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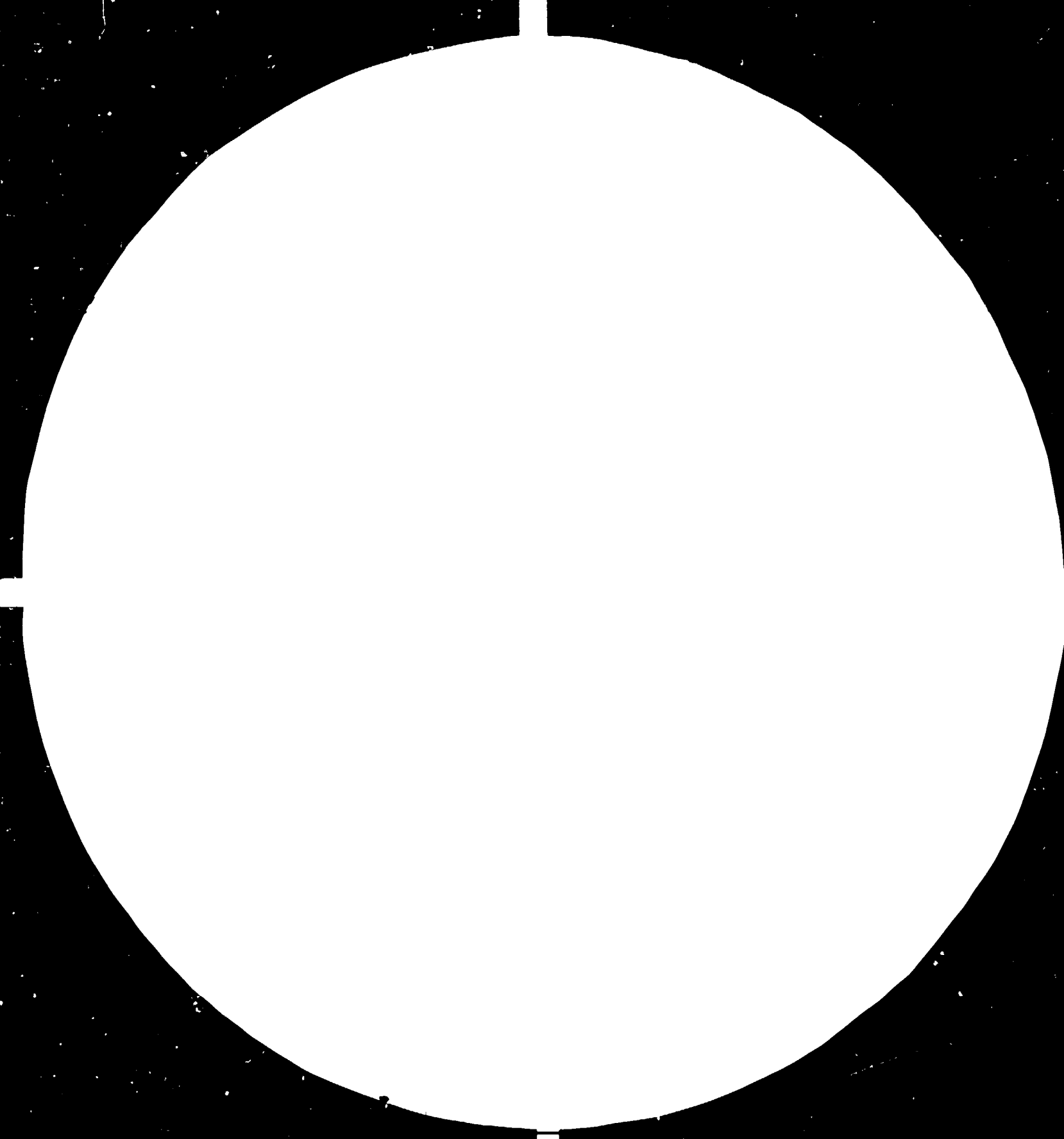

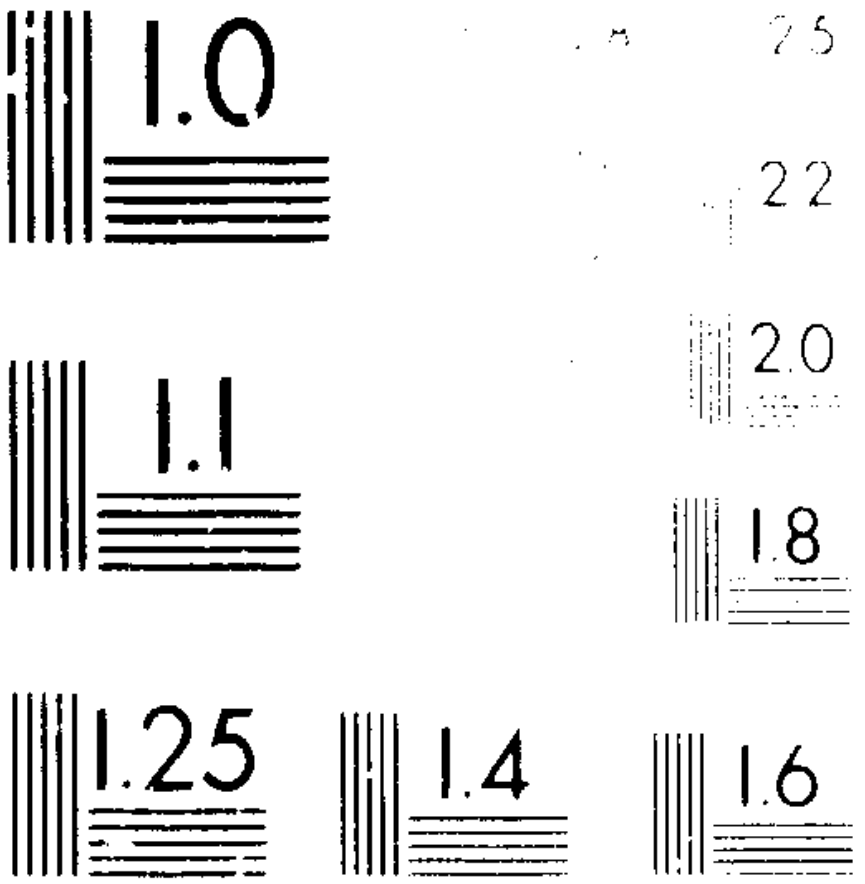
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A FRAMEWORK FOR TECHNICAL ASSISTANCE PROGRAMMING IN PAKISTAN'S INDUSTRY

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

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A Framework for Technical Assistance Programming in Pakistan's Industry

I. Aim of the Study

The working paper presented here is to serve as a background study for technical assistance programming in the industrial sector of Pakistan. Its basic aim thus is not to give operational recommendations for individual technical assistance projects but essentially to provide some kind of analytical basis for country programming purposes. In accordance with this objective the study starts with a general overview of the status and pattern of industrial development as well as of some of its crucial constraints. Adopting a sectoral approach it then proceeds to broadly identify the development prospects and the main bottlenecks and deficit areas in various manufacturing branches thus indicating priority fields which may require external technical assistance in the future.

It has to be stressed that what is presented here is not an in-depth study of Pakistan's industrial sector nor can the paper claim to give a full-fledged picture of all the essentially dynamic processes and problem areas encountered in its various branches. Some specific issues which may require further in-depth studies are indicated in the final chapter V.

The working paper should be interpreted as a companion document to the Industrial Development Review of Pakistan, prepared by the Regional and Country Studies Branch, which includes more detailed information on the country's manufacturing sector and in particular on plan priorities, strategies and recent policy measures.

II. Status and Pattern of Industrial Development

This introductory chapter gives a first general picture of Pakistan's manufacturing sector concerning such aspects as private and public investment contributions, branch distribution of value-added, foreign trade, private foreign investment as well as regional and size distribution of manufacturing establishments. It is deliberately kept very brief as it gives a summary of the more detailed treatment of these topics presented in the Industrial Development Review of Pakistan.[1/]

The manufacturing sector as a whole was among the fastest growing segments of Pakistan's economy already during the fifties and sixties resulting in a doubling of its GDP share from 8 to 16 per cent within these two decades. Since the early seventies, the share of manufacturing activities in GDP has only slightly changed and, after a temporary downward trend, has reached about 17 per cent in 1982. In 1983/84, the manufacturing sector was basically able to sustain its momentum and has reached a growth rate of 7.7 per cent (as compared to a target growth rate of 9.3 per cent) in real terms thus partly offsetting the recent drastic agricultural growth shortfall which was primarily due to bad weather conditions.

As regards private vs. public sector involvement in Pakistan's industrial sector, major changes have occurred in the course of time: Whereas until 1972/73, the private sector's share in large-scale manufacturing had been floating around 90 per cent of gross fixed capital formation, it sharply decreased to as low as 20 per cent in 1977/78, primarily as a consequence of the nationalization of industry in 1972. Later, the new Government embarked on a strategy of deregulating private economic activity and subsequently, according to a provisional figure for 1983/84, private investment has again taken the lead contributing 53 per cent to gross fixed capital formation in large-scale manufacturing as well as 59 per cent

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1/ Cf. UNIDO, Industrial Development Review Series, Pakistan, February 1985 (draft version).

in total manufacturing.

An analysis of structural changes in the sectoral distribution of manufacturing value-added (MVA) shows that between 1973 and 1980/81, the share of consumer goods decreased from 65 to 57 per cent, the share of intermediate goods increased from 26 to 34 per cent while capital goods kept a constant share of about 9 per cent (based on current prices). Progress in the diversification of production has been made in recent years, but the manufacturing sector is still dominated by some key industrial branches. In 1980/81, the year of the latest Census of Manufacturing Industries, substantially more than 50 per cent of total MVA were generated by agro-based industries (food, tobacco) and the textiles industry the latter's share having declined, however, drastically from 38 per cent in 1973, to 19 per cent in 1980/81. Among the fastest growing industries in terms of their contribution to total MVA have been petroleum refineries which, taken together with industrial and other chemicals accounted for almost one fifth of total MVA in 1980/81. Other sectors showing above average increases in their relative MVA position were non-metallic mineral products as well as iron and steel.

As regards foreign trade it can be observed that the share of manufactured exports (narrowly defined as SITC 5-8 less 68) in total exports went up to 59 per cent in 1982, whereas the share of manufactured imports in total imports reached 49 per cent in the same year. Manufactured exports are to a remarkably high extent directed towards other developing countries (43 per cent if narrowly defined) while manufactured imports are highly concentrated on developed country sources. Due, above all, to the increasing importance of the Gulf countries for Pakistan's exports, a relatively high degree of regional market diversification has been reached. On the other hand, we still find manufactured exports being heavily concentrated on some key industrial branches with textiles, clothing and leather goods taken together accounting for more than 80 per cent of all manufactured exports (narrowly defined).

The sectoral distribution of private large and medium-scale investment in manufacturing between 1972/73 and 1982/83, was characterized by a

significant loss in the share of textiles, a roughly constant share of the food sector and considerable share increases in the case of footwear and wearing apparel, tobacco, paper and paper products, rubber products, chemical products, basic metal industries and electrical machinery and appliances.

Foreign private investment amounted to roughly PRs 2.8 billion on a cumulative basis during the years 1973-82. Although characterized by wide annual fluctuations inflows have shown an increasing tendency in the second half of that period. The manufacturing sector was able to attract 60 per cent of all foreign private investment during the whole period, mining & quarrying and construction another 31 per cent. The first ranking investing country was the United Kingdom with 25 per cent of total foreign investment undertaken, followed by the United Arab Emirates with 19 per cent and the USA with 14 per cent.

A breakdown of manufacturing industries by Provinces reveals drastic regional disparities in industrial activity: As much as 95 per cent of all enterprises included in the latest Census of 1980/81 (generating 91 per cent of MVA) are located within Punjab and Sind whereas Baluchistan with an area share of 44 per cent shows an almost total lack of manufacturing activities (share below 1 per cent). These regional asymmetries become even more pronounced at the district level. In NWFP 57 per cent of MVA and 45 per cent of manufacturing establishments originate from Peshawar alone, whereas in Sind Karachi is the source of two thirds of the Province's MVA as well as of 80 per cent of its manufacturing units.

The size distribution of manufacturing enterprises (according to the latest Census of 1980/81) reveals a dualistic structural pattern characterized by a large majority of relatively small units (almost 75 per cent employ less than 50 persons) on the one hand and some 10 per cent of establishments employing more than 250 persons on the other. These 10 per cent of relatively large units generate, however, almost three quarters of total MVA and manufacturing employment.

III. Main Overall Constraints to Industrial Development

Apart from specific problems of individual manufacturing branches (see below), general constraints to industrial development are to a large extent to be found in the infrastructural and macro-economic environment which the industrial sector has been facing. This fact points to the need to closely link industrial policy with broader economic policy measures geared to removing basic development bottlenecks.

In the case of Pakistan above all infrastructural deficiencies can be identified as major impediment for industrial production and efficiency relating essentially to the fields of energy, transport and communication[1/]:

- Pakistan still is an energy-deficit country with a degree of self-sufficiency of roughly three quarters (74 per cent in 1982). The remaining quarter of commercial primary energy consumption has to be imported, which is almost exclusively done in the form of crude petroleum and petroleum products. Natural gas is the dominant source of primary energy accounting for 62 per cent of domestic production as well as for 39 per cent of commerical consumption. In recent winters, shortages of energy supply have frequently occurred resulting in cost-increasing production breaks caused by load shedding. This problem has even been exacerbated in late 1984 and early 1985 leading to a three-day-a-week closure of factories in many parts of Punjab so that power shortages may result in halving the Province's industrial production and may create severe shortages in the supply of manufactured goods and thus additional inflationary pressure. The Government's decision to attach top priority to the energy sector within the Sixth Plan 1983-88 (34 per cent of public expenditure as compared to 24 per cent in the Fifth Plan) is thus not to be interpreted as preemptying resources available for industry but as an effort to establish the preconditions for more efficient industrial development in the future. Nevertheless, even assuming full implementation of the

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1/ Cf. Canadian International Development Agency, Pakistan Sectoral Profile Industry, February 1984, p. 27.

Sixth Plan's energy programme, shortages and bottlenecks will not be completely removed during the plan period. The gap between energy supply and energy demand is estimated to reach some 1,000 MW in 1985.

- The transport system can be identified as further priority field for the removal of infrastructural bottlenecks. This applies both to the railway system and to the road system. The Sixth Plan aims at significantly shifting freightage from roads towards railways in order to achieve optimal capacity utilization. The railway system is, however, in need of modernization and would also require deregulation of its management to increase operational efficiency. As far as roads are concerned, major parts of the existing road system need to be upgraded to meet the demands of modern highway traffic. Moreover, the whole system has to be expanded substantially. The average road density of 0.16 km per square km of area[1/] is clearly insufficient and amounts to only approximately one third of the standard density for developing countries with similar topography and a comparable level of economic development. The Sixth Plan proposes to launch a large programme to build up a farm-to-market road network in rural areas which must indeed be regarded as a necessary prerequisite for any attempt at reducing regional development disparities.

- A third aspect of infrastructural constraints relates to communication facilities. The telephone network with a density of around 5 phones per thousand persons has continued to be inadequate and the Fifth Plan's target to install 200,000 additional connections could only be met to some 60 per cent. Demand for telephone services is far in excess of supply. In addition, existing services are of poor quality and characterized by heavy network congestion.

Industrial development is not only constrained by deficits in physical infrastructure but also by the poor performance concerning the educational infrastructure. The literacy rate of total population (26 per cent in 1981) is among the lowest in the world. Accelerated human capital development is thus to be considered as one of the crucial areas determining the future

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1/ Cf. Government of Pakistan, Planning Commission, The Sixth Five Year Plan, 1983-88, p. 265.

potential for industrial development in Pakistan. This applies to basic education as well as to technical education. Due to an insufficiently developed vocational training system and due to the long-term exodus of skilled workers to the Arab region the country suffers from a deficit of adequately trained technicians and mechanics required to efficiently operate modern industrial enterprises.

Another important macro-economic constraint to industrial development is the very low rate of gross domestic savings which amounts to only about 6-7 per cent of GDP. The resulting gap between savings and investment has in the past increasingly been closed by remittances of foreign workers which are, however, expected to considerably decline in the future: Home remittances of Pakistani emigrant workers in the Middle East and the Gulf countries decreased already by 13 per cent in July/September 1984 as compared to the previous year.[1/] Assuming that foreign aid inflows will probably not increase in real terms substantial efforts to push domestic savings will be required if planned industrial investment is not to be jeopardized by financial restrictions.

Finally, mention must be made of policy-induced factors which are detrimental to achieving higher efficiency of industrial production. This refers for example to the government-administered price system, known as "cost-plus"-system[2/], which is applied in the case of the majority of public enterprises and partly as well in the private sector (incl. branches such as cement, fertilizers, petroleum products, vegetable ghee, motor vehicles). Although the Government within its overall approach at deregulating industrial activities and rationalizing the incentives structure has announced to replace the "cost-plus"-system by a more efficiency-oriented pricing formula, it is the former which still serves as pricing basis.[3/]

1/ Cf. Far Eastern Economic Review, 17 January 1985.

2/ Cf. World Bank, Pakistan Review of the Sixth Five-Year Plan, Report No. 4706-PAK, October 20, 1983, pp. 61-62.

3/ Measures that have meanwhile been taken to increase the operational efficiency of public enterprises include the introduction of a Management Bonus System within the so-called Signaling System. For details cf. UNIDO, Industrial Development Review Series, Pakistan.

IV. Development Prospects and Constraints in Important Sub-Sectors of Manufacturing

1. Textiles

The textile industry occupies an important position within the manufacturing sector. Although the share of textiles and wearing apparel (ISIC 321 and 322) dropped from 38.2 per cent of MVA in 1973 to 19.5 per cent in 1980/81, it still ranked second only to food products (20.1 per cent). Textiles, however, accounted for 45.2 per cent of total manufacturing employment in 1980/81 - and was the leading sub-sector in this respect. Furthermore, its share of manufactured exports (SITC 5-8 less 68) amounted to more than three quarters in 1982.

Installed spinning capacity for the production of cotton and blended yarn currently stands at 4.3 million spindles (1982/83) whereas about 24,000 looms are installed for cloth production in the mill and non-mill sector.[1/] Cotton production fell drastically and there was both speculative buying and hoarding within the industry. This led to a doubling of the price of raw cotton and the price of cotton yarn which is bound to have affected both the total production of yarn and cloth and the surplus available for export. Over the period 1980/81 to 1982/83, total clothing production increased by 8.9 per cent annually and surplus yarn increased by 19 per cent. This growth rate is unlikely to have been maintained during 1983/84 - for which production statistics are not yet available.

Under-utilization of installed capacity which in recent years has always been a serious problem is thus likely to have increased considerably during 1983/84. Over the period 1978/79 to 1982/83 capacity utilization rates had only reached around 70 per cent in the case of spindles and around 54 per cent in the case of looms implying that they decreased sharply as compared with the first half of the seventies.

1/ For the figures presented in this chapter cf. Textile Industry Research & Development Centre, Pakistan Textiles Statistics, Second edition, Karachi 1984.

As far as productivity is concerned available data indicate a declining trend during the period 1971/72 to 1980/81 when yarn production went down from 18.25 to 17.87 kg per 1,000 spindle hours and cloth production from 83.74 to 78.95 sq meters per loom day. It is noteworthy, however, that the downward trend has been reversed recently in the case of yarn production which in 1982/83 reached 24.27 kg per 1,000 spindle hours (provisional figure).

While the textile industry's development during the 1950s and 1960s was largely of an import substituting character, it has during the 1970s acquired the capacity to generate significant export surpluses. Nevertheless, imports of yarn and thread of synthetic fibres, jute bags and sacks and woollen yarn remained significant in the early 1980s. Import substitution possibilities also exist for manufacturing nylon yarn, polyester and acrylic. In the case of woollen yarn and jute products it is underutilization of capacity that constrains import substitution partly being caused by domestic raw material shortages (cotton and jute production) and energy bottlenecks.

Export levels have also been restricted by these factors but to a large extent also by non-tariff barriers to trade imposed by leading importing countries: Pakistan has negotiated bilateral agreements for the export of textiles with the EEC, the USA, Canada, Sweden and Finland within the context of the Multifibre Arrangement (MFA) which has been extended up to July 1986. Pakistan's quota allocations by the EEC and the USA for 1984 are generally regarded as unsatisfactory - particularly with respect to the export of blouses and some items in category 369 (other cotton manufactures). The US decision to impose new limits on cotton imports has also affected Pakistan badly forcing the Government to halt all shipment of textiles to the USA for the fear that the newly imposed aggregate limit for the year will be breached.

One option for the revitalization of exports could be increasing market diversification, e.g. towards some promising Middle East and African markets. The value of made up textiles and cotton fabric exports to the Gulf countries[1/] already increased from PRs 284.8 million in 1981/82 to PRs 695.2

1/ Abu Dhabi, Bahrain, Dubai, Kuwait, Oman, Qatar, Saudi Arabia.

million in 1982/83. Whereas the Gulf countries accounted for 14.4 per cent of total exports of cotton fabrics in 1981/82, this share increased to 31.6 per cent the following year. A more vigorous export diversification towards emerging regional markets could thus be a means for circumventing the constraints related to additional exports within the framework of the MFA.

Wherever exports may be directed to, attempts at their expansion need to be supplemented, however, by efforts at increasing productivity within the textile sector. Labour productivity in spinning, weaving and finishing in Pakistan is only about 15-20 per cent of the level achieved in Western Europe according to World Bank estimates.[1/] Machine efficiency is also low by international standards. Improvement in maintenance systems is urgently required. Moreover, there is an urgent need to modernize the equipment currently in use for textile manufacturing. The Textile Industry Research & Development Centre has calculated that 77 per cent of the spindles in use in 1979 were installed before 1970; and 44 per cent had been installed even before 1960.[2/]

The relative obsolescence of equipment has persisted despite Government incentives for modernization - including abolishing of duty on textile machinery imports. The reluctance to make use of these concessions is explained largely with reference to the structure of the textile industry. According to the latest Census of Manufacturing Industries, the largest 20 establishments (each employing more than 2,000 persons) accounted for 31 per cent of MVA, whereas 645 firms (each employing less than 50 persons) accounted for 8.3 per cent of MVA generated within the branch in 1980/81.[3/] The majority of the units are thus small and rely heavily upon an unskilled and illiterate labour force.

1/ Cf. De Vries, Restructuring of Manufacturing Industry: The Experience of the Textile Industry, World Bank Staff Working Paper No. 558, Washington 1983, p. 39

2/ Cf. Textile Industry Research & Development Centre, Pakistan Textiles Statistics, First edition, Karachi 1982, p. 36.

3/ Cf. Federal Bureau of Statistics, Census of Manufacturing Industries 1980-81 p. 44-45. The total number of reporting establishments within the textile subsector was 914.

There is an undisputed necessity to rationalize Pakistan's textile industry if it is to successfully meet competition from other South and Southeast Asian countries and to fulfil the quality requirements of demand in the industrialized countries' markets. This rationalization will, however, probably lead to the closing down of a large number of uneconomic production units resulting in additional unemployment problems.

It may thus be useful to think of restructuring the textile industry by two complementary policy approaches. One approach should seek to stimulate production for exports the emphasis being on modernization and the production of high quality products to match the increase in capital intensity envisaged by India and other competing Asian countries. On the other hand, consideration must also be given to the development of a domestic market oriented textile industry specializing in production for the lower income groups. This subsector could employ a relatively labour intensive technology and could benefit from attempts at improving the domestic production of textile machinery which may be geared towards this subsector. The Sixth Plan's Industrial Investment Schedule envisages investment worth PRs 300 million (approx. $18.75 million) in the textile machinery sector.

External assistance geared to improving the textiles sector's further development could include a couple of in-depth studies e.g. focussing on an adequate rationalization strategy for this crucial sector including an analysis of operational efficiency by production scale. Another important issue to be studied would be the short and long-term prospects of an export strategy aimed at regional market diversification. Technical assistance should among others continue to strengthen the training capacities of the Textile Industry Research & Development Centre (TIRDC) which in recent years has developed a very successful programme of institutional as well as in particular in-plant training courses and consultancy services. A major field for future training efforts is in synthetic fibres so that the establishment of an application-oriented department for synthetic fibres within TIRDC may be taken into consideration.

2. Agro-based Industries

The Sixth Five Year Plan singles out sugar as the major agro-based manufacturing product which is to be encouraged.[1/] Accompanied by wide annual fluctuations throughout the 1970's and the whole Fifth Plan period[2/], total sugar production has achieved a remarkable upturn in recent years making Pakistan the world's fifth largest sugar producer.

The increase in sugar production during the 1980s has, however, also created problems. As capacity utilization has increased substantially there has emerged a growing shortage of storage capacity. Financial resources for increasing marketing and storage facilities have not been readily available. The Government decision - announced in the 1983/84 budget speech - to abolish control on the price and distribution channels through which sugar was marketed made the private sector responsible for organizing marketing facilities, secondly the decision to decontrol sugar prices also meant the ending of the system of advance payments for sugar purchases by the Government. This reduced the working capital available to the mills and increased their need for bank finance. It has been estimated that the production cost has gone up by 8 to 10 per cent as a consequence of the decision to decontrol the sugar industry.[3/]

The most important constraint on sugarcane production remains the very low yield per hectare despite a substantial increase in fertilizer consumption. Over the period 1978/79 to 1982/83 yield per hectare has declined by about 2 per cent annually and is currently e.g. only half that in the Philippines[4/] implying that productivity is among the lowest in the

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1/ Cf. Government of Pakistan, Sixth Five Year Plan, p. 161.

2/ Over the Fifth Plan period annual growth rates ranged from as high as 17.6 per cent in 1980/81 to minus 10.8 per cent in 1982/83. Cf. Pakistan and Gulf Economist, October 13-19, 1984, p.11.

3/ Ibid, p. 10.

4/ Ibid. p. 11.

world. Reducing sugarcane prices would thus not be feasible as long as yield remains low; at present raw material costs alone account for some 40-45 per cent of total sugar production costs. The sugar processing industries - and the food products which use sugar as an important input - thus have to live with relatively high production costs meaning that even apart from the problem of poor quality (insufficient degree of refining) prospects for increasing sugar exports are not particularly bright. At the current exchange rate[1/] the domestic price of Pakistani sugar is 60 per cent higher than the international price - and the international sugar price is expected to fall due to the collapse of the International Sugar Agreement (ISA) negotiations and the existence of surplus sugar stocks. Sugar exports would therefore have to be heavily subsidized by the Government as was the case concerning recent shipments of sugar to Iran.

Despite high costs of production sugar prices are, however, showing a tendency to fall - due to flagging domestic demand. Currently, surplus stocks of about 400,000 tons exist with the mills. There are few prospects for cost reduction. Sugar production technology is imported from abroad and plant cost has risen rapidly. The Government has since 1982 removed the investment subsidy previously granted to the new mills for covering investment costs. Costs have also risen because of increasing interest burden which has resulted from the need to finance marketing and stock holding operations. Modernization of sugar technology - the introduction and extension of mechanical harvesting and improvement of the delivery system - can play a part in increasing efficiency but may generate substantial unemployment within the sector. However, given the high price of technology imports, a fall in the cost of production of sugar in the short or medium run would require that these imports be made available on a concessional basis.

Further problems encountered by the sugar industry include a low level of vertical integration; inappropriate location of many sugar manufacturing units; high levels of capacity underutilization as well as reliance on outdated machinery in need of modernization.

A priority area for technical assistance is to be seen in the broad field of a better utilization of by-products which could help to reduce the price

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1/ Roughly PRs 15.5 - US $1 (mid January 1985).

of sugar drastically.[1/] The main by-products of sugar production are molasses, bagasse and filtercakes of which, depending upon the quality of cane crushed by the sugar mills, normally around 4 per cent, 25-30 per cent and 3-8 per cent are obtained respectively. It is noteworthy that in some countries the commercial exploitation of these by-products has meanwhile become the major source of revenues from sugar manufacturing whereas their utilization in Pakistan is still very much in its infancy stage. The known downstream products of molasses (of which in 1982/83 75 per cent was exported) include industrial alcohol, cattle feed, citric acid, bakers yeast, lactic acid, microbial fats, fodder yeast, acetate rayon yarn, liquid sugar and power alcohol. Bagasse can be used as fuel or for the downstream production of papers of various grades[2/], paper board, particle board and furfural. Bagasse is a perishable commodity requiring specific storage techniques, at present it is to a large extent simply burnt and thus wasted.

Many of the production processes required for the commercial use of sugar by-products are very sophisticated, expensive and highly capital-intensive so that a selective choice of those suitable for the conditions prevailing in Pakistan would have to be made. What is required above all therefore is first complete knowledge about the range of internationally available technologies, second detailed market studies on the most suitable downstream activities for Pakistan and third pre-feasibility studies concerning recommendable investment projects and their profitability.

The Ministry of Industries has recently expressed its specific interest in exploring the potential industrial utilization of 'kenaf', in particular the possiblities of mixing it with bagasse for pulping. For this purpose the following studies are suggested to be undertaken by UNIDO:

- agronomic studies on the cultivation of 'kenaf' in suitable areas and particular varieties for pulp utilization; yield per acre; cost of growing; seed multiplication farming;

1/ Cf. Pakistan Industrial Credit and Investment Corporation, Econmic & Research Department, Study on By-Products of Sugar Industry, Internal Working Paper, January 1984.

2/ The setting up of Pakistan's first large size newsprint manufacturing plant based on bagasse has now entered the planning stage.

- detailed feasibility study on the utilization of 'kenaf' pulp in different types of paper; economic viability; analysis of its efficient use as fibre source in comparison to bagasse or other pulping material;
- review of utilizing 'kenaf' in existing paper mills and in the proposed newsprint plant in Punjab, including aspects of changing its location, adequate energy supply and integrated processing.

Sugar is an important ingredient in the production of the main processed food items identified in the Sixth Plan as having export potential including canned fruit, confectionary and fruit juices. These products are relatively high value added generating. Along with meat and dairy products, there appears to be a significant market for such products in the Middle East. Exports of fruits and vegetables (including processed and packaged products) to the Gulf countries increased from PRs 196.1 million in 1981/82 to PRs 392.7 million in 1982/83, representing 67.1 per cent of the total exports of vegetables and fruits in that year. However, further growth in these areas requires access to sophisticated technology and marketing expertise. Substantial improvements are required in storage, transportation, packaging, product promotion and quality control. The Government has signalled that it expects foreign investment to play an important role in this respect. A large number of project applications from foreign firms are being reviewed for location in the Karachi Export Processing Zone. Total investment envisaged is around US $150 million, most of it in the agro-based industrial sector.[1/] The progress of the Export Processing Zone has, however, been relatively slow and procedures will have to be streamlined for utilizing foreign investment opportunities.

Given the product characteristics outlined above an expansion of agro-based products would in all probability require relatively heavy governmental subsidization to offset high production costs. The Government is said to be considering a two tier price structure for sugar and sugar based products with the domestic sector subsidizing exports. In view of the low growth in domestic demand such a policy will lead to a major substitution of gur for sugar and lead to a reduction in the per capita consumption of sugar which is already among the lowest in the world.

1/ Cf. Pakistan and Gulf Economist, Aug. 25-31, 1984, p. 23.

The longer term solution must lie in lowering production costs. Industrial research must be focussed on developing agricultural inputs suitable for increasing sugarcane yield per acre as well as on improvements in the sugar processing technology. Also, given the emphasis on increasing the export of sugar plant machinery an effort may be made to suggest the development of some mechanical instruments and processes which can substitute high price foreign technology imports by the sugar based industries. International assistance could play an important role in these areas. It can also contribute towards helping Pakistan in developing appropriate joint venture export-oriented agro-based projects which, while profitable from the perspective of the foreign investor also have the potential to make a contribution towards increasing Pakistan's ability to develop efficient marketing and distribution channels and to acquire appropriate production technology.

Another important agro-based industry in Pakistan is that producing vegetable ghee. The ghee industry has traditionally been unable to meet domestic requirements although production has risen in recent years. In the period 1979/80 to 1982/83, production increased at an annual average rate of 5.4 per cent. During the same period the import of edible oils (which are vegetable ghee substitutes) rose by 20 per cent per annum. This has increased the pressure to raise capacity utilization rates which have gone up to about 90 per cent by the middle of 1984. It has also led to a rise in the domestic price of vegetable ghee which increased by 25 per cent during fiscal year 1983-84. Modernization of equipment in some sectors of the vegetable ghee industry is urgently required - although new capacity has already been created in 1983.

In order to improve the development opportunities of many branches of agro-based industries (e.g. milk, meat) it is essential that more attention be given in the future to related service activities like in particular the expansion of urgently required cold storage facilities.

3. Leather

The leather industry has experienced a rapid growth in recent years accompanied by striking increases in exports. The combined export value of leather and leather products jumped from PRs 2.0 billion in 1982/83 to PRs 3.1 billion in 1983/84 (see table 1) implying that this branch was among the major foreign exchange earners with its total export value even surpassing that of carpets and rugs. The total number of tanneries stood at 206 in 1984 (almost exclusively to be found in the private sector) of which roughly two thirds were located in Punjab. More than 600 units are engaged in the manufacturing of leather garments and other leather products, mainly concentrated in Karachi, Lahore, Sialkot, Hyderabad and Peshawar. Principal products include footwear, garments, sports goods, gloves, suitcases, beltings, bags etc.

Table 1: Export of Leather and Leather Products (in PRs million)

Item	1980/81	1981/82	1982/83	1983/84
Leather	914	1,152	1,195	1,972
thereof: wet/blue		676	827	1,051
Leather Footwear	35	29	62	68
Football, Volleyball etc.	177	162	228	323
Leather Gloves	145	126	177	262
Leather Clothes & Accessories	40	54	277	444
Leather Products	64	77	115	74
TOTAL	1,375	1,600	2,054	3,143

Source: Leather Industry Development Organization; Investment Adivsory Centre of Pakistan.

Starting in the early seventies the Government has since pursued a policy geared towards enhancing domestic value-added of leather production, i.e. it has discouraged the export of raw hides and skins and correspondingly encouraged the export of finished leather and leather products. To this end the following measures have been taken:

- ban on export of raw hides and skins;
- ban on export of wet-blue from cow hides and cow-calf hides;
- subjecting export of wet-blue from goat/sheep skins and buffalo hides to an export duty of 30 per cent;
- higher rate of custom rebate on export of finished leather and leather goods;
- duty-free import of tanning machinery under BMR as well as for new production units in the recently established industrial estates in NWFP and Baluchistan.

As a consequence of these measures the share of finished leather in total leather exports has risen considerably to about 36 per cent.

On the other hand, substantial quantities of finished leather as well as leather manufactures both for consumer and industrial purposes are still being imported which may indicate the need to expand production for the domestic market. Obviously, there is still a large scope for import substitution within Pakistan's leather industry.

Technological advancement as well as the recent export breakthrough in leather garments manufacturing is attributable to some extent to the services provided by the Karachi-based Leather Products Development Centre set up by the Leather Industry Development Organization with the assistance of UNIDO in 1979. The Centre's activities are concentrated on leather garments (excluding sports goods and footwear); it has a Common Facilities Centre and imparts technical training courses geared to the efficient use of leather manufacturing technologies, leather sewing and machine maintenance. There is every indication that it would be useful to further strengthen the Centre's capacities; furthermore, it may be advisable to establish further centres of the same type in other places.

Now that from the production side the leather industry has basically achieved the ability to competitively serve export markets, further emphasis should be put on marketing-related assistance measures including such elements as adequate finishing, design selection or advertising techniques. To this end it may be useful to explore the benefits to be reaped from organizing export consortia or associations of relatively small units which could enable them to formulate joint strategies, to pool their skills and resources and to share the high costs involved in international marketing.

A further important field for technical assistance concerns the very beginning of leather processing which is essentially dependent on the quality of hides and skins delivered as raw inputs for the leather industry. At present, in particular in the less developed provinces, there is still a widespread lack of workers skilled in flaying and curing. The resulting damages are estimated to undergrade the hides and skins in quality and prices by about 25 per cent. Assistance in corresponding training activities could prove highly beneficial and would probably generate a high rate of return in terms of additional foreign exchange earnings.

4. Engineering Industries

The Sixth Five Year Plan accords top priority to investment in the engineering industries for the period 1983-88. Development is conceived to be domestic demand oriented and areas singled out for emphasis include transport equipment, railway wagons, rails, steel-using industries, large diameter pipes, electric equipment, telecommunication instruments and machinery for domestic industrialization.[1/] A total allocation of PRs 19.93 billion has been made to this sector. This represents 24 per cent of total manufacturing investment envisaged by the Plan. The public sector's share will be PRs 9.06 billion - 45.4 per cent of total investment in the engineering sector. The private sector is expected to provide the bulk of the investment. However, the public sector's share of investment in the engineering branches is higher than in any other manufacturing subsector (for some general information on the role of organized engineering industries in total manufacturing see table 2).

According to the Industrial Investment Schedule for the Sixth Plan the largest share of the investment in the engineering sector will be allocated to basic metal products (45.4 per cent). This will be followed by non-electrical machinery (17.4 per cent), electrical machinery and appliances (11.7 per cent) and metal products (10.8 per cent).

The main factor behind the emphasis on engineering products is the completion of Pakistan Steel Mills - the first integrated iron and steel work in the country. It has an existing poduction capacity of 1.1 million tonnes per annum of raw steel with a built in potential to expand to 2 million.[2/] Total investment cost has been estimated at PRs 27.7 billion. The mills will rely upon imported iron ore, coaking coal and manganese ore. A series of

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1/ Cf. Government of Pakistan, Sixth Five Year Plan, pp. 160-161.

2/ The production units already put in operation include: first coke-over battery (April 1981); first blast furnace (August 1981); 800 mm billet mill (October 1982); two converters, one bloom caster and two slab casters of steel making plant (December 1982 - November 1983); 1700 m hot strip mill (December 1983); second blast furnace (August 1984); various units of cold rolling mill (February - December 1984).

Table 2: Place of Engineering Industry among All Manufacturing in 1980-81

Particulars	Accounting Unit	All Industries	Engineering	% Share
Number of Units	Nos.	3,815	1,108	29.0
Fixed Assets	Rs. million	22,719	3,139	13.8
Value of Stocks end June, 81	Rs. million	17,223	4,400	25.5
Average Daily Employment	Nos.	451,710	84,644	18.7
Employment Cost	Rs. million	5,624	1,289	22.9
Industrial Cost	Rs. million	55,596	7,228	13.0
Value of Production	Rs. million	84,288	10,951	13.0
Value Added	Rs. million	28,692	3,723	13.0
Fixed Assets per Unit	Rs. in 000s	5,955	2,833	-
Employment Cost per Worker	Rupees	12,450	15,224	-
Production per Worker	Rupees	186,598	129,377	-
Value Added per Worker	Rupees	63,519	43,986	-

Source: Government of Pakistan, Federal Bureau of Statistics, Census of Manufacturing Industries 1980-81.

Table 3: Downstream Usage of Iron & Steel Products

Product	Uses
Iron & Steel Casting	Agriculture Implements, Sugar and Textile and Cement Industry, Machine Components, Automobile Components, Sewerage pipes and Accessories of Buildings, Railways.
Forging	Grinding Balls in Cement Industry, Shafts, Gears, Axles, Connecting Rods, Crank Shafts, Hard Tools, Agriculture Parts and Automobile Components, Roads, Nut and Bolts.
Billets	Reinforce Bars, used in Building Construction, Wire Rods, Shafts, Seamless Pipe, Sections (Angles, Channels etc.)
Hot Rolled Sheets	ERW Pipes, Spiral Pipes, Storage Tanks, Ship Building, Railway Carriages, Wheel Rims, Defence Production
Formed Sections	Automobile Industry, Buildings, Power Transmission, Pilings
Cold Rolled Sheets	Pipe Plant, Motorcycle Industry, Automobiles, Tinplates
Glavanized Sheets	Agriculture, Industrial and Domestic Sheds, Containers, Corrugated Sheets
Tin Plates	Packaging of Agriculture and Processed Food Products

Source: Economic Review (Karachi), Vol. 16, January 1985, p. 29.

downstream ventures proposed by foreign investors are currently under investigation. By early 1984, seven such joint venture projects had been approved by the Government.[1/] Trial production has begun at a heavy foundry factory at Taxilla and there are plans for the establishment of automobile assembly plants. (For an overview of the usage of various iron & steel products by construction, machinery and equipment manufacturers, metal processing industry, transport, power and agriculture see table 3.)

Steel production will at least in the short to medium run need to be substantially subsidized. Given its reliance on imported inputs and on an already outdated production technology[2/] unit costs are likely to remain significantly higher than respective world prices. There is thus an urgent need to search for appropriate modifications in product mix and production technology in order to increase capacity utilization and operational efficiency. International assistance can play a role in helping Pakistan achieve this modification.

The production of mild steel products grew at a rate of about 15 per cent annually during 1979/1982 while over this period the domestic demand for steel products has grown at about 9 per cent per annum, according to World Bank estimates.[3/] Forecasts indicate that steel demand in Pakistan will reach 2.5 million tons by the end of the decade and 4.7 million tons by the turn of the century.[4/] The Pakistan Industrial Credit and Investment Corporation (PICIC) identified significant import substituting potential in the following product groups in the early 1980s: (a) Industrial machinery, (b) tractors, (c) sewing machines, (d) diesel engines, (d) gear boxes and rear axles of trucks, (e) motor parts, (f) railway carriages, (g) ships, (h) motorcycle parts, (i) bicycle parts, (j) steel products, (k) telecommunications equipment and (l) other electrical equipment. The report

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1/ Cf. Government of Pakistan, Economic Adviser's Wing, Finance Division, Pakistan Economic Survey 1983-84, p. 93.

2/ Cf. World Bank, Pakistan Review of the Sixth Five Year Plan, p. 64.

3/ Cf. World Bank Pakistan Recent Economic Developments, Report No. 4906-Pak, February 24, 1984, p.19

4/ Cf. UNIDO, ID/WG. 361/9, 6 January 1982, p.3

emphasises that this import substitution potential cannot be exploited unless quality control and standardization procedures are rigorously applied and infrastructural shortages are reduced - particularly in the case of the smaller scale engineering firms.[1/] The report also highlights gaps in the number and range of engineering units reflecting a weak technological base and the neglect of sub-contracting.[2/] which points to the need for increasing the vertical integration of the Pakistani engineering goods sector.

The textile machinery industry produces mainly looms and to some extent spinning frames and spindles, but essentially at sub-standard quality. Training facilities for the manufacture of textile machinery are, however, very limited. There is little attempt at standardization and quality control. Research and development facilities are meagre and capacity utilization is low. However, expansion of production and increase in capacity utilization rates is thwarted by sluggish domestic demand as domestic manufacturers of textiles have a definite preference for imported textile machinery. Pakistan textile machinery manufacturers face stiff competition from China and some other Third World exporters. Moreover, Pakistani manufacturers often find that suitable raw materials are not available thus reducing the quality of their product and increasing waste. Relations between the textile industry and the textile machinery industry are not close. Subcontracting is very limited particularly among the smaller private sector units.

These problems can be tackled to some extent by extending the range of textile machinery currently produced, particularly by the larger companies. This will permit the establishment of a group of textile technology specialists and the hiring of expertise which can facilitate negotiations with international manufacturers and ascertain that appropriate and efficient technology is being transfered.

1/ Cf. PICIC, Import Substitution in the Manufacturing Sector of Pakistan, Karachi 1981, p. 3-26.

2/ Ibid., p.4.

The machine tool industry is dominated by two large firms producing 30 per cent of the total domestic market. There are also many medium and small scale firms. While the quality of products manufactured by the larger firms is generally satisfactory, product designs have become outdated and in need of modernization. The smaller firms, however, do not exercise quality control and due to inadequate training facilities are incapable of standardizing production. Machinery in use is largely technologically obsolete and maintenance is very difficult because equipment has been imported from many different sources. Subcontracting also is very limited. Under present circumstances the machine tool industry is incapable of responding to rapidly changing domestic demand. There exists considerable scope for increasing efficiency within this branch. A UNIDO study estimates that by the early 1980s sufficient capacity had been created to enable the branch to meet domestic requirements until the end of the decade provided productivity and operational efficiency increases.[1/] The greatest need in this respect is for standardization of machines, raw materials, accessories, and equipment used by the machine tool industry.

Another important segment of the engineering industries is that of manufacturing and assembling transport equipment. Major items include the manufacture of bicycles and the assembly of trucks, buses, jeeps, light commercial vehicles, tractors and motorcycles and three wheelers. Bicycle production has increased from 280,000 units in 1978-79 to 463,000 units in 1983-84. The assembly of tractors and jeeps increased from 1978-79 to 1982-83 by 259 per cent and 73 per cent respectively while the assembly of trucks and buses declined by 13 per cent and 35 per cent respectively over this period.[2/] The major problems limiting expansion are delay in absorbtion of technology imported, uneconomic size of operation and escalation in equipment costs. Capacity utilization remains low - the UNIDO study referred to above estimated it at about 50 per cent in the assembly of buses and only 40 per cent in the case of motorcycles in the late 1970.[3/]

1/ Cf. UNIDO, Policy Proposals and Promotion of the Capital Goods Sector in Pakistan, Vol. 1, January 1982, p. 43.

2/ Statistics are from Federal Bureau of Statistics, Monthly Statistical Bulletin, June 1984, p. 23. Statistics for 1983-84 are available only for bicycle manufacturing.

3/ Cf. UNIDO, op.cit., p.55.

Although efforts have been made to improve the situation, increasing capacity utilization remains problematic and underutilization has led to an increase in costs; 100 per cent local content has been achieved only in the case of the bodies of semi-trailer tankers and dumper trucks.

The scope for the expansion of transport equipment manufacturing is huge. Import of transport equipment constituted 13 per cent of total merchandise imports in 1982/83. Expansion of domestic production would, however, require above all the availability of suitable raw materials. Whereas steel inputs will now be more generally available, bottlenecks in the supply of other non-ferrous alloys may persist. There is also a lack of precision casting and forging facilities and there are only relatively few supporting industries producing e.g. spot welding equipment, printing booths and owens. Furthermore, technically skilled labour is scarce which has limited the level of subcontracting within the industry and again, quality control requirements are essentially underdeveloped.

An important need insufficiently appreciated in the past is the benefit that can accrue to Pakistan from closer co-operation with other developing countries - such as e.g. India, the Republic of Korea, Iran or Turkey - that have made some progress in the establishment of a national motor industry. International assistance can facilitate such co-operation through organizing regional workshops in which participating countries can gradually move towards specialization patterns in the production of transport equipment. This can be of particular benefit to Pakistan which would find it very difficult to manufacture the entire "product mix" of the automobile industry concurrently.

Another branch of considerable significance is that producing agricultural machinery. The Sixth Plan sees "the mechanization of agriculture as providing the major linkage between agriculture and industry."[1/] Five units for the manufacturing of tractors had been sanctioned according to the Plan and were expected to start production. Pakistani agriculture suffers from an acute shortage of agricultural machinery. Capacity utilization rates are low and unit costs are exorbitantly high. Only large landlords can make

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1/ Government of Pakistan, Sixth Five Year Plan, p. 161.

use of agricultural machinery. The production of farm implements - which is a labour intensive process and suitable for a country like Pakistan - is undertaken mainly by small cottage industry type units. There are a few large scale enterprises but few attempts have been made for a rationalization of the structure of production in this branch. The number of agricultural machinery producers has tripled during 1978/79 to 1981/82. The product range is limited and includes hand tools, ploughs, tractor drawn implements, diesel engines, and sugar cane crushers. Agricultural machinery manufacturing firms generally lack design engineering, process planning and quality control facilities. There is also a need to extend R & D activities currently being undertaken in this field by the Pakistan Agricultural Research Centre (PARC) and other bodies.

It is widely believed that the lack of light weight medium high speed (5-6 kg/HP 2000-3600 rpm) diesel engines of less than 25 HP has been a serious bottleneck in the mechanisation of small farm agriculture in Pakistan.[1/] However, the existing effective demand for this specific type of agricultural equipment is not known. The first step must, therefore, be to prepare a comprehensive study forecasting the demand for specific types of agricultural equipment in Pakistan over the medium term. International assistance could be provided for undertaking such a study in collaboration with PARC. Assistance may also be useful in the development of local technical expertise for the construction of small tractors and trailers currently being imported from China and the USSR.

Pakistan has an ambitious plan for developing its engineering industries during the rest of the present decade. Initiative for much of this development has been placed with the private sector - which has in the past shown a distinct preference for light consumer goods industries with short gestation periods and high profits. Increasing efficiency and profitability within the engineering sector requires important structural change. External technical assistance could contribute to achieving this structural transformation on the basis of in-depth studies concerning this crucial sub-sector's future investment and rationalization needs.

1/ Cf. UNIDO, Policy Proposals and Promotion of Capital Goods Sector in Pakistan, op.cit., p.68.

5. Electronics[1/]

The Sixth Plan allocates a sum of PRs 126 million to the electronics industry in the public sector. This represents less than 1 per cent of public manufacturing investment. The Industrial Investment Schedule, however, envisages private sector investment in this sector worth PRs 1.09 billion during the Sixth Plan period. There are 3 public and about 10 private sector manufacturers of electronic equipment in Pakistan. The public sector firms produce telecommunication equipment while the private sector mainly produces TVs and radio and cassette recorders. Annual production of TVs and radios is 150,000 and 1 million respectively. The production of electric tubes has increased from 1,238 thousand meters in 1978/79 to 2,489 thousand meters in 1982/83. 5 new units for TV picture tube reconditioning have been recently sanctioned. Units producing energy meters, speakers, public address systems, test instrumentation equipment, printed circuit boards and involved in capacitor manufacturing are also being established. Foreign firms which bring advanced technology to the country are encouraged to locate in the Karachi Export Processing Zone. It is expected that many microelectronic projects will be established within this zone.

In a presidential speech in April 1984 a couple of special incentives were announced to attract private investors in the electronics industry. These incentives include:

- Government land, on concessional rates, if available;
- a cash subsidy of PRs 1 million for each unit;
- complete exemption from sales tax for the first five years;
- reduced rate of sales tax after the first five years;
- exemption from customs duty on imported material to be used for production;
- 15 per cent of the fixed capital or PRs 50 million (which ever is more) to be provided by the Government free of interest.

1/ This section is mainly based on UNIDO, State of the Art Series Microelectronics, Pakistan, IS/493, 2 November 1984.

There are a number of institutions undertaking R & D activities in the various fields of electronics. These include the National Institute of Electronics, Islamabad, which has a well developed research programme, Carrier Telephone Research Laboratory, the Silicon Technology Development Centre, and the newly established privately funded International Centre for Science, Technology and Development in Karachi.

Expansion of the production of microelectronic equipment is not constrained by the unavailability of manpower. The total output of professionals and technicians in this field is about 1,000. In addition, there are over 1,000 Pakistanis working in microelectronic firms in Western Europe and the United States which could partly be attracted to Pakistan. Manpower resources thus would seem to be "adequate for undertaking electronic ventures envisaged in the Sixth Plan".1/

Pakistan has a relative comparative advantage in the labour-intensive production of software - which typically represents 70 per cent of the cost of a computer system. There are currently 28 software firms operating in Pakistan. Hardware - particularly computers - are imported into Pakistan. The main suppliers are IBM, ICL and NCR. Four local firms specializing in mircroelectronic equipment produce integrated circuits, car cassettes, cordless telephones, blood pressure measuring equipment, video game tracking devices and automatic recorders.

The most important requirement is for assistance in selecting appropriate technology imports for the industry. Technological obsolescence in this field is widespread. Obtaining mircoelectronic technology through bilateral agreements which lead to the provision of turnkey projects but do not involve recipient country manpower at the design stage of the plant can prove very costly and inefficient in the long run. External technical assistance can play a role in devising an adequate multilateral framework for the transfer of technology in this field. International expert advice may also be provided to assist Pakistan in bargaining with suppliers of microelectronic equipment so as to ensure that the plant supplied is not likely to become obsolete rapidly. International assistance can lead to the

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1/ Ibid., p. 69.

formation of a R & D team on a regiona. basis (including for example Pakistan, Iran, Turkey and perhaps some of the Gulf States) which can develop a capability to monitor segments of the international microelectronic industry. This can enhance the capacity of the recipient countries to effectively absorb technology in this field. The UNIDO-study referred to above (prepared by the Director of the National Institute of Electronics, Islamabad) singles out the following areas in which Pakistan would like to take advantage from international co-operation and assistance:[1/] Dedicated use of computers; application software; informatics; automation; equipment/system design; computer aided engineering; computer aided design; computer aided manufacturing; fibre optics technology; design and fabrication technology of large-scale and very large-scale integrated circuits; higher education; on-the-job training in advanced countries in the field of microelectronics technology; robotics; advanced electronic devices and collaborative R & D programmes.

6. Chemicals

Chemicals and petroleum products (ISIC 351-354) account for roughly 20 per cent of total MVA. While the share of chemicals has remained roughly stable over the past decade at some 12-13 per cent, the share of petroleum products has increased rapidly. During the Fifth Plan period a great deal of emphasis was put on the expansion of fertilizer production - total investment outlay in the sector was among the highest envisaged. Over the period 1978/79 to 1982/83, the production of urea increased by 295 per cent and that of amonium nitrate by 418 per cent. The Sixth Plan allocates public investment worth PRs 1,440 million to fertilizers, representing 7.5 per cent of the total public outlay. Private investment in fertilizers is expected to reach PRs 4,100 million (6.6 per cent of total private sector investment). Total investment allocated to petrochemicals is only marginally lower: PRs 5,320 million as compared to PRs 5,540 million in the case of fertilizers. 99 per cent of petroleum sector investment is expected to originate in the private sector.[2/]

1/ Cf. ibid., pp. 85-86.

2/ Cf. Government of Pakistan, Sixth Five Year Plan, p. 172.

The rapid growth of the fertilizer industry is accounted for mainly by the availability of cheap and relatively abundant natural gas resources. Pakistan may be said to have a potential international comparative advantage in the production of gas based products including fertilizers. This potential remains, however, to a large extent to be exploited: A UNIDO comparative study on revealed comparative advantages shows that during the 1970s, the export performance ratio for all chemical products produced in Pakistan was very low and had declined over the period 1970-1978 in the majority of cases.[1/] Import substitution has, however, proceeded rapidly, the major constraint on the growth of the industry being insufficient installed capacity. Moreover, capacity utilization in existing plants is not optimal due mainly to design defects in newly established plants. PICIC had estimated that on the basis of demand projections undertaken in the late 1970's, "near self-sufficiency" should have been possible by 1982-83.[2/] However, chemical fertilizer imports amounted to about PRs 1.9 billion in 1983/84, roughly the same level as in 1982/83 but 10 per cent lower than 1981/82. The Pakistan Economic Survey estimates that Pakistan is self-sufficient in the production of nitrogeneous fertilizers but demand exceeds supply in the case of phosphatic fertilizers.[3/] Projects in the private sector have been sanctioned during 1983/84, which are expected to increase total capacity in this sector by about 5 times. These figures must be viewed in the context of the fact that per capita consumption of fertilizers is very low in Pakistan, and the small farmer finds it difficult to purchase sufficient quantities to meet his needs. Over the period 1981-82 to 1983-84, the price of fertilizers has gone up by 38 per cent.[4/]

Growth in the chemical and petrochemical industries is constrained by the slow growth in domestic demand. During the Sixth Plan period, the Government is considering the establishment of a large petrochemical complex.

1/ Cf. UNIDO, Changing Patterns of Trade in World Industry, UN New York, 1982, p. 150.

2/ Cf. PICIC, Import Substitution in the Manufacturing Sector of Pakistan, Karachi 1981, p.10.

3/ Cf. Pakistan Economic Survey, 1983-84, p. 93.

4/ Cf. Pakistan Economic Survey 1983-84, p. 161.

Existing capacity suffices to meet about 70 per cent of domestic demand for petroleum products. If the new complex is built, there would be an urgent need to seek a rapid expansion in the export of petrochemicals.

Export growth of hydrocarbon based products particularly within the Middle East Area is, however, very difficult. Many of the Gulf countries have developed ambitious programmes of export expansion in this field and a large number of projects will come on stream during the next 5 years. Export of petroleum products has declined from 1,002 thousand MT in 1981-82, to about only 200 thousand MT in 1983-84. Chemical exports have also been relatively stagnant.[1/] Expansion of capacity in nitrogenous fertilizers, petrochemical and industrial chemicals must thus be preceded by a careful evaluation of export opportunities. International assistance in undertaking regional market studies in this field could be very useful in this regard.

Expansion of investment in the fertilizer and petrochemical branches will in many cases involve the establishment of joint ventures with foreign firms. During 1984 the National Fertilizer Corporation obtained approval to establish a joint venture project with an US firm to establish a fertilizer plant. Another joint venture involving a Brazilian firm has been sanctioned for the production of industrial alcohol.[2/] Foreign collaboration is necessary because the initial capital outlay required for an economically feasible project is very high and has a large foreign exchange component which typically amounts to sixty six per cent of total fixed cost. International assistance could contribute to providing expertise which can advise the Pakistani public and private sector on all aspects of negotiations for the establishment and management of joint ventures in the chemical and petrochemical branches.

1/ Ibid., pp. 181-183.

2/ Cf. Economist Intelligence Unit, Quarterly Economic Review Pakistan, No.4/1984, p. 16.

7. Small-scale industry[1/]

Small-scale industrial units are now being defined officially as comprising all enterprises having fixed assets, excluding the cost of land, of up to PRs 10 million. There are still considerable deficits in their statistical coverage which to a large extent is based only on estimates. Nevertheless, it can be quite safely stated that their production growth rate has recently been higher than that of large-scale manufacturing and that the small-scale sector of the economy contributes some 4.5 per cent to GNP, some three quarters to total manufacturing employment, around 30 per cent to manufacturing value-added as well as around 18 per cent to total exports.

The high development potential of small-scale industry is officially recognized, as e.g. expressed in the Ministry of Industries' Industrial Policy Statement of June 1984: "The development of small scale industries has a strong socio-economic imperative for the country. .....Small industries have shown a remarkable resilience even in adversity. It is envisaged that the small industry route will accelerate the export-led growth of the economy."[2/] Indeed, small scale industries have in the past generally shown to create a number of distinct advantages which in view of Pakistan's underemployment problem, the markedly low domestic savings rate as well as the country's extremely high regional industrial disparities should lead to their receiving particular attention in the future. Among the most significant impacts of small scale industries on basic development policy objectives are to be mentioned:

1/ Cf. for the following Vahidy, H.A., Survey Report on Participation by Small Industry in Export-Oriented Growth, Paper presented at the Symposium on Export-Oriented Small Industry, 10-14 November 1984, Lahore;
Study on Small-Scale Industries in Pakistan, UNIDO Report, January 1981; The Role of Small and Medium-Scale Industries in OIC Member States, UNIDO/IS. 487, 9 October 1984.

2/ Government of Pakistan, Ministry of Industries, Industrial Policy Statement, June 1984, p. 19.

- a strong contribution to absorbing a rapidly growing labour force by their using labour-intensive technologies;

- the mobilization of private savings and their productive channeling into domestic capital-formation;

- a positive influence on income distribution both functionally (wages/profits relation) and regionally;

- a contribution to decentralizing industry and accelerating rural development, e.g. through linking agricultural and industrial production;

- the provision of a training ground for the creation of indigeneous entrepreneurs.

As the most important sub-sectors of small-scale industry in Pakistan have to be mentioned: textiles, wearing apparel (incl. hosiery), light engineering, surgical instruments, cutlery & utensils, sports goods and leather goods. In many sub-sectors major shares of production have in the past been directed towards export markets. This was true e.g. for as much as 90 per cent of sports goods and 40 per cent of hosiery production whereas about 70 per cent of all cloth is exported by small-scale non-mill textile producers.

Despite undoubted successes of small-scale enterprises in export markets the sector's development prospects are hampered by a couple of severe constraints which call for special policy support measures. These constraints differ of course to some extent according to the various sub-sectors' characteristics, they may, however, be broadly classified as relating to production and technology on the one hand and to finance on the other.

Production and technology

A crucial problem area in the production field is the widespread lack of understanding for and commitment to the necessity of quality control.

In almost all sub-sectors of small-scale production testing equipment is unavailable for a systematic quality control of both input materials and final products. This, of course, leads to highly insufficient product standardization and to deviations in the products' quality and durability which in particular detracts from their sales potential in export markets. A recent survey on the contribution of the small-scale sector to industrial exports identifies as a crucial constraint, in particular but not exclusively in the case of light engineering, that "due to limited resources and technical know-how the concept of modern designing and quality control measures does not exist".[1/] The product design in many cases is outdated and material-intensive resulting in heavy, unfunctional and energy-intensive construction and thus in relatively high prices of manufactures. Export opportunities are further reduced by the poor state of finishing and packaging activities, e.g. regarding the cases of surgical instruments and sports goods where product finishing generally is not up to international standards. The introduction of new techniques in this regard would certainly result in the small-scale exporters fetching higher export prices whereas now packaging and finishing is still largely improved by the various importers abroad.

Possible measures geared at reducing the bottlenecks outlined above could include the setting-up of decentralized testing equipment facilities as well as the introduction of certificates on product quality and origin.

Further constraints emerging in the production process include inadequate factory buildings with e.g. lacking space for the storage of raw materials and finished products, the use of outdated, worn-out machinery and equipment as well as a general lack of specialization.

Finance

Not the least reason for the widespread use of outdated machinery is to be found in the unavailability of credit for small-scale producers which may be the greatest single impediment to growth and diversification of industrial

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1/ Vahidy, op.cit., p. 14.

activity in this sector of the economy. Although a couple of specialized institutions are active in this field (see below) it obviously still holds true that "expansion and enlargement of the existing small manufacturing units is not possible under the existing financial assistance mainly due to inability of the entrepreneurs to satisfy the financial institutions about their creditworthiness and their inability to secure loans."[1/] One key area of support would thus be the provision of long and short term credits. Such provision of loan facilities to small enterprises does carry with it, however, the necessity of providing managerial assistance so as to enable them to upgrade their financial planning and control procedures and to introduce systematic accounting techniques as well as preparing loan applications. A build-up of these functions could significantly increase the enterprises' debt servicing capabilities. These direct contacts with entrepreneurs could be interpreted as additional security, perhaps more appropriate than traditional mortgages, and they should provide additional scope for the loan conditions being as soft as possible, not only as regards interest rates and fees, but also with respect to collaterals.

It goes without saying that small-scale enterprises are characterized by further constraints as e.g. by a lack of modern management techniques in general and of marketing strategies in particular (production-orientation instead of market-orientation). These will not be further elaborated upon here. Every effort should of course be made to build up appropriate support institutions offering seminars, training etc. Concerned institutions can, however, not afford to adopt a passive attitude. They have to be active and to develop initiatives in at least two regards: first, they should actively select target enterprises with the potential for efficient production in selected sub-sectors and product lines; second they should be ready to offer their services to a large extent also in the field and not primarily at the corresponding headquarter.

Compared to many other developing countries, Pakistan already disposes of a rather sophisticated institutional set-up in order to support small-scale

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1/ Vahidy, op.cit., p. 14.

enterprises in realizing their development potential. At the centre of the institutional framework are the Provincial Small Industries Corporations (SIC) which were established some 10 years ago in Lahore, Karachi, Peshawar and Quetta.[1/] Their financial funds are mainly received from the regular yearly budgets in each Province. Among the major activities undertaken by the Punjab Small Industries Corporation are to be mentioned:

- Provision of financial assistance to small-scale enterprises. This is arranged either with a consortium of commercial banks or together with the Industrial Development Bank of Pakistan (IDBP) the former providing local currency financing, the latter contributing foreign currency. The Small Industries Corporation assumes the responsibility to identify suitable projects, to prepare a project evaluation and to submit it to one of the commercial banks. If the bank accepts the project as being creditworthy, it will be passed to a Technical Advisory Committee. In case of final acceptance, the risk of default will be shared on an 50:50 basis between the corresponding Small Industries Corporation and the bank concerned. Furthermore, a preferential interest rate (0.75 per cent below the prevailing market rate) will be offered to the borrowing enterprise. In the case of Punjab, e.g. it is reported that about 50 per cent of all loans to small-scale enterprises are channeled through the Small Industries Corporation in Lahore.

- Setting up of industrial estates: More than 20 industrial estates have up to now been established in Pakistan in order to provide the physical infrastructure as well as some common facilities to small enterprises. It has, however, to be noted that only a marginal percentage of all small enterprises (about 2 per cent in the case of Punjab) has actually been reached with this kind of instrument. This is not to say that the concept of establishing industrial estates has necessarily failed. The figure gives, however, a clear indication that their main purpose can obviously only be the generation of demonstration and spread effects.

1/ In NWPF in the form of a Small Industries Development Board, in Beluchistan in the form of a Small Industries Wing within the Development of Industries.

- Furthermore, the Small Industries Corporations are operating services centres (offering e.g. guidance in the choice of product and process technology), handicraft centres, vocational training centres and assistance in product marketing (for a comprehensive picture of Small Industries Corporations' activities see Table 4).

Apart from the policy support measures being undertaken at the provincial level by Small Industries Corporations, mention should additionally be made of the following institutions and instruments:

- In the field of financing, the State Bank of Pakistan (SBP) has introduced a so-called Small Loans Scheme for Businessmen and Industrialists, aimed at supporting enterprises with fixed assets below PRs 3.0 million in meeting their initial investment requirements. In addition, there is a Credit Guarantee Scheme intended to encourage commercial banks to actually extend credits under the Small Loans Scheme as well as a system of SBP Mandatory Targets for Small-Scale Industry Loans. If the corresponding targets are not met by a commercial bank, it will be obliged to make an interest-free deposit with the Central Bank until having closed its loan gap. Despite of these instruments geared specifically at promoting small-scale industries it is reported, however, that credit facilities extended to this sector represent not more than 3 per cent of total industrial credit.[1/]

- In the field of technical assistance quite a number of institutions are active at the national level including:

  - the Pakistan Industrial Technical Assistance Centre (PITAC),
  - the Appropriate Technology Development Organization (ATDO),
  - the Pakistan Council for Scientific and Industrial Research (PCSIR)

1/ Cf. Canadian International Development Agency, Pakistan Sectoral Profile Industry, February 1984, p. 25.

Table 4: Small Industries Corporations of Pakistan

(Figures of 1980)

Province / Name	SIND (SSIC)	PUNJAB (PSIC)	N.W.F.P. (SIDB)	BALUCHISTAN (SIW)	TOTAL
Headquarters / Year of Establishment	Karachi (1972)	Lahore (1962)	Peshawar (1972)	Quetta (1972)	
Zonal Offices	2	5	4	-	11
Staff / Professionals	285 (2o)	1,9oo (2oo)	3oo (14)	75o (1o)	3,235 (244)
Estimated Number of SSI-Units	3o,ooo	45;ooo	5,5oo	6oo	81,1oo
Total Assets / Fixed Assets (million Rs.)	37 (11)	2o4 (57)	45 (2o)	14 (6)	3oo (94)
Development Expenditure (million Rs.) 198o	2.6	31.4	3.5	6.7	52.7
Non-Development Expenditure (million Rs.)	2.o	5.2	1.3		
Number of Industrial Estates	3	7	8	2	2o
Total Size of All Ind. Estates (acres)	25o	4oo	285	no operated by SIW	935
Number of Plots (% allocated)	9oo (3o %)	1,3oo (6o %)	1,2oo (3o %)		3,4oo (4o %)
Firms Operating / Under Construction	45 (2o)	26o (15o)	66 (45)		371 (215)
Common Facilities and Training Centres:					
- Service Centres (Total)	4	8	8	1	21
Textile Centres	1 (closed)	-	8	-	9
Leather Centres	1 (Hyderabad)	1 (Gujranwala)	-	-	2
Metal Working Centres	1 (leased)	2 (Gujranw./Sialk.)	-	-	3
Sports Goods Centre	-	1	-	-	1
- Handicraft Centres	1	6	6	55	68
- Carpet Centres	-	78	18	36	132
- Handicraft Shops	1	7	2	1	11
- Other Centres	-	11	-	-	11
- Vocational Training Centres / Trainees	6 (175)	13 (148)	3 (78)	2 (-)	24 (4o1)
- Training Centres / Trainees	8 (388)	6 (8o7)	8 (1o8)	- (-)	3o (1,3o3)
- No. of Teachers	u.a.	465	u.a.	u.a.	-
- No. of Trainees / Year	3,289	5,133	1,133	499	1o,o34
Estimated SSI Loans (million Rs)					1,ooo
Foreign Assistance:					
- Advisers	-	11	32 Man Years	-	
- Grants	-	4.1 m.Rs. (FRG)	2.o m.Rs. (FRG)	-	
- Loans (IDA)	-	36.5 m.US$	-	-	
- Loans (FRG)	-	4.8 m.DM	-	-	

Source: Study on Small-scale Industries in Pakistan, Volume I, UNIDO Report, January 1981, p.49.

- the Investment Advisory Center of Pakistan (IACP),
- the PAK-German Technical Training Center and
- the Export Promotion Bureau (EPB).

All these institutions are to varying degrees involved in activities like the organization of on-the-job training, the extension of consultancy services and the dissemination of information on suitable and available technology options. Furthermore, under technical assistance from IDA the Pakistan Institute of Entrepreneurship Training is to be established in 1985 as a specialized agency engaged exclusively in the managerial training of small-scale entrepreneurs.

In overall terms the main problem thus is not the building-up of appropriate support institutions but more the strengthening and coordination of an already existing institutional network, including a sufficient funding of institutions concerned with the promotion of small-scale industry: "The meagre resources allocated to the various programmes seem to explain their limited impact."[1/]

Finally, it may be noteworthy that small-scale enterprises in the light engineering sub-sector should now be able to profit substantially from steel-based downstream activities which are to be actively encouraged after the Karachi steel mill has started commercial production. The setting-up of large steel-based capital goods industries will considerably increase demand for the subcontracting of specialized parts and components providing new opportunities for efficient small-scale producers. Here again it will be crucial, however, that they be able to deliver standardized products of constant quality.

1/ Amjad, R., Small-Scale Idustries and Rural Development: Implications for Rural Industrialization in Pakistan, in: Chuta, E./ Sethuraman, S.V. (eds.), Rural Small-Scale Industries and Employment in Africa and Asia, Geneva 1984, p. 107

V. Outlook on Important Issues for Industrial Policy and Research

In view of the characteristics pertinent to Pakistan's industrial sector (high degree of regional disparities, widespread underemployment and unemployment, prominent role played by agro-based branches) it seems generally recommendable to focus industrial strategies and policies on strengthening the development potential of small-scale industries as well as of industries processing agricultural goods. This implies that agriculture and industry should be more closely linked and interrelated including e.g. the provision of agricultural machinery, transport equipment and implements by the industrial sector's engineering branches.

In functional terms the sectoral analysis presented above has revealed above all that throughout the various branches of industry but in particular in the broad sub-sector of engineering there is an urgent requirement to establish and/or improve systems of quality control and standardization as well as to introduce a modern market-oriented approach towards industrial design and packaging techniques all of which are among the major non-price determinants of export competitiveness.

Another major field of policy attention should be seen in the various aspects of integration requirements which above all refers to the necessary integration of agriculture and industry as mentioned above.

It also refers essentially to the need to increase the integration within the industrial sector. In particular in the engineering branches large-scale and small-scale industrial units are essentially unrelated in their activities leaving a tremendous scope for increasing the degree of industrial subcontracting. Apart from the need to develop the willingness on the side of larger enterprises to subcontract the specialized production of certain parts and components this would furthermore require a detailed nation-wide identification of the available industrial production potential represented by small-scale industries.

A third aspect of approaching the integration issue concerns the role of Pakistan's industry within a broader regional framework. Regional

co-operation attempts in the West and South Asian region (RCD; SARC) are still very much in an embryonic state thus offering the opportunity to carefully analyze and determine the potential for achieving regional specialization patterns in specific branches of industry.

This brings us to the general question of the appropriate market orientation of the various industrial branches. On the basis of an in-depth study a strategy should be developed outlining the most promising industrial branches and product groups for efforts aimed at increasing manufactured exports (patterns of export products diversification) as well as the external markets which manufactured exports should primarily be directed to (patterns of regional export diversification). What is required in this regard, is a continuous careful monitoring of key regional markets as well as the world market for a wide range of manufactured products; the demand for textile products and processed food in the Middle East and Africa are important cases in point. In general terms this monitoring process would have to include the gathering of timely information on the volume and pattern of demand; on technological changes in processes and products; on official strategies, plans and policies pursued both by export target countries and other competitors (above all as to their technology and trade policies) and on relevant corporate strategies in key branches. As this approach would call for considerable financial and specialized research resources, the possibilities for a joint programme involving national institutions and external assistance from international organizations like UNIDO should be explored.

A further basic aspect of market orientation concerns the segmentation between the domestic market and external markets. Many industrial branches will continue to be basically oriented towards the domestic market including those which are still to be found in the early stages of import substitution. As has been pointed out in the case of textiles, often also an intra-branch segmentation is called for in the sense that certain products are trying to capture export markets while others remain domestically-oriented and may be to some extent shielded off from international competition by corresponding trade policy measures. This would imply that the former would have to adopt highly advanced often relatively capital-intensive technologies whereas the latter may continue to rely on their relatively labour-intensive processes for the

production of more traditional goods. This split strategy particularly suits the need to limit potential negative employment effects of rapid structural changes concerning the technologies applied.

A further industrial policy issue of great importance to Pakistan concerns the role to be played by Government, i.e. the relationship between public and private industrial activities. Starting in the late seventies, the Government has since sought to deregulate and liberalize industrial investment with the result that private manufacturing investment has again taken the lead. A sizable public industrial sector has, however, remained in existence calling for efficient patterns of interaction and co-ordination between private and public industry. As experiences made in a couple of East Asian countries have shown, deregulation as such is insufficient as long as a close co-operative working relationship is lacking between Government, administration and private entrepreneurs. It may thus be useful to organize seminars on specific aspects of private industry led development strategies which would allow the decision-makers in Pakistan to share the experiences of other successful countries in the Asian region. Furthermore, in order to properly define the future role to be played by public sector industrial enterprises, it should be studied in which branches they may be indispensable and to what extent there is scope for their further denationalization.

The Sixth Five-Year Plan places particular emphasis on the increasing role to be played by direct foreign investment (DFI) in the future and states that the major location for manufacturing DFI will be in export processing zones. Experiences made in other developing countries, above all in the East and Southeast Asian region, have shown that such special economic zones can, on the one hand, contribute substantially to the generation and/or promotion of manufactured exports and to the provision of productive employment opportunities. On the other hand, they have also often been characterized by one-sided sectoral structures of production, a reatively high share of footloose and thus vulnerable investments, a lack of backward linkages with the domestic economy and detrimental effects on the regional dispersal of industrial activities. As Pakistan has only recently adopted this particular institutional approach towards DFI it is suggested to carefully study the available policy options for shaping export processing zones in order to maximize their longer-term spin-offs and their catalytic role for overall industrial development.

In this context another important need to be mentioned is the establishment of a national centre of industrial research and industrial economics for monitoring progress in manufacturing industry. Currently, scientific research is located in institutions such as PCSIR (Pakistan Council for Scientific and Industrial Research) whereas managerial assistance and project appraisal facilities are offered by IACP (Investment Advisory Centre of Pakistan). There is thus a need to bring together scientists, industrial economists and management specialists within one body in order to obtain a comprehensive and integrated picture of changes in specific branches and to consistently relate them to macroeconomic restraints, requirements and plans. Such a national institute could play a very important role in the formulation and modification of industrial policies. It may be located within an already existing body such as IACP which could be provided with additional resources to employ industrial economists. Alternatively, a fresh start in the shape of a new institution could be made.

Pakistan is now in the final stage of adopting a comprehensive Islamic banking system on an interest-free basis. As two other developing countries (Iran and Sudan) are already operating similar systems and a number of Arab countries as well as Malaysia and Turkey also have established Islamic banks, this would be another important field for an intercountry exchange of experiences made and problems encountered with this approach. Traditionally, Islamic banking techniques have been used for trade financing and investment in commodities (particularly precious metals) and in real estate. It may thus prove useful to pool the still limited experience with utilizing Islamic investment contracts - such as 'al Mudaraba' and 'al Musharika' - for the purpose of financing long-term manufacturing investment.

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