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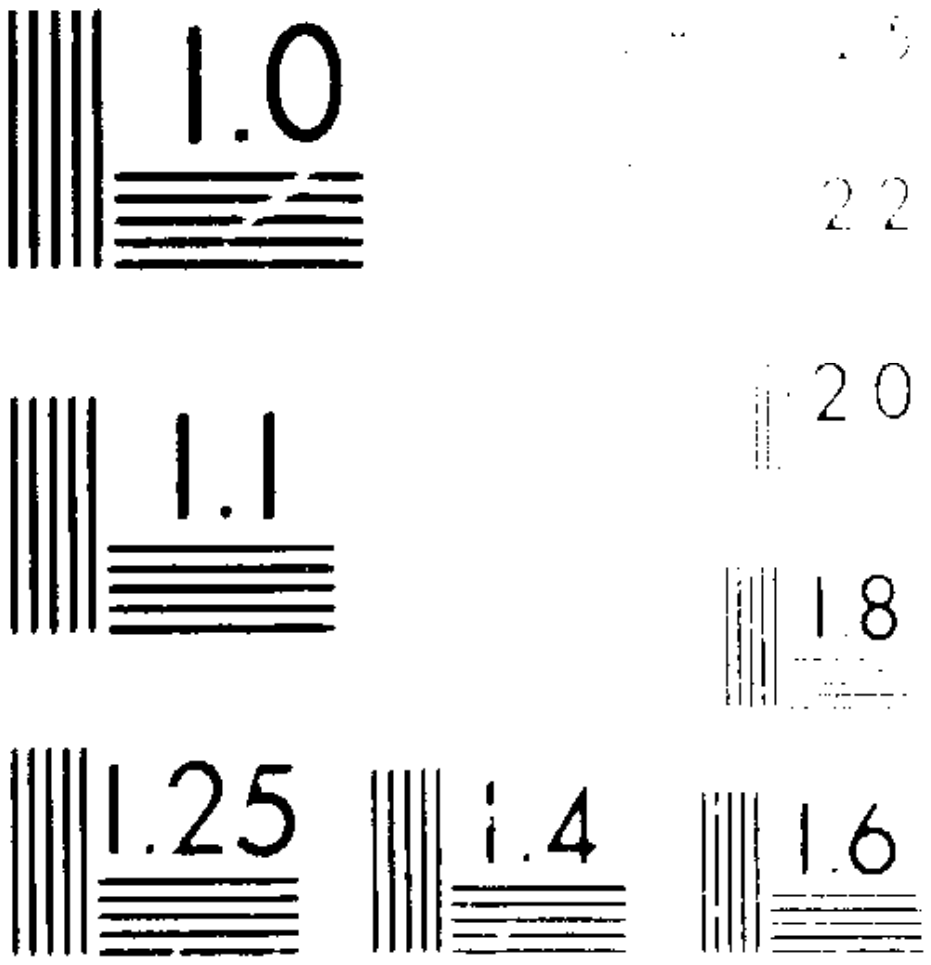
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Pakistan.

PROGRAMMING OF THE DEVELOPMENT OF THE CAPITAL GOODS INDUSTRY IN PAKISTAN.

MARKET ANALYSIS

PROJECT FINDINGS AND RECOMMENDATIONS

TERMINAL REPORT OF THE PHASE-1 PREPARED FOR THE GOVERNMENT OF PAKISTAN

BY

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1. SUMMARY OF FINDINGS AND RECOMMENDATIONS

1.1 Findings:

1) The Pakistani industry is overwhelmingly composed of small and household units (94%).

2) The number of registered units manufacturing capital goods is 1500 of which about 100 are classified as large/medium scale.

3) The deflated rate of growth of industry fell to 5.7% during the Seventies from 10.1% in the Sixties.

4) The import of Capital goods in 1976-77 amounted to Rs. 6657 Million as against local production of Rs. 3730 Million. As such the share of local production was 36% of the domestic market.

5) The industry as a whole is mostly in a depressed state mainly because of present restricted market (despite the high population pressure). By consequence the capital goods manufacturing industry is working by now at about 40% capacity.

6) The general problems of industry are high industrial cost, over-taxation, low productivity of labour and by consequence, inadequate profit margin. The flexible import practices furthermore deny sufficient protection to local industry.

1.2 Recommendations:

1) Market of durable as well as consumable goods should be revitalised and progressively enlarged through non inflationary measures.

2) Private entrepreneurs' and indiviuals' propensity to invest in industry should be restored coupled with governments efforts in terms of expenditure for public works and financial assistance for construction.

3) In order to increase co-operation among industries to the aim of creating specialization and encouraging sub-contracting, a committee may be constituted with province-wise representatives of industry both demanding and supplying capital goods.

4) Investment should be concentrated in the most dynamic and driving products: i.e. agricultural machines (starting from Tractors) machine tools serving agricultural machinery as well as vehicle industry and construction equipment. Licence agreements with foreign reputed manufacturers should be sought and international technical assistance arranged for the development of new designs and upgrading of technology.

5) In order to further local capital goods manufacturing industry two basic measures have been proposed:

   a) A progressive ban on the import of capital goods to be implemented in phases (1 to 5 years) and;

   b) Maximum assistance to be provided to the industry for replacement of existing machines and components with locally manufactured ones, coupled with a tax rebate equivalent to 25% of the value of procurements. For implementation of (a) above the constitution of a cell has been recommended.

6) To achieve competitiveness both for increasing exports and reducing imports of capital goods the following suggestions have been made:

   i) Abolition of customs duty on raw materials in 3 years.

   ii) Elimination of excise tax @ Rs. 50/ton mild steel products.

   iii) Temporary but substantial increase of export rebate (presently 12.5%).

7) In order to improve profitability a relief in corporate incometax is recommended.

8) Formation of a special fund to absorb surplus labour force in large-factctories is suggested to increase productivity.

In order to increase the share of industry on the economy as well as to put the capital goods industry in a condition of achieving 56% of the domestic market (presently 36%) in the Eighties, we have assumed Government policies and action aimed at the follcwing growth targets.

1)	G.D.P.	5% p.a.
2)	Industrial Output	8% p.a.
3)	Capital Goods Output	20% in first four years and 15% in the subsequent six years.

The above growth rates would increase the share of capital goods from 9% to 20% on overall industrial production of the country.

2. INTRODUCTION

2.1 Definition of Capital Goods.

Capital goods can be defined as all goods and services instrumental to producing other goods and services.

Capital goods are consequently: the factory building in which the production facilities are housed, the machinery to manufacture or assemble the products, the auxiliary equipment to keep the factory running, the transport equipment for deliveries, the furniture and fixtures, the office machines and the tools that serve both the workers and the machines.

This definition can be extended to all manufacturing activity, to the service sector (a transport company has as a first fixed asset the fleet of ships or barges, of trucks or wagons), as well as to the agriculture where the farmer has, as his assets, the tractor, the implements, and a number of hand and power-driven tools.

For the purpose of defi ... we can say that all the items we find under the heading of Fixed Assets in a company's balance sheet, are capital goods. As such they are the product of the saving ability of the enterprise and of partners' and are, under the accounting procedure, written off over a periodof time.

The demand for capital goods is a derived demand since it is generated by the primary demand of consumable goods as well as by the demand of specialized facilities (e.g. railways, power transmission lines, gas extraction and piping, harbours, roads, bridges, dams etc.

2.2 Major group of industries manufacturing capital goods.

To limit the scope of the market analysis of capital goods in Pakistan we have availed ourselves of Standard Industrial Classification (issued in 1970) and specifically we have referred ourselves to the following major groups (at three digits level) representing the supply side of our study, with the break down by industries (at four digits level), as listed in the Census of Manufacturing Industries:

Table No. 1

List of major groups, and industries manufacturing capital goods

	S.I.C. Number	
1.	332	- Manufacture of Furniture and Fixtures. (except primarily metal)
	Industries	
	3321	- Wooden Furnitures
	3322	- Fixtures
2.	380	- Manufacture of Fabricated Metal Products
	381	
	Industries	
	3802	- Tools (Hand-operated & Motor-operated)
	3804	- Furniture fixturesof metal
	3805	- Structural Metal Products
	3807	- Heating, cooking, lighting equipment
	3817	- Plumbing equipment
3.	382	- Manufacture of Machines except Electrical
	Industries	
	3821	- Engines and Turbines
	3822	- Agricultural Machinery
	3824	- Textile Machinery
	3825	- Industrial Machinery
	3826	- Manufacture of Office, Computing and Accounting Machines.
4.	383	- Electrical Machinery, Apparatus
	Industries	
	3826	- Batteries
	3831	- Electrical Industrial Machinery
	3832	- Radio, T. V. Receiving and Transmitting Equipment
	3834	- Insulated Wires & Cables.
5.	384	- Manufacture of Transport Equipment
	3841, 3842	- Ships and Boats
	3844	- Motor Vehicles
	3849	- Transport equipment

Source: Standard Industrial Classification 1970

2.3 Major groups of industries demanding capital goods.

To establish the size of the actual market of capital goods we have made use of the available statistics of production value (as collected by the Census of Manufacturing Industries: CMI 1976-77) and of the Foreign Trade Statistics. The domestic market has been calculated by adding production value to the imports; the total market being further the sum of domestic market plus exports.

To assess the demand of capital goods we have examined the time series available of all the manufacturing industry in Pakistan and more precisely the ones related to the following list of 12 major groups out of the 31 included in the Census of Manufacturing Industries.

Table - 2.

List of Major Groups demanding Capital Goods

S.I.C. NO.	MAJOR GROUPS (3 DIGITS LEVEL)	NO. OF INDUSTRIES 4 TO 5 DIGITS LEVEL
311.312 313.314	(1) Manufacture of Food, beverages & Tobacco	27
320.321 322.323 324.325	(2) Textile, wearing apparels and leather industries.	22
332	(3) Manufacture of wooden furniture	6
341	(4) Paper, Pulp, Printing & Publishing	11
350.351	(5) Manufacture of Chemicals, Petroleum, Coal rubber and plastics products.	25
361.362 369.	(6) Manufacture of non-metallic mineral products except petroleum & Coal	5
371.372	(7) Basic Metal Industries	4
380.381	(8) Manufacture of fabricated metal products except machinery & Equipment.	17
382	(9) Manufacture of machinery except Electrical	

383	(10) Electrical Machinery	8
384	(11) Transport Equipment	6
385, 386, 391, 392 393, 394	(12) Other industries	6

Source: Standard Industrial Classification 1970

The data contained in the C.M.I. only pertains to the registered factories. The household and small scale industry has been assessed both from the supply and the demand side, on the basis of the survey conducted in 1976-77 by the Statistics Division, Government of Pakistan, through which data were collected on a sample of 18,000 units.

2.4 Trend of Main Divisions of the Economy of Pakistan:

The demand of Capital Goods has been further analysed in the light of time series of the following Main Divisions of the Economy:

TABLE-3

LIST OF THE MAIN DIVISIONS OF ECONOMY

A-1	Crops	D-1	Construction
A-2	Animal Husbandry	E-1	Electricity and Gas
A-3	Fishery	F-1	Transport, Storage and Communication
A-4	Forestry		
B-1	Mining and Quarrying	G-1	Wholesale & Retail Trade
C	Manufacturing	H-1	Banking and Insurance
C-1	Large Scale Industry	I-1	Ownership of Dwellings
C-2	Small Scale Industry	J-1	Public Administration & Defence
		K-1	Services

Source: Pakistan Economic Survey 1978-79 Issued by Finance Division, Government of Pakistan.

2.5 Methodology

We had in mind, in fact, the basic concept that all the manufacturing units and the fifteen Main Divisions of the economy are drawing on the capital goods industry as far as their demand of fixed assets are concerned. The rates of growth of both gave us the base to assess the bulk of the present and of the future demand of capital goods in Pakistan.

The production of the five Major Groups gives us a measure of the capacity of local manufacture to meet the present and the expected demand of capital goods in Pakistan.

The extent to which the local manufacture will meet the domestic demand of capital goods and conversely the impact of demand on the import bill of the country, shall be examined in the following chapters in the light of the rate of growth of the industries demanding capital goods and of the industries supplying capital goods.

The above estimates have been based on the available statistics of production values of 1969-70, 1975-76 and 1976-77, and of Foreign Trade Statistics, which are available for 10 years from 1969-70 to 1978-79.

We have used the growth rate method for identification of the most dynamic major groups and industries as well as products. As far as product development is concerned, we have utilized the empirical method of comparing the list of products manufactured in the country with the list of products of major import and the list of machinery included in the projects sanctioned by the various financial institutions in the country. The existing facilities in Pakistan has also guided our choice of new products.

In order to collect primary data and information about the industry in Pakistan a sample survey of 563 industrial units was conducted by direct interviews as well as mailed questionnaires, in all the four provinces of the country as detailed below.

1.	Punjab	352
2.	Sindh	176
3.	N.W.F.P.	25
4.	Baluchistan	10

The response of the industry in respect of mailed questionnaires was rather limited on account of the excessive number of agencies (government as well as private), conducting such interviews. The result of interviews by the IACP* teams was satisfactory in respect of simple questions while for specific questions there was general, tendency to provide inaccurate data or to decline such information.

Complete information as required was received by the expert through personal visits and interviews in as may as 50 industrial units, financial institutions, trade associations and knowledgable people. The expert was assisted by a senior consultant of the IACP in the above exercise.

*IACP: Investment Advisory Centre of Pakistan.

We finally have not used single linear or multiple regression as a tool for detailed forecasting of the demand nor extrapolation for the following reasons:

a) The time series available in CMI statistics are not complete.

b) The development of industry in Pakistan followed a very erratic pattern during the Sixties and the Seventies.

c) Too many unfavourable and exceptional events marked the overall economy and the industry in the Seventies.

d) It would not be realistic to assume that the present decade will follow the pattern of the Sixties or of the Seventies.

2.6 Having excluded the possibility of using the correlation regression and extrapolation for the purpose of forecasting, the following assumptions have been made in order to frame a plan of action aimed at increasing the share of industry in the overall economy of the country as well as to reduce the imports of capital goods and to increase the share of domestic market covered by local production:

1) The G.D.P. of the country starting from July, 1980 will grow at an average rate of 5 percent per annum.

2) The industrial output will increase at an average rate of 8 percent per annum.

3) The capital goods industry will increase at an average rate of 20 percent upto 1984 and at the rate of 15 percent from 1984 to 1989-90.

The policies and actions based on the above assumptions would lead at the end of Eighties, to the following:

a) Increase of share of industry in G.D.P. from present 15 percent to 36 percent

b) Share of capital goods on all industrial production from the present 9 percent to 20 percent.

c) Increase of local production of capital goods from the present 36 percent to 56 percent of the domestic market.

d) Reduction of import of capital goods from the present 64 percent to 44 percent of the domestic market.

The basis for the above assumptions have been given in Chapter 6.

3. GENERAL INFORMATION ON THE ECONOMY

Some basic conditions related to the economic structure and constraints on growth, are to be referred to when thinking of industrial development of Pakistan.

The country has large human resources which represent a high pressure force towards development and a large reservoir of manpower, capable, when trained, and intelligent, as well as a fair number of technicians and engineers. Pakistan has also good soil and rich irrigation potential so that not only the basic needs of feeding and clothing are ensured to all in a sufficient measure, but the expected productivity increase of agriculture matching with industrial development, can avoid imbalances.

Although a fairly large range of facilities and of industrial products is available, yet the same are considered to be disparate from the technological point of view, and a number of gaps still exist. The lack of co-ordination and integration among industry is also apparent.

3.1 Active Population and Occupational Groups:

The various censuses (from 1901 to 1972) and the estimates made thereafter, show a population of 77,860 million in 1979 and an annual rate of growth of 2.9 percent. The labour force participation into the total population is below 30 percent, which characterizes a high dependency ratio. The net addition to the labour force is of the order of 700,000 persons annually and the economic system, as it is, is not in a position of providing productive employment to such a large number of new entrants and to reduce substantially the large backlog of the unemployed and underemployed existing in the country. Emigration and exhorbitant growth of service sector are the unavoidable consequences. (Annexure-1 and 2)

3.1.1

Employed persons estimated at 20,201,000 in 1977-78 according to the Housing Economic and Demographic Survey are subdivided into the following major occupational groups:

TABLE -4

ESTIMATE OF EMPLOYED PERSONS IN 1977 78

	In '000'	In Percent
1. Agriculture, Forestry, Fishery	12,360	61.2
2. Manufacturing (including mining and quarrying)	2,290	11.3
3. Services	5,551	27.5
	20,201	100.0

Source: Manpower Division, Government of Pakistan.

The above mentioned figures are self explar atory as to the low percentage of active population (large share nonactive living in the traditional sector in conditions of undermployment or total dependency), to the small share of industry in the total economy and to the presence of high percentage of low productive services.

3.1.2

If the large human resources on one side make the potential for development extremely high and promise a better future for the country, on the other side the low percentage of active population and the limited production base constitutes great constraints in terms of resources available for investment and for increasing consumption.

3.1.3

Any move by government towards a larger current expenditure and investment outlays as well as any increase of consumption by individuals immediately discharge their effects into the balance of payment or into the price system increasing on one side the indebtedness towards the foreign countries (actually very close to half the G. N. P.) endangering the rate of exchange or, on the other side, through prices, increasing inflation. This explains the efforts needed by government in keeping the rate of growth of the economy to a controlled level and the reduced pace of industrialization.

3.1.4.

Pakistan is 32 years old and industry started in 1947 from scratch importing plants and machinery from many origins, with few to replace and update them and scarce foreign exchange to feed production in terms of parts and components and even of raw materials. Efficiency and capacity utilization have been and are by consequence, unfavourably affected.

3.1.5

The above mentioned handicaps and constraints notwithstanding, the development process can be accelerated once the house is put in order in terms of international reliability and once the private entrepreneurs confidence and propension to invest is restored.

3.1.6

The wave of nationalizations (1972-73) struck the private sector in a phase of restart of development after the war of 1971. The restrictions on imports of basic inputs, in the actual troubled international situation, and labour problems, have done the rest to depress the private sector.

The private sector however, has by far, the largest share of the economy and of the manufacturing sector too. Number-wise public sector in manufacturing is a bare 1.8 percent of the registered units. Employee-wise the public sector share of the total employed labour force in industry is 2.4 percent (data of 1974-75); value added-wise the public enterprises represent slightly over 7.2 percent of the 1974-75 GDP.

3.2 Investment in Industry:

On the 1978-79 GNP amounting, at current factor cost, to Rs.191.5 billions, the investment has been estimated at Rs.31.6 billion or 16.5 percent of the total goods and services produced and available to the country.

Investment in industry at current prices (Annexure-3) has been estimated in 1978-79 at Rs. 8.2 billion corresponding to a 26 percent of the total investment or 10 percent over and above the share of manufacturing activity on GDP. 72 percent of the sum went to the public sector to complete the on-going projects (steel mill, fertilizers, cement). The private sector absorbed Rs. 2.3 billions or 28 percent of the total investment in industry.

The government is making every effort, within the limits of available resources, through fiscal concessions and financial support channeled through specialized agencies, to endow industry of oasic facilities and it certainly has succeeded. Unfortunately the overall resources are very limited and private investment is sluggish due to the actual restricted commodity market and the troubled international situation. Recreating the atmosphere for private investment by stimulating the market of industrial goods, and to mobilise the idle private resources, will be the challenging task of the Eighties. The capital goods can play a big role if suitable conditions are created.

Whereas as a whole the public sector is still contained in Pakistani economy, within the capital goods manufacturing, instead has an outstanding position both in terms of production value and of product range as well as of of engineering capability. Value added-wise public sector industries operating within the 5 mentioned major groups i.e. manufacture of fabricated metal products, machinery except electrical, electrical machinery, transport equipment and furniture and fixture represent 41 percent of the total value added in respect of the same major groups altogether. The problems of these industries such as low profitability deserve high priority consideration, since they involve large responsibility of the government itself.

3.3. Rate of Growth of the Economy and of Commodity Producing Sectors:

Starting from 1971-72 the revenue and expenditure accounts show a set of deficits, notwithstanding the high and increasing taxation as follows:

TABLE - 5

GOVERNMENT ACCOUNT DEFICITS

	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79
Million Rupees.	239	124	677	3159	2409	375	781	2075

Source: Pakistan Economic Survey 1978-79.

The above deficits are due to the manifold and growing Government commitment towards society, as well as due to the following unfavourable events which occured during the Seventies.

- Separation of Bangladesh after a War (December1971)
- Devaluation of the Rupee by 131 percent (April 1972)
- Nationalization of private enterprises in the major sectors of the economy (January 1972).
- Oil prices increase (1973) accompanied with soaring prices of machinery.

Consequent to the said events the rate of growth of the economy in real terms fell during the Seventies to an annual average of 3.8 percent (against the population growth of 2.9 percent) which is the arithmetic mean of the following ratesof growth of GDP at constant factor cost of 59-60):

TABLE-6

RATE OF GROWTH OF G.D.P. (CONSTANT FACTOR COST)

	1969-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79
Billion Rupees	32.2	32.4	32.8	35.2	37.9	33.4	40.7	41.7	44.6	47.2
Percentage Growth	-	Nil	1.2	7.3	7.6	3.9	3.3	2.7	7.0	5.8

Source: Pakistan Economic Survey.

3.4 Balance of Payment:

The import of machinery, industrial raw materials and transport equipment worth U.S.$ One billion annually, plus half a billion of wheat and edible oil plus a quarter of a billion of fertilizers and finally an oil bill close to $ half a billion make the merchandise account of the country largely heavy on the debit side. Improvements in exports, mainly of staple such as rice and the government support to cotton yarnsand cloth does not offset the constant

deficit of the balance of trade. The invisible account on the credit side (workers remittances principally) offset partly the deficit on current account (See Annexure - 4) but do not allow to reduce the outstanding indebtedness nearing half of the country's GNP (this latter estimated in 1978-79 at U.S. $ 19.1 billion). The growing productivity of agriculture, the progress of import substitution (fertilizers, cement, raw and semi-products of iron and steel), the feasible progress of capital goods industry, could ease substantially the trade balance and together with the channeling of the whole invisible to the official market and foreign aid, could bring in foreign exchange resources sufficient to put the economy in a position of accelerating the pace of development.

3.5 Foreign-aid:

In almost 30 years Pakistan has received assistance worth U.S. $ 14.7 billion of which 3.9 in form of grants and the balance in form of loans and credits repayable in foreign exchange. This latter type of assistance has greatly increased the burden for principal and interest on the balance of payments (See Annexure-5).

The aid commitments for 1978-79 were estimated at US$ 1,414 million, 65 percent of its source being the consortium of lending countries (Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, UK and USA), the balance being expected to come from Muslim and CPEC countries, from non-consortium countries and IMF (See Annexure-6). A number of high priority projects (See Annexure-7) are being financed by Middle Eastern countries (UAE, Kuwait, Iran, Libya, Saudi Arabia and OPEC fund). The UNDP approved second Country Programme provides a technical assistance worth U.S.$ 52.5 million. Bilateral technical assistance is received from USA, China, UK, Canada, Japan, Australia, West Germany, Newzealand and USSR. Although this has created a large technological disparity in industry as well as complications in terms of after-aid assistance and of spares supply, the country is not alone at all in its effort towards development.

4. FINDINGS

4.1 Profile of Industry in Pakistan:

4.1.1 Registered Factories and Small & Household Units.

The industrial production in Pakistan is carried on by 58,600 manufacturing units; of which 5,613 are classified as registered* under the Factory Act (Amendment 1973) and the remaining 53,000 are classified as small scale and household** units, mainly non-registered.

The industrial establishments are grouped in 33 Major Groups as per Standard Industrial Classification.

The total production value of industry according to the Census of Manufacturing Industries (CMI 1976-77) and on the basis of the estimate from the survey of small scale and household units has been estimated at Rupees 39.0 billion.

The province-wise distribution of 5613 registered factories is as under:

TABLE - 7

PROVINCE-WISE DISTRIBUTION OF FACTORIES IN PAKISTAN

Particulars	Punjab	Sind	NWFP	Baluchistan	Total
Number of Units	3,474	1,818	256	65	5.613
Percentage	62	32	4.6	1.4	100.0

Source: i) Statistical Division
ii) Directory of Registered Factories in the Punjab.

* Registered factory is any premise where one or more workers are working on any day of preceding twelve months and where a manufacturing process is carried on with or without the aid of power but does not include mines. They are registered under Section 2(j) and Section 5 (i).

** Small and Household units are:

1. Manufacturing household is a household where people are living and also carrying on some manufacturing activity.
2. Small scale establishment is any establishment engaged in the manufacturing activity and whose value of fixed assets, excluding land does not exceed Rupees 2 million. (Some of them are also included in the registered list)

As can be seen in above table the Punjab has the largest share of manufacturing units in the country.

4.1.2 Value of Production:

The production value of registered units in 1976-77 is as given in Table-8 below:-

TABLE-8

BREAK-UP OF PRODUCTION VALUE OF REGISTERED FACTORIES BY PROVINCES.

(Rs. in Million)

Descriptions	Sind	Punjab	NWFP	Baluchistan	Total
All Industries Production Value	18,765	16,051	2,652	639	38,129
Percentage	49	42	7.3	1.7	100.0

Source: C.M.I. - 1976-77

The production value (1976-77) of the small scale and household units has been estimated at around Rs. 950 million annually on the basis of survey conducted by Statistical Division Government of Pakistan.

4.1.3 Province-wise Distribution Concentration and Specialisation of Industry:

The industry in the Sind Province is characterised by its higher production value and the lesser number of units and as such is indicative of the prevailing large scale industry in the province. Here in fact are located: The largest ship building, the largest machine tool factory, petro-chemical industries (refineries), pharmaceutical, heavy chemical, light chemical two/three and four wheeler assembly plants. etc.

Karachi has the biggest concentration of industries. Other cities with lesser number of units include Hyderabad and Sukkur. The industry in these areas comprises sugar, cement, textiles, oil and ghee mills, rice and wheat milling etc.

The production range of Punjab industry is indeed very large and indicates the technical advancement of the province. The most efficient electro-mechanical complex (Climax Engg. Gujranwala) is there together with the largest number of steel re-rolling mills and with broad and diversified range of efficient industries such as textiles, food, domestic appliances, all range of tools and equipments making, of agricultural machinery and implements including tractors. There are also diversified small scale industries.

Lahore, Gujranwala, Gujrat, Sialkot, Faisalabad and Taxila are the main industrial centres. In addition to large scale industries, Gujranwala has the biggest concentration of small scale industries mainly in the engineering field. Electric fans industries are mostly located in Gujrat. Cutlery, surgical/medical instruments and sports goods industries are located in Sialkot. Textile industries are located in Faisalabad and Lahore.

Lahore is the main industrial centre in the Punjab. It has not only large scale industries in the field of chemicals, textiles, rayon, paper and board, leather footwear, non-electric machinery but also in the form of small scale industries like re-rolling of steel and a number of small engineering industries, plastics, electric appliances, domestic appliances, hardware and small apparatuses.

NWFP has a few large scale industries like sugar, tobacco, two wheeler assembly plant, steel products, wood furniture and cement manufacturing. Nowshera Engineering is the biggest unit in the area manufacturing steel products. A medium scale, highly efficient public sector furniture and fixture manufacturing unit, is located in Peshawar. Small scale and household industries like footwear, furniture and jewelleries are also there.

No large scale industries exist in Baluchistan. Small-scale industries such as textiles, hand tools, woodworking and fabricated metal products are located in Quetta. Transport equipment like two/three wheeler assembly plants and diesel engines manufacturing are located in Uthal and Lasbela.

4.1.4 Prevalence of Small-scale Industry in Pakistan:

Over and above the mentioned vocational and geopolitical distribution of industries in the country, the basic feature of Pakistani industry is the prevalence of small-scale industries.

The average yearly turn-over of the industry in Pakistan is Rs. 67,391 per unit. Over 70 percent of the registered factories have under 50* employees, which together with the small scale and household units brings the percentage of small scale enterprises to an overwhelming 94 percent.

Of the estimated total employment in industry(2.29 million persons)** around 300,000 persons are employed by the large scale industry (1000 and over employees); around 175,000 are employed by medium size industry (from 50 to 999 employees), the remaining working in their own enterprises or being employed by units having under 50 persons, make a total of 1.8 million work force in small scale industry.

* Source ; C;M.I. (1976-77)

** Source ; Pakistan Economic Survey & C.M.I.

Every policy decision as well as every development plan has to take into account this basic feature of Pakistani industry.

4.2 Capital Goods Manufacturing Industry:

4.2.1 Sub-groups:

Whereas the industry outlined in the preceeding chapter constitute the bulk of the demand of capital goods, the 5 major groups: Machinery except eletrical, eletrical machinery, transport equipment, fabricated metal products, furniture and fixtures make the major portion of local supply of the capital goods. They encompass the following sub-groups of industries:

1. Hand and edge tools
2. Furniture, fixture of metal
3. Structural metal products
4. Heating, cooking and lighting equipment
5. Plumbing equipment
6. Engines and turbines
7. Agricultural machinery
8. Metal and wood working machinery
9. Textile machinery
10. Industrial machinery
11. Electrical industrial machinery
12. Radio, television transmitting equipment
13. Batteries
14. Electrical apparatus and supplies
15. Ship building
16. Motor vehicles
17. Transport equipment n.e.c.

The above sub-groups manufacture a fairly large range of products whose list is attached* together with a comparative list of the imported capital goods and of proposed imported ones, involving a substantial foreign exchange expenditure. The gaps in the production range are evident (more on this topic in the Chapter 4.4.2. Pakistan in fact needs to fill-up many gaps and to progress in the import substitution process well started in the Sixties, (but interrupted by adverse circumstances), enlarging the range of products and updating the technologies.

The very existence of a capital goods local manufacture however, is in itself characterising an industry out of its infancy. Observations suggest that capital goods industry has capability and potential of enlarging the products range but the limited market and too many obstacles hamper its desired development.

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* Annexure-VIII

The registered factories manufacturing capital goods can be estimated at 1,544 (27 percent of the total registered factories) sub-divided province-wise as follows:

TABLE-9

PROVINCE-WISE BREAK-UP OF REGISTERED FACTORIES MANUFACTURING CAPITAL GOODS

Punjab	Sind	NWFP	Baluchistan	Total
1,080	370	64	30	1,544

Source: C.M.I.

Small-scale and household units working in the engineering and furniture fields, can be estimated on the basis of the sample surveyed in 1976-77 at 17.384 (33 percent of the total) including all repair, maintenance, servicing in general.

The large number of small-scale units; the long distances between the main industrial areas together with the difficult communication system, are the main causes for lack of cooperation between and of integration of industries as well as for promoting sub-contracting of small units.

While noting that the small scale and household units pertaining to the engineering field are mainly concentrated in fabricated structures, metal finishing and servicing; their products consisting of a number of miscellaneous items such as doors and windows, hand tools, copper wires, gas stoves, cycle parts, auto parts, gears and other parts, formed and forged components, we have to point out that, only some of them are manufacturing capital goods such as diesel engines, machines tools (lathes, shapers, bench drills), textile machinery (small handering units, power looms) etc. But all of them are demanding capital goods particularly machine tools, welding and heating equipment etc.

4.2.2 Share of Capital Goods in Overall Industries Production

The tabulation showing value of production of capital goods manufacturing major groups (registered units only) and the overall industrial production of the country has been attached as Annexure-9. The following is a summary of the same.

TABLE-10

SUMMARY OF PRODUCTION VALUE OF CAPITAL GOODS

(Rs. in Million)

	1959-60	1965-66	1969-70	1970-71	1975-76	1976-77
Value of Production (Capital Goods)	184	554	790	850	3,490	3,730
All Industries	3,310	7,170	11,800	13,340	30,670	38,100
Percentage Share of Capital Goods	5.5	7.7	6.7	6.4	11.4	9.8

Source: C.M.I.

The above percentages indicate the growing importance of capital goods in the overall industrial production of the country. Although the performance of industrial sector was better in the Sixties than in the Seventies, yet the increasing share of capital goods suggests that some additional investment took place in this field during the last decade. The highest share of capital goods on overall industrial production viz. 11.4 percent registered in 1975-76 can be resumed and substantially increased during the Eighties, provided suitable conditions are created as detailed in Chapter 7.

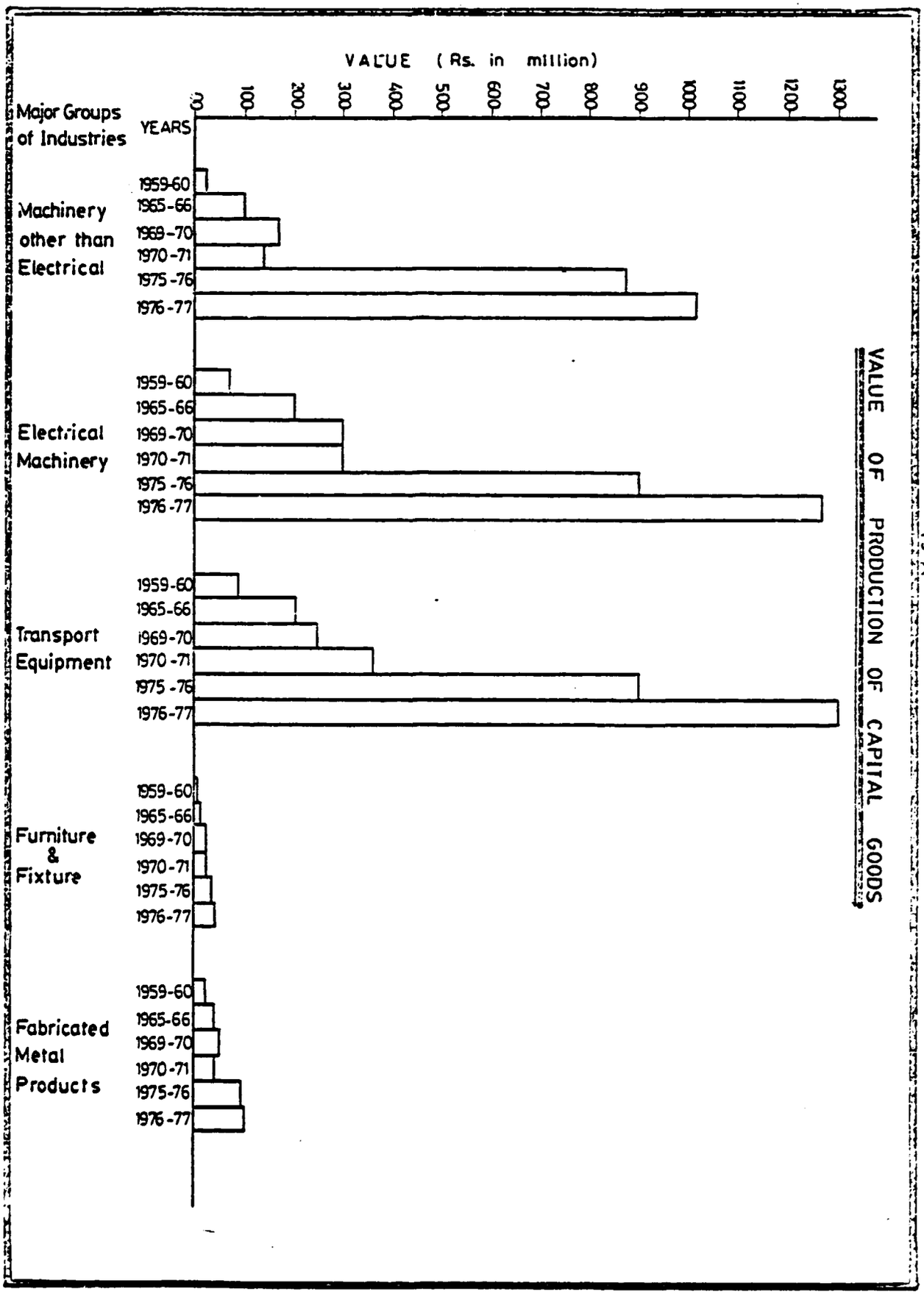
4.2.3 Imports

The import bill of capital goods which was US $ 77 million in the year 1959-60 swelled to over $ 600 million in the year 1976-77* because of the devaluation of Rupee and the price increase of machinery in the international market. Nevertheless the share of import of capital goods in the overall imports of the country was decreased substantially from 42.7 - 50 percent in the Sixties to 26 to 30 percent in the Seventies. This is more attributable to higher imports of food grains, edible oils and petroleum products registered in the last decade, than to a major progress of import substitution in the field of capital goods.

4.2.4 Exports:

The export of capital goods of the country has almost been negligible and the survey as well as the observation confirm the above contention. The reasons for low exports are:

* Foreign Trade Statistics.


VALUE (Rs. in million)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
Major Groups of Industries
YEARS
Machinery other than Electrical
1959-60
1965-66
1969-70
1970-71
1975-76
1976-77
Electrical Machinery
1959-60
1965-66
1969-70
1970-71
1975-76
1976-77
Transport Equipment
1959-60
1965-66
1969-70
1970-71
1975-76
1976-77
Furniture & Fixture
1959-60
1965-66
1969-70
1970-71
1975-76
1976-77
Fabricated Metal Products
1959-60
1965-66
1969-70
1970-71
1975-76
1976-77
VALUE OF PRODUCTION OF CAPITAL GOODS

i) the high incidence of raw materials in the industrial cost (diesel engines, compressors and pumps),

ii) the obsolete technology of products or outdated styles (road rollers),

iii) lack of image of the country as exporter of capital goods (cement and sugar plants),

iv) prevalence in the capital goods industry of simple and high volume products such as structurals, agricultural machinery and equipments, un-economic for long distance transportation,

v) obsolete and limited range of machine tools and absence of new products.

It is our considered opinion that no break-through can be made in export of capital goods unless the products are firmly established in the local market.

4.2.5 Size of Domestic and Total Market of Capital Goods

The domestic market of capital goods for the years 1976-77 can be estimated as follows:

TABLE-11

DOMESTIC MARKET OF CAPITAL GOODS(1976-77)

(Rs. in Million)

A)	Local Production	3,730.0
B)	Imports	6,657.0
C)	Total Domestic Market	10,387.0
D)	Exports	59.9
E)	Total Market	10,446.9
	Percentages:	
	i) Local Production to Total Domestic Market (A/c)	36 percent
	ii) Imports to Total Domestic Market (B/C)	64 percent
	iii) Exports to Total Market (D/E)	0.6 percent

4.2.6 Trend of the Capital Goods Production Industry

The domestic and the total market have shown the following trend during the period 1969-70 upto 1976-77 :

TABLE-12

TREND OF DOMESTIC AND TOTAL MARKET OF CAPITAL GOODS IN THE PERIOD 1969-70 TO 1976-77

(Rs. in Million)

Years	Production	Imports	Domestic Market	Exports	Total Market
1969-70	790.0	1,384.7	2,174.7	19.3	2,194.0
1970-71	850.0	812.9	1,662.9	26.4	1,689.3
1975-76	3,490.0	6,021.7	9,511.7	180.1	9,691.8
1976-77	3,730.0	6,657.0	10,387.0	59. 9	10,446.9

Source: C.M.I/C.S.O.

Percentage-wise the share of local production, of imports and of exports of capital goods on total market in the period 1969-70 to 1976-77 was as under:

TABLE-13

PERCENTAGE -WISE SHARE OF LOCAL PRODUCTION IMPORTS AND EXPORTS OF CAPITAL GOODS ON TOTAL MARKET

	1969-70	1970-71	1975-76	1976-77
Local Production	36.0	50.3	36.0	36.0
Imports	63.1	48.1	62.2	64.0
Export	0.9	1.5	1.8	0.6

Source: C.M.I/C.S.O.

It may be noted from the above percentages that the local production of capital goods has fairly maintained its share of the total market despite all the problems faced by the indus try which will be discussed in subsequent Chapter.

4.3 Average Rate of Growth of 12 Major Groups of Industries:

4.3.1 Rate of Inflation and Implicit Deflator

While examining the statistics contained in the C.M.I. we have to take into account that these are at current prices. It has also to be noted that according to the national accounts the annual rates of inflation during the years 1959 to 1977 were as under:

TABLE-14

RATE OF INFLATION (ON THE BASIS OF THE IMPLICIT DEFLATOR)

Years	Rate of Inflation
1959-60	2.2
1960-61	4.1
1961-62	1.7
1962-63	0.14
1963-64	5.5
1964-65	4.9
1965-66	3.0
1966-67	9.5
1967-68	2.1
1968-69	0.4
1969-70	4.3
1970-71	5.2
1971-72	6.4
1972-73	16.8
1973-74	24.6
1974-75	26.4
1975-76	13.7
1976-77	9.6

Source: Pakistan Economic Survey - 1976-77.

The inflation rates for the five periods of which the CMI data are available can be averaged as follows:

Years	Rate of Inflation
1959-60 to 1965-66	2.2
1965-66 to 1969-70	4.0
1970-71	15.2
1971-72 to 1975-76	17.6
1976-77	9.6

As per succeeding censuses of manufacturing industries the total value of production of the 12 major groups presented the following trend:

TABLE-15

GROSS VALUE OF PRODUCTION AND GROWTH RATES OF 12 MAJOR GROUPS

	1959-60	1965-66	1969-70	1970-71	1975-76	1976-77
Production (Rs. Million)	3,310	7,170	11,800	13,340	30,670	38,100
Growth Rate	-	16.6%	16.1%	13.0%	25.9%	24.2%

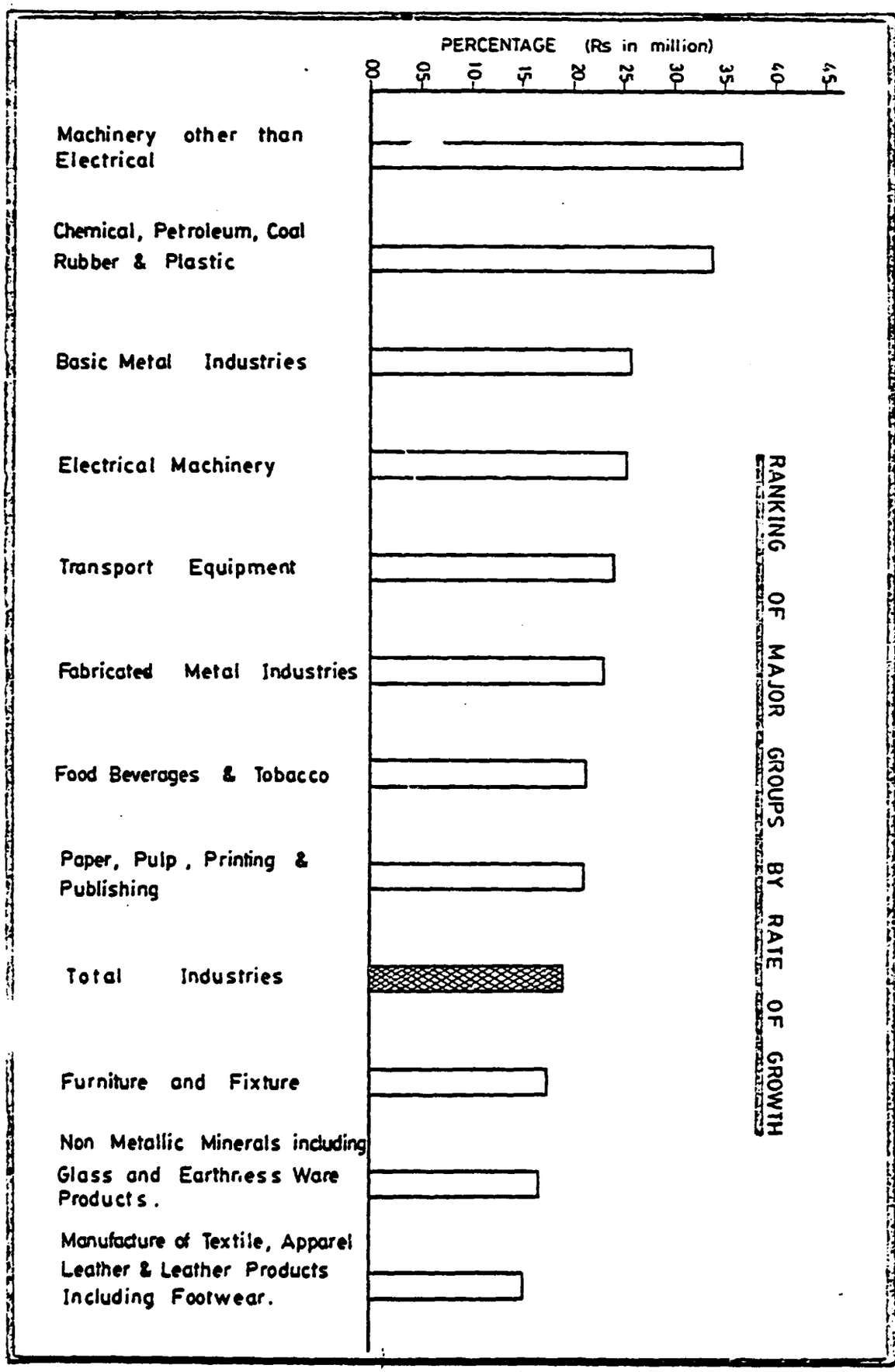
(For details see Annexure-XI).

Applying the implicit deflators as indicated above, the higher growth rate during the Sixties as compared to the Seventies becomes apparent.

4.3.2 Ranking of Major Groups

The ranking of the 12 major groups by rate of growth has been observed as under:

Major Groups	Average Annual Growth Rate(%)
1. Machinery other than Electrical	36.4
2. Chemicals, Petroleum, Coal, Rubber and Plastics	33.8
3. Basic Metal Industries	25.8
4. Electrical Machinery	25.4
5. Transport Equipment	24.4
6. Fabricated Metal Industries	23.2
7. Food, Beverages and Tobacco	23.2
8. Paper, Pulp, Printing and Publishing	21.3
9. Furniture and Fixture	17.8
10. Non-metallic Minerals	16.9
11. Manufacture of Textile, Leather etc	15.2
12. Others	-



RANKING OF MAJOR GROUPS BY RATE OF GROWTH

23A

The average rate of growth of all industry during the above period was 19.1% (See Annexure-XI). Since the growth rate of the first five groups is substantially higher than the overall growth of industry these groups are expected to offer better profitability. As a matter of fact a higher rate of expansion is ensured allowing higher capacity utilization as well as easier adaptation of the selling prices to the market demand.

4.3.3 Major Groups Manufacturing Capital Goods

4.3.3.1 Value of Production

The value of production of five major groups manufacturing capital goods is reproduced below in Table-16:

TABLE-16

VALUE OF PRODUCTION OF FIVE MAJOR GROUPS MANUFACTURING CAPITAL GOODS

(Rs. In Million)

Sl. No.	SIC 3 DIGITS	Major Groups of Industries	1959/60	1965/66	1969/70	1970/71	1975/76	1976/77
1.	382	Machinery other than Electrical	20	100	170	130	870	1,020
2.	383	Electrical Machinery	60	200	300	300	900	1,270
3.	384	Transport Equipment	80	200	250	360	1,600	1,300
4.	331,332	Furniture & Fixture	4	14	20	20	30	40
5.	380,381	Fabricated Metal Products	20	40	50	40	90	100
		TOTAL :	184	554	790	850	3,490	3,730
		All Industries Production	3,310	7,170	11,800	13,340	30,670	38,100
		Percentage of Captal Goods Production to all Industries	5.5%	7.7%	6.7%	6.4%	11.4%	9.8%

Source: Census of Manufacturing Industries.

4.3.3.2 Growth Rate

The annual average growth rates of capital goods manufacturing industries is given below:

TABLE-17

ANNUAL AVERAGE GROWTH RATES OF FIVE MAJOR GROUPS MANUFACTURING CAPITAL GOODS

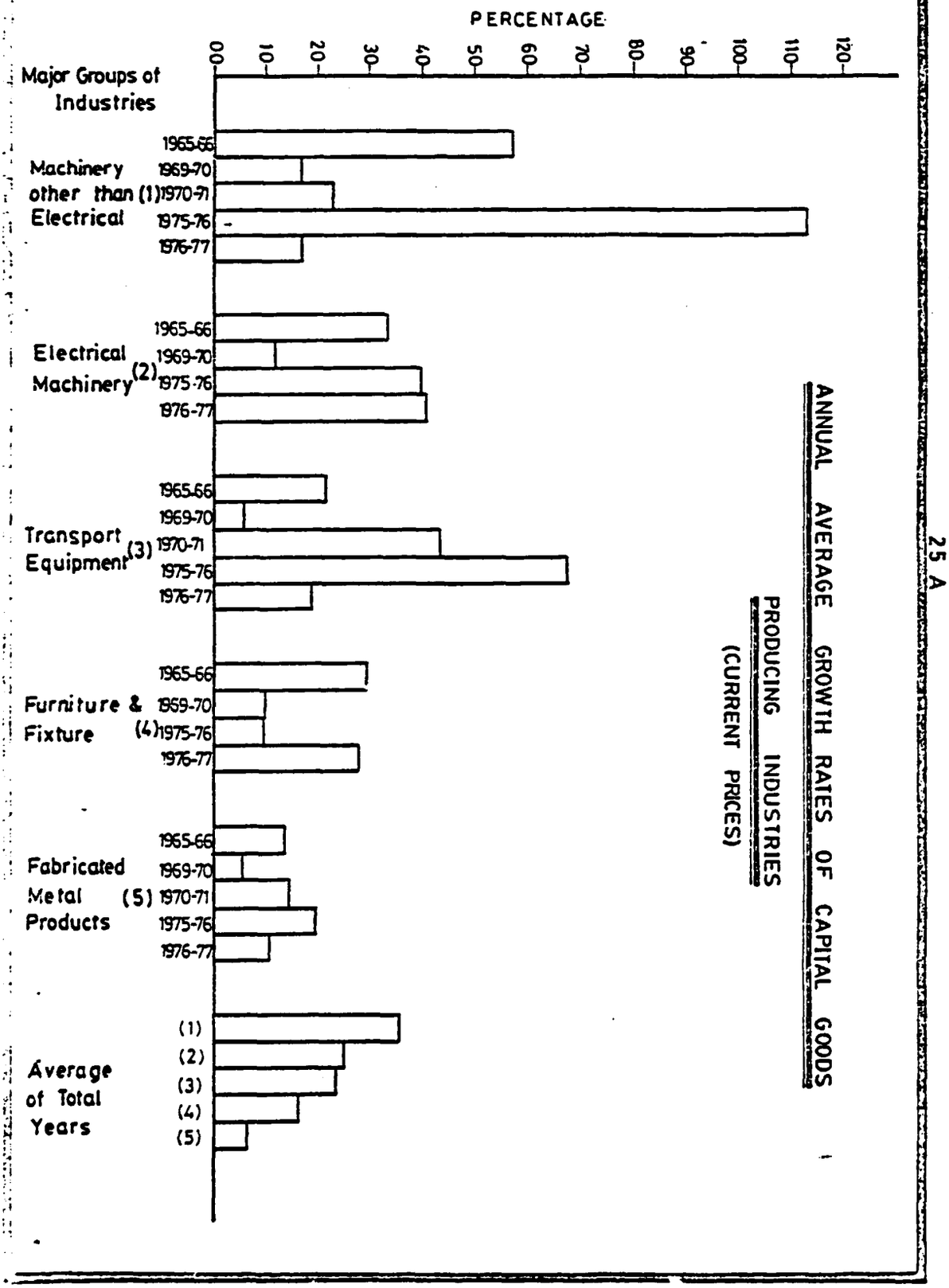
Sl. No.	SIC 3 DIGITS	Major Groups of Industries	1959/60	1965/66	1969/70	1970/71	1975/76	1976/77	Average
1.	382	Machinery Other than Electrical	-	57.1	17.5	23.5	113.8	17.2	36.4
2.	383	Electrical Machinery	-	33.3	12.5	-	40.0	41.1	25.3
3.	384	Transport Equipment	-	21.4	6.2	44.0	68.8	18.7	24.3
4.	332	Furniture & Fixture	-	35.7	10.5	-	10.0	33.0	17.8
5.	380,381	Fabricated Metal Products	-	14.2	6.2	20.0	25.0	11.1	7.3

Source: C.M.I.

4.3.3.3 Most Promising Sub-Groups

Within the capital goods manufacturing industries, the first one, non-electrical machinery offers the highest growth rate in (a) agricultural machinery and implements and (b) metal and woodworking machinery (See Annexure-XII).

As far as the agricultural machinery is concerned, the tractor assembly and the manufacture of agricultural limplements have an outstanding position. It is followed immediately by machine tools comprising lathes, drilling machines, shapers, small mechanical presses etc.



ANNUAL AVERAGE GROWTH RATES OF CAPITAL GOODS PRODUCING INDUSTRIES (CURRENT PRICES)

25 A

Within the second major group in the order of growth rate (electrical machinery) radio and communication equipment occupies the first place followed by electrical apparatuses viz switch gears and transformers.

In the transport equipment which ranks third in the field of capital goods the foremost is the motor vehicle industry followed by ships and boats. The motor vehicle assembly consists of progressive manufacture and assembly of two, three and four wheelers, including trucks, buses, jeeps and small commercial vehicles. Despite the fact that allocations of foreign exchange for import of S.K.D. & C.K.D. assemblies are much below the installed capacity of the industry, the impressive growth rate (51.6%) is a significant evidence of the intensity of demand of motor vehiclesin the country.

The shipbuilding has also shown the remarkable growth rate of 40.2 percent. It may however, be mentioned that a small increase in the production of ships makes a large difference in value and also in percentage.

The other two major groups (which do not belong to the capital goods industries) and have shown high growth rates are chemicals and basic metals manufacture. In the chemical industry, fertilizers and plastics prevail, while in the case of basic metals iron and steel production shows the highest rate of growth.

Although the feasibility of new projects and the cost benefits analysis, on which the phase-II of the project will work, could change the ranking by switching the criteria of selection of projects from growth rate and profitability to economic and social benefits, our suggestion is to invest money and concentrate efforts in terms of technical assistance in the following industries:

1. Tractors
2. Machine Tools
3. 2 and 3 wheelers
4. Trucks and Buses
5. Passenger Cars
6. Construction machinery and equipment.

The transport equipment industry plays a vital role in the development of a country. The vehicle manufacture and assembly plants generate substantial demand for all types of machine tools; presses, lathes, drilling, gear cutting machines etc. for plastic moulding and pressure casting machines; for painting, welding, upholstering equipment and tools; for precision machines for tooling etc. The production/assembly of vehicles therefore, affects the entire engineering industry directly, and indirectly promotes the production of a number of auxiliary industries manufacturing components and parts as well as creates a large network of after-sale servicing units.

In terms of job creation, the automobile and tractor industry can be regarded as the foremost in modern economies. It also urges the technical advancement within the industry and upgrades the skill of workers.

Although the short term demand projections of vehicles (tractors included) as estimated by now at 50,000 units per annum would lead to an uneconomical production from the comparative cost point of view, the benefits in terms of revitalisation and expansion of industry as well as of job creation are certainly much higher, let alone the anticipated increase in demand with the improvement in per-capita income during the Eighties.

4.3.4 Trend of the Main Divisions of Economy

The trend of the main division of economy as indicated by national accounts from the year 1959-60 to 1978-79 (Annexure-II B) shows that the following divisions have exhibited the highest growth rate:

1.	Ownership of Dwellings	13.2%
2.	Electricity and Gas	13.1%
3.	Banking and Insurance	12.3%
4.	Construction	10.5%

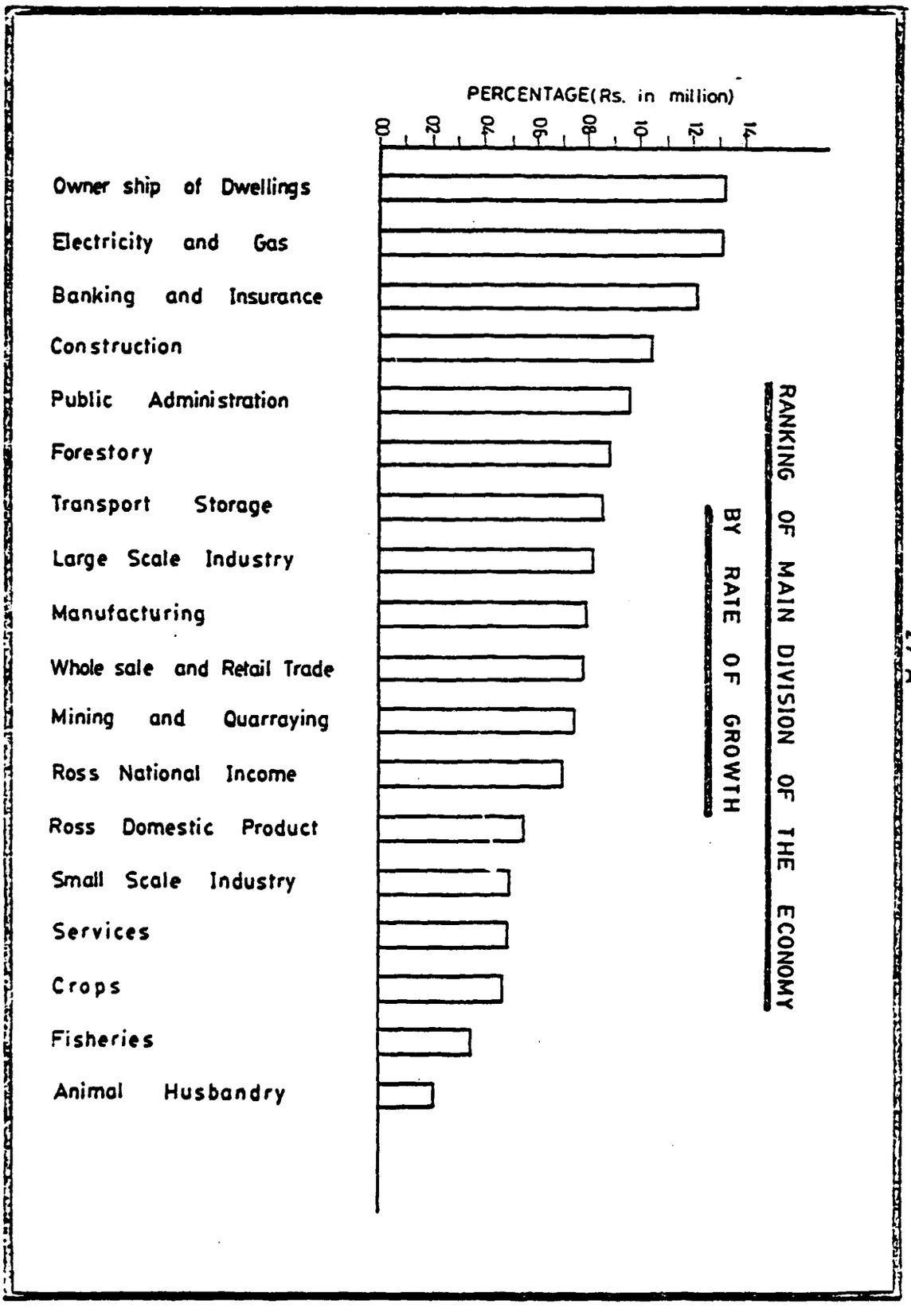
These main divisions draw on capital goods industry in a different but substantial way such as dwellings and construction (road rollers, concrete mixers, stone crushing plants, cranes etc.), electricity and gas (towers, transformers, switch gears, compressors, pumps etc.) banking and insurance (office machines, calculators, safes and strong rooms etc.) whereas all the above divisions require furniture and fixture both wooden and metallic. As no attempt has been made to estimate the demand accruing from the related growth rates, they are nevertheless worth considering for further study.

A striking feature of the economy which becomes evident from the above analysis is the shift from the commodity producing to services activity during the Seventies. This is a source of caution in a country like Pakistan which has still to go a long way in the development of industry and agriculture.

4.4 Product Development in Capital Goods Industry:

4.4.1 Most Dynamic and Growth Generating Major Group

Having identified the most dynamic major groups of industries and keeping in mind that the effort in terms of investment and of technical assistance should be concentrated in the most driving ones to generate an impact on the industrial sector as a whole, we have limited our suggestion for enlarging the range of products as well as up-dating and up-grading them to the following sub-groups :


PERCENTAGE(Rs. in million)
00
02
04
06
08
10
12
14
Owner ship of Dwellings
Electricity and Gas
Banking and Insurance
Construction
Public Administration
Forestory
Transport Storage
Large Scale Industry
Manufacturing
Whole sale and Retail Trade
Mining and Quarraying
Ross National Income
Ross Domestic Product
Small Scale Industry
Services
Crops
Fisheries
Animal Husbandry
RANKING OF MAIN DIVISION OF THE ECONOMY
BY RATE OF GROWTH

27 A

1. Agricultural Machinery (Tractors)
2. Machines for Manufacturing Transport Equipment .

4.4.2 Existing Production and Areas of New Investment

The following Chapter outlines the existing production of capital goods in Pakistan and identifies areas for expansion and for new products in addition to the above two sub-groups. It may, however, be stated that although the products identified possess good prospects and find favourable conditions for manufacturing, yet detailed feasibility studies would be needed to prepare for eventual implementation of the investment proposals.

4.4.2.1 Non-electrical Machinery

This group mainly covers manufactures of agricultural machinery, implements, engines and turbines, earth moving and construction machinery and all industrial plants.

The agricultural machinery presently being manufactured comprises cultivators, disc ploughs, border discs, mould board ploughs, cotton planters, grain drill, disc harrows etc.

Regarding introduction of additional products in the range of agricultural implements and machinery it may be pointed out that rice being a major source of foreign exchange for the country and considering the steady increase in the export of rice (789,000 tons in 1972 to 879,000 tons tons in 1977-78), the implements needed for preparation of land for rice cultivation, trans-plantation and harvesting of paddy should be seriously considered. The other areas identified include expansion of wheat thrasher manufacturing and unification of components and parts thereof.

4.4.2.2 Machine Tools and Light Engineering Workshop Equipment:

The machinery being manufactured under the above head mainly comprises general purpose lathes upto 600 cm bed length, and 90 cm centre height, heavy duty lathes, universal, horizontal and vertical milling machines, planners upto 18 x 540 cm, power presses upto 120 tons, shaping machines, upto 120 cm. stroke wood working lathes, jointers, saw machines of tilting arbor type and hand type upto 180 cm. size. Also included in the above list are drilling machines pillar-type for maximum drill size of 150 mm bore, gears and gear boxes for vehicles and machinery, crankshaft, surface and cylindrical grinders.

In the field of machine tools, the State Engineering Corporation occupies a key position with three (out of ten) companies controlled by it. These companies are:

1. Heavy Foundry and Forge complex, Taxila
2. Pakistan Engineering Co, Lahore
3. Pakistan Machine Tool Factory, Karachi.

The above companies could play an important role together with Ittefaq Brothers, Lahore, in the development of machine tools in Pakistan taking advantage particularly of forging capacity of Heavy Foundry and Forge Complex, Taxila.

Since expansion of vehicle industry including tractors is on the way, the following products may be developed:

1. Hydraulic Presses
2. Relieving Lathes
3. Copy Lathes
4. Deep Hole Drilling Machines
5. Die Sinking Machines
6. Camshaft Grinding Machines
7. Gear Tooth Rounding and Champhering machines
8. Lapping and honning Machines of all kinds.

The production of hydraulic presses should be accorded priority as they would facilitate a number of operations not only in the automobile and tractor plants but also in all other industrial productions requiring controlled power at pre-determined speeds. The manufacture of hydraulic cylinders and pumps would also lead to their use as lifting jacks, hydraulic puller and bending sets etc.

4.4.2.3 Transport Equipment

This major group covers manufacture and assembly of two wheelers, three wheelers, passenger cars, commercial vehicles and tractors. The assembly-cum-progressive manufacturing plants in the public sector are governed by the Pakistan Automobile Corporation while there are two plants in the private sector engaged in the assembly of two-wheelers. There are quite a few factories manufacturing automobile and tractor components/spare parts in the private sector.

The Pakistan Automobile Corporation has 8 plants for assembly-cum-progressive manufacture of vehicles. All the companies under PACO are following a phased deletion programme of imported components for progressive manufacture of vehicles in Pakistan.

The target for local content aimed at has been envisaged as under:

Sl. No.	Description	Proposed Capacity	Local Content Target	Period (Years)
1.	Passenger Cars	20,000	72%	6
2.	Motor Cycles	15,000	73%	5
3.	Vans and Pick-ups	10,000	80%	8
4.	Tractors	20,000	85%	5
5.	Diesel Engines	10,000	85%	5

Implementation of a part of the above scheme has already been started with the financial assistance of $ 32 million from Asian Development Bank for modernization/expansion of press shop, dies and tool departments.

Simultaneously the Government is also actively considering the possibility of the establishment of one or two tractor assembly plants in the private as well as public sector.

The implementation of the above programmes is expected to provide much-needed stimuli to the private sector for manufacture of automobile and tractor components, and in order to get maximum benefit of the above programme, it would be advisable to associate the private sector to the maximum extent also keeping in view the existing idle capacity in this industry. The areas where new capacity would be needed possibly with technical nical assistance programmes and licensing agreements include crankshafts, connected rods, sheet-metal pressings, lamp-housings, starter motors, wiper-motors, ignition coils, instruments, structural parts, pressure die castings for locks, door handles, rubber and plastic mouldings.

4.4.2.4 Electrical Machinery

In the electrical machinery the main items of production are power transformers, electric motors, switch gears, control panels, power-factor improvement plants, generating sets and induction furnaces for melting of ferrous and non-ferrous metals. The main items are discussed below in details:

i) Power Transformers: Power transformers upto 2,000 KVA are being manufactured by Climax Engineering Co., Gujranwala, Siemens (Pak) Engineering Co., Karachi, A;E;G., Telefunken (Pak) Ltd., Karachi and Pak Electron Ltd., Lahore. Capacity exists for the manufacture of 3000 KVA and higher ratings but

because of market constraints production is not regular. In fact Siemens (Pak) Engineering Co., has the capability to produce transformers upto 10,000 KVA. The current and instrument transformers can also be produced with the existing facilities.

ii) Electric Motors: Electric motors of the following types are being manufactured in the country:

1. Hollow Shaft for Deep Well Turbine Pumps
2. Squirrel-Cage (Single and Double) for industrial purposes
3. Loom Motors
4. Fractional Horsepower Motors.

The present installed capacity of the electric motors industry is adequate to meet the demand. The capcity utilization is low due mainly to imports under barter.

Motors upto 150 H.P. are being manufactured while capacity exists for bigger sized motors upto 250 H.P. It is expected that with adequate protection to the industry the product development would take place according to the market requirements.

iii) Switch Boards: The present production consists of the following:

1. Switch boards upto 33 KV, 2500 Amps and 1500 MVA.
2. Low Tension Metal Clad Switchboard and distribution boards upto 4000 Amps.

Non-standard designs of switchboards according to the individual requirements of the customers are being made by Siemens, Karachi, Climax and Samco, Gujranwala and Pak Electrons, Lahore. This industry has capability and facilties as well as know-how to adjust to the market demand both of existing and new products.

iv) Induction Furnaces: Climax Engineering Co., Gujranwala has the capability to manufacture the mains frequency induction furnaces of 1.5 tons capacity for Aluminium, 2.5 tons for non-ferrous metals, 6 tons for cast iron and steel. The power factor improvement equipment for the furnaces is also manufactured locally. High frequency induction furnaces and arc furnaces were also produced in the past by a few manufacturers (e.g. Life Engineering Co, Lahore) The production was however suspended due to technical difficulties. It is suggested to accord priority to the removal of technical short-comings in the high frequency and arc furnaces. It would be necessary as well to create facilities for manufacture of high frequency generators.

4.4.2.5. Food and Grain Milling Machinery

The machinery being manufactured under the above category consists of flour milling, rice husking, maize processing plants and date processing equipment.

The flour milling machinery being manufactured is based on obsolete and inefficient system of mechanical conveying. It is suggested that plants based on pneumatic conveying may be developed, because of its more hygenic and safer characteristics. Other items which are expected to have a large replacement demand are plansifters and purifiers.

The production of rice husking plants (shellers) is restricted to small capacities (one ton and 2 tons/hour), again based on mechanical conveying. The technology involved is also outdated. The additional products idenfified are 5 to 10 tons/hour rice plants based on rubber roll husking process and utilising pneumatic conveying of products.

4.4.2.6 Pharmaceutical Machinery

The average growth rate of pharmaceutical industry in Pakistan (23.8%) has also been impressive. This is attributable to the existence of increasing demand of medicines as result of health consciousness among people and the priority attached by the Government to the health sector. The pharmaceutical machinery manufacturing capability consists of capsule filling and closing machine, filter presses, mixers, rotary bottle washing machines, strip packing machines and tabletting machines.

The new products recommneded are as follows:

1. Pumps for liquids
2. Crystallizers and evaporators
3. Granulators and Coating machines
4. Bottle filling machines

4.4.2.7 Printing Machinery:

The demand of printing is directly linked with the industrial advancement of the country.

There are seven units manufacturing printing machines such as cylinders presses, platen presses, die cutting and creasing machines and perforating machines. The technology involved is very old and efforts made by some (Saeed Industries, Jhelum) to produce offset presses have not met much success due to large scale imports. It would be necessary to provide adequate protection to the industry by way of restricting imports of offset and web-fed rotary offset machines coupled with an expansion and modernization programme of the existing units engaged in the manufacture of above machinery.

4.4.2.8 Plastic Processing Machinery

This group includes extruders for pipes and insulation of wires injection moulding machines upto 250 grams. The industry is still in infancy and should go for production of extruders and injection moulding machinery of higher sizes with a basic consideration in mind i.e. the need of using a scarce raw material at ever increasing price.

5. AREAS OF PROBLEMS IN THE PAKISTANI INDUSTRY

The following areas of problems hampering industrial development have been identified through a) a sample survey of industrial establishments in all the provinces of Pakistan, b) a study of major aggregates of the economy, c) interviews with knowledgeable people in industry as well as in financial institutions.

5.1 Market:

In order to keep the rate of inflation as low as possible and to improve the position of the balance of payments, the Government is forced to follow policies aimed at restricting the rate of growth of the economy. In such a situation, the market of all industrial products cannot be expected to match the potential demand existing in the country as determined by the increase in population, urbanisation and ever-growing expectations of individuals. Consequently a major cause of sickness of large part of Pakistani industry and of its decreasing profitability is the insufficiency of the actual demand.

5.2. Profit Margin:

From our survey it has been found that the net profit of most of the industrial units ranges from bare 6 percent to as low as 1.4 percent of the net sales whenever losses are not there. Cost structures of typical factories related to sizes upto 10, 50, 250, 500 and above employees are attached as Annexure-XV (A,B,C, & D). These structures indicate the abnormally high incidence of industrial cost on sales mainly due to raw materials overburdened by custom duties (ranging from an exceptional 10 percent upto 90 percent), high overheads because of low-capacity utilization and, unjustified levy of excise duty in a number of cases and high cost of power (Rs. 0.50 per KWH). Frequent Power breakdowns in large industrial areas as well as in smaller ones furthermore cause disruption in production affecting negatively the plant productivity and eventually the profitablity of industrial units.

5.3. Taxation:

5.3.1 Income-tax

The sliding scale of corporate income-tax which came in force in 1979 is considered rather too high, Furthermore if we take into account the inflationary state of the economy the same quantum of earnings brings the taxable income to the next higher step automatically. For instance,

a company earning Rs. 50, 000 in a year will be liable to pay Rs. 7, 500 plus 10, 000 i.e. Rs.17, 500 corresponding to a percentage of 35. Next year, only because of inflation, the earnings reaching 61, 000 would be liable to pay Rs. 22, 500 + Rs. 550 i.e. Rs. 23, 050 or 37.78 percent without any real increase in income and so on for the higher brackets.

5.3.2 Excise Tax

The levy of excise duty on industrial production is another difficulty which is hampering the development of industry by burdening the industrial cost. Presently all the industries using Mild Steel as raw material are subjected to an excise tax of Rs. 50 per ton which has a negative impact on the production of capital goods.

5.3.3 Custom Duty

The high rate of Customs Duty on major items of raw materials and components makes the local production of Capital Goods uncompetitive against the imported ones. Comparison of prices confirms the above; besides very often the better quality also plays in favour of foreign suppliers. We may also point out that one of the reason for low exports of capital goods (Rs. 59.9 million in 1976-77) is the uncompetitive position of the industry due to the causes listed above and furthermore to the high rate of custom duties on a number of semi-finished products going into the manufacture of capital goods with cumulative effect on production cost. The rebate presently allowed @ 12.5 percent is considered to be too low by the exporters interviewed by us.

5.4 Import Licences of Products Locally Manufactured:

The issue of import licences for products being domestically manufactured, although obeying to domestic price containment policy, is considered by all the interviewed entrepreneurs a negative practice causing disruptions in production as well as in the marketing of local products.

5.5 Labour:

They survey conducted highlights the low-level of productivity in general and in the large scale industry particularly. While there are many factors responsible for low productivity, as far as the labour is concerned, the combined effect of the contractual holidays (52 weekly, plus 75) together with the generalized habit of taking too many sick leaves, has resulted into a high rate of absenteeism thereby reducing productivity. Over and above this, according to the present legislation it is very difficult for the management to prove the misconduct of workers.. Consequently the discipline, mainly in larger factories, has deteriorated, adversely affecting the productivity and efficiency.

5.6 Technology:

It has been observed that the machinery and equipment in Pakistani industry is of old age and very often technologically obsolete. In some of the large engineering factories machines dating back to Thirties and Forties can be seen, brought in the country from a number of sources. This is also applicable to other industries such as textiles, food and a host of small scale and household servicing as well as manufacturing industries. The other aspect of the problem is that no priority is attached to replacement. It has been observed from the financial statements of a number of companies, and this is confirmed by the data contained in the C.M.I., that depreciation although charged to the income account and deducted from the value of fixed assets in the balance sheets, is not utilised for replacement. The low priority attached to the replacement of machinery and equipment has been and is adversely affecting the entire capital goods manufacturing industry and has reduced the momentum gained by the industry in Sixties towards upgrading and updating the technology.

5.7 Investment:

It may be recalled that the total investment in 1978-79 was estimated at Rs. 31.6 billion which constituted 16.5 percent of the total G.N.P. (Rs. 191.5 billion) of the country. If we deduct 10% needed to reconstitute the capital, the net investment reduces to Rs. 12.4 billion or 6.5 percent of the GNP which is considered to be too low for the development of the country. Industry as a whole on the overall investment availability, however, absorbed an investment of Rs. 8.2 billion corresponding to 25 percent of total investment (which is 10 percent over and above the share of manufacturing on the overall economy). Consequently it may be stated that the industry is a preferential sector as far as investment is concerned. Despite the preferential treatment, including concessional interest rates, higher debt/equity ratios, availability of tax holiday for certain areas, special depreciation rates, exemption of custom duties for BMR to textile units, as well as for export oriented industries and those located in industrial estates, the private investment is lacking. The net effect has been a striking concentration of investment in the public sector as per details given in Annexure-III.

The above concentration has however, enabled the public sector industry to attain the position of take-off by covering such strategic production of capital goods as sugar mills, cement plants, large castingsand forgings of various specifications, ship-building and progressive assembly of vehicles, textile machinery etc.

It has been indicated already in this report that the industry in Pakistan is overwhelmingly composed of small and medium-sized units in the private sector (94 percent numberwise and 81 percent employment-wise). The trend in private sector investment is conse-

quently a pre-requisite for development of Pakistani economy.

The following table shows that in the last four years, almost total private sector investment has been realised through the financial institutions such as the IDBP, PICIC, and by means of well conceived schemes of NRI, PAYEE and Foreign private loans etc.

TABLE-18

INDUSTRIAL INVESTMENT SANCTIONS IN THE PRIVATE SECTOR

(In Million Rs.)

Agency	1976-77	1977-78	1977-78 July—March	1978-79 July—March
i) PICIC	392.9	412.2	232.0	115.4
ii) IDBP	139.8	216.9	129.6	391.1
iii) IPB/Textile Commissioner:				
a) Repatriable Investment	70.2	371.9	363.3	372.7
b) Foreign Private Loan	87.5	414.5	419.0	236.0
c) Non-repatriable Investment Sanctions	62.1	283.3	121.7	210.4
d) *PAYE Investment Sanctions	96.8	133.5	126.4	908.3
e) Others	61.4	46.7	23.4	47.5
Sub-total	378.0	1,249.9	1,053.8	1,774.9
Grand-total	910.7	1,879.0	1,415.4	2,281.4

* PAYE : Pay-As-You-Earn

Source: Ministry of Industries, Government of Pakistan.

Annexure-III indicates that (a) the investment in the private sector during the last 4 years has been oscillating between 25 to 30 percent of the total investment in industry (which is much less of its share in industrial activity) and (b) evidently the participation of private entrepreneurs in the overall industrial development is missing both because of troubled international economic situation and by the propensity to easier money in the form of trade, and other fast-return activities.

We must say that unless the participation of private enterprise and of individuals to the investment is ensured, the perspective of import substitution is bound to vanish. The only option left will be to continue importing and not creating the needed number of jobs and impairing the initiative of entrepreneurs and managers in industry. Such policies finally lead to losses in public sector industries since they are the main manufacturers of producers' goods. The low profitability in industry as mentioned above and the lack of employment opportunities could cause again migration of human resources and, we may add of capital already experienced by the country.

6. BASIC ASSUMPTIONS FOR THE GROWTH IN THE EIGHTIES

6.1 We know that:

i) the annual average rates of growth of GDP and of value added in manufacturing in the Sixties and the Seventies at constant factor cost have shown the following trend.

TABLE-19

TREND OF G.D.P. AND VALUE ADDED IN MANUFACTURING

	1959-60 to 1969-70		1969-70 to 1978-79		Difference
1. G.D.P.	6.8		3.6		- 3.2
2. Value added in manufacturing (Excluding construction, mining and quarrying	9.9		3.3		- 6.6
Difference	3.1		- 0.3		
3. Average annual growth rate of production value (all industry)	14.0	(Deflated rate) 10.1	19.8	(Deflated rate) 5.7	- 4.4

Source: C.M.I. and Pakistan Economic Survey.

ii) The share of industry in overall economy is 15 percent and absorbs 20 to 25 percent of investment in the country.

iii) The capital goods producing industry is 10 percent of all industry

iv) To an average growth of G.D.P. of 3.6% corresponded in the decade of the Seventies, a growth of industrial production value of 5.7 percent.

6.2 Targets for 1989-90:

We cannot use correlation and regression for the reasons explained in the introduction but the data and information gathered about industry in Pakistan suggest to assume as under:

i) An average rate of growth of G.D.P. of 5 percent per annum
ii) An average rate of growth of production value of 8 percent per annum
iii) An average rate of growth of capital goods production value of 20 percent per annum for the first four years and 15 percent for the succeeding six years.

Under the above assumptions and at prices of 1980, the following targets will be achieved:

i) The G.D.P. will amount to Rs. 289.3 Billion in 1989-90
ii) The industrial production value will double in nine years and in the tenth year will amount to Rs.106.8 Billion in 1989-90 (Estimated production value of 1978-79 being Rs.49.5 billion)
iii) The production value of capital goods will double in 4 years and amount in the tenth year to Rs.21.6 Billion in 1989-90 (Estimated prod. value of Capital Goods Rs. 4.7 Billion in 1978-79).

The share of local production in the domestic market of capital goods can be raised from 36 to 56 percent, decreasing the imports from 64 to 44 percent as indicated in the following table:

TABLE-20

SHARE OF LOCAL PRODUCTION AND OF IMPORTS IN DOMESTIC MARKET IN 1989-90

	Estimates of 1978-79 (Billion Rs.)	Percentage	Estimates of 1989-90 (Billion Rs.)	Percentage
1. Local Production	4.7	36	21.6	56
2. Imports	7.7	64	16.9	44
3. Domestic Market	12.4	100	38.5	100

The objectives and targets as indicated above are certainly ambitious and involve a number of policy measures as well as strong effort in terms of investments and technical assistance.

We are of the opinion however, that whereas the government action should be limited to review policies, restore confidence and reduce the fiscal tolls and anomalies on industry, the private entrepreneurs supported by financial institutions should take to themselves most of the effort as well as the financial burden for investing in dynamic sectors of industry of course in an atmosphere of higher profitability.

6.3 Investment needed for Replacement and Expansion of Industry:

The investment needed during the Eighties for replacement of old machinery and expansion of facilities has been estimated at Rs. 41 billion on the following assumptions:

1. Capital output ratio $\frac{\text{(Total Asset)}}{\text{(Net Sales)}}$ for all industry = 0.60
2. Capital output ratio for capital goods industry = 1.00
3. Incidence of cost of machinery on total assets:
   a) for industry = 0.53
   b) for capital goods industry = 0.65

The investment needed has been arrived at according to the following formula:

Investment required (I) = Value of production 1989-90 (v) :: Incremental Capital output ratio (I Cor) x Incidence of cost of machinery (M)

For All Industry:

V = 85.1 Billion
I Cor = 0.60
M = 0.53 I = 85.2 x 0.60 x 0.53 = Rs. 27 billion

For Capital Goods:

V = Rs. 21.6 Billion
I Cor = 1
M = 0.65 I = 21.6 x 1 x 0.65 = Rs. 14.0 Billion
= 27 + 14 = Rs. 41 Billion in 10 years (at prices of 1980)

It will be seen from the above that we have accorded first priority to replacement and expansion of machinery and equipment on account of the old age of most the machinery installed in Pakistani industries and also because of the fact that replacement of machinery with the locally manufactured machines (through the mechanism contained in your suggestions) would provide the much needed stimulus to the local capital goods industry.

In addition to the above, investment would be needed for new projects according to the priority established by the Government Planners. As far as capital goods are concerned, the second phase of this project envisages the preparation of detailed feasibility studies which would facilitate the task of authorities in establishing the priorities as for as capital goods are concerned.

7. CONCLUSIONS AND RECOMMENDATIONS

The development of capital goods industry in Pakistan is dependent on the revival and enlargement of the market of consumer's goods and on the restoration of private entrepreneurs and individuals' propensity to invest.

Government outlays on infra-structures and credit facilities for construction and public works, are also desirable for the progress of capital goods industry.

A stricter degree of protection from foreign competition in the domestic market is also needed, to ensure the profitability of Capital Goods manufacture as well as its advancement towards self-reliance and increased international trade of machines, plants and equipment-

It has been observed that the growth rate of economy fell by half during the Seventies as compared to the Sixties, the growth recorded being attributable to the Government effort of investments mainly in the public sector. Consequent to the above fall, the process of specialization as well as of the technological advancement, of the enlargement of production range of capital goods industry was arrested. It turned out actually that many industries producing capital goods in seeking new sources of income, directed their efforts towards excessive diversification and very often towards duplication of products, which resulted eventually in lower efficiency and profitability.

Data and information collected through survey of a representative sample of industry of Pakistan present the following situation:

1. The market of durable as well as producer's goods mostly depressed as a consequence of restricted demand by consumers and investors. Only some industries manufacturing consumers' goods (particularly some efficient joint ventures) and some exporting industries are doing well and even expanding, but they represent exceptions.

2. Low average capacity utilization in industry (roughly estimated at 50-60%) and by repercussion a capital goods industry working at an average of 40 percent capacity.

3. Replacement of machinery at a long lasting standstill.

4. Very limited interest in enlarging the range of products, upgrading and updating technologies, let alone the formulation of plans for expansion of facilities.

5. The Government action and policies aimed at breaking through these constraints succeeding, but apparently not attaining the objective of mobilizing large part of private financial resources.

6. Uncertainty among entrepreneurs due to recurrent imports of machinery in the frame of complete plants and equipment, as well as to imports under disguised specifications.

The economy has recently shown signs of improvement in terms of increased exports of rice (Rs.2.2 Billion)* cotton yarn and cloth Rs.3.6 billion)* , carpets (Rs.1.2 billion)* and increased remittances (Rs.13.9 Billion)** by Pakistanisliving abroad. The Government action aimed at supporting the above improvement and reeling the same in the sluggish domestic market would be convenient and desirable. It can be viewed in terms of certain non-inflationary measures such as incentives to workers tied to productivity; of measures directed to enhance the earning capacity of manufacturing units as well as of concentration of investment in job-creating projects, such as tractors, vehicles, machine tools and construction machinery which although presently uneconomical from the comparative costs point of view, deserve nevertheless the highest priority for the benefits they can bring to the industry and to the economy as a whole.

It is our considered opinion that to restart the industrial development process at a pace and rate needed in a country with a growth potential of Pakistan, a package of measures should be adopted in the frame of a comprehensive plan in which the capital goods industry should play a major role.

Following are our recommendations:

1. a) High priority should be given to projects of investment aimed at progressive manufacture of products given below since they are not only the most dynamic, but also most promising and driving products within the economy of the country. The projects should be formulated, with the objective of achieving expansion of existing facilities, specialization in products and components as well as standardization of parts.

The products identified for expansion and progressive local manufacture are:

i) Tractors
ii) Buses and Trucks
iii) Passenger Cars
iv) Two and Three Wheelers
v) Concrete mixers, road rollers, stone crushing plants, overhead travelling cranes and earth moving machines
vi) Machine Tools.

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* Foreign Trade Statistics.

i) Under Transport Equipments and Tractors:

Engine blocks, crankshafts, connecting rods, cam shafts.

ii) Under Machine Tools:

Multi-spindle drilling machines, 3-way horizontal milling machines, hydraulic presses over 250 tons.

b) Sub-contracting within the country both of large and small units should be considered a must in the development process. When needed, financial arrangements should be contemplated between the vendee and vendor units to avoid difficulties arising from non-availability of collateral on the part of vendor units. The components and parts of all the above products should be unified and standardised to the maximum possible extent.

c) The Chamber of Commerce and Industry & Trade Associations would be well advised to set-up a committee with representatives of capital goods demanding and of producing industries as well as small-scale and household industries for the above purpose. International technical assistance should be made available to the committee in the field of quality control and tooling.

2. In order to increase the range of products and to up-date technology in the capital goods industry, licence agreements with foreign manufacturers are highly desirable. While negotiating such agreements suitable clauses should be stipulated for the following:-

a) Freedom to export the products under licence to certain areas (Middle East for example)

b) Participation in the production of the licensor by way of supply of most acceptable locally manufactured parts against import of the needed components not produced locally. This may be regarded as temporary special arrangement till Pakistani capital goods acquire an image in the international market of machinery and equipment.

3. To encourage use of locally manufactured machinery and parts:

a) Tax rebate should be allowed to the industries upto 25 percent of the value of locally manufactured machines, equipment and parts purchased during the year as straight deduction from the taxable income both for replacement of existing machinery and for establishment of new industrial facilities.

b) The list of items banned for import should be enlarged and enforced in stages (1 to 5 years) according to the sophistication of the products. The products proposed to be banned in future (based on capability of domestic production and homogeneity of facilities) should be placed in a controlled import system to avoid speculative imports.

c) A cell may be constituted consisting of highly qualified engineers having knowledge of existing production facilities, specification of various plants and machinery, as well as international sources of machines, equipments, and parts to administer the list of banned items in a 'yes or no' way. The cell should have representation of both capital goods producing and demanding industries. International technical assistance should be extended to the above cell for transfer of technology utilizing the services of UNIDO.

d) The issue of occasional import licences mainly motivated by the need of keeping the price level in the country as well as to maintain the supply position, should be discontinued, since they cause disruption in production and marketing of locally manufactured capital goods in the country resulting in financial difficulties for the producers.

4. a) In order to affect a meaningful reduction in the cost of production, the custom duty on raw materials should be eliminated in a period of three years.

b) Similarly there is no justification (except fiscal) to apply the excise tax @ Rs. 50 per ton on steel products and it should be abolished.

c) The present rebate of 12.5 percent allowed on export of capital goods should be increased substantially as a temporary measure to equate with the competing countries cost.

d) The cost of power and gas, if not reduced, should be maintained at the present level till the measures proposed succeed in reducing the industrial cost substantially.

e) Import of raw materials and components shoud be ensured to capital goods manufacturers with absolete priority both through Trading Corporation of Pakistan and direct imports to avoid disruptions in production and consequent financial losses.

g) The import of raw materials by Trading Corporation of Pakistan should be evenly spaced during the year for reduction in financial cost of import and storing of raw materials. (This problem is expected to be overcome to some extent by full operation of Pakistan Steel Mills).

5. Corporate income-tax should be reduced by atleast 10 percent and super-tax should be abolished. For partnership firms the sliding scale of tax should be lowered by one step.

6. In order to reinstate discipline mainly in large factories, as well as to increase productivity in industry, a special fund may be created to ensure a substantial portion of salary(80%) plus welfare benefits to the surplus work force for a period of six months. This fund should be composed of contribution by industry, government and by deducting a small amount from the wages of the workers every month. The fund should also be utilised for financing retraining courses for the workers in various skills to put the beneficiaries in a position to find new jobs.

The above package of measure are expected to increase the profitability of industry in general, to promote the development of capital goods industry as well as to increaseits share in the domestic market.

8. FIRST PHASE OF THE PROJECT AND PROPOSED FOLLOW-UP

8.1 The project document signed on the 2nd of April, 1979 forsees a duration of 2 years and involves an expenditure of U.S. $ 273,400 plus Rupees 600,000 as local expenditure by government of Pakistan.

The project implementation has been started on the 8th of January 1980.

The personnel who worked on the project for the first phase has been as follows:

1. Project Coordinator	Mr. A. Taqvi, Director General IPB*
2. Market Analyst	Mr. Romeo Bonini (UNIDO Expert)
3. Industrial Engineer	Mr. Iqbal Ahmed, Deputy Director, Engineering Directorate, IPB
4. Industrial Engineer	Mr. Farrukh Ali Shah Senior Consultant, IACP **
5. Economist	Mr. Ali Baqar, IACP
6. Industrial Economist	Miss. Munawar Sultana Awan, IACP.

Secretariat, logistic and survey personnel was made available by the IACP.

8.2 Long Term Objectives of the Project:

1) To enhance the production structure and technology of capital goods industry with aview to contributing to a change of the economic structure in favour of industry's share of the economy,

2) Up-grading of the process of industrial planning with a view to optimising the investment capital in the sector ensuring that development is responsive to capital needs.

The activities performed in the first phase of the project have been:

a) Definition of capital goods and identification of major groups of industries supplying and demanding capital goods.

b) Collection of secondary data on:
   1. Production
   1. Production of industry, production of capital goods.
   2. Imports and exports of capital goods.
   3. Market of capital goods (domestic, total)
   4. Macroeconomic data on the economy.

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* IPB - Investment Promotion Bureau
** IACP- Investment Advisory Centre of Pakistan.

c) Survey of industry and of capital goods manufacturing units in all the four provinces of Pakistan.

d) Identification of high priority major groups of industries as well as products requiring concentration of efforts in terms of investment and technical assistance.

e) Collection of information on prevailing policies on investment, taxation, imports, exports, and labour.
f) Projection of demand of capital goods in the Eighties.
g) Estimate of investment needed for replacement of machinery.
h) Reporting, conclusion and Recommendations.

8.3. Follow-up:

In our view the follow-up over and above the excercise suggested in the project document for the second phase of the project, whould be as under:

1. Co-operation with IPB in planning the capital goods indus try development in Pakistan.

2. Preparation of feasibility studies of priority products identified in the first phase.

3. Co-operation in setting up of a committee for integration and co-operation within industry (recommendation No.1C) and organization of the cell proposed in recommendation No. 3C to study and administer the banned list.

4. To provide technical assistance to the Committee and the cell mentioned at (3) above.

5. To provide data about the possibility of arranging licence agreements for the products envisaged in our recommendations.

6. To carry out studies on major groups, industries products in form of monographs to identify technical short comings and obstacles to development, priority should be given to the ones pointed out as most dynamic and driving in this report.

Annexure- I

LABOUR FORCE EMIGRATION FROM PAKISTAN

Year	No. of Workers
1971	3,734
1972	4,530
1973	12,300
1974	16,328
1975	23,077
1976	41,690
1977	140,445
1978 (Provisional)	128,041

Source: Bureau of Emigration and Overseas Employment.

Annexure-II

ESTIMATED EMPLOYMENT BY MAJOR OCCUPATIONAL GROUPS FOR 1977-78 AND PROJECTIONS OF EMPLOYMENT FOR 1978-79

(In Million)

Major Occupational Groups	Estimated Employment 1977-78	Percent of the Total	Projected employment 1978-79	Percent of the Total	Annual Projection % growth of employment
1. Agriculture, Forestry and fishery	12.360	60.0	12.669	56.4	2.5
2. Manufacturing (including mining and quarrying)	2.920	11.4	3.022	13.5	3.5
3. Electrical, gas and water	0.110	0.5	0.113	0.5	3.0
4. Construction	0.900	4.1	0.930	4.1	3.3
5. Wholesale and retail trade, hotels and restaurants	2.300	10.5	2.390	10.6	3.9
6. Transport, storage and communication	1.020	4.7	1.056	4.7	3.5
7. Services	2.230	10.2	2.297	10.2	3.0
TOTAL :	20.831	100.0	22.477	100.0	2.9

Source: Manpower Division.

Annexure- II-A

GROSS NATIONAL PRODUCT AT CONSTANT FACTOR COST OF 1959-60

(Million Rupees)

SECTORS	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59
1. Agriculture	6595	6768	6155	6166	7005	6948	7093	7254	7393	7689
Major Crops	3428	3524	2894	2807	3539	3461	3524	3650	3694	3931
Minor Crops	822	844	803	846	993	859	882	852	884	891
Livestock	2270	2326	2383	2440	2497	2553	2610	2667	2724	2780
Fishing	44	44	49	39	43	43	51	51	52	56
Forestry	31	30	26	34	33	32	26	34	39	31
2. Mining and Quarrying	27	37	41	42	45	45	50	55	59	64
3. Manufacturing	961	1042	1123	1235	1396	1569	1727	1821	1889	1968
Large Scale	277	342	406	502	646	802	942	1018	1068	1128
Small Scale	684	700	717	733	750	767	785	803	821	840
4. Construction	179	187	247	262	283	289	323	337	386	459
5. Electricity and Gas Distribution Services	27	29	31	30	35	37	43	57	63	66
6. Transport, Storage and Communication	617	654	667	721	764	823	845	878	890	1064
7. Wholesale and Retail Trade	1477	1567	1575	1858	1685	1777	1818	1876	1939	1988
8. Banking and Insurance	55	60	66	71	77	79	96	118	116	131
9. Ownership of Dwellings	632	649	670	686	704	725	745	769	792	815
10. Public Administration and Defence	873	895	1039	993	969	1014	1030	1003	981	1077
11. Services	955	993	1033	1074	1117	1162	1208	1256	1307	1359
12. Gross Domestic Product	12398	12881	12647	12865	14080	14468	14978	15424	15815	16680
13. Net Factor Income from/to Rest of the World	(-)18	(-)18	(-)11	(-)13	(-)27	(-) 4	(-)20	(-)17	(-) 4	(-)10
14. Gross National Product	12380	12863	12636	12852	1 053	14464	14958	15407	15811	16670
15. Population (in million)	35.31	36.18	37.07	37.98	38.91	39.87	40.86	41.87	42.90	43.95
16. Per Capita Gross Income (in rupees)	351	356	341	338	361	363	366	368	369	379

Note: The above series has been prepared in the Economic Adviser's Wing of Finance Division in consultation with the Statistics Division.

(Contd..)

Annexure-IIA)

GROSS NATIONAL PRODUCT AT CONSTANT FACTOR COST OF 1959-60

(Continued Annexure-IIA)

(Million Rupees)

SECTORS	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
1. Agriculture	7711	7695	8171	8597	8813	9276	9318	9829	10982	11478
Major Crops	3882	3840	4209	4595	4509	4888	4821	5137	6078	6408
Minor Crops	893	869	918	891	1129	1130	1172	1284	1406	1516
Livestock	2837	2887	2940	2996	3048	3121	3178	3242	3307	3373
Fishing	71	67	70	77	85	91	97	114	135	121
Forestry	28	32	34	38	42	46	50	52	56	60
2. Mining and Quarrying	70	81	86	96	113	122	133	133	137	141
3. Manufacturing	2018	2278	2581	2870	3196	3514	3816	4032	4289	4659
Large Scale	1159	1394	1671	1934	2233	2523	2796	2982	3209	3548
Small Scale	859	884	910	936	963	991	1020	1050	1080	1111
4. Construction	427	612	596	700	897	1029	1079	1039	1037	1317
5. Electricity and Gas Distribution Services	87	99	99	122	142	172	197	207	224	251
6. Transport, Storage and Communication	952	1059	1031	1142	1176	1588	1688	1761	1856	1965
7. Wholesale and Retail Trade	2105	2251	2427	2665	2935	3166	3440	3621	3754	4020
8. Banking and Insurance	160	176	191	213	232	320	355	400	447	485
9. Ownership of Dwellings	837	858	888	916	943	976	1006	1039	1067	1099
10. Public Administration and Defence	1048	1062	1103	1134	1244	1465	2293	1962	1912	2008
11. Services	1411	1478	1537	1601	1665	1732	1801	1878	1954	2031
12. Gross Domestic Product	16826	17649	18710	20056	21356	23360	25126	25901	27659	29545
13. Net Factor Income from/to Rest of the World	(-)23	(-)25	(-)27	(-)48	(-)34	(-)61	(-)47	(-)48	(-)23	(-)29
14. Gross National Product	16803	17642	18683	20008	21322	23299	25079	25853	27636	29425
15. Population (in million)	45.03	46.20	47.53	48.90	50.31	51.76	53.26	54.79	56.37	58.00
16. Per Capita Gross Income (in rupees)	373	381	393	409	424	450	471	472	490	507

(Contd...)

(Continued Annexure-IIA)

(Million Rupees)

SECTORS	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78 (Revised)	1978-79 (Provisional)
1. Agriculture	12574	12188	12611	12821	13357	13074	13659	13998	14348	14948
Major Crops	7553	7045	7336	7473	7844	7455	7833	7944	8110	8532
Minor Crops	1363	1418	1507	1478	1585	1679	1839	1920	1966	2013
Livestock	3440	3509	3579	3651	3724	3799	3875	3993	4114	4239
Fishing	170	155	125	128	115	82	86	96	100	104
Forestry	48	61	64	91	89	59	26	45	58	60
2. Mining and Quarrying	157	156	159	161	180	181	175	206	210	217
3. Manufacturing	5186	5318	5130	5678	6101	6136	6231	6258	6833	7160
Large Scale	4042	4090	3813	4265	4585	4509	4486	4385	4823	5003
Small Scale	1144	1228	1317	1413	1516	1627	1745	1873	2010	2157
4. Construction	1357	1390	1163	1346	1490	1754	2094	2076	2248	2452
5. Electricity and Gas Distribution Services	639	741	780	903	1068	949	985	1143	1245	1346
6. Transport, Storage and Communication	2026	1979	2025	2355	2466	2575	2605	2649	3003	3265
7. Wholesale and Retail Trade	4457	4469	4447	4743	5449	5622	5724	5560	6121	6518
8. Banking and Insurance	579	635	640	826	879	1006	1039	1124	1241	1390
9. Ownership of Dwellings	1112	1149	1188	1231	1275	1321	1369	1418	1469	1522
10. Public Administration and Defence	2080	2133	2278	2599	2983	3972	3854	4235	4593	4934
11. Services	2169	2276	2391	2516	2653	2803	2964	3060	3319	3510
12. Gross Domestic Product	32336	32434	32812	35179	37901	39393	40699	41727	44630	47262
13. Net Factor Income from/to Rest of the World	(+) 2	(-)72	(+)71	(+)181	(+)184	(+)258	(+)711	(+)1295	(+)2675	(+)3042
14. Gross National Product	32338	32362	32883	53560	38085	39651	41410	43022	47305	50304
15. Population(in million)	59.70	61.49	63.34	65.24	67.20	69.21	71.29	73.43	75.63	77.90
16. Per Capita Gross Income(in Rs.)	542	526	519	542	567	573	581	586	625	646

Note: These series may not be comparable with the similar series published earlier because of the following reasons:

i) The income originating in PIA, Banking and Insurance, Federal Government and Net Factor Income from/to Rest of the World for which the data was available combined for former East and West Pakistan have now been allocated to the present Pakistan on the basis of the ratios worked out and used in 1970-71 right from 1959-60.

ii) As per decision of National Accounts Committee in its twelfth meeting, the estimates have been revised from 1969-70 onwards by excluding the value added in Pakistan Broadcasting and Pakistan Television Corporations from Public Administration and Defence sector as their contributions have been transferred to Transport, Storage and Communication Sector.

iii) The estimate prior to 1973-74 do not include expenditure on food and clothing of defence personnel.

iv) The estimate of net factor income from abroad for the years 1975-76 to 1978-79 includes remittances both in cash and kind.

v) The series of the value added of small-scale manufacturing has been revised from 1969-70 to 1978-79 on the basis of Statistics Division's Survey of Small & Household Manufacturing Industries (SHMI) 1969-70 and Punjab SHMI Survey 1975-76.

Source: Statistics Division.

Annexure-II B

VALUES AND RATES OF GROWTH OF THE MAIN DIVISIONS OF THE ECONOMY

SECTORS	1959-60	1960-61		1961-62		1962-63		1963-64		1964-65		1965-66		1966-67	
	Value	Value	Rate of Growth	Value	Rate of Growth	Value	Rate of Growth	Value	Rate of Growth	Value	Rate of Growth	Value	Rate of Growth	Value	Rate of Growth
A-1 Crops	4775	4709	- 0.01	5127	8.87	5486	7.00	5638	2.77	6018	6.74	5993	6.73	6421	7.14
A-2 Animal Husbandry	2837	2887	1.76	2940	1.83	2996	1.90	3048	1.73	3121	2.39	3178	1.82	3242	2.01
A-3 Fisheries	71	67	- 5.63	70	4.47	77	10.00	85	10.38	91	7.05	97	6.59	114	17.52
A-4 Forestry	28	32	14.28	34	6.25	38	11.76	42	10.52	46	9.52	50	8.69	52	4.00
B-1 Mining and Quarraying	70	81	15.71	86	6.17	96	11.62	113	17.70	122	7.96	133	9.01	133	-
C Manufacturing	2018	2278	12.88	2581	13.30	2870	11.19	3196	11.35	3514	9.94	3816	8.59	4032	5.66
C-1 Large Scale Industry	1159	1394	20.27	1671	9.87	1934	15.74	2233	15.46	2523	12.98	2796	10.82	2982	6.65
C-2 Small Scale Industry	859	884	2.91	910	2.94	936	2.85	963	2.88	991	2.90	1020	2.92	1050	2.94
D-1 Construction	427	612	43.32	596	- 2.61	700	17.45	897	28.40	1029	14.71	1079	4.85	1039	- 3.79
E-1 Electricity and Gas	87	99	13.79	99	-	122	23.23	142	16.39	172	21.12	197	14.53	207	5.08
F-1 Transport Storage and Communication	952	1059	11.23	1031	- 2.64	1142	10.76	1176	2.97	1586	35.03	1688	6.29	1761	10.89
G-1 Wholesale and Retail Trade	2105	2251	6.93	2427	7.82	2665	9.80	2935	20.93	3166	7.87	3440	8.65	3621	5.26
H-1 Banking and Insurance	160	176	10.00	191	8.52	213	11.52	232	8.92	320	37.93	355	10.93	400	12.67
I-1 Ownership of Dwelling	837	858	2.50	888	3.49	916	3.15	943	2.94	976	3.49	1066	9.22	1039	- 2.53
J-1 Public Administration and Defence	1048	1062	1.33	1103	3.86	1134	2.81	1244	9.70	1465	17.76	2293	56.52	1962	-14.43
K-1 Services	1411	1478	4.74	1537	3.99	1601	4.16	1665	3.99	1732	4.02	1801	3.98	1878	4.27
Gross Domestic Product	16826	17649	4.89	18710	6.00	20056	7.19	21356	6.48	23360	9.38	25126	7.55	25901	3.08
Net Income from/to Rest of the World	- 23	- 25		- 27		- 48		- 34		- 61		- 47		- 48	
Gross National Product	16803	17624	4.88	18683	6.00	20008	7.09	21322	6.56	23299	9.27	25079	7.63	25853	3.08

Source: Economic Survey 1978-79.

Annexure-II-B

RATES OF GROWTH OF MAIN DIVISIONS OF THE ECONOMY

1967-68		1968-69		1969-70		1970-71		1971-72		1972-73		1973-74	
Value	Rate of Growth	Value	Rate of Growth	Value	Rat of Growth	Value	Rate of Growth	Value	Rate of Growth	Value	Rate of Growth	Value	Rate of Growth
7484	16.57	7924	5.87	8916	12.51	8463	- 5.60	8843	4.49	8951	1.22	9429	5.34
3307	2.00	3373	1.99	3440	1.98	3509	2.00	3579	1.99	3651	2.01	3724	1.99
135	18.42	121	-10.37	170	40.49	155	- 8.82	125	-19.35	128	2.40	115	-10.15
56	7.69	60	7.14	48	-20.00	61	27.08	64	4.91	91	42.18	89	- 2.20
137	9.02	141	2.91	157	11.34	156	- 0.63	159	1.92	161	1.25	180	11.80
4289	6.37	4659	8.62	5186	11.31	5318	2.54	5130	- 3.53	5678	10.68	6101	7.44
3209	7.61	3548	10.56	4042	13.92	4090	1.18	3813	- 6.77	4265	11.85	4585	7.50
1080	2.85	1111	2.87	1142	2.79	1228	7.55	1317	7.24	1413	7.28	1516	7.28
1037	0.10	1317	27.00	1357	3.03	1390	2.43	1163	-16.33	1346	15.73	1490	10.69
224	8.21	251	12.05	639	54.58	741	15.96	780	5.26	903	15.76	1068	18.27
1856	5.39	1965	5.87	2026	3.10	1979	- 2.37	2025	2.32	2355	16.29	2466	4.71
3754	3.67	4020	7.08	4457	10.87	4469	1.00	4447	0.42	4743	6.65	5449	14.88
447	11.75	485	8.50	579	19.38	635	9.67	640	0.78	826	29.06	879	6.41
1067	2.69	1099	2.99	1112	1.18	1149	3.32	1188	3.39	1231	3.62	1275	3.57
1912	2.54	2008	5.02	2080	3.58	2133	2.54	2278	6.79	2599	14.09	2983	14.77
1954	4.04	2031	3.94	2169	6.79	2276	4.59	2391	5.05	2516	5.22	2653	5.44
27659	6.78	29454	6.48	32336	9.79	32434	0.30	32812	1.16	35179	7.21	37901	7.73
- 23		- 29		+ 2		- 72		+ 71		+181		+184	
27636	6.89	29425	6.47	32338	9.89	32362	0.07	32883	1.60	35360	7.53	38085	7.70

Annexure-II-B

RANKING OF MAIN DIVISIONS OF THE ECONOMY BY RATES OF GRWOTH

(Value Rs. Million)

		1974-75		1975-76		1976-77		1977-78		1978-79		Average for 1959-60 to 1978-79	
		Value	% Growth	Value	% Growth	Value	% Growth	Value	% Growth	Value	% Growth		
A-1	Crops	9134	-3.13	9672	5.89	9864	1.98	10076	2.15	10545	4.6	4.8	
A-2	Animal Husbandry	3799	2.01	3875	2.00	3993	3.04	4114	3.03	4239	3.03	2.1	
A-3	Forestory	82	-28.69	86	4.87	96	11.62	100	4.16	104	4.00	3.6	
A-4	Forestory	59	-33.70	26	-55.93	45	73.07	58	28.88	60	3.44	7.8	
B-1	Mining and Quarrying	181	0.55	175	--3.31	206	17.71	210	1.94	217	3.33	6.6	
C-1	Manufacturing	6136	0.57	6231	1.55	6258	0.43	6833	9.19	7160	4.78	7.0	
C-2	Large Scale Industry	4509	-1.66	4486	-0.51	4385	-2.25	4823	9.98	5003	3.73	7.3	
C-3	Small Scale Industry	1627	7.32	1745	7.25	1873	7.33	2010	7.31	2157	7.31	5.0	
D-1	Construction	1754	17.71	2094	19.38	2076	-0.85	2248	8.28	2452	9.07	10.5	(4)
F	Electricity and Gas	949	-11.14	985	3.79	1143	16.04	1245	8.92	1346	8.11	13.1	(2)
F-1	Transport Storage and Communication	2575	5.27	2605	1.16	2649	1.68	3003	13.36	3265	8.72	7.6	
C-1	Wholesale and Retail Trade	5672	3.17	5724	1.81	5660	-1,12	6121	8.14	6518	6.48	6.9	
H-1	Banking and Insurance	1006	14.44	1039	3.28	1224	8.18	1241	10.40	1390	12.00	12.3	(3)
I-1	Ownership of Dwelling	1321	3.60	1369	3.63	1418	3.57	1469	3.60	1522	3.61	13.2	(1)
J-1	Public Administration and Defence	3972	33.15	3854	-2.97	4135	7.29	4593	11.07	4934	7.42	9.6	
K-1	Services	2803	5.65	2964	5.74	3060	3.24	3319	8.46	3510	5.75	4.9	
	Gross Domestic Product	39393	3.93	40699	3.31	41727	2.52	44630	6.95	47262	5.89	5.6	
	Net Income from/To Rest of World	+ 258		+711		+1295		+2675		+3042			
	Gross National Income	39651	4.11	41410	4.43	43022	3.89	47305	9.9	50304	6.34	6.0	

Annexure-III

INDUSTRIAL INVESTMENT
(Current Prices)

Year	Private Sector			Public Sector	Total Investment
	Large/ Medium	Small	Total		
1969-70	1,208.2	187.7	1,395.9	179.2	1,575.1
1970-71	1,224,0	201.7	1,425.7	68.2	1,493.9
1971-72	1,016.3	219.1	1,235.4	98.6	1,333.9
1972-73	763.1 (a)	255.9	1,019.0	110.6	1,129.6
1973-74	697.3 (a)	325.5	1,022.8	382.3	1,405.1
1974-75	909.4 (a)	446.5	1,436.9	1,064.9	2,501.8
1975-76	1,309.0 (a)	509.5	1,818.5	3,181.6	5,000.1
1976-77	1,526.3	585.3	2,111.6	4,514.0	6,625.6
1977-78	1,539.1	634.4	2,173.5	6,143.5	8,137.0
1978-79 (Provisional)	1,616.6	688.1	2,304.7	5,967.4	8,272.1

Source: Statistics Division.

Annexure-IV

OVERALL BALANCE OF PAYMENTS

		1975-76	1976-77	1977-78	1978-79* (Estimated)
A.	Current Account (Net):				
	(a) Merchandise	(-) 977.3	(-) 1285.9	(-) 1468.9	(-) 2107
	(b) Non-Monetary Gold	(+) 1.3	-	(+) 4.2	-
	(c) Invisibles	(+) 149.3	(+) 383.5	(+) 976.0	(+) 1115
	i) Services	(-) 323.5	(-) 355.6	(-) 361.6	(-) 472
	ii) Unrequited Transfers	(+) 472.8	(+) 739.1	(+) 1337.6	(+) 1587
	Total Current Account (Net)	(-) 826.7	(-) 902.4	(-) 488.7	(-) 992
B.	Capital Account (Net)	(+) 815.2	(+) 593.2	(+) 827.7	(+) 899
C.	Monetary Movement (Net) (Increase)	(+) 20.3	(+) 252.2	(-) 315.2	(+) 93
	Errors and Ommissions	(-) 8.8	(+) 57.0	(-) 23.8	-

Source: *External Finance Wing (Finance Division) and State Bank of Pakistan.

Annexure-V

DEBT SERVICE RATIO

(Million $)

Year	Foreign Exchange Earnings	Debt Service	Debt Service Ratio to Foreign Exchange Earnings
1971-72	819	122	14.9
1972-73	1,065	193	18.1
1973-74	1,388	197	14.2
1974-75	1,519	259	17.1
1975-76	1,813	407	22.4
1976-77	2,028	420	20.7
1977-78	2,911	375	12.9

Source: Pakistan Economic Survey 1978-79.

Note: Debt service figures are not of debt relief/rescheduling and include debt servicing of short-term credits of less than one year's maturity.

Annexure-VI

Commitments of Foreign Economic Assistance

(Million $)

	1977-78	1978-79 (Estimates)
1. Consortium	769.5	930.7
2. Aid committed outside Consortium arrangements	58.7	57.2
3. Non-consortium (excluding Muslim countries)	25.1	146.9
4. Muslim countries/Islamic Development Bank/OPEC Fund	77.7	208.0
5. IMF Trust Fund*	47.8	71.2
TOTAL:	978.8@	1,414.0@

Source: Pakistan Economic Survey 1978-79.

* Represents profits from the sale of gold which are disburesed as long-term loans to the Member countries facing serious balance-of-payments problems.

@ Exclude short-term credits of one and less than one year's maturity.

Annexure-VII

HIGH PRIORITY PROJECTS
FINANCED BY MUSLIM COUNTRIES

1) Pak-Arab Refinery, Multan (Abu Dhabi)

2) Pak-Arab Fertilizer Project, Multan (Abu Dhabi)

3) Engineering and Medical Colleges in Baluchistan (Iran)

4) Tarbela Hydro-power Project (OPEC)

5) Pak–Iran Cement Factory (Iran)

6) Lasbela Textile Mills (Iran)

7) Bolan Textile Mills (Iran)

8) 500 KV Transmission Line from Tarbela to Karachi (Guddu-Karachi Sector) (Kuwait)

9) Joint Investment Company (Kuwait)

10) Improvement of Railway (Kuwait)

11) Tarbela Dam Repairs (Kuwait)

12) Pak-Libya Holding Company (Libya)

13) Pak-Saudi Fertilizer Ltd., Mirpur Mathelo (Saudi Arabia)

14) Cement Plants - Mustahkam and Javedan (Saudi Arabia)

15) Polyestor Plant (Saudi Arabia).

Annexure-VIII

LIST OF MACHINERY MANUFACTURED AND IMPORTED/OR PROPOSED TO BE IMPORTED IN PAKISTAN

Locally Produced			Imported		
NON ELECTRIC MACHINERY					
Manufacture of Engines and Turbines:					
1.	Slow Speed Oil Engines	Upto 160 H.P.	1.	High Speed Diesel Engines	60 - 150 H.P.
2.	High Speed Diesel Engines	Upto 60 H.P.	2.	Water Tube Boilers complete unit with fuel & water plant	25P/hr, 23ATA 360°C
3.	Package type Boilers	15-250 p.si.from 1380 lb. to 2100 lbs.	3.	Turbines	Back pressure turbine 1730 KW & 300 KW for Sugar Plant
Metal Working & Wood Working Machineries:					
1.	Centre Lathes	Centre height upto 305 mm.	1.	3-Way Horizontal Milling M/C.	
2.	Drilling Machinery Pillar & upright both pulley & gear driven		2.	Rapid Radial Drilling Machine	
3.	Milling Machineries (Universal & Vertical)	Table size 1300 x 330	3.	3-Way Horizontal Milling and Face Turning Machines	
4.	Shapers	Upto 28" stroke	4.	Single spindle vertical cylinder boring machinery	
5.	Mechanical presses	Upto 25 tons	5.	Single Spindle Deep Hole Drilling Machine	
6.	Automatic Hacksaw Machines		6.	Horizontal Boring Machines	
7.	Guillotine Shears	Upto 6'x5/16"	7.	Multi-spindle Drilling Machine	
8.	Bench Grinders		8.	Hydraulic Horizontal Broaching Machine	
9.	Boring Machine		9.	Double Sided Horizontal Boring Machine	

10.	Crankshaft Grinding Machine		10.
11.	Cylinderical Grinding Machine		11.
12.	Cylinderical Grinders		12.
13.	Head Block Refacer		
14.	Bench Lathes		
15.	Bending Press		

Agricultural Machinery & Implements:

i)	Assembly of 3600 Ford Tractors	47 H.P.
ii)	Assembly of 4600 Ford Tractors	62 H.P.
iii)	Assembly of M.F. -135 Tractors	47 H.P.
iv)	Assembly-cum-manufacture of Ursus Tractors	60 H.P.

Earth Moving & Construction Machinery:

1.	Asphalt Heaters	Upto 60 T/D Capacity	1.
2.	Road Rollers	10 tons to 12 tons weight	2.
			3.
3.	Simple type Dumpers	7 to 10 tons	4.
4.	Vibratory Road Rollers	Capacity 8 tons	5.
5.	Stone Crushing Plant		6.
			7.
	Industrial Machineries:		8.
			9.
	Sugar Mill Machinery:		10.
	All machineries excluding	1500 to 4000 tons per day based on Defacation remelting process and double carbonation and double sulphitation	

Annexure-VIII
(Continued)

Vertical Boring Machine	
Twist Drill Grinders	
Hydraulic Presses	50, 100, 200, 250, 500 and 1,000 tons.

Agricultural Machineries & Implements:

Complete Tractors
Combines
Sugarcane harvestors
Mould Board Plough, Disc, Harrows, etc.

Earth Moving & Construction Machinery:

Mobile Cranes	
Hoists	
Winches	
Graders	
Bulldozers	
Scrapers	
Tractors, Crawler	
Tractors, off Highway	
Drilling & Boring Equipment	
Vibratory Road Rollers	more than 8 tons wt. capacity

Industrial Machineries:

Sugar Mill Machinery:

1. Turbines
2. Mill House Roller Shafts
3. Variable Speed Electric Motors

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Cement Mill Machinery: (600 - 1000 tons/kiln based on dry process and 600 tons per kiln based on wet process)

All machinery excluding:

Annexure-VIII
(Continued)

Slip Ring A.C. Motors	(590 R.P.M.)
Commutator Motors	(1550/300 R.P.M.)
Induction Motors	(975 R.P.M.)
Water Tube Boiler, complete unit with fuel and water treatment plants	350 P.S.I.

Centrifugal pumps:
$30m^3$ to 2000 m^3/hour discharge
Turbo Pumps ($75m^3$/hr.)
Weigh Bridge (25 tons)
Hydraulic system for mill
Reducing Gear Units
Polarimeter
Drix Sugar Hydrometer
Laboratory Equipments such as flasks, weight, balance & oven.
Rotary Co2 Blowers
Continuous Rotary Sulphur Furnace (30kg/hr)
Pressure Reducer 23/6 atm, 6 T/hr.

i) Back Pressure Turbine 1730 KW and 300 KW.
A.C. Alternator 2000 KVA 400 V.
Rotary Vacuum & Pressure Filters
Mechanical Lubrication System for Mill Bearings & Mill Gear Train.

Cement Mill Machinery:

1. Tube Mill
2. Pneumatic Conveyors
3. Gearing for rotary kiln
4. Boilers High Pressure
5. Turbines

Leather Tanning Machinery:

1. Shaving Machines
2. Buffing Machines
3. Glazing Machine
4. Offal Setting Machine/Jack
5. Sole Leather Rolling Machine
6. Staking Machine
7. Tanning Drums

Annexure-VIII
(Continued)

1. Portable Compressor Set drive by Diesel Engine 7500 cfm
2 Earth Moving & Handling Equipment such as Shovels, Bulldozers, Front End Loader, Dump Trucks.
3. Automatic Sampling Stations for Crushing Section
4. Travelling Stacker for Crushing Section
5. Weigh Scale 50 tons capacity
6. Portal Scraper 10 ton/hr.
7. Weigh Feeders Electronic type 18" - 42"
8. Electric Motors
   a) 1000, 2000 & 3000 H.P.
   b) 15 to 2000 KW.
   c) Shunt Wound D.C. Motor
9. Level Indicator
10. Rotary Valve
11. Air Compressors
    - Single Stage Rotary 142 cfm to 1240 cfm.
12. X-Ray Analyser system for Analysing Raw Material Product
13. Electro-static precipitator 122, 860 cfm.
14. Rotary Feeder
15. Fan Turbo Compressor 90 cfm.
16. Gear Motors. 0.5 KW to 40 KW
17. Blending, Silopulsation Equipment
18. Blower
    Positive Displacement 150 cfm. to 450 cfm.
19. Belt Weight Scale 36"
20. Fans: 135 cfm. to 125000 cfm.
21. Kiln Gas Burner with controls 45.36 K cal/hr.
22. Kiln Shell Temperature Scanner
23. Vibrating Feeder 24" x 42", electric 75 t/hr.
24. Auto Sampler.

Leather Tanning Machinery:

1. Leather Splitting Machine
2. Vacuum Driers
3. Paste - Driers
4. Surface Area Measuring Machine
5. Buffing Machines
6. Presses for Grain Leather

Paper & Board Plants:

1. Straw Cutting Machine
2. Conveyors
3. Washing Equipment
4. Air Blowers
5. Cyclone Separators
6. Batch Digestor
7. Pulper (agitated)
8. Bleaching House Equipment
9. Winding Rolls
10. Paper/Board Cutting Machine
11. Wire Stiching Machine (Manual type)
12. Punching (presses)
13. Letter Press Printing Machine
14. Laminating Machine
15. Wax Coating Machine
16. Corrugating Machine
17. Clay Coating Machine
18. Pigment/ink/mixing & Grinding Equipment

Pharmaceutical Machinery:

1. Vessels/Pans Simple Coiled, Stirred, Jacketted
2. Rotating Drum Mixer
3. Stirrer Mixer
4. Tableting Machine Single Punch
5. Coating Pans
6. Filter Presses
7. Hot Air Tunnel Dryers
8. Drying Ovens
9. Vacuum Dryers
10. Strip Packing Machines
11. Capsule Filling Machine (hand operated)
12. Ampule Filling & Sealing Machines
13. Powder Filling Machine
14. Ointment Filling Machine
15. Liquid Filler (for vials)

Annexure-VIII
(Continued)

Paper & Board Plants:

1. Bagasse Preparation System
2. Bagasse Handling Equipment
3. Depithing Plant
4. Continuous Digestor
5. Heat Recovery Plant
6. Washing Plant
7. Screening Plant
8. Bleaching Plant
9. Quintuple Effect Evaporation Plant
10. Soda Mercury Boiler
11. Recausticizing Plant
12. Lime Reburning Plant
13. Bleaching Liquer Preparations
14. Stock Preparations
15. Chemical Preparation for Paper Mill
16. Stock & Stock Water Pump for Paper Mill
17. Instruments for Paper Mill
18. Paper Machines
19. Finishing Plant for Paper

Chemicals/Pharmaceutical Machinery:

1. Reaction Vessels. More than 150 P. sig
2. Pressure Reactors
3. Catalytic Reaction Vessels
4. Condensers
5. Coolers using Refrigerants
6. Cranulators & Coating Machines
7. Calciners & Lime Kilns
8. High Capacity Blowers & Induced Draft Fans.

Paper & Bo[illegible] Plants:

1. Straw Cutting M[illegible]
2. Conveyors
3. Washing Equipment
4. Air Blowers
5. Cyclone Separators
6. Batch Digestor
7. Pulper (agitated)
8. Bleaching House Equipment
9. Winding Rolls
10. Paper/Board Cutting Machine
11. Wire Stiching Machine (Manual type)
12. Punching (presses)
13. Letter Press Printing Machine
14. Laminating Machine
15. Wax Coating Machine
16. Corrugating Machine
17. Clay Coating Machine
18. Pigment/ink/mixing & Grinding Equipment

Pharmaceutical Machinery:

1. Vessels/Pans Simple Coiled, S[illegible]red, Jacketted
2. Rotating Drum Mixer
3. Stirrer Mixer
4. Tableting Machine Sin[illegible] Punch
5. Coating Pans
6. Filter Presses
7. Hot Air Tunnel [illegible]yers
8. Drying Oven
9. Vacuum Dr[illegible]s
10. Strip F[illegible]ing Machines
11. Caps[illegible] Filling Machine (hand operated)
12. Am[illegible]e Filling & Sealing Machines
13. [illegible]wder Filling Machine
14. Ointment Filling Machine
15. Liquid Filler (for vials)

Annexure-VIII
(Continued)

Paper & Board Plants:

1. Bagasse Preparatio· System
2. Bagasse Handlin· quipment
3. Depithing Pla·
4. Continuous D gestor
5. Heat Rec· ry Plant
6. Washin· lant
7. Scre· ng Plant
8. B· ching Plant
9. uintuple Effect Evaporation Plant
10. Soda Mercury Boiler
11. Recausticizing Plant
12. Lime Reburning Plant
13. Bleaching Liquer Preparations
14. Stock Preparations
15. Chemical Preparation for Paper Mill
    Stock & Stock Water Pump for Paper Mill
17. nstruments for Paper Mill
18. r Machines
19. Fi· ng Plant for Paper

Chemica· armaceutical Machinery:

1. Reaction Vess· More than 150 P. sig
2. Pressure Reacto·
3. Catalytic Reaction sels
4. Condensers
5. Coolers using Refrigera·
6. Cranulators & Coating Mach·
7. Calciners & Lime Kilns
8. High Capacity Blowers & Induced · Fans.

16. Vial Sealing Machine
17. Pilfer Proof Caping Machine
18. Stoppering & Plugging Machine
19. Bottle Washing Machine
20. Ampule Washing Machine
21. Tablet Counter
22. Auto Claves
23. Sterilizers
24. Tin Forming Machine
25. Labelling Machine
26. Pumps

Fertilizers Industry:

1. Acid Dilution Tanks
2. Gas Holders
3. Silica Gel Dryer
4. Blending Machines

Annexure-VIII
(Continued)

Fertilizers Industry:

1. Storage Silos
2. Liquid Ammonia Tanks
3. Primary & Secondary Reforming Units
4. Saturation Towers
5. Methanation Towers
6. Urea Pri-ling Towers
7. Absorption Towers
8. Cooling Towers
9. Condensation Towers
10. Air Fractionating Plant
11. Urea Auto Claves
12. De-compressors (Carbon Dioxide)
13. Carbon Dioxide Absorber
14. Reactor & Separator
15. Shift Converters
16. Ammonia Synthesis Converter
17. Triple Effect Evaporators
18. Thickeners
19. CO_2 Filter
20. Heat Exchanger/Cooler/Condensor
21. Waste Heat Boiler
22. Rotary Spray Dryers
23. Elevators
24. Centrifugal Machines

Local Machinery:

Petroleum Refining Industry

1. Petroleum Storage Vessels
2. Gas Storage Tanks (Pressure Vessels) Upto 300 p.s.i. (Shell and Tube Type)
3. Heat Exchangers
4. Crude Oil Furnaces
5. Pumps:
   a) Reciprocating Steam Pumps (for asphalt/semi solids)
   b) Centrifugal Pumps (for non viscous and medium viscousity oils)
   c) Rotary Pumps (for fuel oils)
   d) Plunger Pumps (for Chemical feeds etc.)

Ready to Use Asphalt and Special Oil Plants:

1. Storage Tanks
2. Tunnel Furnace
3. Reactor Still
4. Air Blowing System
5. Hot Air Circulating Unit
6. Mixer
7. Vacuum Filter Press
8. Pumps:
   a) Gear type
   b) Centrifugal type
   c) Jacketed Pumps

7

Annexure-VIII
(Continued)

Imported Machinery:

Complete Petroleum Refining Plant

Plastic Processing Machineries:

1. Cutting Machine (for cutting waste plastic)
2. Mixer
3. Band Saw
4. Extruder
5. Presses
   a) Punch Type
   b) Moulding Type

Annexure-VIII
(Continued)

Plastic Processing Machineries:

1. Injection Moulding Machine
   a) Automatic
   b) Non-automatic
2. Blow Moulder
3. Annealing Furnace

Annexure-IX

GROSS VALUE OF PRODUCTION OF 12-MAJOR GROUPS

(Rs. in Million)

Sl. No.	SIC 3 Digits	Major Groups of Industries	1959-60	1965-66	1969-70	1970-71	1975-76	1976-77
1.	311 to 314	Food Beverages and Tobacco.	700	2,000	3,100	3,900	8,500	10,000
2.	320 to 325	Manufacture of Textile, Apparel Leather & Leather Products Including Footwear.	1,200	1,900	3,400	3,600	8,000	9,400
3.	331 & 332	Furniture and Fixture	4	14	20	20	30	40
4.	341	Paper, Pulp, printing and Publishing	80	200	300	400	750	920
5.	350 & 351	Chemical, Petroleum Coal, Rubber and Plastics.	200	700	1,700	1,400	3,900	7,000
6.	361, 362 & 369	Non Metalic Minerals Including Glass and Earthness were Products.	140	200	400	400	1,600	1,500
7.	371 - 372	Basic Metal Industries	90	250	400	420	1,400	1,920
8.	380 - 381	Fabricated Metal Industries	200	150	250	250	500	920
9.	382	Machinery other than Electrical	20	100	170	130	870	1,020
10.	383	Electrical Machinery	60	200	300	300	900	1,270
11.	384	Transport Equipment	80	200	250	360	1,600	1,300
			2,774	5,914	10,290	11,180	28,050	35,290
12.		Others	- 540	1,260	1,870	2,160	2,620	2,810
13.		All Industries	3,310	7,170	11,800	13,340	30,670	38,100

Annexure-X

IMPORTS OF CAPITAL GOODS

(Rs. In Million)

Sl. No.	SIC 3 Digits	Major Groups	1959-60	1965-66	1969-70	1970-71	1975-76	1976-77
1.	331 - 332	Furniture & Fixture	0.5	3.0	2.25	2.4	0.13	0.23
2.	380 - 381	Fabricated Metal Products	37.5	117.5	114.5	95.7	248.7	26.4
3.	382	Machinery other than Electrical	551.0	669.0	709.0	673.2	2796.7	
4.	383	Electrical Machinery	57.6	223.0	219.0	259.6	1188.0	1302.4
5.	384	Transport Equipment	124.6	421.3	340.0	527.0	1351.3	2016.0
		Total Import of Capital Goods	771.2	1463.8	1384.7	1557.9	5584.8	6657.0
6.		Total Import Bill of the Country	1806.0	2880.3	3285.0	3602.4	20465.4	23012.2
		Percentage of Capital Goods on Total Imports	42.7	50.8	42.1	43.2	29.3	28.9

Source: C.S.O. *Foreign Trade Statistics
*Economic Survey of Pakistan 1978-79.

Annexure-XI

RANKING OF MAJOR GROUPS BY RATE OF GROWTH

Sl. No.	DIG. TS	Major Groups of Industries	Annual Gr.Aver. 1959-60 Implicit Deflater	Annual Gr. Aver. 1965-66 4.15 (-1.69) (0.14) 5.47,4.86 2.96	Annual Gr. Aver. 1969-70 9.55, 2.14, 0.39, 4.30	Annual Gr. Aver. 1970-71 5.2	Annual Gr. Aver. 1975-76 6.39,16.79 24.61,26.40 13.71	Annual Gr.Aver. 1976-77	Annual Gr. Aver. Average of Annual Average	Ranking on the basis of growth rate
			2.2	2.2	4.0	5.2	17.6	9.6		
1.	311 to 314	Food Beverages and Tobacco	-	26.5	13.7	25.8	23.6	17.6	21.4	7
2.	320 to 325	Manufacture of Textile, Apparel leather & leather Products including footwear	-	8.32	19.75	5.9	24.4	17.5	15.2	11
3.	331 & 332	Furniture & Fixture	-	35.7	10.5	-	10.0	33	17.8	9
4.	341	Paper, Plup, Printing & Publishing	-	21.4	12.5	33	17.5	22.6	21.3	8
5.	350 & 351	Chemical, Petroleum Coal, Rubber & Plastic	-	35.7	35.7	- 17.6	35.7	79.4	33.8	
6.	361, 362 & 369	Non-Metallic Minerals including glass and earthness ware products	-	6.1	25.0	-	60	- 6.3	16.9	10
7.	371-372	Basic Metal Industries	-	25.3	15.0	5	46.6	37.1	25.8	3
8.	380-381	Fabricated Metal "	-	- 4.7	16.65	-	20	84	23.2	6
9.	382	Machinery other than Electrical	-	57.1	17.5	- 23.5	113.8	17.2	36.4	1
10.	383	Electrical Machinery	-	33.3	12.5	-	40.0	41.1	25.4	4
11.	384	Transport Equipment	-	21.4	6.2	44	63.8	- 18.7	24.3	5
12.		Others								
13.		All Industries	-	16.1	18.5	8.6	25.9	24.2	19.1	

Annexure- XII

VALUE OF PRODUCTION AND RATE OF GROWTH OF SOME INDUSTRIES IN THE ABOVE-AVERAGE MAJOR INDUSTRIAL GROUPS

SIC CODE No.	Industrial Group/ Industry	VALUE OF PRODUCTION (In Million Rs.)						ANNUAL AVERAGE RATE OF GROWTH						Average of Annual Average Rate of Growth
		1959-60	1965-66	1969-70	1970-71	1975-76	1976-77	1959-60	1965-66	1969-70	1970-71	1975-76	1976-77	
350	Manufacture of Chemicals, Chemical Petroleum, Coal, Rubber and Plastic	217.9	807.9	1750.2	1351.8	3912.6	7035.6	-	38.7	29.1	- 22.8	37.9	79.8	35.5
3514	Fertilizer	2.2	91.5	184.9	128.4	549.4	NA	-	582.4	25.5	- 30.5	65.6	-	160.7
356	Plastic Produ ts	NA	NA	78.7	23.1	47.9	NA	-	-	70.6	21.5	-	-	46.1
382	Machinery Other Than Electrical	18.9	113.8	172.4	132.7	873.1	677.6	-	75.1	12.9	- 23.0	111.6	-43.9	26.5
3822	Agricultural Machinery	0.7	20.9	46.4	35.5	239.5	NA	-	412.2	30.5	23.5	115.0	NA	139.4
3825	Manufacture of Metal and Wood Working Machinery	NA	2.7	7.1	5.3	74.8	NA	-	-	40.7	- 25.3	262.3	-	92.6
383	Electrical Machinery	63.0	208.9	339.5	363.3	908.3	946.4	-	30.4	15.6	7.0	30.0	4.2	17.4
3832	Radio and Television Receiving and Transmitting Equipment	4.4	52.9	89.1	32.3	161.02	NA	-	157.1	17.1	- 63.7	80.6	-	47.8
3839	Electrical Appliances	NA	14.1	18.7	31.4	62.4	NA	-	-	8.1	67.8	19.7	NA	31.8
384	Transport Equipment	77.9	230.0	247.0	362.2	1631.0	1279.6	-	27.9	1.85	46.5	70.0	-21.5	24.95
3841) 3842)	Ship Building) Boat Building)	5.4	33.7	39.1	NA	135.85	NA	-	75.0	4.0	-	41.5	-	40.2
3844	Motor Vehicles	2.2	170.3	163.1	155.0	979.3	NA	-	109.1	- 4.2	- 4.9	106.3	-	51.6

Source: Census of Manufacturing, Industries Statistical Division.

Annexure-XIII (A)

COST STRUCTURE OF TYPICAL PAKISTANI INDUSTRIES UPTO 10 EMPLOYEES

1)	Sales:		100
2)	Cost of Goods Sold:		
	a) Raw Materials	60.0	
	b) Power and Fuel	1.5	
	c) Wages and Salaries	19.2	
	d) Repairs, Maintenance Stores and Spares	2.4	
	e) Depreciation	1.0	
		84.1	
3)	Gross Profit	15.9	
4)	Selling, General and Financial Expenses	10.2	
5)	Operating Profit	5.7	
6)	Other Income	-	
7)	Net Profit (Pre-Tax)	5.7	

Annexure-XIII (B)

OVER 50 EMPLOYEES

1)	Sales:		100
2)	Cost of Goods Sold:		
	a) Raw materials	50.0	
	b) Power & Fuel	2.6	
	c) Wages and Salaries Including Benefits	30.8	
	d) Depreciation	0.6	
		84.0	
3)	Gross Profit	16.0	
4)	Selling, General and Financial Expenses	10.0	
5)	Operating Profit	6.0	
6)	Other Income	-	
7)	Net Profit (Pre-Tax)	6.0	

Annexure-XIII (C)

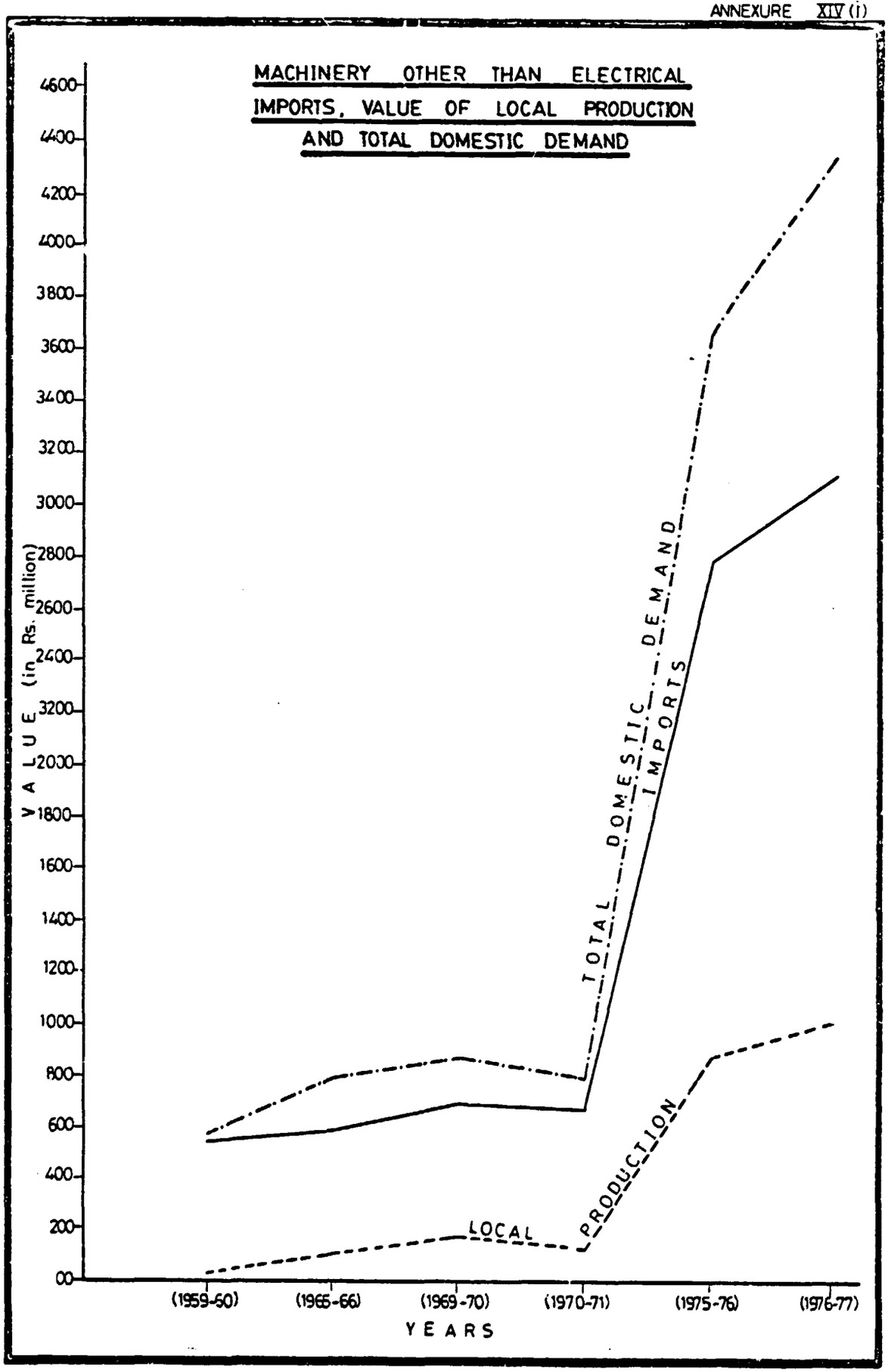
	OVER 250 EMPLOYEES (Private Company)	Punjab
1) Sales:	100	
2) Cost of Goods Sold:		
a) Raw materials mat	68.6	
b) Power & Fuel	2.5	
c) Wages & Salaries	10.1	
d) Repairs, Maintenance and other Production Expenses	1.5	
e) Depreciation	5.0	
	87.7	
3) Gross Profit	12.3	
4) Selling, General and Financial Expenses	10.2	
5) Operating Profit	2.1	
6) Other Income	0.5	
7) Net Profit (Pre-tax)	2.6	

Annexure-XIII (D)

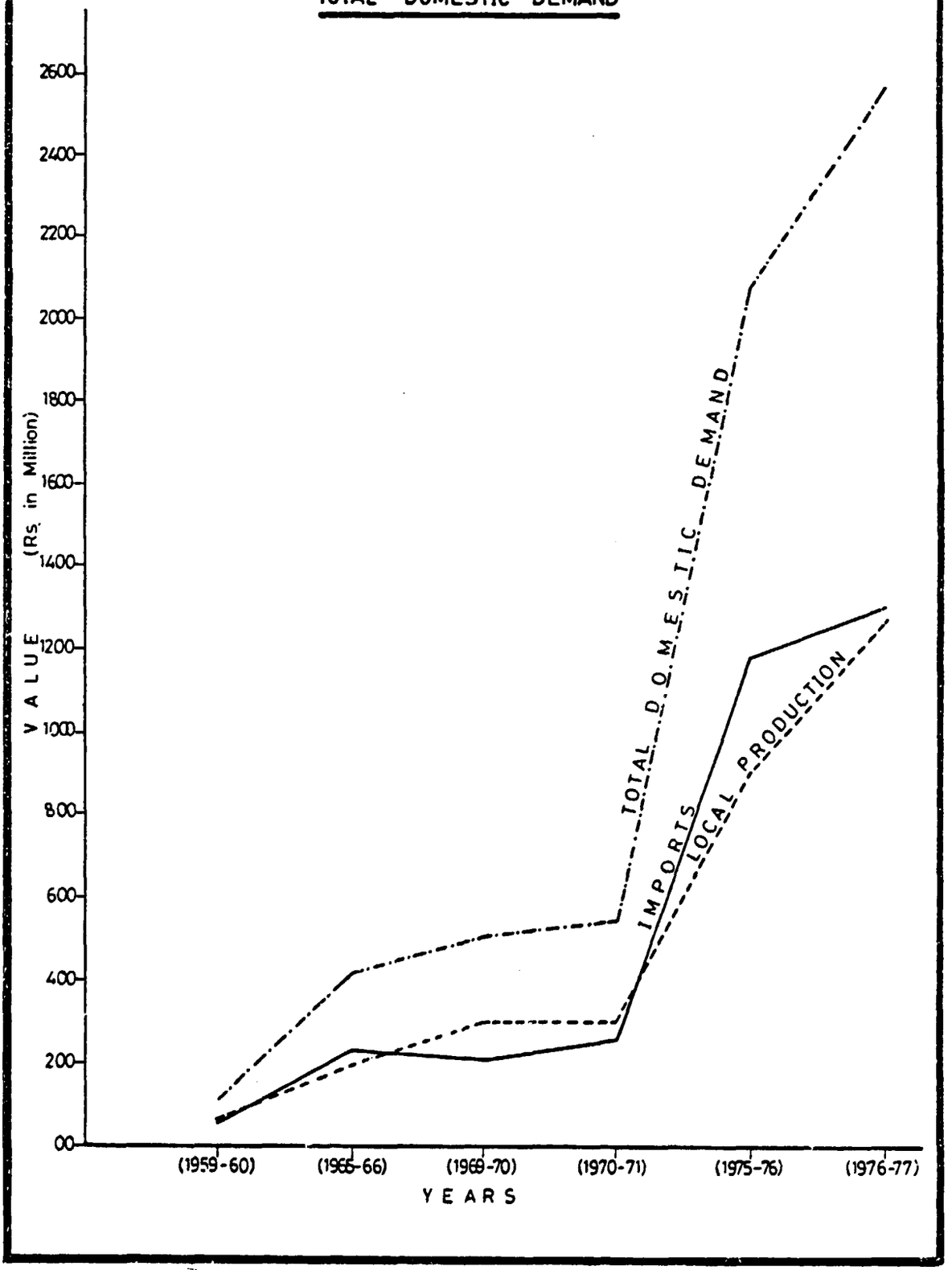
OVER 500 EMPLOYEES
(Public Company)

Punjab

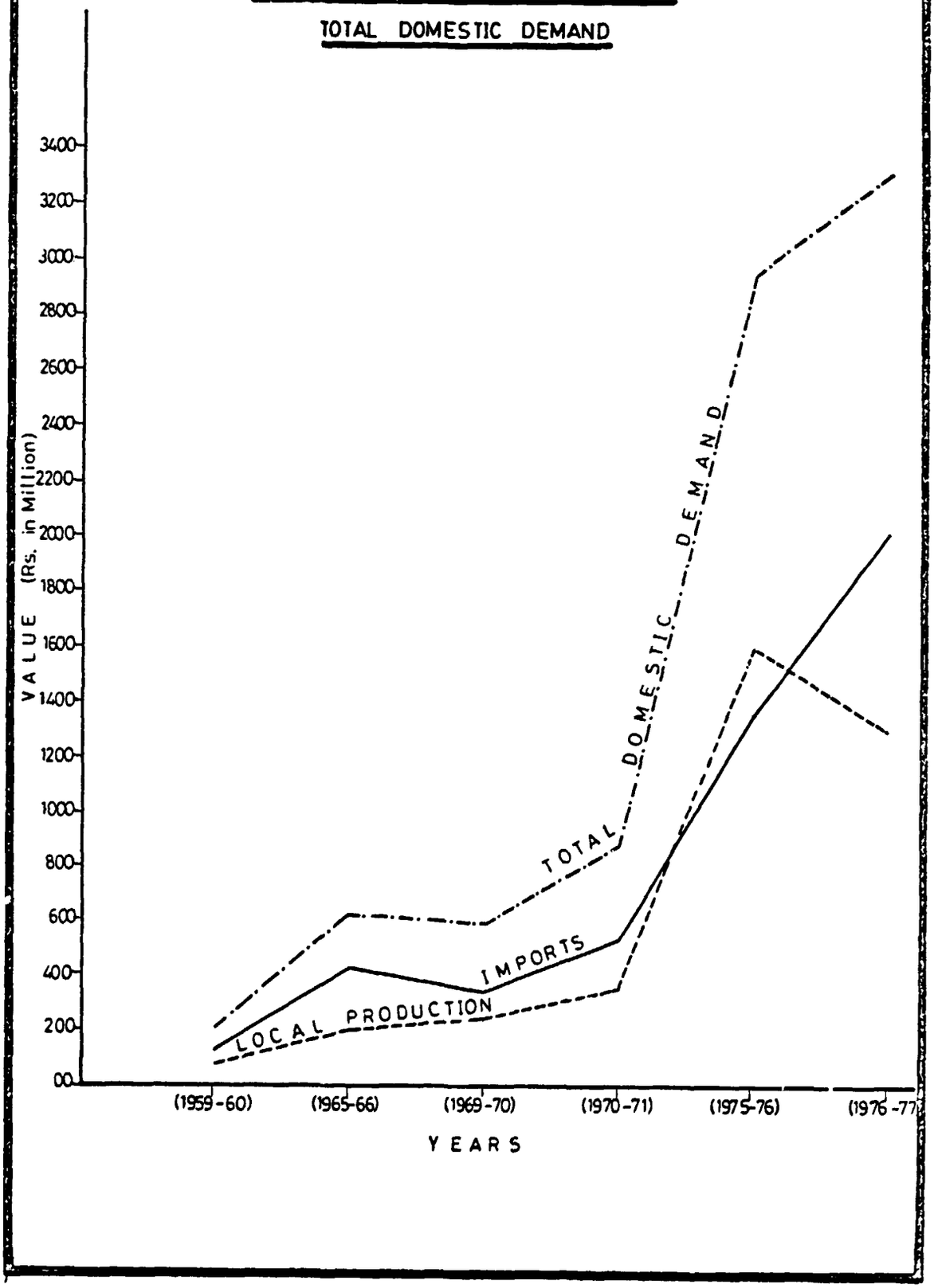
1.	Sales:		100
2.	Cost of Goods Sold:		
	a) Raw materials	54.5	
	b) Power & Fuel	3.7	
	c) Wages & Production Salaries Including Benefits	15.2	
	d) Pairs, Maintenance Stores and Spares and other Production Expenses	3.1	
	e) Depreciation	1.8	
		78.3	
3.	Gross Profit	21.7	
4.	Selling General and Financial Expenses	21.0	
5.	Operating Profit	0.7	
6.	Other Income	0.7	
7.	Net Profit (Pre-tax)	1.4	


MACHINERY OTHER THAN ELECTRICAL
IMPORTS, VALUE OF LOCAL PRODUCTION
AND TOTAL DOMESTIC DEMAND
VALUE (in Rs. million)
4600
4400
4200
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
00
TOTAL DOMESTIC DEMAND
IMPORTS
LOCAL PRODUCTION
(1959-60)
(1965-66)
(1969-70)
(1970-71)
(1975-76)
(1976-77)
YEARS

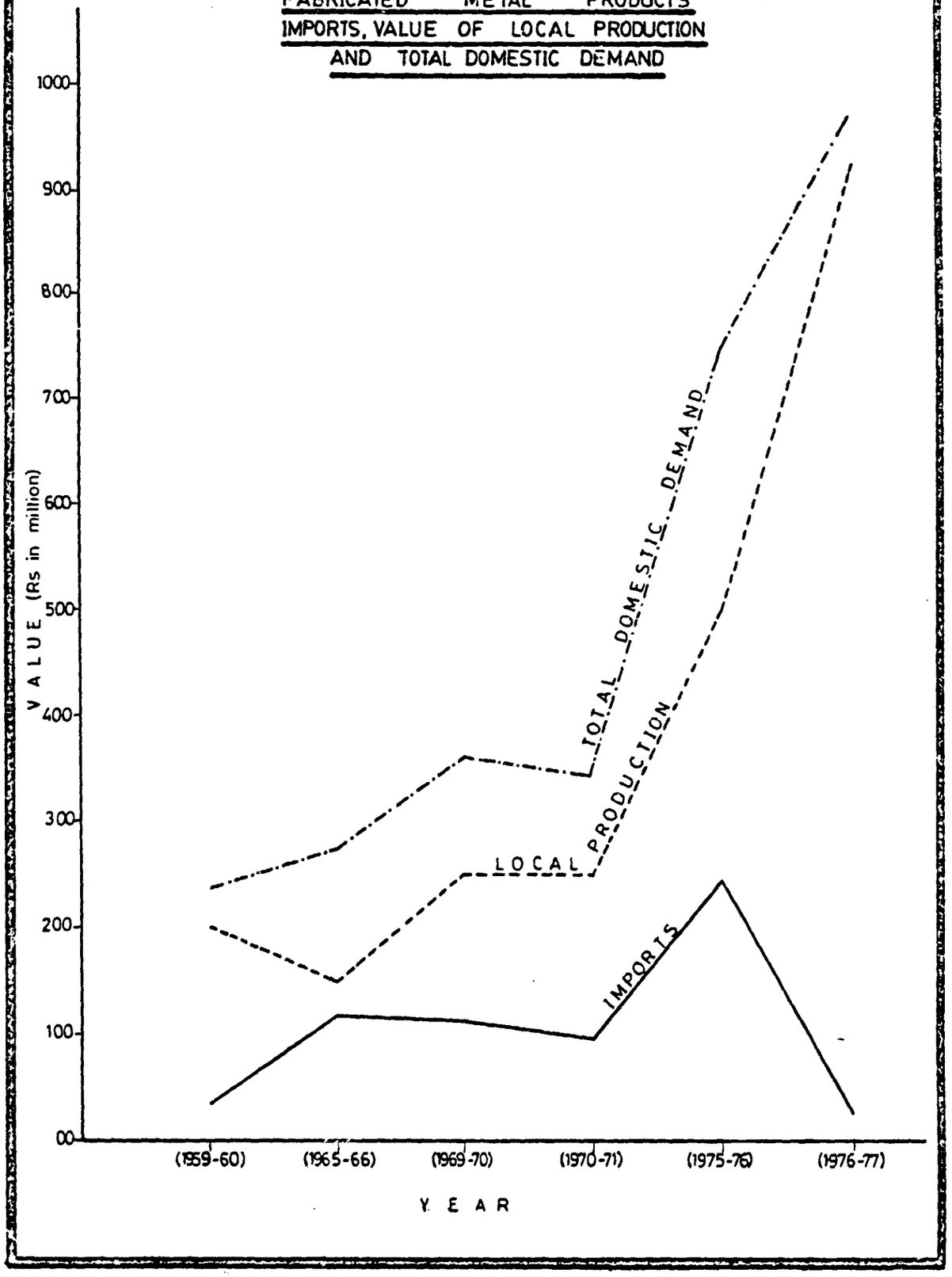
ELECTRICAL MACHINERY IMPORTS, VALUE OF LOCAL PRODUCTION AND TOTAL DOMESTIC DEMAND

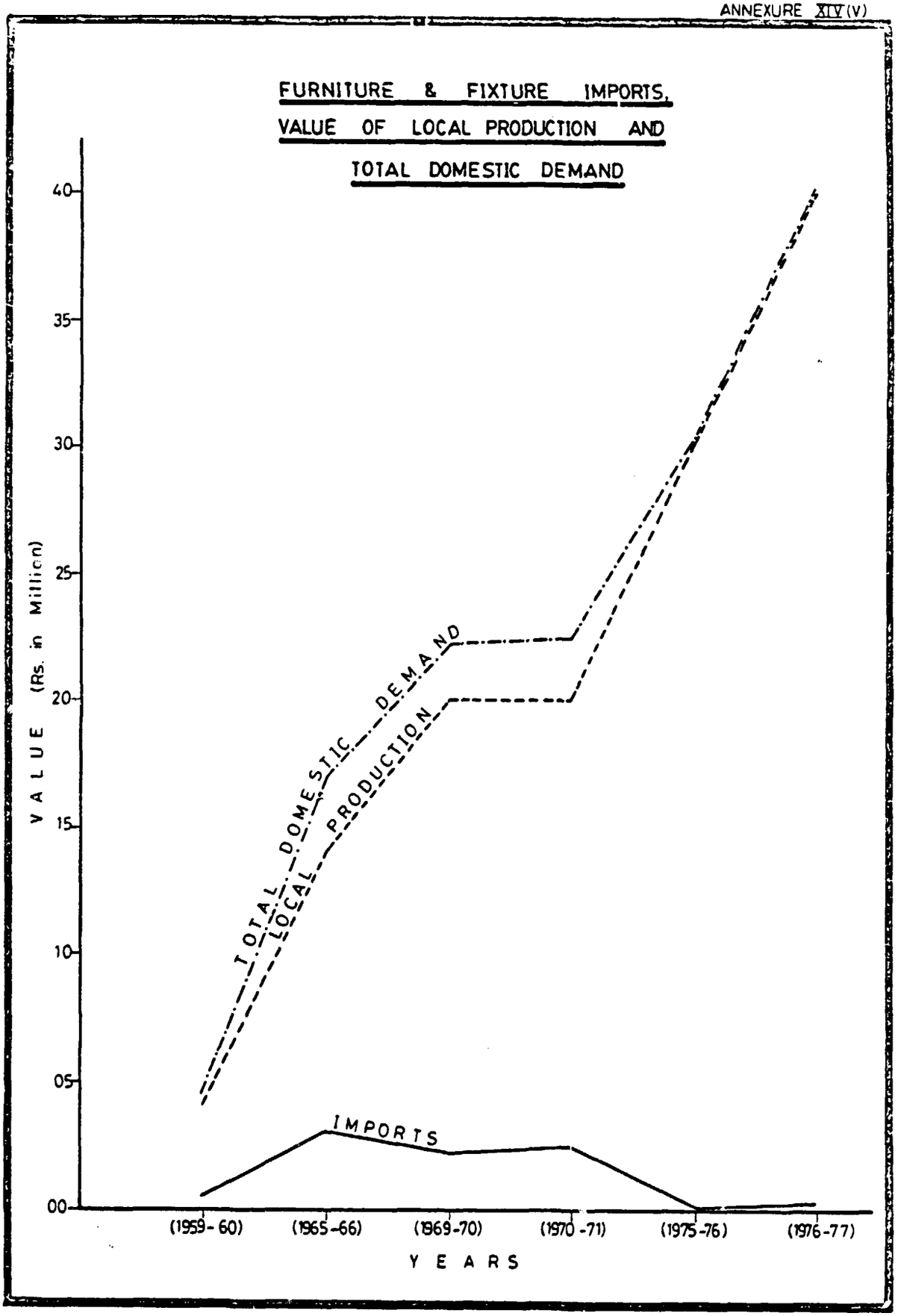


TRANSPORT EQUIPMENT IMPORTS, VALUE OF LOCAL PRODUCTION AND TOTAL DOMESTIC DEMAND



FABRICATED METAL PRODUCTS
IMPORTS, VALUE OF LOCAL PRODUCTION AND TOTAL DOMESTIC DEMAND




FURNITURE & FIXTURE IMPORTS,
VALUE OF LOCAL PRODUCTION AND
TOTAL DOMESTIC DEMAND
VALUE (Rs. in Million)
40
35
30
25
20
15
10
05
00
TOTAL DOMESTIC DEMAND
LOCAL PRODUCTION
IMPORTS
(1959-60)
(1965-66)
(1969-70)
(1970-71)
(1975-76)
(1976-77)
YEARS