7.44	0.35	0.83
02	Dairy products and eggs	70631	0.03	99.92	0.57	44.33	6.29	0.00
032	Fish n.e.s. and fish preparations	2480	68.76	31.24	0.01	1.00	29.93	0.00
046	Meal and flour of wheat or of meslin	2868	0.73	99.27	8.20	0.02	82.48	0.00
047	Meal and flour of cereals,except above	1077	3.08	96.92	93.56	0.04	2.56	0.00
048	Cereals preparat. & starch of fruits & vegetab.	23241	26.81	72.81	1.50	59.55	0.34	0.38
052	Dried fruit	622	57.13	42.87	42.81	0.00	0.00	0.00
053	Fruit,preserved and fruit preparations	518	41.19	51.45	36.79	3.71	0.41	0.00
055	Vegetables,roots & tubers,preserved or prepared	5123	36.94	23.10	1.24	18.70	2.81	0.00
06	Sugar,sugar preparations and honey	542	11.77	88.20	17.51	34.02	16.32	0.00
0713	Coffee extracts,essences,concentrates & similar	1173	0.42	99.58	56.56	35.68	0.51	0.00
0722	Cocoa powder,unsweetened	744	52.36	45.50	12.90	32.54	0.00	0.00
0723	Cocoa butter and cocoa paste	84	94.27	5.73	3.31	1.12	0.00	0.00
073	Chocolate and related food preparations	1224	40.49	59.51	2.85	20.90	24.93	0.00
074	Tea and mate	918	71.81	0.75	0.00	0.59	0.16	0.00
081	Feeding-stuff for animals	66958	79.47	19.17	5.34	7.41	3.98	0.48
09	Miscellaneous food preparations	16244	10.61	89.37	60.29	8.95	11.62	0.00
11	Beverages	25921	3.47	96.37	2.00	91.96	0.82	0.01
122	Tobacco manufactures	4347	24.90	75.10	43.51	29.05	1.53	0.00
2219	Flour and meal of oil seeds,nuts,kernels	1	100.01	.0.00	0.00	0.00	0.00	0.00
231	Crude rubber,synth. & reclaimed(excl.SITC 2311)	12678	7.04	75.54	12.21	23.12	39.68	0.83
243	Wood,shaped or simply worked	59026	98.75	0.82	0.04	0.76	0.00	0.00
251	Pulp and waste paper	55966	13.45	81.33	46.37	0.29	2.56	0.75
2627	Wool or other animal hair,carded or combed	4	16.51	83.49	0.00	6.55	0.00	0.00
2628	Wool tops	41	0.00	100.00	3.95	0.00	0.00	0.00
263	Cotton	88448	30.11	69.65	68.55	0.24	0.00	0.23
266	Synthetic and regenerated(artificial) fibres	40520	10.64	63.98	13.06	0.86	33.06	0.00
267	Waste materials from textile fabrics(incl.rags)	152	46.40	51.01	24.00	0.02	26.80	0.00
332	Petroleum products	568054	90.88	7.76	2.24	1.49	0.77	0.01
4	Animal and vegetable oils and fats	20928	68.59	30.98	7.57	4.36	7.96	0.00
411	Animal oils and fats	2224	0.35	99.65	1.44	4.45	2.79	0.00
421	Fixed vegetable oils,soft(incl.SITC 422)	14556	86.72	13.28	8.37	0.44	4.14	0.00
431	Animal and vegetable oils and fats processed	4149	41.55	56.29	8.02	18.09	24.14	0.00

Table A-6. Origin of manufactured imports by branch, 1982 (continued)

SITC	DESCRIPTION OF TRADE GOODS	WORLD TOTAL (1000 US$)	DEVELOPING COUNTRIES (PERCENT)	DEVELOPED MARKET ECONOMIES TOTAL (PERCENT)	USA (PERCENT)	EEC (PERCENT)	JAPAN (PERCENT)	CENTRALLY PLANNED DEVELOPED COUNTRIES (PERCENT)
5	Chemicals	1057368	13.78	80.36	17.11	27.95	24.74	3.07
51	Chemicals elements and compounds	327735	16.68	77.52	15.38	22.61	35.16	3.22
52	Tar and chemicals from coal,petroleum,nat. gas	7866	0.04	99.96	94.39	3.82	1.71	0.00
53	Dyeing,tanning and colouring materials	88427	10.82	86.18	9.97	32.06	29.62	0.85
54	Medicinal and pharmaceutical products	102037	15.36	80.76	12.81	40.36	5.56	1.00
55	Essential oils and perfume materials	47684	23.13	76.08	15.36	31.11	19.82	0.09
56	Fertilizers,manufactured	145869	22.51	67.40	8.38	31.63	19.43	10.09
57	Explosives and pyrotechnic products	4916	36.08	57.21	9.77	19.79	2.41	3.46
58	Plastic materials,regenerated cellul. & resins	182379	5.11	88.34	22.65	23.78	26.36	1.94
59	Chemical materials and products n.e.s.	150454	7.19	86.79	26.51	30.75	18.66	1.14
6	Manufactured goods classified by material	1301612	20.31	73.50	5.45	9.68	42.19	0.73
61	Leather manufactured n.e.s. & dressed fur skins	2137	15.20	40.09	6.13	9.72	13.27	0.09
62	Rubber manufactures n.e.s.	33151	9.90	78.76	13.56	21.69	40.17	0.52
63	Wood and cork manufactures(excl.furniture)	4728	33.60	55.67	7.24	21.65	5.18	0.63
64	Paper,paper board and manufactures thereof	107669	5.70	91.70	4.17	15.83	22.53	0.27
65	Textile yarn,fabrics,made-up articles	200794	39.02	41.13	2.90	3.65	32.68	0.99
66	Non-metallic mineral manufactures,n.e.s.	124145	30.62	63.78	12.73	19.65	12.73	0.70
67	Iron and steel	510574	15.44	81.91	1.78	5.52	66.75	0.90
68	Non-ferrous metals	179098	18.75	78.62	6.43	8.15	20.69	0.20
69	Manufactures of metal,n.e.s.	139315	17.37	77.22	13.81	18.69	37.18	0.83
7	Machinery and transport equipment	2016840	6.06	89.92	21.33	16.30	48.89	0.56
71	Machinery,other than electric	909705	6.22	88.77	13.77	21.15	49.38	0.77
72	Electrical machinery,apparatus and appliances	631066	9.26	86.19	38.30	11.27	33.21	0.49
73	Transport equipment	476009	1.50	97.07	13.27	13.69	68.73	0.24
8	Miscellaneous manufactured articles	268629	14.53	78.49	18.51	17.17	32.10	0.72
81	Sanitary,plumbing,heating & lightning fixtures	6297	23.12	75.96	15.54	39.38	12.46	0.24
82	Furniture	3619	6.52	89.97	22.96	23.09	39.22	0.46
83	Travel goods,handbags and similar articles	546	24.68	67.34	10.64	13.50	40.12	0.12
84	Clothing	4957	52.33	41.71	9.10	8.91	21.94	0.46
85	Footwear	1956	7.23	67.94	1.30	3.51	6.53	0.00
86	Professional,scient. & controll. instruments	139245	10.46	83.11	21.26	18.79	28.20	0.77
89	Miscellaneous manufactured articles,n.e.s.	112011	17.77	74.38	15.87	14.34	38.82	0.71
	TOTAL manufactures	5715806	22.20	73.09	15.03	15.55	33.63	0.99
	TOTAL: SITC 5-8 LESS 68 b/	4465351	12.04	82.63	16.13	17.51	41.34	1.23
	TOTAL traded goods: SITC 0-9	8526726	40.48	55.36	13.33	11.52	23.47	0.70

Note:Data and SITC descriptions refer to SITC revision 1

a/ This table is based on the definition of trade in manufactures covering a list of 148 specifically identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.

b/ Definition of trade in manufactures SITC 5-8 less 68 is one of the most often found. It covers only items recognized as exclusively manufactured goods, i.e. with a high level of manufacturing content.

Source: UNIDO data base;Information supplied by the United Nations Statistical Office.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas".

Table A-7. Destination of manufactured exports by branch, 1982[a/]

SITC	DESCRIPTION OF TRADE GOODS	WORLD TOTAL (1000 US$)	DEVELOPING COUNTRIES (PERCENT)	DEVELOPED MARKET ECONOMIES TOTAL (PERCENT)	USA (PERCENT)	EEC (PERCENT)	JAPAN (PERCENT)	CENTRALLY PLANNED DEVELOPED COUNTRIES (PERCENT)
01	Meat and meat preparations	58171	4.26	95.73	0.05	0.02	95.33	0.00
02	Dairy products and eggs	10709	95.90	1.36	1.27	0.02	0.00	0.00
032	Fish n.e.s. and fish preparations	149969	13.86	86.06	30.47	34.53	4.51	0.02
0422	Rice,glazed or polished not otherwise worked	970851	92.27	5.86	0.74	1.92	1.02	1.53
046	Meal and flour of wheat or of meslin	1558	96.82	3.18	2.10	0.35	0.00	0.00
047	Meal and flour of cereals,except above	21587	86.88	10.84	2.20	0.66	7.05	0.00
048	Cereals preparat. & starch of fruits & vegetab.	15792	37.59	62.37	20.90	16.10	20.03	0.00
052	Dried fruit	171	74.28	25.72	3.95	20.81	0.96	0.00
053	Fruit,preserved and fruit preparations	103575	8.62	90.91	42.73	28.60	9.91	0.42
055	Vegetables,roots & tubers,preserved or prepared	92658	32.09	43.07	8.26	7.77	25.46	10.92
06	Sugar,sugar preparations and honey	600304	41.26	34.23	15.04	0.96	17.37	24.44
0713	Coffee extracts,essences,concentrates & similar	149	3.76	96.24	0.00	95.82	0.00	0.00
073	Chocolate and related food preparations	152	97.27	2.73	2.63	0.00	0.00	0.00
074	Tea and mate	574	93.57	6.26	6.04	0.05	0.00	0.00
081	Feeding-stuff for animals	69117	60.71	34.08	3.02	10.83	5.03	0.00
09	Miscellaneous food preparations	21471	29.13	70.65	50.12	11.53	1.79	0.04
11	Beverages	1581	10.39	89.61	56.22	1.31	31.45	0.00
122	Tobacco manufactures	592	100.00	0.00	0.00	0.00	0.00	0.00
2219	Flour and meal of oil seeds,nuts,kernels	4	100.00	0.00	0.00	0.00	0.00	0.00
231	Crude rubber,synth. & reclaimed(excl.SITC 2311)	556	42.79	53.05	0.00	1.05	0.81	0.00
243	Wood,shaped or simply worked	366	5.56	88.51	0.00	0.00	88.51	0.00
251	Pulp and waste paper	112	97.30	2.70	0.00	2.70	0.00	0.00
263	Cotton	27269	78.31	11.59	0.00	11.26	0.18	0.00
266	Synthetic and regenerated(artificial) fibres	8716	95.70	3.79	0.17	0.00	1.20	0.00
267	Waste materials from textile fabrics(incl.rags)	1	84.62	15.37	0.00	0.00	15.37	0.00
332	Petroleum products	1332	98.44	0.22	0.20	0.00	0.03	0.00
4	Animal and vegetable oils and fats	13366	11.46	82.41	23.53	32.47	24.06	0.00
411	Animal oils and fats	160	1.52	0.83	0.47	0.00	0.35	0.00
421	Fixed vegetable oils,soft(incl.SITC 422)	12692	8.72	86.62	24.77	34.20	25.18	0.00
431	Animal and vegetable oils and fats processed	514	82.00	3.82	0.00	0.00	3.82	0.00

Table A-7. Destination of manufactured exports by branch, 1982 (continued)

SITC	DESCRIPTION OF TRADE GOODS	WORLD TOTAL (1000 US$)	DEVELOPING COUNTRIES (PERCENT)	DEVELOPED MARKET ECONOMIES TOTAL (PERCENT)	USA (PERCENT)	EEC (PERCENT)	JAPAN (PERCENT)	CENTRALLY PLANNED DEVELOPED COUNTRIES (PERCENT)
5	Chemicals	56741	58.87	38.27	1.64	6.85	25.92	0.17
51	Chemicals elements and compounds	17669	22.82	76.27	0.66	4.21	70.93	0.01
53	Dyeing,tanning and colouring materials	3268	93.78	5.10	1.10	1.22	2.75	0.00
54	Medicinal and pharmaceutical products	11025	67.22	29.29	0.62	13.05	1.55	0.00
55	Essential oils and perfume materials	7897	92.84	6.86	4.19	0.69	0.10	0.00
56	Fertilizers,manufactured	332	98.18	1.82	0.00	1.82	0.00	0.00
57	Explosives and pyrotechnic products	0	0.00	100.00	0.00	100.00	0.00	0.00
58	Plastic materials,regenerated cellul. & resins	10764	71.06	28.67	0.44	11.52	14.77	0.00
59	Chemical materials and products n.e.s.	5787	62.01	20.86	5.76	6.28	5.47	1.64
6	Manufactured goods classified by material	1125609	28.61	71.06	20.00	29.36	14.01	0.02
61	Leather manufactured n.e.s. & dressed fur skins	12132	49.27	50.40	4.83	31.79	0.97	0.00
62	Rubber manufactures n.e.s.	24146	54.75	44.76	11.04	22.79	2.24	0.00
63	Wood and cork manufactures(excl.furniture)	57830	23.92	75.57	25.60	30.57	11.48	0.00
64	Paper,paper board and manufactures thereof	10146	90.36	7.32	1.91	2.28	0.46	0.21
65	Textile yarn,fabrics,made-up articles	344745	43.41	55.84	8.69	28.32	11.98	0.05
66	Non-metallic mineral manufactures,n.e.s.	241568	27.63	72.31	13.02	18.74	21.45	0.01
67	Iron and steel	24256	89.86	10.02	2.81	0.09	0.03	0.00
68	Non-ferrous metals	364928	3.48	96.47	38.40	42.31	15.53	0.01
69	Manufactures of metal,n.e.s.	45857	63.06	36.79	10.08	12.73	1.24	0.00
7	Machinery and transport equipment	360558	53.83	45.84	38.02	5.13	1.81	0.21
71	Machinery,other than electric	29646	83.91	15.81	1.05	0.92	9.10	0.00
72	Electrical machinery,apparatus and appliances	318287	50.07	49.59	42.62	5.45	1.05	0.23
73	Transport equipment	12625	77.95	21.96	8.90	6.71	3.81	0.00
8	Miscellaneous manufactured articles	611422	32.10	67.67	25.51	29.72	3.44	0.10
81	Sanitary,plumbing,heating & lightning fixtures	5434	58.40	37.42	16.39	9.28	0.29	0.00
82	Furniture	35016	21.22	78.70	20.24	30.04	22.01	0.00
83	Travel goods,handbags and similar articles	20017	39.00	60.94	6.45	26.58	2.17	0.02
84	Clothing	370706	30.81	69.00	25.87	33.48	1.27	0.13
85	Footwear	57606	55.96	44.03	31.16	11.14	0.16	0.00
86	Professional,scient. & controll. instruments	23544	45.35	54.62	3.79	13.71	10.23	0.01
89	Miscellaneous manufactured articles,n.e.s.	99099	20.91	78.68	32.26	31.93	5.73	0.13
	TOTAL manufactures	4325034	47.87	47.39	17.00	15.44	9.78	4.02
	TOTAL: SITC 5-8 LESS 68 [b]	1789401	40.97	58.60	21.18	21.24	8.01	0.09
	TOTAL traded goods: SITC 0-9	6796609	40.95	54.76	13.04	23.80	13.90	3.02

Note:Data and SITC descriptions refer to SITC revision 1

[a] This table is based on the definition of trade in manufactures covering a list of 148 specifically identified SITC 3-digit or 4-digit codes comprising a wide range of processing stages of manufactured goods.

[b] Definition of trade in manufactures SITC 5-8 less 68 is one of the most often found. It covers only items recognized as exclusively manufactured goods,i.e. with a high level of manufacturing content.

Source: UNIDO data base;Information supplied by the United Nations Statistical Office.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas".

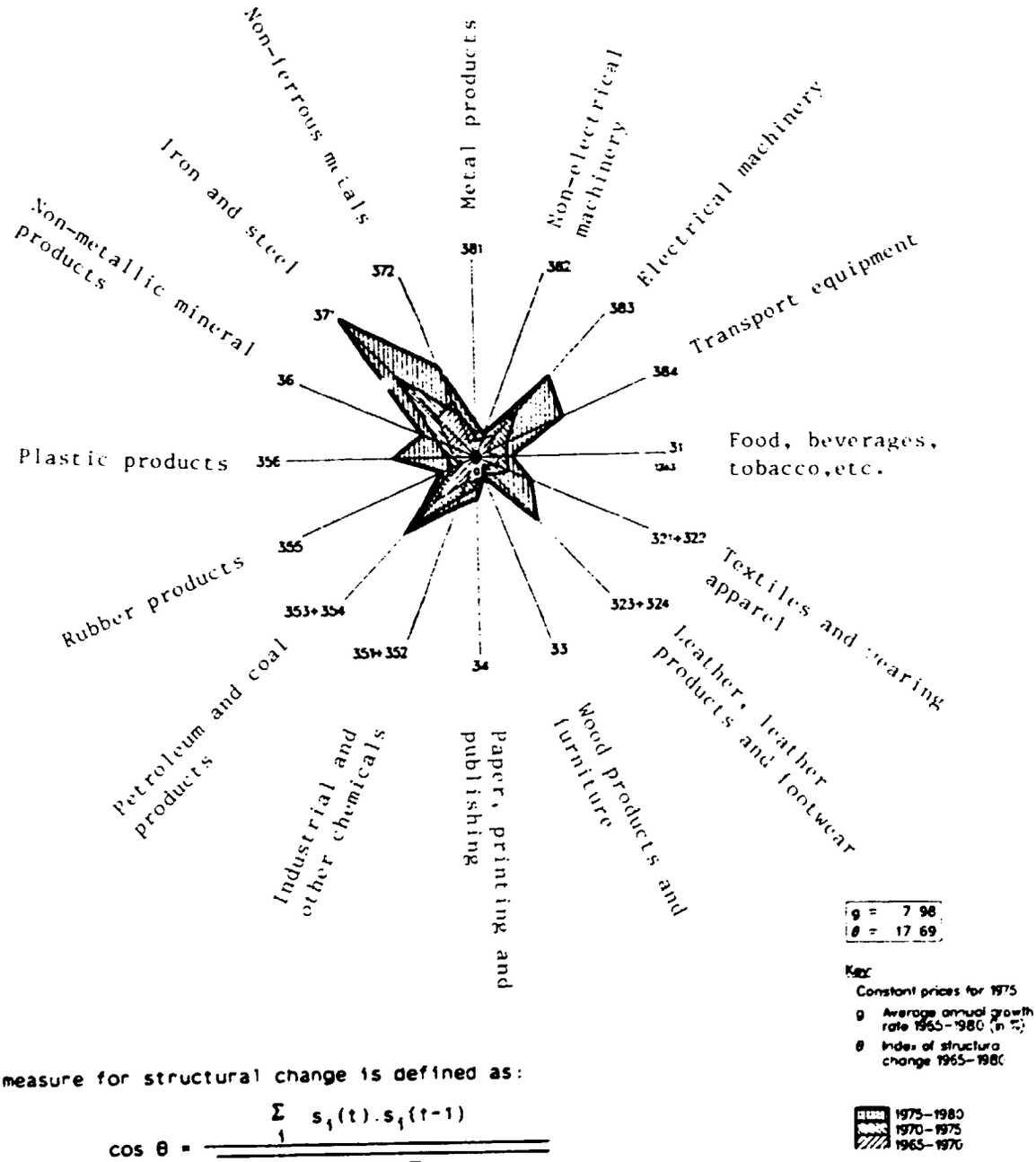
Table A-8. Shares of exports and imports classified according to level of processing, 1970 and 1982, and trend growth rates, 1970-1975 and 1975-1982

CLASSES	EXPORTS				IMPORTS			
	CLASS SHARE OF TOTAL (PERCENTAGE)		CLASS GROWTH RATE (PERCENTAGE)		CLASS SHARE OF TOTAL (PERCENTAGE)		CLASS GROWTH RATE (PERCENTAGE)	
	1970	1982	1970-1975	1975-1982	1970	1982	1970-1975	1975-1982
A : Non-processed goods for further processing	52.48	32.12	24.35	15.04	6.32	28.67	56.42	22.78
B : Processed goods for further processing	17.45	21.04	41.63	13.46	18.17	15.10	24.29	15.93
C : Non-processed goods for final use	5.05	7.42	32.17	20.65	0.32	1.72	14.34	53.50
D : Processed goods for final use	25.02	39.41	34.05	25.36	75.18	54.51	19.47	17.08
Sum of classes: A+B+C+D in 1000 current US$	1970 685159		1982 6758848		1970 1293416		1982 8500468	
Total trade SITC 0-9 in 1000 current US$	685159		6796609		1293416		8526726	

SOURCE: UNIDO data base: Information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

Note: Calculations are based on current us dollar prices.
Sum of classes and Total trade figures should be identical. Discrepancies or zero values are due to lack of countrys' trade reporting in general, but especially at the 3-, 4- and 5-digit SITC level.

Table A-9. INDUSTRIAL STRUCTURAL CHANGE, 1965-80
(Index of value added: 1965=100)



The measure for structural change is defined as:

$$\cos\theta = \frac{\sum_{i} s_i(t).s_i(t-1)}{\sqrt{\left(\sum_{i} s_i(t)^2\right).\left(\sum_{i} s_i(t-1)^2\right)}}$$

where $s_i(t)$ is the share of the i-th branch of value added in total value added in the year t.

The value θ can be interpreted as the angle between the two vectors $s_i(t-1)$ and $s_i(t)$ measured in degrees.

The theoretical maximum value of θ is 90 degrees.

Source: UNIDO, Industry and Development, Global Report, 1985.

ANNEX A

LIST OF PRE-FEASIBILITY STUDY REPORTS AND INVESTMENT OPPORTUNITY SURVEYS WITH THE BOARD OF INVESTMENT

I. 1977 - PRE-FEASIBILITY SUTDIES

1. Leather finishing
2. Maize oil and feed
3. Mushroom industry
4. Papaya, papain and puree
5. Pork products
6. Rabbit production
7. Gelatin made from bone
8. Motor vehicle transmission assembly
9. Rubber and plastic-moided sterilized, disposable medical devices
10. X-Ray film

INVESTMENT OPPORTUNITY SURVEYS

11. Downstream utilization of barite
12. Downstream utilization of Thai fluorite

II. 1978 - PRE-FEASIBILITY STUDIES

1. Coated abrasive
2. Fire extinguisher
3. Fruit juice
4. High pressure rubber hose
5. Locks and padlocks
6. Mold for plastic products
7. Sewing machine
8. Sisal fibre for export
9. Soy bean products

III. 1979 -- INVESTMENT OPPORTUNITY SURVEYS

1. Agro-industry, for exports
   - 1.1 Tropical fruits for exports
   - 1.2 Vermicelli (bean and rice)
   - 1.3 Seed hybrid-multiplication
   - 1.4 Fish culture of sand goby

2. Chemicals from primary raw materials
   - 2.1 Nitric acid
   - 2.2 Sodium sulphate acid (salt cake and glauber's salt)
   - 2.3 Sodium silicate (water glass)

3. Machinery and metal engineering
   - 3.1 Agricultural hand tools
   - 3.2 Textile machinery and parts
   - 3.3 Non-electric typewriters
   - 3.4 Measuring instruments, e.g., gauges for pressure and volume

4. Electrical machinery/appliance
   - 4.1 Fuses
   - 4.2 Switches, relays and circuit breakers
   - 4.3 Electric machines for welding and cutting
   - 4.4 Wire harnesses

5. Export-oriented manufacturing industry
   - 5.1 Flours based confectionary products
   - 5.2 Bristle and brushes
   - 5.3 Destrose
   - 5.4 Toys

IV. 1980 - PRE-FEASIBILITY STUDY REPORTS

1. Mecromotors
2. Cassette-tape mechanisms
3. Tantalum capacitors
4. Acetic acid
5. Rubber cement
6. Surgical gloves (soft vulcanized rubber)
7. Camshafts
8. Cylinder heads and disc brake
9. Master cylinder for brake and clutch

V. 1981 - PRE-FEASIBILITY STUDY REPORTS

1. Industrial potential of three regions of Thailand
   - 1.1 Northern
   - 1.2 Northeastern
   - 1.3 Southern

2. Development of electronics parts/components and appliances

3. Animal feeds

4. Production of machinery/equipment and chemical for spinning, weaving and textile products industries
   - 4.1 Polyvinyl alcohol
   - 4.2 Hydrogen peroxide
   - 4.3 Status of the textile industry in Thailand

VI. 1982 - PRE-FEASIBILITY STUDY REPORTS

1. Processing of agricultural products
   - activated carbon

2. Integrated project for production of fluorite-based products
   - 2.1 Hydrofluoric acid (HF)
   - 2.2 Chlorofluorocarbons (CFCs)

3. Production of agricultural machinery and appliances
   - 3.1 Seed drills
   - 3.2 Mistblowers

4. Production of dairy products

VII. STUDIES UNDERTAKEN IN 1983

1. Ball bearings
2. Ceramic colours, pottery glazes and enamel frite
3. Pharmaceutical industry
4. Mineral resources industry

Source: Board of Investment.

ANNEX B

RECENT TRENDS IN INVESTMENT PROMOTION IN THAILAND

Thailand's investment promotion legislation dates back to 1954 and the Board of Investment (BOI), which was created in 1960, is the main body responsible for the administration of investment incentives. However, some responsibilities are vested in the Ministries of Finance, Industry and Commerce. The current Investment Promotion Act was enacted in 1977.

1. The Investment Promotion Act

The current list of activities eligible for investment promotion includes around one hundred individual product groups in agriculture, livestock, fishing, mining, manufacturing and service sectors. Manufacturing is broken down into four subsectors:

- minerals, metals and ceramics;
- chemicals and chemical products;
- mechanical and electrical equipment;
- other manufactured products.

Investment promotion measures, according to the Act, consist of various types of guarantees, special permissions, and incentives on income tax, import taxes on raw materials and machinery, and protective measures in the form of temporary import surcharge on imports which are competitive with the promoted products. The Investment Promotion Act is applied to domestic as well as foreign investment. In practice foreign investment has been subject to a few extra conditions.

A. Guarantees

- Against nationalization (Section 43);
- Against competition of new state enterprises (Section 44);
- Against state monopolization of the sale of products similar to those produced by promoted persons (Section 45);
- Against price controls (Section 46);

- Permission to export (Section 47);

- Against imports by government agencies or state enterprises with taxes excepted (Section 48).

The BOI always issues guarantees against nationalization, new state competition, procurement restrictions favouring existing state competitors if any, unjustified price controls and duty free government import of competing goods.

The chairman of the BOI is empowered to order any state agency or enterprise to remove obstacles and render assistance to promoted projects.

B. Special permissions

- To bring in foreign nationals to undertake investment feasibility studies (Section 24);

- To bring in foreign technicians and experts to work under promoted projects (Section 25 and 26);

- To own land for carrying out promoted activities (Section 27);

- To take or remit abroad foreign currency (Section 37).

Promoted persons are permitted to bring skilled workers or experts (aliens) into Thailand in such numbers and for such periods of time as may be authorized by the BOI.

The BOI can also grant permission for foreign ownership of land.

Foreign exchange controls are seldom exercised in Thailand, but BOI promotion provides extra protection against possible constraints on the remittance of interest and profits or the repatriation of capital.

C. Tax incentives

- Exemption or 50 per cent reductions of import duties and business taxes on imported machinery (Section 28 and 29);

- Reduction of import duties and business taxes of up to 90 per cent on imported raw materials and components (Section 30);

- Exemption of corporate income taxes from 3 to 8 years with permission to carry forward losses and deduct them as expenses for up to 5 years (Section 31 and 32);

- Exemption of up to 5 years on withholding tax on goodwill, royalties or fees remitted abroad (Section 33);

- Exclusion from taxable income of dividends derived from promoted enterprises during the income tax holiday (Section 34).

The main taxes affecting industry are the gross receipts sales tax, commonly referred to as the business tax, customs duties and the corporate income tax. All of these taxes are often reduced or exempted for promoted firms.

The business tax is levied at different rates on different goods, and normally includes a 10 per cent municipal surcharge. The tax is paid monthly as a percentage of a company's gross sales. On most items the rates, plus the surcharge, start at 1.65 per cent and rise to 7.7 per cent. On some luxury items, however the rates are higher. The rates on electric fans, for instance, are 16.5 per cent and increase to 22 per cent on such energy eaters as air conditioners.

Customs duties are waived or refunded for imported raw materials of exported products. Taxes on imports can be divided into two interrelated parts: tariffs and the business tax, which is charged on imports as well as domestically produced goods.

Tariffs are charged on the CIF price. A rate of standard profit, which is not a tax but rather functions as the profit margin when figuring the business tax, is calculated on this sum. The rate varies but is usually about 15 per cent. After the rate of standard profit is added to the CIF price and customs duty, the business tax is calculated on the resulting figure.

The standard company income tax rate is 40 per cent on net profits, but companies listed on the Securities Exchange of Thailand pay a reduced rate of 30 per cent. This policy is intended to promote the exchange as a means of broadening the ownership base of Thai corporations while mobilizing domestic capital.

D. Protection measures

- Imposition of surcharge on foreign products at a rate not exceeding 50 per cent of the CIF value for a period not more than a year at a time (Section 49);

- Import ban on competitive products (Section 50);

- Authority measures for the benefit of promoted projects (Section 51 and 52).

Import surcharge

The Investment Promotion Act allows the BOI to impose temporary surchage on imports, in addition to import taxes. The surcharge has been used mostly on intermediate products. The objective is to provide more protection for the domestic products, or to prevent dumping. However, the result of the use of import surcharge is regarded as having confused the structure of protection in such a way that it has become very difficult to understand what industries are given priorities according to the protection policies. (In 1980 there were about 20 products and product groups, which were subject to import surcharge ranging from 10 to 40 per cent of prices cif.)

Import control

The control in 1981 included total import ban on 18 items and permission to import for about 30 items. Import control is imposed and administered by the Ministry of Commerce. There are several reasons which may prompt the MOC to impose import control including alleged dumping by foreign producers.

E. Additional promotional incentives

In addition to investment promotion in general, the BOI has a special investment promotion scheme (by providing more incentives than general cases) for industries of high priority according to the government policies. These are export industries and industries in rural areas. As of December 1982, out of the total promoted firms of 1,119, there were 185 firms located in the Central Region but outside the Greater Bangkok Area, only 163 promoted firms in all other regions of the country, i.e. 771 were located in the Greater Bangkok area or 69 per cent.

For export enterprises

- Exemption of import duties and business taxes on imported raw materials and components and exemption from business taxes on the purchase of domestic raw materials (Section 36(1);

- Exemption of import duties and business taxes on re-export items (Section 36(2);

- Exemption of export duties and business taxes (Section 36(3);

- Allowance to deduct from the taxable corporate income the amount equivalent to 5 per cent or an increase in income derived from export over the previous years, excluding costs of insurance and transportation (Section 36(4).

For enterprises in the Investment Promotion Zones

- Maximum reduction of 90 per cent of business tax on the sales of products for a period up to 5 years (Section 35(1)).

Promotion of manufactured exports

Several policy measures have been applied to promote manufactured exports.

Promoted firms which are set up to produce manufactured exports are given more incentives than promoted firms in general. That is, they are allowed full exemption from import taxes on machinery and raw materials, and from business tax (if it exists).

Promoted projects which have a majority of foreign equity receive tax incentives if they export half or more of their output.

The tax rebate and tax refund provided by the Ministry of Finance are measures designed to promote manufactured exports. The Fiscal Policy Office sets tax rebate rates. The rates are ad valorem rates, which approximate the amount of taxes and fees which are part of the cost of production, i.e. excise tax, import tariff, business and municipal taxes and other fees which are part of the cost of raw materials, machinery, fuel and electricity (excluding income taxes and royalty). The tax rebate is administered by the Customs Department in the form of a tax coupon. This system was introduced in November 1981 and the rebate rates are announced in advance.

However, this tax rebate and tax exemption scheme was not effective enough in helping exports. Only part of the higher cost could be met by exemption and rebates, which also took an unnecessarily long time to obtain.

Moreover, the system of business tax, which taxes production at each stage (and which taxes manufacturing and sub-contracting differently) has provided more incentives to domestic sales than to exports.

Apart from the export promotion measures described above the government has constructed an Export Processing Zone, which is a part of the Lard Krabang Industrial Estate, and provides bonded manufacturing warehouse facilities to firms producing goods for export.

Promotion of industries in rural areas

Four areas have been designated as promoted areas. Besides these areas all industrial estates are also included as promoted areas. Promoted firms located in these areas are given more incentives than promoted firms in general. The government is implementing an industrial estate scheme and it also promotes private industrial estates of which there are now two located at Bangpoo and Nawanakorn, both close to Bangkok.

On top of the tax incentives provided by the BOI there are also credit assistance and lower levels of minimum wages provided to firms located in the promoted areas.

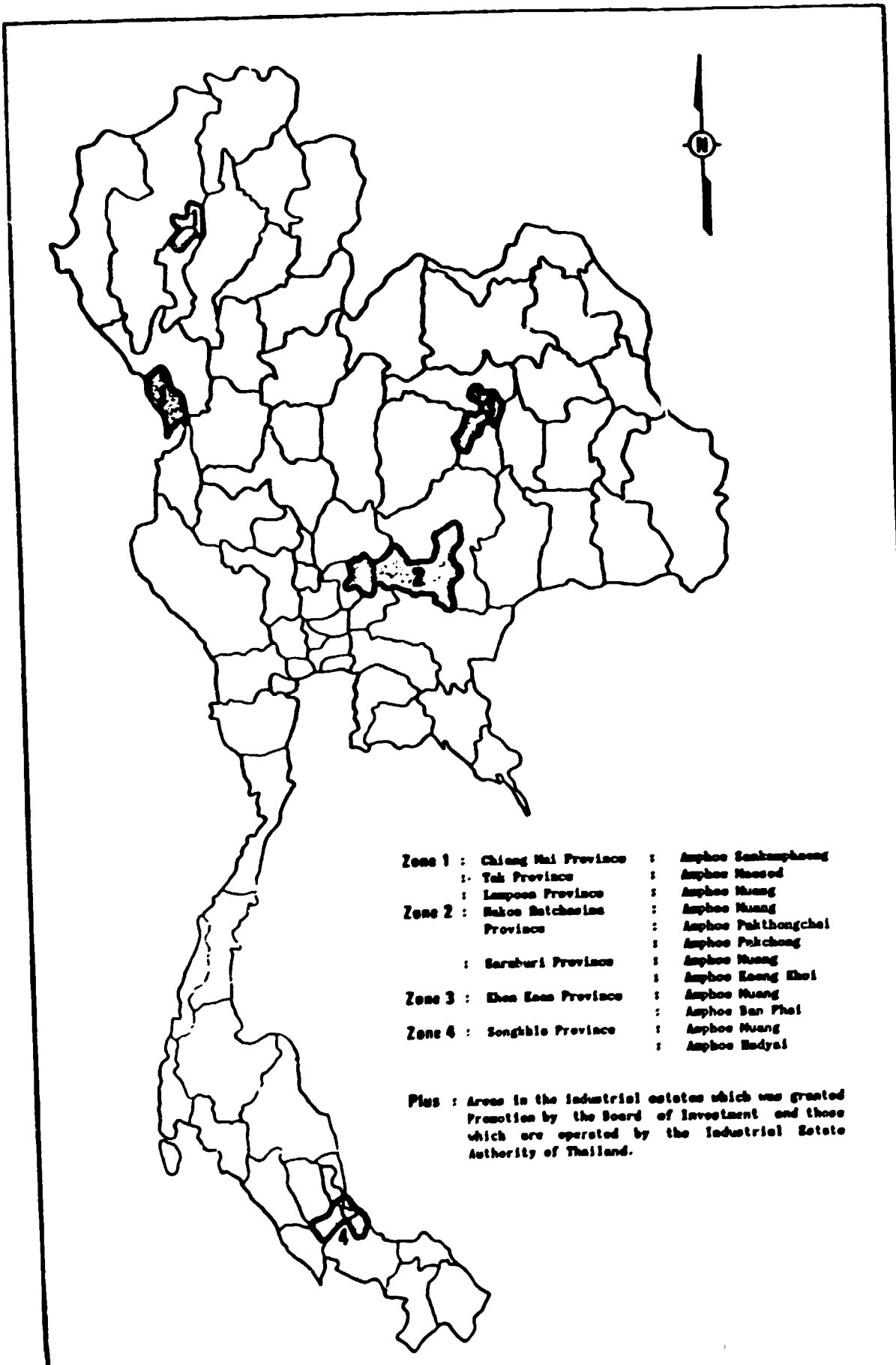
Credit assistance is provided through three sources: the Bank of Thailand, IFCT, and SIFO. The Bank of Thailand has provided fund to the IFCT to lend to rural industries and agro-based industries. The IFCT also gives higher priority to rural industries than industries in the Greater Bangkok Area. As for agro-industries (which are mostly in rural areas) the IFCT used to charge interest rate lower than other industries. SIFO charges interest rate of 14 per cent a year for small industries in all areas of the country.

2. Investment promotion overseas

The Government is looking toward foreign investment as a means of transforming the economic structure of the country to give industry a much larger role in producing for the domestic market, as well as the international market, and to earn foreign exchange. With very few exceptions, manufacturing industries are open to foreign firms whether or not they are promoted by the BOI. In the past the efforts by the BOI to attract foreign investors to invest in Thailand were mostly in the form of answering enquiries and providing services. Since then because of the increasing competition for foreign investors in each country, it was felt necessary to adopt a more active promotion policy. Measures directly aimed at promoting foreign investment have so far included the following:

- The establishment of four BOI investment promotion offices in the USA, West Germany, Japan and Australia;
- Investment promotion missions abroad undertaken by high officials of the BOI and accompanied by representatives from the business community in Thailand and other government departments;
- Participation in investment seminars (e.g. with ASEAN countries);
- Efforts made through the Thai embassies abroad through the Commercial Counsellors who have been instructed to give top priority to promoting Thailands economic interests abroad;
- Joint Committees or other bodies in co-operation with overseas countries, e.g. the Japan Joint Trade and Economic Committee;
- Participation in exhibitions;
- Articles in foreign journals and a motion picture to promote investment in Thailand;
- Special investment treaties with some foreign countries.

INVESTMENT PROMOTION ZONES



Zone 1 :	Chiang Mai Province	:	Amphoe Sankamphaeng
	Tak Province	:	Amphoe Maesod
	Lampoon Province	:	Amphoe Muang
Zone 2 :	Nakon Ratchasima Province	:	Amphoe Muang
		:	Amphoe Pakthongchai
		:	Amphoe Pakchong
	Saraburi Province	:	Amphoe Muang
		:	Amphoe Kaeng Khoi
Zone 3 :	Khon Kaen Province	:	Amphoe Muang
		:	Amphoe Ban Phai
Zone 4 :	Songkhla Province	:	Amphoe Muang
		:	Amphoe Hadyai

Plus : Areas in the industrial estates which was granted Promotion by the Board of Investment and those which are operated by the Industrial Estate Authority of Thailand.

ANNEX C

The approved and/or operational technical co-operatior projects

UNIDO-implementd Projects

responsibility	Project number	Project title
IO/PLAN	DP/THA/82/011*	Industrial Restructuring Umbrella Project
IS/REG	SI/THA/82/804	Assistance in the preparation of 1982/83, workpaln for the Industrial Restructuring Committee (completed)
IO/FEAS	DP/THA/82/010	Pilot Project for Industrial Expansion in the Northeast (completed June 1985)
IO/INFR	DP/THA/83/006*	Advisory Services to Map to Pud Industria! Complex and Urban Areas - Eastern Seaboard
IO/PLAN	DP/THA/83/009*	Financial Planning Services for Eastern Seaboard Development Programme
IO/FEAS	DP/THA/77/009*	Assistance to the Industrial Estates Authority of Thailand (completed March 1985)
IO/CHEM	DP/THA/82/006*	Assistance in the Production of Pharmaceuticals from the Thai Traditional Pharmacopeia
IO/CHEM	DP/THA/83/116	Expert in pesticide manufacture technology (completed)
IO/FEAS	DP/THA/84/008	Industrial Water Supply System
IO/INFR	DP/THA/84/009	Advisory Services for Environmental Pollution Control for Eastern Seaboard
IO/TRNG	RP/THA/83/003	Training in Electric Appliance Manufacturing

FAO- implemented projects:

DP/THA/79/005	Agricultural Machinery Production in Thailand (1980-1984)
DP/THA/81/004	Development of Diversified Forest Rehabilitation in Northeast Thailand (1982-1985)
DP/THA/82/007	Assistance to the Rubber Replanting and Research Programmes in Support of the Second Tree Crop Project (1983-1987)

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* Large-scale project (= total allotment $150,000 or above).

ILO-implemented projects:

DP/THA/83/008 Generation of Production Employment under the Sixth Plan (1983-1985)

DP/THA/80/001 Establishment of a Regional Institute for Skill Development in Nakorn Sawan (to complete the national skills development programme under the Fourth Plan by establishing the Regional Institute for Skill Development in Nakorn Sawan which will provide basic training needed to foster rural development and to stimulate industrial development in the region) (1982-1983)

DP/THA/78/007 Promotion and Upgrading of Maintenance Management (to assist the Thailand Management Development and Productivity Centre of MOI) (1979-1983)

Project implemented by International Trade Centre (ITC, UNCTAD/GATT):

DP/THA/83/003 Integrated Approach to Trade Promotion (to develop and implement export promotion activities, with emphasis on new products and non-traditional markets) (1983-1986)

Projects implemented by UN/DTCD:

DP/THA/77/010 Pre-investment Studies of Small Hydropower Dams in Northern Thailand (1980-1983)

DP/THA/78/008 Offshore Exploration for Tin and Heavy Minerals (to exploration for tin in the Andaman Sea) (1980-1983)

DP/THA/82/002 Geothermal Reconnaissance Survey in Northern Thailand (to evaluate the geothermal resources of Northern Thailand in terms of their potential for electricity generation and non-electrical uses - in agriculture, industry) (1983-1984)

DP/THA/83/012 Management Services for the Eastern Seaboard (to strengthen CIPO's capability of project planning and management) (1983-1984)

UNESCO-implemented project:

(UNFSSTD)/THA/81/T01 Improved Planning and Delivery Capabilities of the Ministry of Science, Technology and Energy (1981-1984)

World Bank-implemented projects:

DP/THA/78/018 Assistance to the Office of the Board of Investment (1980-1984)

Structural Adjustment Loans

Asian Development Bank projects:

Industrial Energy Audits and Consideration Programme (1983-84)

Fisheries Sector Study (1984)

Bilateral donors (selected projects):

Belgium	Development of Mineral Utilization (non-ferrous) - Ministry of Industry (1982-86)
	Shipyard Development - BOI (1983)
Federal Republic of Germany	
	Study on Economic Utilizatior of Agro-Industrial Waste (1983-84)
	Southern Institute for Skill Development, Songkhla (1980-86)
Italy	Preliminary Study of Energy for Biomass Demonstration Plants (1983)
Japan	Feasibility Study for the Development of the Upper-Southern Part of Thailand (1983-84) (Value of assistance in 1983, $1,042,000)
	Agricultural Development Research Project, Khon Kaen (Japan-US joint co-operation) (1983-88)
	Assistance on Improvement of Raw Sugar Quality and Production - Sugar Institute, MOI (1982-84)
	Assistance on Financial Arrangements for Small-scale Industry - DIP, MOI (1982-84)
Netherlands	2nd Phase Feasibility Study on Integrated Steel Project - NESDB (1983)
UK	Coconut Development Project - Agricultural Research Station in Sawi (1978-85)
US	Private Sector in Development (to increase private sector investment in employment generation through export-oriented ventures outside the metropolitan area) (1983-87) (value of assistance in 1983: $3,500,000)
	Khon Kaen University (development research and action programmes in the Northeast region) (1983-89) (value of assistance in 1983: $2,000,000)

ANNEX D. Major Thai companies, 1984
(all values in $ million)

Rank company	Type of business	Sales/ turnover	Net profit (loss)	Number of employees	Total assets	Ownership
1. Esso Standard Thailand Ltd	Petroleum	976.05	21.30		177.45	US
2. Siam Cement Co. Ltd	Cement	492.0(4)	28.2(4)	10,000	404.38	
3. Toyota Motors (Thailand) Ltd	Car assembly	233.90	4.32		74.95	Japan
4. Boon Rwad Brewery Co Ltd	Beer	182.45	4.11		52.03	
5. Siam Motors Co. Ltd a/	Motor vehicles	125.86	292		135.13	
6. East Asiatic Co. (Thailand) Ltd	Trading	116.39	38.92	1,020	255.27	
7. Siam City Cement Co. Ltd	Cement	101.23	10.41	872	150.09	
8. Luckytex (Thailand) Ltd	Textiles	96.97	9.20	7,700	88.28	Textile Alliance, Hong Kong
9. Italian Thai Development Corp.	Construction	94.28	1.05	135	71.19	
10. Thai Central Chemical Co.	Chemical fertilizers	94.22	0.39		91.60	
11. Saha Union Corp. Ltd	Textiles	92.74	1.48		81.04	
12. Lever Brotehrs (Thailand) Ltd	Soaps/detergents	90.24	4.75	1,115	45.89	UK/Netherlands
13. Mitsubishi Co. (Thailand) Ltd	Import/export	88.76	2.06		46.32	Japan
14. Berli Jucker Co. Ltd	Trading chemicals	74.78	1.91	1,147	39.85	
15. Sittipol Motors Co. Ltd a/	Motor vehicles	70.74	0.05		37.29	
16. United Flour Mill Co. Ltd	Wheat/flour	70.42	1.17	255	154.49	
17. Union Textile Ind. Corp.	Textiles	70.13	3.97	5,373	98.99	
18. Construction Materials Mktg Co.	Constr. prods	63.4		250		
19. Borneo Co. (Thailand) Ltd	Trading	62.50	1.05	1,600	35.63	
20. Saha Pathanapibul Co. Ltd	General trading	59.73	0.28	3,500 (in group)	19.73	
21. The Serm Suk Co. Ltd	Soft drinks	58.57	0.17	3,614	32.55	
22. Louis T Leonowens and Co.	Machinery	54.8		315		Mallinson Denny, UK
23. Colgate Palmolive (Thailand) Ltd	Toiletries	54.29	0.80	500	16.26	US
24. Thai Tinplate Manufacturing Co.	Tinplate	49.70	0.17	363	56.48	
25. Kamal Sukosol Co. Ltd	Trading	48.68	0.025		33.90	
26. Firestone Tyre & Rubber(Thailand)	Tyres	47.8		700		US
27. Jalaprathan Cement Co.	Cement	44.87	3.06	1,080	313.51	
28. Thai Durable Textile Co.	Textiles	39.7		4,000		

Source: South, June 1985.
a/ 1981.

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