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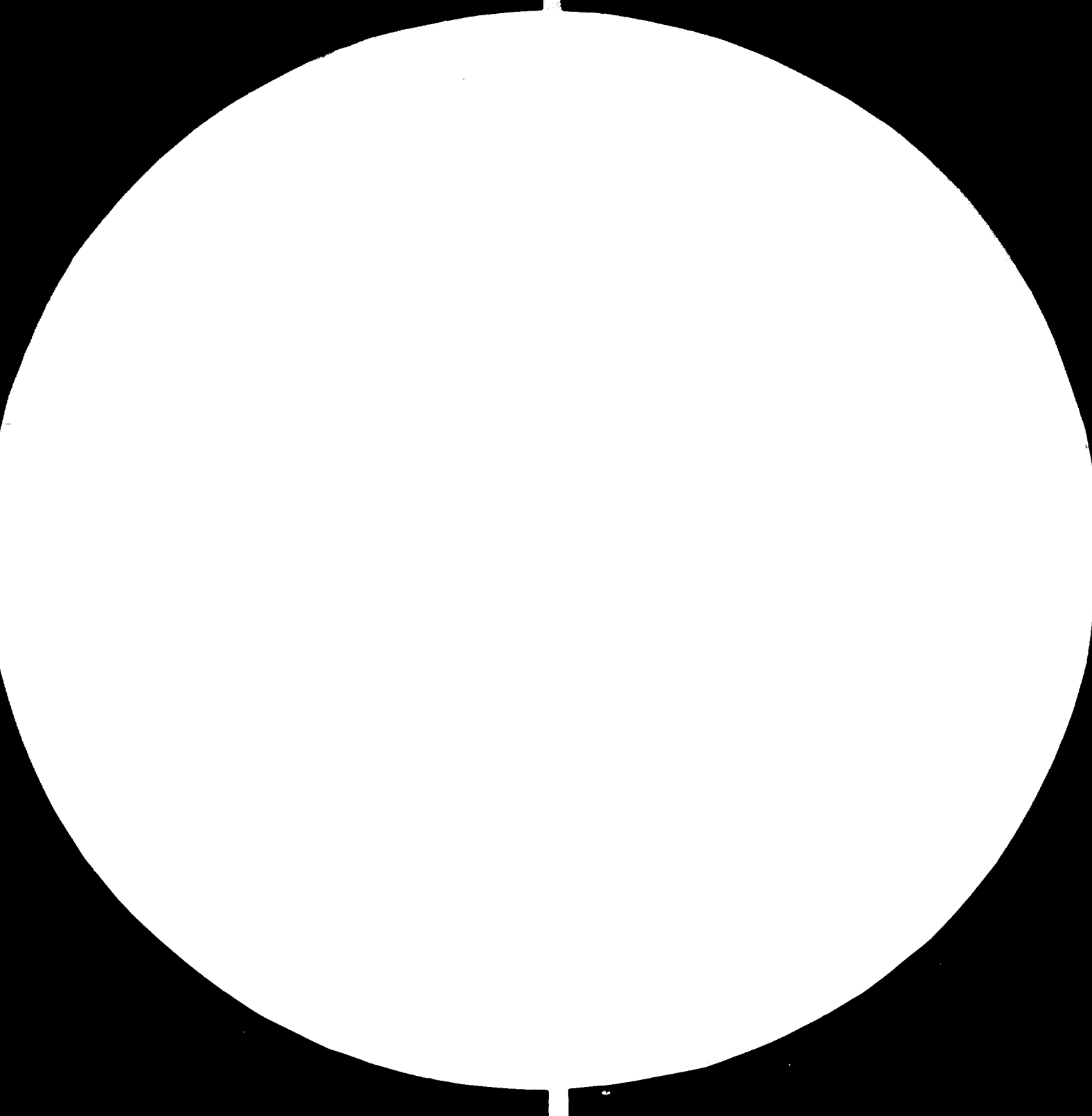
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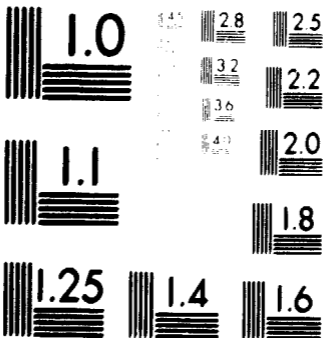
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10801 (1 of 6)

**STUDY ON SMALL SCALE INDUSTRIES
IN PAKISTAN**

DP/PAK/79/014

**Volume 1
ANALYSIS AND OVERVIEW**

10801

GOPA - Consultants
Hindenburgring 18
6380 Bad Homburg
Federal Republic of Germany

1981

**PAKISTANS SMALL-SCALE INDUSTRY
SECTOR**

ANALYSIS AND OVERVIEW

Volume 1

DP/PAK/79/014/A/01/37

submitted to
**UNITED NATIONS INDUSTRIAL DEVELOPMENT
ORGANIZATION (UNIDO)**

July 1981

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1. INTRODUCTION

Though basically agriculture oriented, increasing efforts are made to develop the country's industrial production. The Government of Pakistan (GOP) is aware of the fact that after the strong promotion of large manufacturing plants, predominantly in the public sector, the time has come to dedicate more attention to small scale industries in the private sector. Compared to other developing countries, Pakistan is in the fortunate position of possessing already the principal framework for promotion of small-scale industry (SSI). The purpose of this report therefore is to:

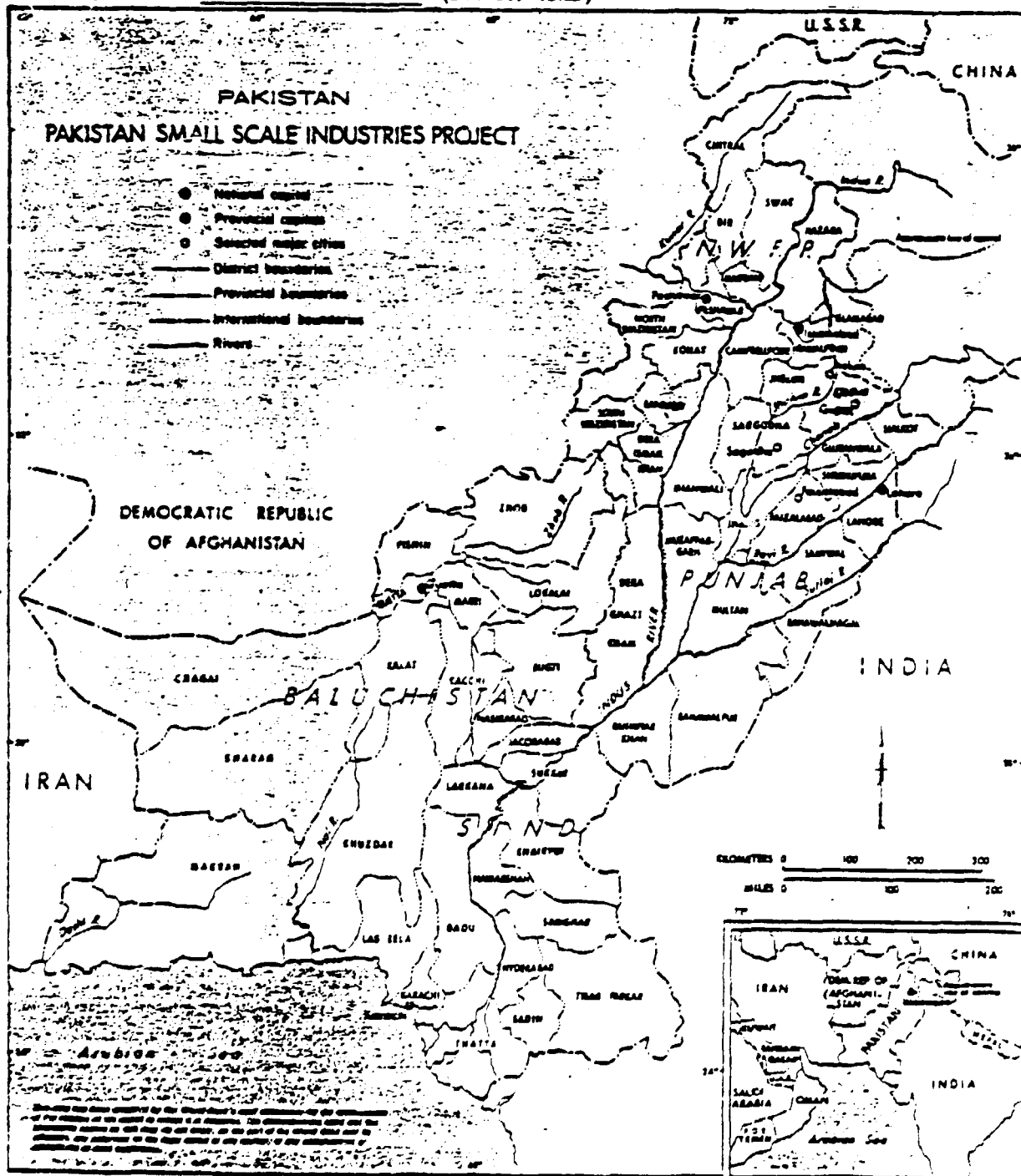
- analyse relevant macro- and micro-economic aspects of five small-scale manufacturing sub-sectors, i.e.
 - . Textile Industry (power looms, hosiery, garments, towels, canvas)
 - . Leather and Leather Goods Industry (tanner'es, footwear, leather products)
 - . Light Engineering Industry (agricultural implements, diesel engines, pumps, electric motors)
 - . Surgical Instruments and Cuttlery Industry
 - . Sports Goods Industry
- analyse main characteristics of GOP's SSI policy (incentives and institutional framework)
- recommend conceptual, instrumental, and organizational devices for structural and regional improvements of the actual SSI policy, focussing the five sub-sectors
- recommend specific functional and operational measures to be taken in each sub-sector
- develop sub-sector specific investment and performance profiles to serve as basic guidelines to commercial banks in project appraisals.

GOP is actually negotiating an IDA-credit to finance SSI development. In order to obtain more reliable data on the subject, a first phase of an UNIDO sub-sector study was carried out by IACP and the Provincial Small Industries Corporation (SIC) in 1978 and 1979. Data on a total of 1958 SSI units all over the country were used for the principally quantitative sub-sector analysis. In the second phase, an interdisciplinary team of foreign and Pakistani experts, concentrated on some 250 units distributed all over the four provinces (Figure 1.1) belonging to the five sub-sectors in question. Analysis and recommendations acquired thus more qualitative character.

The work performed in the phase I study proved to be useful for framework and approach for the execution of the phase II study. All computer print outs of the phase one study have been carefully scrutinized and as far as possible, incorporated into the analyses. It helped the experts to countercheck the data obtained.

Both reports, however, are only of representative value on a sample basis. They cannot stand for a complete survey that ought still to be carried out. So far especially macro-economic deductions rely heavily on imprecise estimates originating partly from contradictory sources. The lack of reliable and comprehensive data is aggravated by a rather un-coordinated and inhomogeneous SSI policy. The Federal Government, Provincial SIC, SSI lending institutions, employers associations and trade unions all operate rather isolated and there is no global concept for a continuous development of the SSI sector. However, all parties involved agree on the necessity of pursuing SSI policy at national level and of identifying clear cut responsibilities, both for the development bodies (SIC) and for the lending institutions.

Figure 1.1: MAP OF PAKISTAN (Source: IBRD)



2. METHODOLOGICAL APPROACH

During the period of September 1st to October 15th of 1980 an interdisciplinary team of eight international experts and 10 Pakistani senior officers visited about 250 industrial units belonging to the five target sub-sectors. In order to find out about general SSI policy, incentives and institutional framework, over fifty meetings were held with representatives of the Federal Government, provincial governments, relevant public institutions (SICs, PITAC, etc.), commercial and development banks, employers and worker's representatives. The team took advantage of the experience accumulated by the staff of international organizations in the country. A presentation of preliminary findings to GOP officials and UNDP/UNIDO representatives was organized in Islamabad on September 27th of 1980. The draft final report was completed at the end of January 1981.

The foreign experts' time spent in Pakistan was entirely devoted to field work and problem discussions with competent officials and counterparts. While the macro-economic aspects of the sub-sectors, incentives and institutional framework were dealt with by the economist, the sub-sector experts concentrated on a problem analysis of their specific field. Industrialists in all provinces were interviewed with the exception of the leather and surgical instrument sectors, whose experts did not visit Baluchistan. Complete frankness and readiness to assist was experienced with all official personnel and most of the entrepreneurs interviewed. The carefully selected counterparts proved to be highly competent and motivated.

The second phase of the SSI sub-sector study is expected to bring about a clear picture of the problems and potentials of the five sub-sectors in general, and of the individual manufacturing units in particular. The fact that not only five individual sub-sectors but a total of about twenty specific product groups in four different provinces had to be analysed made it difficult to identify a typical sub-sector company profile. Due to the complexity of the subject it was not possible to verify in a methodically satisfactory way the results of the more extensive first phase of the UNIDO project. In the light of their experience with the companies interviewed the experts think that general findings and specific quantitative data of 3,000 interviews of the first phase can be utilized. In this context it should be born in mind that in order to receive only approximately correct information many firms had to be visited several times during the second phase field work. Even very qualified experts (three with more than 25 years of experience in the field, three with substantial knowledge on their particular sub-sector in Pakistan) had to spend an average of three hours with each firm. As the first phase was carried out mainly by young graduates not all information contained in the report may stand critical statistical and scientific analysis. This, however, is not a serious drawback, as it is more important to identify the general development trends and the current shortcomings in SSI operations.

While the gathering of information in the various sub-sectors was hampered by lacking readiness or simple incapacity on behalf of the entrepreneurs to reveal relevant technical, economic and financial data, research work in the macro-economic field was characterized by almost complete absence of updated structural, sectoral and regional statistics on the industries in question. Therefore, no attempt was made to detect or elaborate such figures; instead available, even strongly differing or contradictory data were used for the

identification and analysis of important trends and proportions. SSI has been viewed in the light of its relative importance towards global economic reality, so as to establish a basis for the elaboration of a comprehensive systems' approach vis-à-vis small industry development policy. Though details have been researched carefully, they should not be given too much importance. It has been the intention of the team to reveal the basic characteristics of SSI, to work out its principle problems and prospects and to focus on qualitative recommendations for each sub-sector. While the first volume contains besides macro-economically relevant data, an evaluation of the actual SSI development policy and a summary of the sub-sector recommendations, the individual volumes for each of the five sub-sectors comment on the results of the interviews held, analyse common sub-sector problems, elaborate detailed recommendations for improving sectoral and micro-economic performances, and identify standardized company profiles.

As there is already a number of studies, surveys and reports on the subject available, the present survey will not enumerate the work carried out by small industries corporations, the Government's Statistical and Economic Divisions, international organizations and local or foreign experts. It will rather concentrate on evaluating, completing and integrating the data of different sources in order to identify SSI basic problem areas in general and the sub-sectors' perspectives in particular. Emphasis is put on working out general trends though without giving too much importance to the mostly incorrect and/or incomplete statistics.

3. GENERAL ECONOMIC DEVELOPMENT PROSPECTS SUB-SECTOR-RELEVANT STATISTICS AND MACRO-ECONOMIC DATA

3.1 General Considerations

Before entering into a description and analysis of sub-sector relevant features the main characteristics of Pakistan's economy should be identified. They will be the basis for later sub-sector oriented policy recommendations.

Out of the vast number of factors influencing overall socio-economic development, such as ethnic, climatic, historic, political, social, economic, technological, and exogenous impacts only the most important ones will be taken into consideration and their promoting or retarding effects on the present and future development of Pakistan's economy be evaluated.

3.1.1 Agricultural Potential

Pakistan is in the favourable position of being able to feed its population with only little changes in its prevailing agricultural production pattern. Furthermore, irrigation network extension, intensive fertilization, improved mechanization and finally the increase of productivity oriented extension services will enable the sector to boost its already significant contribution to exports. Agricultural production represented 29.0 % of 1978/79 GNP and contributed with Rs 6,646.6 million or 37.8 % to Pakistan's exports in 1979/80. When including agriculture based semi-manufactured products, such as leather and cotton yarn, the sectors' share in exports accounted for even 52.6 %. Thus agriculture can be regarded as the economy's main base. As long as its production can be enlarged by means of new plantation areas and more intensive production methods, the alimentation of the population will not represent a major problem.

3.1.2 Mineral Resources and Energy Situation

Compared to the country's size discovered and explored mineral resources are rather modest. With a share of 1 % to GNP the mineral production cannot be expected to make a significant contribution to economic development. Even for Pakistan Steel Mills (PASMIC) major inputs, such as iron ore, manganese and coking coal have to be imported.

In spite of proper reserves of natural gas and coal, the necessity for import mainly of petroleum, impairs severely the country's economic development. Pakistan's 1980 oil bill is forecasted to exceed US \$ 1.2 billion; this sum corresponds to 24 % of the country's total imports or 50 % of its exports. As no significant changes in the structure of energy consumption can be expected in the near future, oil imports will continue to strangle economic expansion and to negatively influence Pakistan's balance of payments.

3.1.3 Population Growth and Settlement Pattern

With an annual growth rate of 3.0 % during the last four years, Pakistan belongs to the countries of fastest population growth. Although for the time being the growing labour force is still absorbed by the agricultural development potential and the continuous demand for Pakistani workers in the Gulf region and in European countries, the young population are bound to demand increased diverting public funds from productive to social investments, there will only be long term effects on economic development. Also, the accelerated population growth rate changes the population's age structure reducing the share of the economically active population. On the other hand, the strongly agriculture orientated activities and foreign job opportunities mitigate the subsequent negative effects on per capita incomes and personal income distribution.

Another alleviating factor to the problem is Pakistan's settlement pattern. According to the 1972 census, out of 65 million Pakistanis, 75 % lived in rural areas. Besides positive socio-political effects of this settlement structure, the high percentage of rural population softens unemployment effects.

3.1.4 Employment Situation

Out of a population of an estimated 81.5 million in 1980, about 23.7 million or 29.1 % are considered as labour force. Compared with the respective world rate of 42.0 % Pakistan's ratio reflects the country's young age structure and its modest share of female employment. Open unemployment is registered at only 2 %. However, hidden unemployment, mainly in rural areas reaches considerably higher volumes. Even though, with the 1.5 million workers living temporarily abroad, some rural areas as well as selected manufacturing sub-sectors are facing labour shortages. This applies predominantly to skilled workers. For the coming years, roughly 700,000 new jobs have to be created for school leavers seeking employment. To demonstrate the order of magnitude, this yearly increase of Pakistan's labour force represents 20 % of the actual industrial employment. Another important feature of the employment pattern is the high share of almost 50 % self-employed and roughly 30 % of family helpers. Though this phenomenon qualifies as a desirable prerequisite under social and political aspects, it might bear negative impacts on the necessary improvements in industrial productivity.

3.1.5 Professional Skill and Entrepreneurial Talent

According to the findings of the sector experts, Pakistan's labour shows a relatively low degree of professional training but a surprisingly high level of natural technical talent. Devotion and physical ability to work hard have led to the international reputation of Pakistan's labour force. The continuous emigration of qualified workers to better paid overseas jobs, however, resulted in a serious labour shortage, especially in a number of manufacturing sub-sectors. Insufficient availability of training facilities for vocational and upgrading activities represents a serious bottleneck, especially in industries with labour intensive production methods.

Even more obvious is the lack of a sufficient number of adequately experienced and trained entrepreneurs. In comparison to other countries of a similar development stage, the quantity of independent production units in relation to population and industrial output becomes alarming. Sales per unit and per employee are low and application of industrial production methods is insufficient, mainly due to lacking know-how on the part of the entrepreneur and to a restricted investment potential of the smaller units. When granting subsidies and location in industrial estates public industrial policy does not sufficiently take into account the priority of management qualification over the availability of equity. Most manufacturers' agricultural or commercial background makes them consider industrial activities in a too speculative manner. The great number of manufacturing units and the inherent strong competition hamper rather than encourage industrial development.

3.1.6 Product and Production Technology

This factor is closely related to the observed technical skill and to the industrial structure. The degree of technical and qualitative sophistication of most of the industrial products appear to meet domestic demand. However, in view of the desired extension of potential for exports, the quality of a great number of products has to be improved considerably in order to stand competition with other low labour cost countries.

Great emphasis will have to be placed on modernizing production methods. Even in typically labour intensive manufacturing processes, material handling techniques, storage systems and measures to minimize raw material consumption have to be improved. A more intensive utilization of idle industrial capacities and the simultaneous improvement of the comparatively simple production methods promise to raise the sub-sectors' output without major capital investments.

3.1.7 Balance of Payments Situation

Pakistan's balance of payments is faced with continuous problems. Though growing exports (11 % increase in 1978/79 and 20 % increase in 1979/80) and overseas remittances (1976/77: US \$ 577.7 million, 1978/79: US \$ 1,397.7 million) boosted foreign earnings by 80 % between 1976/77 and 1978/79, growing expenses for imported goods overcompensated this favourable trend. However, when putting the amount of vitally needed imports into relation to Pakistan's GNP, and when bearing in mind the country's comparatively non-alarming per-capita debt-ratio, the country's balance of payments appears to be rather a financial than an economic problem. Under these circumstances the current account deficit should not prove to be an obstacle towards economic development.

3.1.8 Financial Resources for Investment

Due to ample agricultural activities, prospering commerce, increasing foreign exchange inflows from overseas remittances and finally due to considerable earnings gained in Pakistan's first industrial take-off period during the fifties and sixties, considerable funds

can be made available for investments in the private sector. However, confidence and a favourable business climate are indispensable prerequisites for activating this capital. There are not yet sufficiently sophisticated channels for passive investment capital to be directed to enterprises in need of outside funds. Inflation is actually pushing savings rather into real estate investments in urban agglomerations.

3.1.9 Recent Development History

Pakistan's economic development of the last three decades has been affected by two wars, the separation of former East Pakistan, and the policy pursued with respect to labour and nationalization in the early seventies. After a strong industrial take-off period between 1950 and 1970, growth indicators slowed down when attempts were made to implement within a rather short lapse of time a more social oriented development policy. During the last years, efforts have been made to denationalize industrial activities, but even so public sector investments are still accelerating the development of Pakistan's basic industry (heavy investment goods).

Political and social influences account for the fact that, compared to Pakistan's growth potential, GNP and per-capita income could have increased more significantly during the last three decades. GNP at constant factor cost of 1959/60 has risen from Rs 12.4 billion in 1949/50 to Rs 53.2 billion in 1979/80. During the same period per-capita income at constant factor cost improved from Rs 351 to Rs 663 per year.

3.1.10 Pakistan's Increasing International Importance

When evaluating the country's development potential, exogenous factors cannot be neglected. Pakistan's role as spear-head of the Islamic movement as well as its particular geo-strategic location have recently drawn more attention to its political and economic reality. On the whole, Pakistan can expect more international understanding in particular with respect to its balance of payments problems but also in regard of international aid efforts for specific agricultural and industrial development programmes.

3.1.11 Conclusions

When analysing these factors, and comparing them to the relevant data of a great number of other developing countries, Pakistan's economic potential is in fact promising. Its sufficient availability of agricultural resources and basically talented labour force may be expected to overcompensate lacking energy resources and balance of payments deficits in the long run. By upgrading product design ability and production technologies as well as entrepreneurial abilities and by mobilizing official private funds and channeling them into manufacturing activities Pakistan's economy will be promoted without heavy new investments. The Government's development policy should, therefore, be directed towards the creation of a favourable investment climate, accompanied by the promotion of professional and entrepreneurial training, and with a view to increase productivity by restructuring the

country's industrial pattern. Compared with the expenditures to build up basic industry units like PASMIC, this will be a way of activating major production potentials by means of comparatively modest funds.

3.2 Economic Policy of the Federal Government (Characterization of the Economic System)

Pakistan is still in a phase of remodelling its economic system. Planning activities are guided by the following fundamental objectives:

- reinforcement of the country's agricultural base
- de-nationalization of production activities
- emphasis on regional and social balance in the ongoing development process.

However, the analysis of the long term trends in Pakistan's GNP at factor cost (figure 3.1) shows that common business cycle stimulators like foreign trade, government spending, and credit policy do not have a decisive impact on the economy's growth. Due to its mainly agriculture orientated set-up, even an unfavourable industrial investment climate would not have an alarming influence on the country's economy. This is confirmed by the economic figures of the early seventies. So far, GNP has been depending on population growth, weather determined agricultural output and on the relatively stable activities of the service sector.

Even if the manufacturing sector were to receive more public promotion its contribution to GNP (14 %), to exports (59 %), to import substitutions (52 %), and to employment (13 %) would not be immediately reflected in the economic structure. Yet, all industrial sub-sectors which produce agriculture related items will have a multiplier effect on crop and livestock production and contribute indirectly to regional and social development objectives by creating direct and indirect jobs in rural areas.

These facts should be taken into account when evaluating absolute figures of the direct economic benefit that can be expected from the promotion of Pakistan's manufacturing industries. These should not lead to the conclusion that the industrial sector, and in particular SSI, are not to be substantially promoted.

As to the country's dependence on international markets and the world's economic situation the following may be said: While Pakistan's share of exported semi-finished and finished products to GNP is very low (3.2 %), the share of exported food and basic agricultural raw materials (41 %) is likely to rise continuously. In the event of an international crisis import of investment goods could be reduced or delayed without major damage to national production. On the whole, only the oil bill will represent a serious problem.

Pakistan's economic policy is influenced by the Five Year Development Plans which are subject to a yearly adaptation to changed macro-economic data. The running Fifth Five Year Plan (1978 - 83) indicates three major objectives:

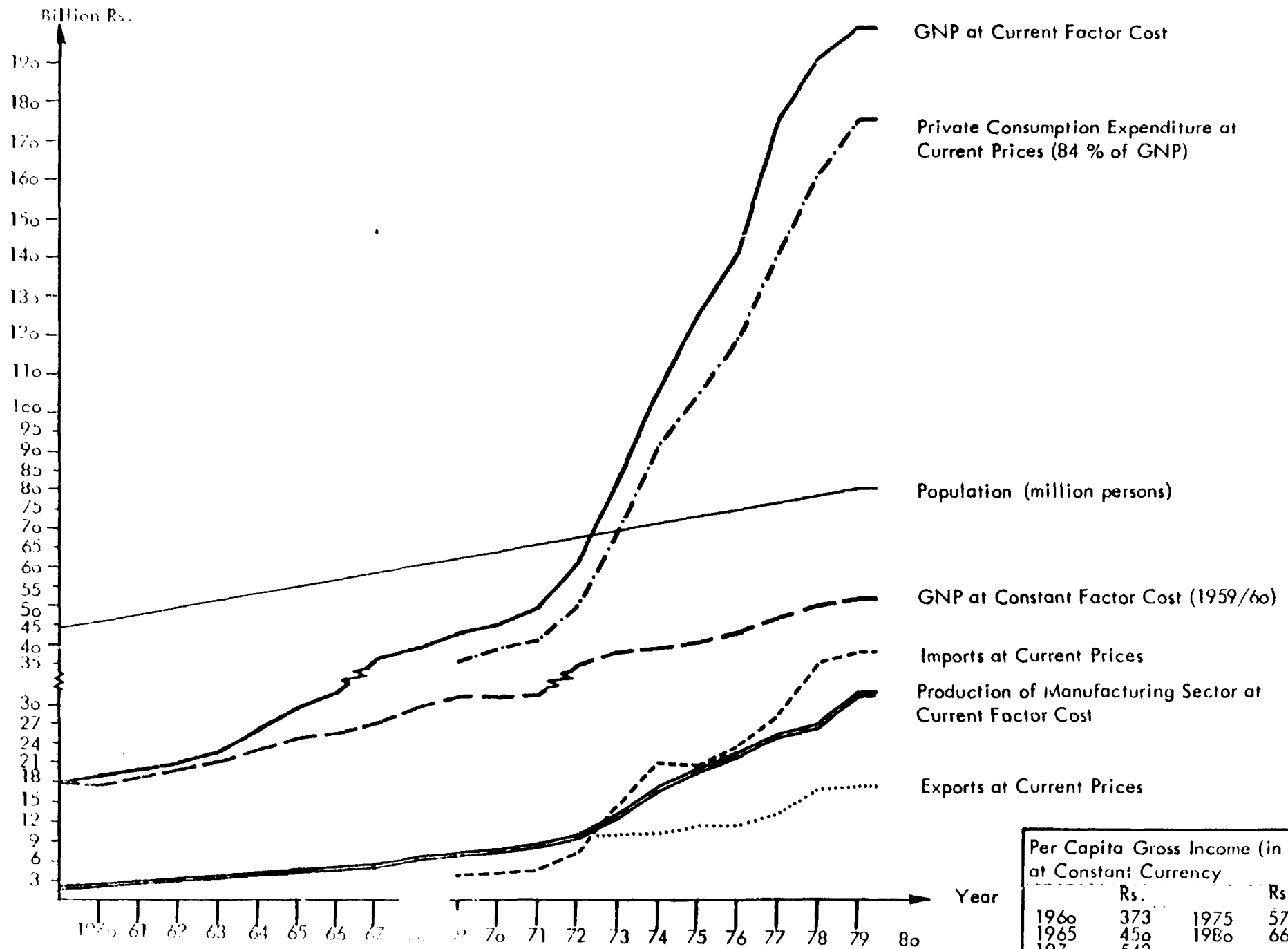


Figure 3.1: GNP at Current Factor Cost

Per Capita Gross Income (in Rs.) at Constant Currency			
	Rs.		Rs.
1960	373	1975	573
1965	450	1980	663
1970	542		

- meeting basic needs
- stabilizing prices, and
- improving the balance of payments.

These objectives are intended to be achieved by increasing allocation of resources to agriculture and rural development. The main features will be an increase in productivity by utilization of idle capacities, direction of public sector investments away from manufacturing and physical infrastructure to agriculture and social sectors, furthermore a change from public to more private sector activities, and in the industrial sector, from long term capital-intensive to quicker-yielding investments, mainly with a view to modernization and balancing of capacity. Thus, private sector participation in industry should increase from 26 % in 1977/78 to 50 % in 1983/84. The new development strategy calls for a reorientation of priorities in the National Budget. According to the Fifth Plan, rural development programmes (agriculture, water, housing, education, health, etc.) should account for 29 %, agriculture, water for 22 %, and social sector investments for 25 % of the total public sector programme. It is to be noted, that through this strategy agriculture and rural development really have become the milestones of Pakistan's actual development policy, even if this might be relativated by the fact, that Government consumption expenditure only accounts for 16 % of GNP (37 billion Rs in 1979/80). For the selected sub-sectors of this study these strategic development plan guidelines are important in as much as the individual sub-sector might depend on agriculture based inputs (leather, textile) or on rural demand for its products (light engineering).

Sectorwise analysis of GNP demonstrates that economic activities are distributed in the following way (table 3.1):

Table 3.1: Distribution of Value Added and Labour Force by Sectors

Sector	Value added		Labour force	
	million US \$	%	million US \$	%
Agriculture	5,694	32	12.4	54
Industry	4,210	23	4.2	18
Services	8,042	45	6.4	28
Total (1978/79)	17,946	100	23.0	100

Source: IBRD

When referring to nominal contribution to GNP, agriculture and mining accounted for 32.4 % (Rs 68.2 billion), industry for 16.1 % (Rs. 33.8 billion), and services for 51.5 % (Rs 108.4 billion) in 1979/80. When comparing nominal contribution with value added figures it becomes obvious, that the service sector, and here specifically commerce, with

14.5 % (Rs 30.4 billion), furnishes a substantial part to national production. Under "basic need" criteria this phenomenon might be questioned. As the service sector is not directly involved in the production of goods, a country at a development stage like Pakistan, should try to encourage productive activities in agriculture and industry. The strategy of the current development plan reflects this concept. Value added per worker is highest in the service sector, though necessary capital investment, business risk, and employment has to be considered. Agriculture reaches a value added per worker of US \$ 459, industry US \$ 1,000 and the service sector US \$ 1,256.

Regional preferences are clearly set through the repeated decentralization concepts of the Fifth Development Plan. Concentration of public spending of 29 % for rural development programmes and of 22 % for agriculture and water accumulates development efforts in less structured areas. Of the 25 % of the Federal Budget to be spent on social sector investments, again a considerable part will be channelled into the rural sector. Regional development policy does not necessarily give the same importance to each province. While the interviewed officials pleaded for the growth potential to be shifted and distributed more in favour of the two weaker provinces, i.e. Baluchistan and NWFP, the regional development concept of the Fifth Development Plan reflects a preference for poorly developed regions, independent of their location. Thus, desert areas in Sind may receive the same public development attention as is expected for mountain areas in NWFP. Taking into consideration, that the greater part of the country qualifies for regional development programmes, an equally distributed increase in prosperity can only be expected in the long run.

Type and impact of industrialization efforts of Pakistan's development strategy should be analysed under medium term aspects. The existing industrial structure, as well as the experience with a strong public influence on important manufacturing units, have to be taken into account when suggesting instruments for SSI promotion.

The industrial development programme of the Fifth Development Plan is earmarked by two major components:

- emphasis is put on completing already started investment projects of earlier plans,
- preference is given to complete the country's basic industry structure.

The funds to be dedicated to investments in industrial programmes reflect this dual strategy. Of a total of Rs 40 billion to be invested in the manufacturing sector, Rs 19 billion are expected to come from private sectors. Total outlay during the plan period will amount to Rs 204 billion with a participation of the private sector of Rs 62 billion. Important is that 69 % of the public sector investment in industry will be reserved to basic industries like:

- basic metal (30 %)
- fertilizers (14 %)
- machinery (10 %)
- cement (9 %)
- chemicals and petrochemicals (6 %).

The Government's intention to withdraw from investments in the production sector appears trustworthy, when analysing individual industrial projects. While 76 % of its investments are channelled into ongoing programmes, only the remaining Rs 4.8 billion will be reserved for new projects to be started between 1978 and 1983. On the other hand it should not be overlooked that a growing industrial structure necessarily claims follow-up investments, as it can be expected for PASMIC' down-stream projects. Even if sufficient measures are not yet created for sponsoring SSI activities, it may be noted that this need has been recognized by most of the responsible planners. As this topic has to be treated on a provincial level, the Fifth Plan only contains a general statement in favour of expanding this vital field within the industrial structure.

Pakistan's foreign trade policy aims at raising exports and at substituting imports mainly of capital goods. Exports are characterized by an increasing share of semi-finished and manufactured goods. It may be questioned whether an increased industrial production for the world market would stand macro-economic cost-benefit considerations, especially when looking at the steadily growing competition from other low-cost countries. However, when export oriented sub-sectors are based on domestic inputs and satisfactory labour intensiveness, as is the case with textile and leather goods, technological impulses and reduction of unit costs may contribute to ease balance of payments problems and to internal price stability. Intensified public efforts in promoting exports and fiscal incentives have been contributing to consolidate Pakistan's position in the world market. However, export promoting activities of Third World competitors have to be continuously reviewed, specifically with respect to low-price consumption goods, where other countries enjoy more favourable incentives on top of higher productivity by economies of scale. On the import side, the high oil bill calls for economising other, preferably substitutable goods. The ongoing investments in the basic industry sector will sooner or later reduce expenses for capital goods. Yet, import substitution reaches its limits, once investment and/or production costs for national manufacturing involve high opportunity costs. Plan figures (annual increase in exports of 11 %, in home remittances of 4 %, and in imports of 6.3 %) show the intention to develop foreign trade in the shade of a continuously negative balance of payments. In fact, from 1977 to 1980, exports increased by 108 %, imports by 87 % and home remittances by 40 %. The actual development was thus more or less in line with the planned proportions.

Prior to Pakistan's fiscal policy, the Government's contribution to national production has to be analysed. Of the 1979/80 GNP (Rs 227.6 billion), only 16 % were spent on public consumption. While this proportion is supported by the defenders of a market oriented economic system, it limits the Government's possibility to promote measures aiming at reducing regional and social imbalances. Through its Central Board of Revenues, the Ministry of Finance is actually introducing mechanisms to fight defraudation. This new system of controls and cross checks will lead to an increased inflow of funds without supplementary charges on tax paying individuals and companies. The incentive character of Pakistan's fiscal policy will be described in a separate chapter (see chapter 4).

3.3 Overall Economic Resources (Supply)

The description of Pakistan's general economic development prospects revealed that the country's basic potential on the whole appears encouraging. In order to come to a more realistic evaluation of potentials and constraints for economic development, the principal factors of macro-economic supply and demand have to be analysed. This will be done in the light of the sub-sector concerned specific information requirements.

3.3.1 Entrepreneurial and Industrial Tradition

Pakistan's economic pattern is identified as being basically agriculture oriented. However, an analysis of GNP over a longer period (table 3.2) shows that this sector's contribution to overall national production continues to diminish.

Table 3.2: GNP by Sectors

Sector	Participation in GNP (%)						
	1950	1955	1960	1965	1970	1975	1980
Agriculture	53	48	42	40	39	33	31
Manufacturing	7	11	12	15	16	15	15
Construction	1	2	2	4	4	4	5
Commerce	11	13	13	13	14	14	14
Public Administr.	6	7	6	6	7	10	10
Services	7	8	8	7	7	7	7
Others 1)	15	11	17	15	13	17	18
Total	100	100	100	100	100	100	100

Compared to other major economic activities, agriculture continues to hold the highest share, even in relation to the next biggest sector. Nevertheless, ever since the beginning of the industrial take-off in the fifties, Pakistan's economic structure has been moving toward a more balanced picture: While agricultural contribution to GNP has been declining and commerce and services maintained their position, considerable increases were brought about by public administration expenditures (67 %), industry (114 %) and, especially remarkable, the construction sector which grew by 400 % between 1950 and 1980.

However, an evaluation of economic tradition has to take into account earlier generations. In this context, the distribution of the 1950 GNP is considered representative. Historically, agricultural and commercial activities accounted for two thirds of national production, followed by the service sector (mainly Government). This traditional economic pattern influenced and moulded the most important characteristics of entrepreneurial and labour force behaviour. Seasonal hard work in the field and/or the sporadically accumulating work in commerce are quite different from regular and partly monotonous industrial occupation.

1) Others: Mining, electricity and gas, transport, banking and insurance, rents.

Handicraft activities show the greatest similarity to industrial production processes, but even here, greater flexibility and multi-functional job characteristics require different psychological and technical skills of the work force. As the analysis of the individual sub-sectors will show (volume 2 - 6), most of the smaller units are characterized by handicraft production methods.

The difference in sectoral behaviour becomes even more obvious when comparing that of agricultural and commercial entrepreneurship on the one hand with the psychological, social and professional peculiarities of industrialists on the other. While agricultural and trade activities contain a strong speculative component, the manufacturer's approach to his business has to be less short sighted and more longterm oriented. Inclination to risk, job philosophy, and profit expectation are so different in the industrial field from the positions held in these respects in the traditional sectors that in most cases it takes quite some time to develop a typical industrialism. Once this has become evident and accepted by the authorities responsible for industrial promotion, inexpensive but efficient extension service programmes have to be tailored according to the individual requirements resulting from the sub-sector studies.

Moving from individual analysis of entrepreneurial characteristics to the structural nature of Pakistan's industrial sector, two important facts are to be observed. The first, that there is in all sub-sectors an overwhelming number of enterprises producing technically simple goods and consumption commodities which leads to strong competition amongst the manufacturers of the same product. A second negative factor, partly caused by the fragmental sectoral structure, is the very low tendency for product diversification and development. In most cases a production unit orientates its work programme on its neighbours product mix. This typical handicraft behaviour leads to various growth and profit reducing effects. Firstly, in view of the physically wide spread market for basic goods, the concentration of their supply in a few cities, and very often even in certain roads does not represent the most convenient and economic way of distribution. Secondly, when a great number of neighbouring industries produce almost homogeneous goods price competition and low profit rates are natural consequences. Thirdly, in order to achieve a certain volume of sales, straggling competition is tried to be compensated by diversifying the product range. This means, that with an "universal" set of basic machinery and equipment, a great variety of production processes is carried out, mostly on job orders or for small series. Such a production apparatus impairs economies of scale, involves high unit production costs through insufficient capacity utilization, and overburdens management capacities. High costs, low prices, scarce capital, and restricted loans available to SSI contribute to the vicious circle that limits growth perspectives for this large number of small manufacturing units.

When designing a promotion concept for Pakistan's SSI one has to bear in mind two important factors accounting for its fragmented structure. These are the strong family orientation of businesses and the exceptional technical skill of the small entrepreneurs. Family orientation seems to be inherited from the rural social pattern. In a great number of cases, one family member is the promoting element in the company, while most of the key positions in the enterprise are being occupied by other family members. Very often, particularly large families have diversified into agriculture, trade and industry by delegation of relatives as managers. Thus leading positions are occupied without leaving professional development prospects for talented employees outside the family hierarchy. As a natural consequence,

talented professionals tend to start their own businesses. On the other hand, it cannot be taken for granted that family members are always the most qualified leaders. Instead of selecting strictly by individual qualification, non-economic influences may hamper the potential growth of family enterprises. Another restriction to expansion are the usually limited capital resources of a family.

Summing up characteristics of family oriented industries it can be stated that the involvement of personal considerations and insufficient specialization on important tasks in the individual unit lead to an unsatisfactory utilization of the industrial potential not only in specific cases but also in the whole manufacturing sector.

The high technical skill of Pakistan's entrepreneurs, which is one of the major factors for its economic development, also represents an obstacle for growth. This paradoxicalness is explained under the following aspect. Exceptional production ability enables the new entrepreneur to relatively easy business expansion until it reaches the limit of a typical handicraft oriented cottage industry. By this time, growing sales and a healthy profit situation convince him that he possesses all the necessary qualifications to become an industrialist. He ignores the fact that industrial production and management of a larger small scale unit require different and more complex methods in administration and marketing, as well as in the field of financial planning, coordination and controlling. In not considering these facts, his growing business is badly managed and faces the usual administrative and financial difficulties. In a great number of cases, sales and earnings are stagnant because the entrepreneur has overestimated his managerial skills. At the same time, as proved the subsector experts' field work, there is a lacking understanding for the need to improve entrepreneurial knowledge and, consequently, relevant extension services are not asked for. As a rule, the reasons for sluggish business development are explained by general economic difficulties and in particular by the lack of financial means. SSI-focussing information campaigns have to make clear to the industrialists, that production, though the most important, is only one function of a complex entrepreneurial system, and that the bigger a unit the more "non-productive" functions like finance, marketing and administration become decisive for growth and profits. But even in their original field, the manufacturing process, many entrepreneurs are taking a somewhat arrogant attitude, refusing to discuss more productive and modern technologies.

Governmental promotion efforts in the field of SSI are, therefore, advised to take into account the prevailing speculation oriented mentality, traditional family ties, and the problematic effects of highly technical skilled entrepreneurs when designing concrete development programmes.

A sectorwise and sizewise structural analysis (1975) shows the following situation per province (table 3.3):

Table 3.3: Production Value by Province ¹⁾

Sub-Sector	Production Value in % by Province		
	Punjab	NWFP	Baluchistan
Processing of agricultural raw materials (food, beverage, tobacco)	40.0	9.6	34.8
Textiles	29.5	13.5	1.5
Light engineering	15.0	11.9	6.5
Leather	1.3	26.3	22.4
Subtotal	85.8	61.3	65.2

Looking at the manufacturing activities, processing of agricultural raw material is the dominant sector. This is in line with Pakistan's general orientation towards agriculture and demonstrates the "basic need" profile of the industrial structure. Next in production value are textiles and leather, also geared to meet fundamental demand for consumption goods. Light engineering seems to be the most equally distributed sub-sector in the provinces analysed. The major conclusion to be drawn from this sectoral and regional analysis is, that there is a fairly well spread distribution able to satisfy local demand. Production of more sophisticated goods should, however, be encouraged by carefully selected dynamic enterprises, that should also enhance business concentration.

Due to lacking data, the structural analysis is restricted to Punjab. Out of a total of 40,828 units of the four selected sub-sectors, 4.4 % (large manufacturers) account for 64 % of the total sub-sector production, while 80.2 % (small manufacturers) produce 32 %. The remaining 15.4 % (household units) come up with a negligible 4 % share of the sub-sector output (table 3.4).

Table 3.4: Distribution of Unit Size in Punjab per Sub-Sector

Sub-Sector	Distribution of units per category in %					
	Large		Small		Household	
	Units	Product.	Units	Product.	Units	Product.
Textiles (12,248 units)	3.5	74	69.8	21	26.7	5
Leather (2,038)	1.5	79	84.2	18	14.3	3
Light Engineering (7,294)	7.1	36	86.1	58	6.8	2
Sports Goods (745) ²⁾	2.1	32	52.2	45	45.7	23
Total (40,828 units)	1,795	64 %	32,741	32 %	6,292	4 %

1) SSI Census data of SIND were not yet available at the end of 1980!

2) Contract Workers who work in their respective homes are included

Two interesting facts should be stressed. Firstly, the share of 32 % in total output, that is calculated for the group of small manufacturers, appears to be surprisingly modest. One explanation might be that only bigger firms tend to maintain more correct records and/or are more prepared to reveal factual information. Thus a considerable part of SSI output does not appear in the statistics. In this context it is referred to earlier comments on difficulties and problems to gather data in general and SSI information in particular. The second fact concerns the absolute number of the large manufacturers. In the light of the actual output of the four sub-sectors of approximately 427 million Rs. (1975/76), it becomes obvious, that the statistically classified "large manufacturers" are in fact usually medium size industries and may be well within the definition of SSI.

3.3.2 Raw Materials, Semi-Finished Products, Investment Goods

On the whole, Pakistan's physical resources do not cover a great part of the total manufacturing sectors needs. However, as far as the demand of the surveyed sub-sectors is concerned, the situation is more satisfactory. The most significant industries (textiles and leather) rely on agricultural basic products. In the near future, the light engineering sector will be able to satisfy its needs from PASMIC down stream activities, which will be based on recycling available materials.

Structure and importance of not domestically available inputs are illustrated by Pakistan's import statistics. The share of the main raw materials, semi-finished products, and investment goods in total 1978/79 imports is as follows:

	%
- Grains, pulses, flour and tea	13
- Petroleum and products	14
- Chemicals, drugs and medicines, dyes and colors, chemical fertilizers	13
- Oil vegetables	8
- Iron and steel and manufacturers thereof, non-ferrous metals	8
- Electrical goods	5
- Non-electrical machinery	12
- Transport equipments	6
- Others	21

Total imports amounted to Rs 36.4 billion, representing 19 % of that year's GNP, while exports for that period showed a total of Rs 16.9 billion. It becomes obvious that with an increasing participation of the manufacturing sector in GNP, the need for imported inputs will grow. This is certainly one of the reasons why Pakistan, despite the renowned technical abilities of its population, is still basically agriculture oriented. On the other hand it also becomes obvious that SSI promotion policies must offer attractive incentives for the introduction of production processes with emphasis on economic utilization of material of all kinds ¹⁾.

1) Material intensive designs like the ones of the diesel engine industry in Punjab need to be revised.

Efforts made in view of an increasing verticalization in the manufacturing process of domestic raw materials, mainly in the field of agricultural inputs, can be observed as major guidelines of the current Fifth Development Plan. This is certainly a step in the right direction. With respect to the quality and durability of imported investment goods, import substitution efforts reach their limits when nationally produced equipment needs more material intensive processing or does not meet minimum tolerances of other technical specifications. Although locally manufactured machinery is usually cheaper, it must be found out whether this is true in the individual case. Delivery and payment conditions (financing of machinery) of imported machines are often more favourable than those of national products. The same applies to sales, distribution, and maintenance networks of renowned international firms. These aspects have to be taken into account, as the need for more productive production processes in most of the target sub-sectors calls for modernization and replacement of equipment. In many cases it will be difficult to avoid importation of special equipment. This might be the most economic solution from the micro economic point of view. However, at the same time, the balance of payments aspects will have to be considered.

When dealing with national resources for the manufacturing sector, import substitution potentials have also to be considered. This has been done expressively in the Fifth Development Plan. However, the analysis of Pakistan's industrial production pattern shows that import substitution should not be regarded isolatedly. There are considerable development possibilities for vertical and horizontal forward and backward linkages in the heterogeneous manufacturing production pattern. These can be activated by a strategic concept for the industrial division of work in the form of sub-contracting and increased specialization. SSI lends itself in a perfect way towards achieving this objective, as will be shown in the last chapter.

3.3.3 Manpower

3.3.3.1 Aspects of Population

Besides the sound basis of agricultural production, population in its quantitative and qualitative aspect represents Pakistan's most important economic potential. Population is characterized by a favourable age structure, about half of the population being younger than 20 years, furthermore, by a still well balanced distribution in urban (25 %) and rural areas (75 %), and by a fairly high rate of professional skill of the active labour force. With a yearly growth rate of about 3 %, the country belongs to the group of the fastest growing nations in the world. While opportunities for the migration of workers to European countries and the Gulf regions are still increasing, it cannot be overlooked, that the great number of children still in school will press in due course into the labour market with growing vehemency. Agricultural job opportunities becoming less attractive, and the service sector having reached a considerable degree of saturation, manufacturing remains the main absorber of the additional work force. It is known that SSI offers the greatest part of working places, so that SSI development policy in particular in respect to the creation of job opportunities, is of the highest national interest and be given more attention than in the past.

Under regional aspects, it is interesting to identify the most rapidly growing provinces of the country. For the time being, the most industrialized province of Punjab appears to have a lower population growth rate than for example NWFP. From the macro-economic planning point of view, major emphasis should be placed on additional industrial development to be concentrated on the fastest growing provinces. So far, regional distribution as a consequence of federal promotion efforts have developed in accordance with the actual population distribution in the various provinces. In order to reduce interprovincial migration, and its pursuant urbanization, development resources should also be allocated under consideration of the promoted province's population structure. The labour force analysis, as well as statements of the interviewed entrepreneurs, prove an internal migration gravitation from north to south. Workers from the northern part of the country are highly esteemed in Karachi's industries. This leads to the conclusion, that industries could be shifted to the origin of potentially migrant workers. Some already developed areas in NWFP give the impression that they are absolutely able to host manufacturing units, offering them the necessary institutional and infrastructural environment. Under socio-economic criteria it has to be considered that the social costs per capita are considerably lower when industries are brought to the workers and not the other way around. This is all the more relevant for SSI, because most of the small and medium sized manufacturing units are so called "foot loose" industries with no specific need for one determined location. There are already enough problems like traffic agglomeration, water and sewage bottlenecks, social unrest, etc. in the large cities. Restrictive policies for new industrial settlement, as practiced in Karachi and other areas, should contribute to a more equally balanced industrial structure.

3.3.3.2 Aspects of Industrial Relations

Practically all industrial relations of Pakistan's manufacturing sector are subject to Federal Legislation, by State action, and/or collective bargaining. Labour legislation is institutionalized by the Federal Government while the implementation of its regulations is delegated to provincial bodies. Under this aspect and with particular consideration of the sub-sectors in question the following main subjects will be briefly described:

- labour jurisdiction
- general industrial relations
- relevant labour standards
- wage situation (minimum wages)
- social security
- old age benefit scheme.

Labour jurisdiction is practiced at three levels, i.e. labour courts, labour appellate tribunals, and the National Industrial Relations Commission. There are various labour courts in the four provinces (9 in Punjab, 5 in Sind, 4 in NWFP, and 1 in Baluchistan). The courts settle most industrial disputes under the Industrial Relations Ordinance. Labour appellate tribunals receive appealable decisions from the labour courts. They are headed by a member of the High Court and exercise control over labour activities. The National Industrial Relations Commission is concerned with the promotion and guidance of sub-sector trade unions.

They encourage the creation and activity of workers' associations and advise federations at national level. Their influence on labour legislation is thus mainly indirect.

The principles of Pakistan's labour policy are embodied in the country's constitution. Its basic objectives are mainly idealistic and were pursued throughout the process of industrialization. The most important constitutional labour regulations aim at:

- guaranteeing free choice of profession
- guaranteeing the right to found associations and unions
- prohibition of children's work
- securing the well-being of the people, irrespective of sex, caste, creed or race, by raising their standards of living, by preventing concentration of wealth ... by ensuring equitable adjustment of rights between employers and employees ...
- provision of work
- social security
- reduction of disparities in personal incomes and earnings.

These basic principles were the platform on which impressive improvements have been achieved during the last decades. However, working conditions in industry improved faster in bigger than in the smaller units. Some of the visited SSI units were found to still employ children and/or to have unhealthy working conditions, and no registration with social security bodies. Industrial relations policy guarantees membership in unions of the worker's choice without previous authorization. A great number of interviewed workers belong to one of their industry's unions. Collective bargaining is one of the major responsibilities of the workers' associations. It does not only cover remuneration aspects but all other matters of interest related to the working process, specifically physical working conditions. Worker's interests are ensured by the labour courts, the National Industrial Relations Commission and the various industry related unions. In recent years, workers' participation in management has become a familiar topic. Factories employing more than 50 workers are obliged to maintain a management committee which is entitled to discuss all management related questions except commercial and financial transactions. A new scheme provides a new institution, the "joint management board", that may request the company for information on improvement in production, fixation of job and piece-rates, transfer of workers, principles of remuneration, etc. In this board workers are represented at a rate of 30%. Smaller industrialists gain a rather reluctant reaction, when asked about workers' participation models. They do not seem to expect motivating results from a more cooperative style of relationship between employer and employees.

Labour standards are defined in the Factories Act. This law has continuously been updated and contains the basic regulations for all industrial units with more than 10 employees. The most important provisions are:

- 48-hours week and max. 10.5 hours day for all adult workers
- prohibition of children's work (below 14 years of age)

- women's working regulations
- overtime wages (twice the ordinary rate)
- health and safety standards (disposal of waste, proper ventilation, reasonable temperature, air conditioning, lighting, fire precautions, fencing of machinery, etc.)
- bi-annual medical examination of workers
- 14 days annual leave.

It was found, that a number of units with more than 10 workers ignore or do not apply them. This is not only due to an insufficient inspection by controllers of the provincial supervisory bodies, and it cannot only be attributed to a lacking sense of responsibility on the part of the industrialists, but in most cases the company's cost situation does not allow for more humane working conditions. However, it should be ensured that when children are employed either in a direct or indirect way (as member of a contracted family) that at least the physical surroundings of the working area do not lead to permanent physical or psychological damage.

In the manufacturing sector, wages are established through collective bargaining between the specific industry's union and the employers representation. Notwithstanding this fact, a Minimum Wages Board fixes minimum wage lines. These minimum wages take account of the specific location of the industrial unit as well as of the particular job category. Initially, minimum wages were defined only for factories employing more than 50 workers. Punjab has then worked out minimum wages for 36 different industries. They do not differ significantly from the standards for the bigger companies. In January 1979, minimum wages for the various categories of Punjab's textile industry were as follows:

- skilled workers - Rs 380.00 p.m.
- semi-skilled workers - Rs 330.00 p.m.
- unskilled workers - not yet determined.

Specific provisions for most types of work of a great number of industries can be obtained from Ministry of Labour. The printing press industry lists 51 different jobs, broken down in wages for various locations. In reality, wages of smaller industrial units are mostly above legal minimum wages. Through an individually handled piece-rate system, however, these standards can fall short. Generally it can be stated, that the level of real wages is fairly low, mainly because of an insufficient labour productivity.

Social security efforts have a long tradition in Pakistan. In recent years, the various schemes were streamlined and have become more transparent. Social security covers all wage earners with over 24 hours' occupation per week, earning less than Rs. 1,000.00 per months, irrespective of industry, type of contract or location. This scheme was at first introduced in the textile industry of three major cities in Punjab; today there are about 6,000 establishments and about 444,783 employees registered. The most important area of the social security is free medical treatment of the worker and his dependants, complemented by cash benefits in cases of sickness, injury and disablement. Disablement pensions for widows and orphans have not yet become common practice in SSI. As employment of women

is relatively rare, regulations concerning maternity (12 weeks on full wages) are not very important for the manufacturing sector. Originally workers contributed 2 % of their gross wages and employers 4 % of the total monthly payroll to the fund. Today only employers pay a contribution of 7 %.

The old age benefit scheme applies to companies employing 10 or more workers. Only per earning less than Rs. 1,000.00 are covered. The scheme provides for the payment of a flat-rate pension and invalidity benefits of Rs. 75.00 per month, irrespective of the earnings of the covered person. Retirement age is 55 years for men and 50 years for women. The applicant has to prove 15 years' insurable employment both for pension and invalidity benefits. While employees are non-contributors, employers have to pay 5 % of the total payroll. The funds are administered by the State Life Insurance Corporation. Additional schemes, such as group insurance, service gratuity (20 days' wages for every completed year of service) in case of termination of employment, provident fund and others affect mainly bigger industrial units. Service gratuity and the related security of employment represent a serious problem for proper manpower management in the units with more than 10 employees. Though dismissal is principally possible, the fact that an employer has to disclose reasons which are examined by the labour court in a cumbersome procedure, most industrialists complain about the factual impossibility of dismissing unneeded or undesired employees.

The Factories Act reaches only units with 10 or more workers. This might be one of the reasons why there are so many "cottage industries", and why the share of so called "contract workers" is so high. Legally the provincial governments have the possibility to extend the validity of this law to all firms with 5 or more employees. Should this possibility be made use of, the majority of small businesses would have to apply the minimum standards and regulations of the Factories Act and related laws. This obligation could also promote structural concentration with its positive effects on labour productivity and general working conditions.

When considering the possible consequences on cost and wage prices in the SSI sector, one has to bear in mind that the greater part of this group does not contribute sufficient indirect payments for social security and old age benefit programmes. The full range of legal contributions and common fringe benefits equals the cash salary paid to the worker¹⁾.

Though it was stated by the Ministry of Labour that SSI paid social security and old age pension benefit contributions, interviews with firms confirmed that a majority of small entrepreneurs did not pay and that an even greater percentage of workers does not benefit from the system. The Punjab Chamber of Commerce and Industry is of the opinion that these schemes should be abolished because they are not functioning in the intended manner. On the other hand, it would not appear profitable to tighten the grip on the smaller units at this time, as this would result in a sudden increase of production costs, especially in labour intensive industries. A considerable number of marginal producers would then be faced with insolvency.

1) According to the payroll of Pak.-German Wood Working Centre Peshawar, for all categories from 'helper' up to the 'deputy manager', an extra cost for housing and medical allowance must be paid (80 % on the net wage of a helper and 55 % on that of the deputy manager) as well as various legal charges. These increase production costs by 10 to 15 %.

The prevailing insecurity in the case of illness, disability, and retirement on top of the relatively low wages and critical working conditions will always make it more difficult for small enterprises to keep qualified workers. Even if training facilities were to be expanded, graduates of these institutions will generally head for more attractive working positions offered by bigger firms. Therefore, a controlled compulsory scheme for social security and other fringe benefits should be in the interest of SSI.

3.3.3.3 Aspects of Emigration of Pakistani Labour Abroad

There is no doubt that workers' remittances play a vital role in Pakistan's balance of payments. For 1980 they are expected to amount at 1.6 billion US \$. Their significance is evident when compared that year's expected export revenue of approximately 2.4 billion US \$. The absence of more than 1.25 million Pakistani who work mainly in the Middle East represents a two-edged situation. A cost benefit analysis of the international migration project revealed the following results ¹⁾:

- Occupational backgrounds of migrant workers:

- 45 % unskilled
- 41 % skilled
- 10 % clerical, business and sales workers
- 4 % professionals

Participation of unskilled workers is higher with emigrants originating from NWFP (60 %) and lower with those from Punjab (34 %).

- Skilled workers come mainly from the construction sector, followed by the manufacturing sector (machine operators, mechanics, etc.). Amongst professionals, engineers represent the biggest group (60 %).
- 70 % of the workers are married. 4 % take their families with them.
- Income levels are high above national standards, average remunerations being as follows:
 - Rs. 33,000 p.a. for unskilled workers
 - Rs. 48,000 p.a. for skilled workers
 - Rs. 114,000 p.a. for professionals.
- Migrant workers consume between 20 to 30 % of their income. With the exception of professionals, workers remit their entire savings to their families, either in cash or in kind. Average remittance amounts to almost 30,000 Rs/year.

1) Pakistan Institute of Development Economics, Islamabad, July 1980, 'Pakistani Emigration to the Middle East'.

- Remittances are used in the following manner:

63 % household expenditure

- 58 % food, clothing and accommodation
- 3 % household durables
- 2 % marriage ceremonies

24 % real estate

- 12 % house for personal accommodation
- 2 % improvement of existing accommodation
- 8 % real estate for commercial purposes
- 2 % agricultural land

13 % direct investment purposes

- 2 % related to agriculture (machinery, etc.)
- 9 % industrial and commercial investment
- 2 % financial investment.

- A considerable part of the economic value of the average remittance of Rs. 30,000 has to be deducted for opportunity cost reasons. The net benefit per worker is calculated at Rs. 4,000 to 8,000. The difference is to compensate negative effects, such as:

- 1) Declining output. 83 % of all migrant workers originate from production. They cannot be fully replaced by hitherto unqualified or unemployed persons because of the lower productivity of these new workers. Shortage of adequately qualified workers is strongly felt in industry and the construction sector.
- 2) General increase of wages. Most of the migrant workers, irrespective of whether they come from rural or urban areas, belong to the higher income brackets within their salary bracket. Thus, new workers who take over their jobs demand similar remunerations without taking into account their generally lower rate of productivity. Apart from this, general scarcity of suitably skilled labour creates a growing demand on the labour market.
- 3) Need for additional training facilities. The exodus of a great number of highly qualified and/or motivated workers, mostly with several years of professional experience, results in a serious lack of trained labour. The 1.5 million migrant workers represented 3.5 % of the total active population in 1979. This is all the more serious as 50 % of these are skilled workers and have to be recruited in the non-agrarian sector. When furthermore assuming that about 500,000 migrant workers originate from the manufacturing and construction sector, the absentees represent more than 6.5 % of total skilled and unskilled work force in these areas.

Regarding quality and capacity of available vocational and professional training facilities in the country and assuming that external demand for qualified workers will probably increase rather than decline, it becomes obvious that there is no financial nor operational possibility of compensating the labor outflow from Pakistan in the immediate future.

- 4) Stimulation of inflation through home remittances. As long as the inflowing money is not exclusively spent for the purchase of nationally produced goods, and as long as the supply of imported or home-made goods does not satisfy the increasing demand, inflationary impacts have to be accepted as an inevitable effect. However, speculative acquisitions of apartments in urban areas and/or agricultural land have already had a considerable effect on prices. Furthermore, as much as remittances serve the payment of imports, their desired positive effect on the balance of payments is neutralized.

On the whole, however, positive effects are predominant. Firstly, a great amount of money is invested into consumer goods or productive investment opportunities. Secondly Pakistan's economy does not suffer too seriously from unemployment. Thirdly, eventually a great part of migrant workers will return to the country with some savings, international working experience and probably with enough motivation to improve the conditions in their jobs, communities and families. The fact that qualified labour is scarcely available, specifically in SSI, should not hamper entrepreneurs' and governmental activities. An adequate development strategy for the SSI sector, accompanied by according operational concepts can compensate the negative effects of lacking investment funds and scarce labour ¹⁾.

3.3.4 Investment Potential

According to the latest IBRD report on Pakistan (April 1980) national savings of about 11 % of GNP have considerably improved the country's financial resources since the beginning of the 1970s. As the Pakistani Government seems to be determined to reduce investments in the productive sectors, these funds are likely to be available for private investors. A clearly defined development policy, specifically in the area of SSI, will attract savings from other traditional, but less profitable ventures. Relief of certain taxes (income), improved saving conditions and restrictions on real estate investments should contribute to making additional funds available for new ventures. Existing mechanisms for collecting and redistributing savings should be activated and restructured in order to serve SSI specific requirements. Incoming funds from migrant workers could be put to better use when channelled through Government operated and guaranteed SSI funds. Commercial banks are probably not in a position to attract the small man to invest small sums in saving accounts. Mutual funds on local bases and participating in local investment opportunities could probably generate additional liquidity for industrial ventures from sources hitherto untapped.

With an improved tax collecting system and a basically expanding manufacturing sector, GOP could still increase the actual level of public indebtedness as long as it is guaranteed that these funds will be used for productive investments either in direct SSI ventures (through the existing financial markets) or in indirect investments in the area of incentives and institutional framework. As SSI units generally pay little tax and other contributions, reliefs in these fields would not make a great difference.

1) See recommendations, especially the considerations concerning 'sub-contracting', 'specialization and concentration' and 'industrial estates'.

For several reasons it should be possible to increase the level of present foreign aid programmes for SSI projects. Firstly, the international situation and Pakistan's growing importance as a leading Islamic country will improve the international donors inclination for investments. Secondly, basic studies on manufacturing sub-sectors would facilitate negotiations for direct SSI loans and investments in extension services and common facilities. For programmes of technical cooperation, new concepts including more and better qualified national experts, should be studied and proposed.

Over the last years, foreign assistance amounted to US \$ 1 billion financial and technical aid per annum. This represents about 20 % of GOP's total budget. Government expenditure for SSI, including development (investments), non-development (extension services) and financial expenses are quoted at approximately 1,060 million Rs in all provinces for the current year. This figure represents 1.5 - 2 % of public sector spending. Considering that SSI contributes 7 % of GNP and employs more than 75 % of the industrial labour force (3 million workers), it becomes obvious that actual Government efforts to develop SSI are insufficient. With 2.25 million workers employed in small industrial units, the total development expenses (loan financing, industrial estates, common facilities, extension services) correspond to Rs 470 per worker. Although this is very little, if distributed among a great number of companies, it could however become significant when applied to a growth oriented limited number of sound firms. The Fifth Development Plan provided about Rs 4,300 million investments in the manufacturing sectors per year over the last three years, i.e. 20 % of the plan's total development provisions. Thus, industry heads all other sectors (agriculture Rs 3.1 billion, transport and communications Rs 3.9 billion, power Rs.3.2 billion).

The analysis of Pakistan's fixed capital formation shows again that SSI is currently underprivileged compared to its general economic and social importance. While total fixed capital formation increased from Rs 6.8 billion in 1969/70 to Rs 31.7 billion in 1978/79, public sector participation rose from 48.5 % to 68.5 % during the same period. The industrial sector developed differently in private and public areas:

	<u>1969/70</u>	<u>1978/79</u>
Private sector		
- large-scale manufacturing	Rs 1,206 million	Rs 1,666 million
- small-scale manufacturing	Rs 187 "	Rs 688 "
Public sector		
- large-scale manufacturing	Rs 177 "	Rs 5,947 "
- small-scale manufacturing	Rs 2 "	Rs 20 "

Sub-sector key figures show an increase in the textile industry (SSI) from Rs 72 million in 1969/70 to Rs 365 million in 1978/79. This sub-sector covers 53 % of total SSI fixed capital formation. Metal working capital formation grew from Rs 31 million to Rs 113 million during the same period. In the field of private large and medium-scale industries, textile grew from Rs 174 million to Rs 234 million. All industrial groups have Rs 766 million worth fixed assets in production and another Rs 861 million under construction (1980).

Considering an average official inflation rate (consumer price index) of 20 % over the last 10 years, it is believed, that if GOP creates specific financial and fiscal incentives, savings, which actually render 7.5 % interest, can be attracted to indirect investments into SSI ventures. Private savings amounted to Rs 19 billion in 1978/79, which is 18 times the total public development expenditure (including total loan volume) invested in SSI in the same year.

3.4 General Demand Pattern

In order to determine Pakistan's demand potential, several influencing factors must be considered:

- population (size, growth rate, age structure, special distribution, economically active part, income per capita, etc.)
- employment (total work force, sectoral distribution, personal and regional income distribution, form of remuneration, etc.)
- use of income (consumption expenditure, investive expenditure, savings, taxes and contributions, etc.)
- export chances and import substitution potential
- imports (volume, structure, trends, etc.)
- Government policy (economic system).

With an estimated total of over 80 million inhabitants and a yearly growth rate of about 3 %, Pakistan represents a substantial domestic market. However, on account of the country's actual age structure (more than 50 % are younger than 20 years), per capita income (US \$ 200 in 1977), and the population's local distribution (73 % in less developed rural areas) this potential generates still a comparatively modest effective demand. Due to a high percentage of rural population some basic goods (food, clothing, housing) are of a specific qualitative and quantitative character. The high degree of self containment in a great number of remote areas has special impacts on the general consumption pattern. More than half of the labour force is employed in agriculture, hunting, forestry and fishery. This sector provides itself with food, clothes and housing facilities that are not considered in the country's GNP. Per capita income is therefore somewhat higher than stated in official statistics, at least for the rural sector. Craftsmen, rural and industrial workers together stand for 79 % of the employed labour force. Considering their standards of living and the generally low degree of professional specialization, it can be assumed that substantial parts of durable goods can be produced by the consumers themselves. Self-employed agricultural, industrial, commercial and professional persons added together with employed technical management and sales labour force, amount to a total number of about 1 million high income beneficiaries. This group accounts for 5 % of the economically active population; its purchasing power covers more than basic necessity standards. It also generates the greatest

part of private savings (as mentioned before: 11 % of GNP). Total consumption of Rs 184 billion in 1978/79 is divided in private (Rs 165 billion) and public (Rs 19 billion) consumption. Adding an export potential of Rs 21 billion and imports of Rs 45 billion, the total private and public demand for 1978/79 amounted to approximately Rs 250 billion.

SSI import substitution has to concentrate on low and medium technology consumer goods and selected capital goods. In the raw material sector larger industries need to be established. Opportunities for import substitution are best in the light engineering sub-sector. Agricultural, textile and leather machinery alone account for imports of over Rs 2 billion. Exports can and should be increased specifically of semi-finished and finished manufacturing goods. They should possibly be based on indigenous raw materials and components and thus contribute to an increase in the country's value added.

National markets offer excellent prospects for light engineering (increasing mechanization in agriculture), construction materials (growing number of new households due to age structure plus general mobility), and footwear (rising living standard). Sports goods and surgical instruments are highly export oriented and subject to continuously growing competition.

The Government exercises a direct influence on the internal demand by means of taxation, income redistribution and its monetary policy. Direct taxes amount to Rs 4 billion, indirect taxes to Rs 11 billion, in the form of sales (Rs 2.3 billion) and excise tax (Rs 8.7 billion). Only little of this public revenue can be cut, so that major emphasis should be placed on a dynamic income policy, on improving overall productivity of the major economic sectors and on a stable monetary policy.

4. INCENTIVES AND INSTITUTIONAL FRAMEWORK

4.1 General Considerations

Incentives and institutional framework are strongly interlinked. The institutional set-up as well as its practical sanctioning and working procedures decisively influence the pragmatic effects of the country's development incentive system. An expected impact of development incentives does, therefore, not only depend on the existence of adequate and efficient promotional instruments, but also on the flexibility, speed and productivity of the executive organizations. Though there are two levels of development activities in Pakistan, the federal and the provincial, overall policy and regulations for execution are dominated by the Central Government. SSI promotion, however, depends to the greater extent on provincial efforts.

Before looking at various stimulatory instruments of the economic process, basic criteria of Pakistan's incentive policy have to be examined. According to the principal objectives of the running Fifth Development Plan, regional aspects play a major role. Further criteria are special promotion of the manufacturing sector, and here specifically SSI, type of investment (modernization, expansion, or new industry), and contribution to ease balance of payments problems. This means that a determined incentive, as well as a group of related measures, have to improve the existing situation with respect to at least one, or possibly even more of these objectives.

The desired regional, sectoral and structural improvements are intended to be achieved through various groups of incentives (table 4.1).

Table 4.1: Incentives for Promotion of SSI

Fiscal incentives	<ul style="list-style-type: none"> - taxes - duties and rebates - depreciation - fees 	<ul style="list-style-type: none"> . income tax . excise tax . sales tax
Financial incentives	<ul style="list-style-type: none"> - subsidised interest - guarantees - special funds (grants) 	
Promotional incentives	<ul style="list-style-type: none"> - institutional framework - industrial estates - export zones - extension services - training - specific promotion programmes (bureaus) - business climate 	<ul style="list-style-type: none"> . small industries corporations . banks . subsidised plots . common facilities

Only sub-sector relevant aspects of the fairly broad and detailed legislation concerning industrial development incentives will be described. In general, there is an increasing tendency to soften fiscal, financial, legal and bureaucratic constraints, in the Government's SSI policy. With certain exceptions in income tax, latest tax regulations almost completely exempt the sub-sectors' target groups. Nevertheless, a few details of this field shall be dealt with.

4.2 Fiscal Incentives

4.2.1 Tax Advantages

Tax holidays usually are considered to be the most effective incentives for regional and sectoral development. Exemptions or reductions for SSI, however, have to take into consideration that a great number of units do not qualify for direct income tax payment anyhow (due to low profits), or, if so, very often are not reached by the revenue authorities.

For sanctioning as well as for tax reasons, three special categories have to be distinguished, i.e.:

- negative locations
- regular areas
- incentive areas.

Mainly saturated urban agglomerations and border strips qualify as restricted zones for most of industrial location. In critical municipalities of Punjab, like Multan, Sialkot, Gujrat, etc. location in existing industrial estates becomes obligatory. For the greater Karachi region only the expansion of existing units is permitted. Only the light engineering work shops of the sub-sector are part of the 21 industries that are granted exceptional sanctioning. For the rest of the country, and expressly for NWFP and Baluchistan there are no restrictions for the erection of new units of whatever size. With respect to tax alleviations, there are regular areas like most parts of Punjab and Sind, as well as incentive areas.

The most important regional and sectoral concessions of income tax are:

- Complete tax holiday for five years as from the beginning of industrial production (i.e. between July 1978 and June 1983)
 - . in the province of Baluchistan
 - . in the divisions of Dera Ismail Khan and Malakand in NWFP
 - . in Azad Kashmir, the northern area, the tribal areas and districts of Mansehra and Kohistan of NWFP
 - . to all textile manufacturing units using Pakistani made clothes
 - . to all types of industries being set up in approved industrial estates in NWFP, in the districts of D.I. Khan, Mianwali and the Tehsil Khushab

in the province of Punjab, and in the districts of Shikarpur, Jacobabad and Dadu, excluding Kotri in the province of Sind

- . on incomes from agricultural and livestock activities
 - . on incomes from the manufacture of agricultural implements.
- Profits up to 10% on the invested capital are excepted from taxes when the industrial companies are set up by June 1983, excluding the following locations: Talukas of Karachi and Hyderabad, Thesils of Faisalbad and Lahore.
 - Tax credit of 15 % of the cost of machinery installed (June 1983) for modernization, balancing, replacement and extension of existing industrial units.
 - Tax credit of 30 % (in Baluchistan, the tribal areas, northern areas of Azad Kashmir) or 15 % (in any other place excluding negative locations) for investments by industrial enterprises (percentage applicable to share-capital acquired).
 - Foreign technicians can obtain a three years' income tax exemption, if their service contract is approved by the Commissioner of Income tax.
 - Tax rebate of 55 % of profits derived from exports of Pakistani goods to all commercial and industrial exporters.
 - Cooperatives receive special income tax relief.
 - Extra tax rebate of 5 % for industries to be set up by 1983 and with a fixed asset value not exceeding Rs 5 million (excluding land).

Principally all incomes below Rs 12,000 per annum are not taxable. This regulation primarily favours household units and cottage industries. Agricultural incomes are completely exempted and a great number of industrial activities enjoy regional or sectoral preferences. The actual number of income tax payers in Pakistan amounts to 700,000, out of which 200,000 receive salaries. However, through more effective collection procedures of the Board of Revenue it is expected that this number will increase to 1 million by 1983.

Another important cost factor is the excise tax. Although 66 products are intended to be subject to this federal tax, 27 of them are completely, and 14 partly exempted, so that the remaining 25 products account for 95 % of the levied amount. Besides cotton yarn in the textile industry, for all products of the other sub-sectors excise tax payments must be paid.

Sales tax is also collected by the Federal Government, but redistributed to the provincial governments. As in the case of the income tax, 80 % of the tax amount is divided between the provinces according to their population (Punjab receives 60.2 %, Sind 22.5 %, NWFP 13.3 % and Baluchistan 3.8 %). With the exception of a number of light engineering goods, all other products are exempted from sales tax, irrelevant of the units' size and location.

The contribution of the various taxes to the overall national tax income of 1978/79 is broken down in the following way (table 4.2):

Table 4.2: Contribution of Taxes to National Tax Income

Type of Tax	%
Income and Corporate Tax	16.48
Wealth and Gift Tax	0.40
Direct Taxes	16.88
Custom Duties	42.45
Excise Tax	31.23
Sales Tax	7.86
Surcharges	1.26
Indirect Taxes	83.12
Total	100.00 %

Duties and rebates have to be studied for each sub-sector and for each product separately. The main regulations are contained in the latest edition of Export Policy, Import Policy and of Pakistan Customs Tariff + Import Trade Guide. Nevertheless, some basic principles and their repercussions on our sub-sectors will be traced in the following.

4.2.2 Trade Policy Regulations

Trade policy regulations must be considered under balance of payments aspects. Import duties are to discourage the purchase of dispensable foreign goods, while export rebates are to promote the sale of national products on international markets. Sub-sectors that contribute substantially to the country's exports and/or supply other vital sectors of the economy (i.e. agriculture) enjoy special advantages concerning imports of machinery or raw materials. The scope of the duty exemptions and export rebates depends on the importance given to particular product line. As the sub-sectors in question are either

- export intensive (sports goods, surgical instruments and cutlery)
- directed to serve other important sectors (light engineering, production of agricultural implements, pumps, diesel engines and electric motors)
- or both (textile and leather industry which process agricultural raw materials, contribute to basic need demand and are strongly export oriented),

they qualify for the most favourable customs tariff and/or export rebate.

4.2.3 Import Duties

The most important aspects to be taken into consideration when importing machinery (capital goods) or production material (commodities, components) are the following:

- Imports can be undertaken through the Trading Corporation of Pakistan Ltd., commercial importers, indentors or directly by the industrial consumer.
- For all imports a licence has to be obtained by the Chief Controller of Imports and Exports. It is generally valid for a period of twelve months and must be renewed after that period.
- The goods are classified in one of the three lists:
 - . free list items are importable from anywhere against cash or on the basis of loans, credits or barter from the respective countries;
 - . tied list items are importable exclusively from tied sources on the basis of credits, loans, or barter;
 - . banned list items are not eligible for imports unless specifically authorized (e.g. with region or sector specific incentives, or if required for the manufacture of export goods).
- The membership with a trade organization is a prerequisite for the application of an import license. Such organism may be the All-Pakistan Association of Trade or Industry or the Chamber of Commerce and Industry of the area in which the head office of the importing firm is located.
- Special regulations of the "pay-as-you-earn-scheme" - Act of 1973 authorize the import of machinery and equipment for specific sub-sectors from foreign suppliers who accept payment in instalments out of the companies' export earnings.

Detailed information on specific import items can be drawn from the Pakistan Customs Tariff and Import Trade Guide (November 1979). Besides the commodities' import classification contained in the above lists, it advises on custom duties and sales tax procedures. However, the somewhat general regulations have to be considered under regional and sectoral incentive aspects. Machinery is exempted from all duties and sales tax, if the investment takes place in the province of Baluchistan, Dera Ismail Khan and Malakand Division, districts of Mansehra and Kohistan, the tribal areas, the northern areas and Azad Kashmir. 50 % duty exemption is granted for other less developed areas which were specified earlier (i.e. in all Government financed industrial estates except those located at Karachi, and in the whole of Pakistan excluding the "negative locations"). Machinery and raw material for the manufacture of goods for export can be imported custom duty free under bonded warehouse schemes. Complete exemption or reductions can also be obtained for agriculture related industrial activities.

Some of the most relevant regulations for the target sub-sectors are listed below:

- I. Machinery for balancing, modernization and replacement (BMR equipment) of
 - textile industry
 - manufacture of ready made garments

- tanning industry
- leather garments and gloves industry
- sports goods industry
- surgical instruments industry
- cutlery industry

is totally exempted from duty. This regulation applies only for machinery not manufactured in Pakistan.

2. Exemption for BMR purposes is also extended to shuttleless looms and to looms of 72 inches width and above in the textile industry. Automatic cone-winders, however, are excluded from the concession.
3. Custom duty on plant and machinery for shoe manufacturing is charged at the rate of 12.5 % and reduced to 6.25 and 0 % depending on the location.
4. Duty on hosiery needles has been reduced from 40 % to 20 %.
5. Duty on machinery imported under the Non-Repatriable Investment Scheme (NRI) has been reduced from 40 % to 30 %. In the areas of 20 % duty imports, machinery under NRI scheme are eligible for 15 % duty and in industrial estates eligible for 10 %, the rate is reduced to 7.5 %.

4.2.4 Export Incentives

When turning to export incentives, sales tax exemptions and rebates are the major instruments besides financial and promotional efforts which are dealt with later. Goods exported from Pakistan are exempted from sales tax. Fiscal export incentives acquire an important role, because they have to compensate negative competitive differentials which Pakistani goods meet at world markets. Therefore, a combined import-export incentive strategy, the so called "draw-back"-concept, was created. The numerous complaints from the producing sector about the handling of this system prove that its application represents great difficulties. In principle the export rebate is to set off import duties and sales taxes paid for raw materials and machinery. However, the different proportions in each sub-sector and even product line make it impossible to compensate the real import burden in each case. It is estimated that about 7/8th of the import surcharges are covered by rebates, so that production costs of Pakistani made goods with imported inputs suffer an increase up to 1/8th when exported, instead of receiving net incentives. In future it is intended to exclude imported materials and machinery completely from duties and taxes if they are used for manufacturing export goods. Before this new concept can be put into action, extensive surveys need to be carried out to identify input-output-ratios of the various export products.

Export rebates can be grouped into two categories which are to compensate tradable and untradable costs respectively. Compensatory rebates, applied mainly to textile and engineering goods, are to compensate untradable costs for indirect inputs like machine cost, taxes, power, etc. These rebates are defined by the Ministry of Commerce. Rebates based on tradable costs, like direct costs and indirect taxes, are specified by the Ministry of Finance. 1 % of the granted rebates is channelled to manufacturers' and exporters' associations for research and development units. Thus, incentives for indirect development mea-

asures go directly to the competent organizations, avoiding losses caused by Government redistribution schemes. This new policy demonstrates the Government's readiness to streamline foreign trade procedures and to improve the availability of raw materials at acceptable costs. While in the past fiscal policy has been mainly revenue oriented, this concept is more productivity and development oriented and likely to intensify promotion of backward linkages which are essential for balancing Pakistan's production structure. A more costs oriented "draw-back" scheme contributes not only to higher exports but also encourages import substitution and consequently the still insignificant subcontracting in the manufacturing field.

Some of the most important aspects of export regulations shall be listed below:

- Similar to the import side, exporters have to register with All-Pakistan Association of Trade or Industry or with a Chamber of Commerce and Industry of the area in which the applicant's firm is located. Exporters, who are registered as importers do not have to register twice.
- Essential commodities cannot be exported without special permission. However, with the exception of some skins and wetblue leather made from cow and calf hides in the leather sector, and unfinished and semi-finished hockey sticks and blades in the sports goods sector, none of the other products of the sub-sectors are subject to export limitations.
- Raw cotton including Desi cotton unless exported through the Cotton Export Corporation can only be exported through public sector agencies or with special permission. Thus, processing of agricultural products will be increasingly verticalized.
- Commodities subject to minimum export price restrictions are most of the sports goods, a great number of surgical instruments, cutlery and carpets.
- Quality control restrictions are applied to electric fans, diesel engines and other products of the light engineering sector, with some types of skins in the leather sector and with selected products from the textile sector. Generally, the quality of these goods has to stand up to the standards of the respective Pakistan Standards Institution Ordinance.
- Cotton cloth is subject to price check and/or compulsory contract registration with the Export Promotion Bureau.
- The percentage of rebates granted to the sub-sectors in question reflects their degree of desirability for exports as well as their cost structure (especially when imported inputs are processed). Without intending to give a comprehensive picture, some percentages and brackets shall be mentioned for a number of representative goods.
 - . Rebates for textile products range from 7.5 % of FOB-value for yarn to 12.5 % for made-up textiles. The rebate increases with the value added accumulated in the exported product (degree of verticalization).

Table 4.3: Export Analysis Showing Low and High Rate of Rebate of Standardized Items (1978/79 and 1979/80; Exports in Millions of US \$)

	<u>1978/79</u>	<u>1979/80</u>	
Total Exports	1,709.6	2,364.7	
Manufactured Goods	1,156.7	1,370.9	(58 % of Total)
Total Rebates Payed	16.8	38.5	
<u>Low Rate Items with Highest Exports:</u>			
	<u>1978/79</u>	<u>1979/80</u>	<u>Rebate Rate</u>
1. Cotton Yarn	197.6	205.9	R.S. 1 per kg
2. Cotton Fabrics	215.7	244.1	3.4 %
3. Carpets and Rugs	183.7	222.1	3. % f.o.b.
4. Tanned Leather	125.8	127.7	3.7 % - 7.5 %
5. Petroleum Products	61.4	178.2	Nil
6. Tents and Canvas	27.7	31.7	4 %
7. Cotton Bags	11.6	20.0	3.4 %
8. Garments	34.5	42.4	8.0 %
9. Hosiery	12.3	19.9	5.25 %
10. Cotton Thread	5.8	7.1	3.0 %
11. Towels	20.9	25.2	1.75 % - 8.86 %
	896.9	1,174.3	Incidence of rebate without petroleum is 2 % in 1978/79 and 4 % in 1979/80
<u>High Rate of Rebate Items:</u>			
	<u>1978/79</u>	<u>1979/80</u>	<u>Rebate Rate</u>
12. Sports Goods	21.7	25.3	15 % - 26 %
13. Surgical Goods	21.3	24.3	11 % - 22 %
14. Footwear	9.8	10.7	specific
15. Leather Apparel	1.7	2.6	9 %
16. Engineering Goods ¹⁾	30.5	30.6	specific
17. Art Silk Fabrics	6.5	5.9	32 %
18. Chemicals	9.5	15.0	22 %
19. Tobacco (manufactured)	5.8	7.4	specific
20. Paper and Board	13.3	24.1	specific
21. Sugar	27.5	33.7	specific
22. Miscellaneous Items	5.3	6.3	specific
	152.9	185.5	Incidence of rebate is 11 % in 1978/79 and 21 % in 1979/80.

1) The position of Engineering Goods exported is composed of railway carriages, ships buiges (together 20 mill. USS) and others (10 mill. USS).

Figures are based on information obtained from Central Board of Reveue, Islamabad

- . Exports of engineering goods are rewarded with a 12.5 % compensatory rebate.
 - . Sports goods receive rebates between 6 % and 16 % of FOB-values when exported.
 - . Surgical instruments and cutlery goods' exports are encouraged with rebates from 11.25 % up to 22.5 %. This high rebate reflects the significant proportion of imported raw material (steel) contained in the products.
 - . Rebates for textile products vary from 1.75 % for cotton towels to 32 % of art silk fabrics. Hosiery goods are rewarded with Rs 1.20 per kg when dyed and with Rs 0.80 per kg when bleached.
 - . Leather products receive rebates between 1.0 % for vegetable tanned sheep and goat skins to 9 % of finished goat and sheep leather and to 16 % of FOB value on finished leather from cows and buffalos.
- Other relevant regulations for the sub-sectors in question cover the following aspects:
- . Export commission above 5 % can be paid to foreign importers in special cases.
 - . Minimum export volumes have been reduced to Rs 2 million for exporters who want to set up their own offices abroad.
 - . In order to control the number of exporters, a registration fee of Rs 1,000 has been fixed.
 - . A standard contract has been devised containing the basic conditions of export agreements.
 - . The Pakistan Standards Institution will continue to develop minimum standards for product quality of exportable goods.

The registration of importers and exporters as well as quality control of export goods play an important role when endeavouring to improve standard and uniformity of Pakistan's exports. Together with the new policies in the "draw-back" practice and the other, later described export incentives (income tax advantages, export finance scheme), the continuously up-dated rebate system will assure that the targets for export will be promoted and import substitution in the running Fifth Development Plan be achieved, (Table 4.3).

4.2.5 Depreciation

The analysis of depreciation allowances revealed that this device cannot be qualified as a specific instrument for SSI promotion. With a few exceptions (ship building, mineral exploitation), there is no sectoral or regional discrimination of depreciation rates. The main regulations are (% per annum):

- 5 % General buildings
- 10 % Factory or workshops (excluding go-downs, offices and residential quarters)

- 1a % Furniture
- 1o % Machinery and plant (not otherwise specified). An initial depreciation of 25 % on plant and machinery is allowed if it is installed by June 1983.
- 2o % Moulds.

Extra depreciation is allowed in case of multiple shift working. Double shift working allows for 5o %, and triple shift working for 1oo % increase of the normal depreciation rate. The limit for claiming depreciation allowance of original cost of motor vehicles has been increased from Rs 75,000 to Rs 100,000.

Project examination fees charged by PICIC (o.5 %) and by IDBP are reduced for projects located in underdeveloped areas and not exceeding a loan volume of Rs 2.5 million rates are:

- 3/9 % PICIC
- 1/2 % IDBP on bigger loans
- 1/4 % IDBP on smaller loans.

4.3 Financial Incentives

Generally, a mix of various financial incentives is offered to new or expanding industries. They can be distinguished according to the following criteria:

- availability of funds for enterprises unable to obtain financing through commercial banks
- contribution to meet equity needs through special risk/profit oriented venture funds
- grants to offset structural, sectoral, or regional location disadvantages
- subsidised interest and debt service arrangements (grace period)
- loan repayment guarantee offered by Government SSI promotion institutions to the lending institutions.

For Pakistan's SSI, the lack of funds for fixed assets and working capital is the most strangulating bottleneck for expansion. This situation seems to stem from various influencing factors. Firstly, capital for investments in industry is scarce. This applies to private venture capital as well as to bank and public funds. Secondly, on account of the modest profits in absolute terms, the self financing potential of most SSI units is strongly limited. Thirdly, banks can only lend money against sufficient collaterals, which are not available in most cases. Thus, Government industrial promotion policy has to provide for conceptual and financial means to ease loan facilities. Direct financing (through special loans, interest subsidies, or equity funds) and indirect incentives (i.e. loan guarantees) are the main instruments.

Bankers Equity Limited has been founded to make up the rupee equity gap faced by private investors. The placement of remittances from abroad plays a most important role in this field. However, it can be observed that a great part of this investment capital is channelled into big public or private ventures. This is partly due to the country's underdeveloped capital market. Specific efforts made by Punjab's PSIC to win home remittance money for new investment projects in SSI projects, should preferably be redirected into general investment funds in order to strengthen existing industries.

Pakistan's banking sector being nationalized, it should be comparatively easy for the Government to place minimum restrictions on the use of international and public loans made available to the banks. Especially interest subsidized foreign aid loans for the manufacturing sector should preferably be channelled to SSI applicants. As has been shown in the chapter of Pakistan's banking sector, these considerations have already been taken into account. Besides the public refinancing potential, private savings which are handled by the banks, should be analyzed under development criteria, too. This becomes even more important, when savings funds for investment migrate to different regions. In order to strengthen the provincial investment base, banks should be persuaded to invest local funds into local projects.

Besides the lack of available short and long term funds, the high cost of borrowed money is also a major concern of SSI enterprises. As sub-sector interviews have shown, there is an increasing demand for interest free loans. Besides the religious aspect of the question, a number of economic arguments for lower interest rates has been brought into discussion. Increasing real wages, decreasing capacity utilization and shrinking profit margins in export oriented productions lead to a considerable squeeze in unit profitability which makes interest payments more difficult. On the other hand, overall inflation and specific price increases for manufacturing inputs and domestically marketable outputs should be able to over-compensate interest costs. This fact contributes to reduce the real nominal rates. In view of the deteriorating profitability of the manufacturing sector, the Government has reduced the lending rate for financing fixed industrial assets from 14% to 11%. Rupee loans for the purchase of locally made machinery are charged at a rate of 8.5 % by IDBP. When looking at the composition of the total volume of financing for the SSI sector, it becomes obvious that the share of long term loans should be increased more than short term working capital credits. This, however, will require more transparent cost calculations and book-keeping by the borrowers.

A loan guarantee system is practised for small manufacturing units through a consortium agreement between the provincial Small Industry Corporation (SIC) and the lending banks. Thus, the banks receive, besides direct collaterals from the borrower, an additional security on 50 % of their credit volume handled by a SIC. As this share of the total grants to small units oscillates between 15 % and 50 % in the various provinces, only about one third of all SSI loans of the banking sector is guaranteed with half of its volume from the Government. The guarantee scheme is geared to increase the general availability of investment funds for small manufacturers.

Grants in the form of non-repayable contributions to private investments or as completion of

bank financing are not generally available for starting or expanding SSI businesses. As long as the prevailing participation of the public sector in total GNP and the shortage of savings for investment financing will persist, grants will not be an important instrument of governmental SSI promotion policy.

4.4 Promotional Incentives

4.4.1 Institutional Framework

The definition of the institutional framework comprises the complete set of organizational, legal, and physical potential contacts which an entrepreneur might have before and/or after setting up his business. Thus, a wide field of sporadic or regular contacts come into the picture. It is intended to set out the systematic rather than the pragmatic side of Pakistan's institutional framework concerning SSI. There is a threefold reasoning for this. Firstly, through intensive contacts and permanent negotiations of international lending agencies with Pakistan's banking sector there exists already a comprehensive knowledge about general set up and the functioning of this important part of the institutional framework. Secondly, a complete study on technology transfer has already been carried out.¹⁾ Thirdly, a mere enumeration of the complex and partly overlapping scenario of relevant institutions would not be very constructive; a more qualitative description is, however, impossible on the basis of a few weeks' field work. Apart from this, a great deal of the complaints and suggestions made by the interviewed firms have become redundant after the recently introduced new policy of streamlining and simplification of sanctioning procedures at various Government levels.

Basically, the institutional framework has to be analysed under three different aspects:

- institutions and organizations dealing with SSI concerns
- laws and regulations promoting or restricting SSI activities
- procedural aspects of information, communication and sanctioning activities between the institutional framework and the SSI applicant.

In order to give an idea of the complex system of interaction existing within the institutional framework, it is advisable to differentiate in two more directions. Firstly, one has to separate pre-operational from current communications between SSI and the industrial framework. Secondly, these relations have to be further distinguished for the various production factors.

1) This research work on technology transfer, specifically in the textile sector, carried out by a study group of IACP during 1979/80, describes precisely institutions, mechanisms, and procedures involved in technology transfer and in the setting-up of new industries.

For the individual, mostly inexperienced industrialist, it is almost impossible to get a clear picture of the necessary institutional contacts to be pursued. A promoting organism should, therefore, channel the communications between the entrepreneur and relevant institutions. For this purpose, Small Scale Industry Corporations (SIC) have been created within the provincial governments. The organizational channelling of contacts is completed by a physical channelling which is made possible through the instrument of industrial estates.

With the two elements (SICs and industrial estates) Pakistan's SSI development policy is in possession of the classic instrumental layout with respect to the organizational aspect of the institutional framework. Through sanctioning procedures, consortium agreement with commercial and development banks, and through the promotion of training and common facilities in industrial estates, the applying industrialist can utilise the services of his SIC-Organization in order to satisfy his needs for information, communication, and sanctioning from the institutional framework.

Before looking at the legal aspect of Pakistan's institutional framework for SSI development, different requirements of the various production factors have to be mentioned. For each production factor of a SSI unit, different institutional, legal, and procedural aspects with different relative importance and with different periods of importance have to be taken into account, analyzing the complexity and interdependence of the various factors and their relationship to the institutional environment. Legal and regulatory aspects are dealt with in specific chapters (sanctioning of industries, import- and export-regulations, regulations for general SSI promotion and financing, etc.). They represent the "soft-ware" part of the SSI incentives scheme. The analysis of the various laws and regulations shows that this side of Pakistan's institutional framework is satisfactorily equipped.

Procedural aspects should gain the highest attention when evaluating the adequacy and effectiveness of Pakistan's institutional environment for SSI development. While it appears to be relatively easy to install the organizational set up and to create a soft-ware package of laws and regulations, the implementation and maintenance of an information, communication and sanctioning apparatus seems to be the most challenging task. Here, the theoretical pattern of procedural layouts on the one hand and the actual human behaviour of their executors, on the other, should be distinguished. As the institutional framework is dominated by public sector organizations, a specific legal, operational, and motivational work style is developed. Representative contacts with relevant development organizations, the banking sector, and with entrepreneurs led to the conclusion that this working style can be described by some important characteristics. Public employees are obliged to proceed within pre-formulated, mostly written administrative procedures. Due to poorly developed standards concerning civil servants performance, there is a strong inclination to avoid risks. Usually only negative results and wrong decisions become known. Partly due to an unfavourable salary structure, auto-motivation and inclination to help the small industrialist are not fully developed amongst civil servants and bank employees dealing with the SSI sector. Endeavouring to change this attitude which by the way is a world-wide phenomenon, is cumbersome and very difficult. Reorganization of procedural layouts, intensification of information and communication as well as broadening of individual incentives, competences and responsibilities should contribute towards gradually increasing effectiveness of public sector performance towards SSI development. Introduction of manuals, training

seminars for SSI officers and information about linkages to neighbouring organizations have proven to contribute to this objective as well as the individual's gradual awareness of his role in the building-up of his country. Discussions with civil servants and bank employees at different levels showed that the potential for motivation is wider than commonly believed.

4.4.2 Organization of Labour Force and Employers

4.4.2.1 Trade Union Policies on Employment

A great number of interviewed entrepreneurs voiced the opinion that trade unions have strongly contributed to an exaggerated labour orientation of economic policy in the early seventies. Social security schemes and labour legislation are considered to be too far developed for the actual stage of the manufacturing sector. In the last years, however, influence and presence of the trade unions seem to have diminished, so that an increasing number of representatives of the three groups (Government, trade unions, employers) show themselves prepared to enter into a constructive dialogue.

On the occasion of a nationwide trade union seminar some of the team members had the opportunity to learn about the major objectives of actual labour policy¹⁾. The neutral and constructive atmosphere of the seminar must be stressed. Among general socio-economic appeals, these were the main points of discussion:

- Trade unions should participate in planning and implementation of employment policies.
- While the actual Fifth Development Plan mentions only production targets and the number of skilled workers needed, the next plan should also contain general employment targets.
- Instead of putting too much emphasis on financial schemes for industrial investments, more attention should be given to the demand side of the economy. An increased purchasing power on the domestic market would automatically contribute to an expansion of production, and, as a consequence, of employment, too.
- Social security system funds should be channelled into productive investments and job creation.
- The Government should implement more effective policies for job creation, training and job security.
- Collective responsibility of trade unions and employers should lead to revised curricula for technical and vocational training.
- Preference should be given to small industry ventures, mainly in villages, in order to profit from locally available raw materials and markets, with a view of reducing internal migration.

1) APFTU/ICFTU Seminar on trade union policies on employment, Lahore, Sept. 17th-18th, 1980

- Technology should be adapted to local abilities and requirements. Computer systems and highly capital intensive plants should not be encouraged.
- Present outdated machinery should be replaced and closed industries should be restarted, regardless of cost.
- Female job opportunities should be created in cities, starting with ready-made garment factories and pre-medical jobs in hospitals. Rural social welfare health centres should be created.
- Instead of creating new units, production should be increased in existing under-utilized factories.
- Enterprises should be reorganized so as to create a democratic basis for communication between employers and employees.
- Employers should institutionalize an incentive system to encourage higher production and productivity.

These claims show the labour representation's accordance with the Government's general industrialization policy. For promotional activities in the SSI sector, depending on the active collaboration between Government agencies, entrepreneurs and labour force, there seems to be mutual agreement in all parties involved.

4.4.2.2 Entrepreneurs' Expectations Towards Development Policy

Discussions with representatives of employers' associations led to the impression that people are aware of necessary changes, but do not know, how and in which direction industrialization policy should be developed. It appears that a general consent has not yet been reached on a global development model indicating the importance of SSI and applicable instruments for its promotion. Suggestions are, therefore, basically restricted to isolated measures which should be taken by the Government to ease existing bottleneck situations. The Lahore Chamber of Commerce and Industry has sent a policy paper to the Federal Government with the major suggestions of Pakistan's entrepreneurship¹⁾.

Contrary to the demand oriented proposals made by the Trade Unions, the Chamber stresses the importance of fiscal and budgetary policies for the nation's economic development. It expects an investment oriented budget to result in rapid industrialization, bringing about production increase and the creation of new job opportunities. Besides incentives for investments, the Government's policies and general attitude should encourage entrepreneurial risk taking and promote economic growth. Increase of production and improvement of productivity should be stimulated by appropriate fiscal, monetary and labour policies.

1) Lahore Chamber of Commerce and Industry, Lahore 1980, "Proposals for Federal Budget 1980/81".

In accordance with the Trade Union's policy, the Chamber does not call primarily for new industries. Production and productivity targets should be achieved by:

- optimum production in the existing industrial units and utilization of idle capacity,
- removing bottlenecks and procedural difficulties for the establishment of new units, including finance and incentives.

Before looking at some of the most important suggestions, it has to be noted that Pakistan's Chambers of Commerce and Industry have a very high level of representation. Even fairly small firms belong to their regional Chamber. The analysis of the Chamber's policy statements, however, leads to the conclusion that on the whole, the proposals made to the Government take mainly account of the interests of the sub-sectors' medium and big sized units. The majority of fiscal, taxation, credit and labour questions do not relate to the day-to-day life of small businesses. However, in the light of this report's major recommendations, the Chamber's preoccupations come into play. They are divided into the following steps:

- fiscal and monetary policy
- investment policy
- taxation policy
- import and export policy
- duties and tariffs
- labour policy.

The major proposals for fiscal and monetary policy are:

- Channelling of bank credits according to saving potential of the region where funds are collected. This implies delegation of more competences to regional offices with regard to sanctioning procedures and solving of problems.
- Clean overdraft limits are suggested to be removed from the actual Rs 50,000.00 to Rs. one lakh.
- Interest rates of commercial banks should not exceed 8 % for the industrial sector.
- Industries should be allowed to draw cash credits against stocks and spare parts.
- Banks should pay interest on the margin amount deposited by the importers from the date of opening letter of credit till the margin is adjusted with the presentation of documents. The margin of letters of credit should not exceed 10 % of industrial imports.

As the Chamber does not agree with the results of the recent investment policy of the Government, some suggested changes are listed below:

- Custom duties on imported machinery should be removed.
- Exports of raw materials and semi-finished goods should be discouraged in favour of finished products.

- Local industry should be afforded complete protection from imported goods, by restricting the current liberal import policy.
- Sanctioning procedures for new industries should be simplified. Existing industrial estates should be further equipped with infrastructure. New estates should be established in areas apt for manufacturing industries.
- The geographical zone of promoted regions (i.e. Tehsils in Punjab) should be restudied. An additional export processing zone is demanded at Lahore.

Taxation policy recommendations concentrate on the taxation of various forms of income, such as corporate taxation, taxation of interest, royalty and technical fee, depreciation, capital gain, etc. Most of these items do not apply to SSI including recommendations on individual taxation.

Import and export policy proposals are contradictory in some aspects. However, it is interesting to compare the Chamber's claims with the Government's relevant intentions. The Chamber believes that restrictive import policy contributes towards harmonizing the nation's production pattern. Apart from balance of payments oriented considerations concerning import substitution, gradual import restrictions on engineering goods are believed to develop and encourage the technological ability of the domestic industry. While the import of consumer goods should be prohibited, imports of capital goods, tools, equipments and components for assembling should enjoy total exemption of duties. Raw materials should be charged with a nominal duty. On the export side, the actual rebates should be streamlined. It is interesting, that no demand for marketing facilities has been expressed.

The pursued labour policy is considered to mainly account for the country's reduced industrial activities. Inflation of benefits and privileges did not automatically contribute to reduce the lack of discipline, irresponsibility and absenteeism. While capacity utilization fell to 65 %, an explosion of workers' expectations made the solution of productivity problems even more urgent. In order to create a greater sense of responsibility and higher labour efficiency, the following is suggested:

- Facilitation of existing procedure for termination of employment. At present it is practically impossible to dismiss personnel.
- Link labour benefits with production and profit, in the sense "no profit, no bonus".
- Open new training facilities. The paper, however, does not enter into problems related to migration of skilled labour, and no indication is found regarding introduction of a compulsory training programme for all industrial sectors and with participation of every industrial unit.
- Not allow non-employed professional labour leaders to become members of labour unions at unit level or to hold meetings inside the factories.

The Chamber's proposal paper claims that about 20 % of the labour cost account for social

security scheme, education fees, and employees old age benefit scheme, of which no benefits would reach labour directly. The abolishment of all these schemes is suggested and alternatives to protect the interest of the workers in the field of social security and old age benefits indicated.

Talks with labour union representatives, members of employers' associations, and competent Government officers in the relevant ministries demonstrate a general awareness and readiness to start systematic and continuous negotiation with the parties involved in labour related problems. Necessity is felt to first gather all information needed to describe the actual structure and intensity of communication, regulations, and common practices. In a second phase possibilities should be looked for to include the great number of unreached small industrial units into a comprehensive social security system.

It is further suggested that the Government invites representatives of trade unions and employers' associations on various regional and hierarchic levels, with a view to creating a basis for mutual understanding and cooperation. ILO has shown interest to support relevant programmes on the workers' side. It can be assumed, that considerable improvements in labour relations, and thus in overall manufacturing productivity can be achieved by taking advantage of the common approach to the problem. Only at a further stage would cost effective programmes call for financial means, which then, however, could be offset by additional productivity gains. Various commissions in the public sector (i.e. Labour Commission, etc.) can serve as an organizational platform for the discussion of pressing problem areas as well as for policy proposals to the federal legislator and the implementing provincial bodies. Small Industry Corporations should be activated towards collaboration in order to secure integration of SSI problems right from the start.

4.4.3 Small Industry Corporations(SICs)

Before analysing SSI specific development instruments in the four provinces, it has to be stated that Pakistan's functional, organizational and financial development set-up for small and medium sized manufacturing units qualifies as fairly sophisticated, when compared with other developing countries. It has a considerably long tradition (more than 15 years), shows good penetration (20 industrial estates) and has several hundred officers with broad SSI experience. It is natural that SICs in the more industrialized provinces of Punjab and Sind are bigger than the ones in the less developed provinces of NWFP and Baluchistan. This, however, does not necessarily mean that the latter work with less efficiency.

As the Federal Government's contribution to SSI development is restricted to general guidelines (expressed in the Fifth Development Plan) and to refinancing of the provinces' SSI development expenditures, the SICs can be characterized as the principal coordinating body for SSI matters. The actual discussion, whether an SIC controlled small industries development bank should substitute or complete the actual lending structure (commercial banks, IDBP, etc.) demonstrates that a tendency exists to unite the three major development instruments into one executive body.

Industrial estates and common facilities (hardware) as well as training and extension service facilities (software) are already provided by the SICs. The consortium agreement with the

lending institutions according to which loan applicants for SSI financing should prepare and channel their documentation through SICs and sanctioning decisions be taken in the Technical Advisory Committee, where both SICs and banks are represented, demonstrates the already existing influence of the SICs on the lending process. Without wanting to enter into the discussion about the necessity of a new SSI bank at this moment, it can be resumed that the institutional and operational structure of the SICs are adequate and seem to be sufficient for the SSI development objectives of the Fifth Development Plan. Problems experienced in coordination between lending institutions and SIC's may be sorted out by re-formulation of duties and responsibilities of the partners.

Under organizational aspects the SICs of Sind, Punjab, and NWFP are independent, state owned corporations, while in Baluchistan the Directorate of Industries is still directly integrated into the Government. The existing trend to substitute the Directorate by a corporation should be encouraged for various reasons, mainly because of increased flexibility.

The SICs receive their funds from two sources and spend them in a twofold way. The main financial contribution comes from the provincial yearly budget, where the allocation for the SIC is contained in the expenditure provided for the manufacturing sector. The bigger amount of the funds is generally reserved for "capital" (investments) and the smaller for "revenue" (covering of cost). Apart from this source, additional money can come from economic activities of the SIC, mostly in the form of profits from service centres. In order to obtain a clear picture of the potential and the real contribution of the SICs regarding SSI development, available figures should be analysed under various aspects.

A first criterion to evaluate adequacy of the actual distribution of development funds is to identify how much money goes into hardware (industrial estates, common facilities), software (training extension services), and long term (fixed assets) - or short term (working capital) loans for small manufacturing units. For this purpose, SICs and commercial banks' efforts have to be merged. The available figures show the 1980/81 investment and expenditure budgets for the four provinces and the loans handled out to SSI during 1979/80 by the banks concerned.

Amount in million Rs.	Utilization according to development function	Institution
1,000	fixed investment (30 % and working capital (70 %) loans	Commercial Banks IDBP
45	investments in industrial estates and common facilities	SICs of Sind, Punjab, NWFP, Baluchistan
15	expenditure with SICs personnel for training and extension services and administration	SICs

Additional information on SICs performance can be obtained from Table 4.4. For a total of about 50,000 SSI units in Pakistan, there are 4 corporations with 11 zonal offices counting a total staff of 3,200 (244 professionals) available in 20 industrial estates and 21 service centres plus 200 other development centres. A limited number of 600 units (0.75 % of total

Table 4.4: 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 (20)	1,900 (200)	300 (14)	750 (10)	3,235 (244)
Estimated Number of SSI-Units	30,000	45,000	5,500	600	81,100
Total Assets / Fixed Assets (million Rs.)	37 (11)	204 (57)	45 (20)	14 (6)	300 (94)
Development Expenditure (million Rs.) 1980	2.6 1)	31.4	3.5 2)	6.7	52.7 3)
Non-Development Expenditure (million Rs.)	2.0	5.2	1.3	-	-
Number of Industrial Estates	3	7	8	2	20
Total Size of All Ind. Estates (acres)	250	400	285	no operated by SIW	935
Number of Plots (% allocated)	900 (30 %)	1,300 (60 %)	1,200 (30 %)	-	3,400 (40 %)
Firms Operating / Under Construction	45 (20)	260 (150)	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 (Gurjar-wala)	-	-	2
Metal Working Centres	1 (leased)	2 (Gurjarw./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 (401)
- Training Centres / Trainees	8 (388)	6 (807)	8 (108)	- (-)	10 (1,303)
- No. of Teachers	u.a.	465	u.a.	u.a.	-
- No. of Trainees / Year	3,289	5,133	1,133	499	10,034
Estimated SSI Loans (million Rs)					1,000
Foreign Assistance:					
- Advisers	-	11	32 Man Years	-	-
- Grants	-	4.1 m.Rs. (W. Ger.)	2.0 m.Rs. (W. Germ.)	-	-
- Loans (IDA)	-	36.5 m. US\$	-	-	-
- Loans (W. Germany)	-	4.8 m. DM	-	-	-

1) Additional 3 million Rs. are generated through SSIC services

2) Total SIDB budget is 10 million Rs. (5 million Rs. for investments, 5 million Rs. for staff cost)

3) Total SSI related expenditure is estimated at 60 million Rs. in 1980

SSI universe) are located or under construction in industrial estates. No more than 2 % of all SSI firms are reached by loans and credits for fixed assets and working capital needs. 10,000 trainees join yearly the SSI labour force, estimated at over 2 million workers.

4.4.3.1 Sind Small Industries Corporation (SSIC), Karachi

The SSIC was created through the Sind Small Industries and Handicrafts Development Corporation Act in 1972. After the abandonment of the denomination "handicraft", attempts were made to concentrate primarily on units working with industrial production methods. Nevertheless, a great number of firms supervised by SSIC officers still belongs to the informal sector, better known as cottage or household units. No specific survey of the SSI sector and of SSIC activities has so far been conducted. Therefore, information is based on interviews and available miscellaneous documentation on the Corporation.

The staff employed by SSIC in June 1979 was broken down in the following categories:

15	Management and senior officers
1	Professional staff-economist
4	Other professionals
174	Other staff
91	Peons, etc.
<hr/>	
285	Total
<hr/>	

Out of the 20 professional staff members, 11 were located in the Karachi Head Office and 9 acted as field officers. Taking into account that at least 10 of the professionals were occupied with management functions and assuming that extension services should be provided by professionally qualified and experienced specialists, it is obvious that the impressive number of 285 staff members does not necessarily represent a sufficient service potential for SSI units. This argument gains more importance when looking at the main SSIC tasks as stated in the 1972 Act, i. e. to provide:

- credit facilities to small entrepreneurs
- training facilities
- marketing facilities
- designs and services to craftsmen
- developed plots in the industrial estates
- advisory services.

This work programme has to be related to the estimated 30,000 to 35,000 SSI units in Sind in order to evaluate the possible influence a corporation like SSIC may have on the sector's development. Regarding the figures of past performance in the form of supervised projects, the real potential of SSI development policy becomes apparent.

	1976	1977	1978	1979
Projects under supervision	106	112	150	80
Number of projects visited	79	86	110	60
Number of visits to projects	278	327	409	200

This statement refers only to follow-up activities concerning loans. It can be assumed, however, that the majority of firms receiving any kind of services from SSIC was also granted a loan for fixed investment or for working capital needs. When introducing the money component, it is interesting to identify the sources of the corporation's funds. Besides loans from the central and provincial Government, grants from the provincial Government and other miscellaneous incomes (interest, sales, etc.) finance the SSIC budget. The various income and expenditure accounts show the following totals:

Table 4.5: Totals of Income and Expenditure Accounts (million Rs)

Year	Major Expenditures	Major Incomes	Total of Account
1974/ 1975	3.2 purchases 1.5 salaries 0.7 depreciation 0.7 interest	1.6 grant-in-aid 0.4 interest 4.1 sales	7.8
1975/ 1976	2.3 purchases 1.6 salaries 0.7 depreciation 0.7 interest	1.5 grant-in-aid 0.7 interest 3.5 sales	7.6
1976/ 1977	2.2 purchases 1.6 salaries 0.7 depreciation 0.7 interest	2.6 grant-in-aid 0.4 interest 3.1 sales	7.9
1978/ 1979	n.a. 1)	0.3 Government loan 3.8 grant-in-aid	5.1
1979/ 1980	n.a.	0.4 Government loan 4.7 grant-in-aid	7.0

1) n.a. = not available

A general impression of the potential and efficiency of SSIC development activities may be obtained by comparing the importance of the following factors:

- number of SSI units in Sind (approx. 30,000 - 35,000)
- loans disbursed to SSI units in 1979/80 (Rs 350 million)

- number of SSI units supervised by SSIC in 1978 (150)
- SSIC staff (285 total, 20 professionals, 91 peons, etc.)
- expenditure potential of SSIC (Rs. 7 million)
- 125 persons trained per year by SSIC.

The possibility of initiating a substantial change in SSI in Sind appears rather limited. It has to be found out, whether SSIC will be able to create a demonstration and multiplier effect through selected target groups and selected development instruments. The situation is characterized by a declining output of SSIC services, reflected by the nominally stagnating and, in real terms, decreasing budget, and increasing governmental grant-in-aid payments. These funds are allocated in various fields.

Industrial estates have traditionally the greatest needs for investment funds. SSIC has 3 bigger estates (Sukkur, 110 acres; Larkana, 59 acres; Hyderabad). Plot sizes range from 3,000 sq.ft. to 18,000 sq.ft. In Sukkur, 23 units are working, while 11 units are under construction. Lakkar shows 14 units working and 6 under construction. The pace of colonization is very slow. No technical services are provided. There are 3 more industrial parks with sizes of around 50 acres in more remote areas. They comprise 35 plots each with an average size of 5,000 sq.ft. Plots in SSIC estates are generally available on hire purchase-lease basis. After a 3 years' grace period costs are recovered through monthly instalments over a period of 23 years. In some cases, built-up and ready-to-occupy workshops measuring 600 sq.ft. in area, are available on similar scheme. As SSIC does not work with properly established and equipped common facilities and training centres (as compared to PSIC), technical services are restricted to about 35 projects carried out all over the province. Technical know-how is provided in modern production techniques as well as in product design. The activities cover most of the traditional sub-sectors, mainly based on craftsmen abilities. The Light Engineering Service Centre has Rs 0.8 million worth machinery installed, while equipment of the Leather and Footwear Centre values at Rs. 0.25 million.

All these centres train a yearly average of 100 to 125 people of local origin. Part of the trainees is absorbed by the private sector, others stay with the Corporation, and a few set up an own business. It is questionable whether the creation of new very small units is suitable in the non-handicraft sector. Its positive and negative impacts will be discussed together with the recommendations of this report. Marketing services are mainly restricted to the sale of handicraft products on purchase or consignment basis in the existing 5 sales and display centres. It was observed, that a good deal of quality products do not appear in these shops. The entrepreneurs' explanation is that they fear competition and copying by their competitors. Marketing techniques in the broader sense of this instrument, is not taught to small industrialists.

This also applies to management, administration techniques, finance and bookkeeping procedures. SSIC's advisory services concentrate predominantly on pre-operational activities. Firms seeking loan financing are aided by general marketing and project feasibility studies. Furthermore, the Corporation explains procedural aspects of the loan and functions as a representative of the firm vis-à-vis the bank. These services are free of charge for the applicant. The number of yearly requests range from 150 to 200. Generally, the contacts

with the small industrialists are fairly personnel intensive. Apart from service involvement, SSIC participates indirectly in the applicants' risk of the loans which are handled through the Corporation. It guarantees a loan upto 75 % in the case of IDBP and upto 50 % in case of other commercial banks, to cover the risk of bad debts. For this risk taking the Corporation receives 1 % p.a. of the disbursed amount. This amount is held by the financing bank in order to build up a bad debt reserve. According to statements of various commercial banks, the percentage of SSI loans handled by SSIC does not exceed 20 % of the total number of loans disbursed to this category.

Before setting up a new industry the applicant has to fulfill several prerequisites. The main regulations are cited from the Corporations' Investment Guide:

- You must either possess land in an industrial area or should obtain it through the concerned agencies or by private arrangements.
- You can set up an industry on leased land or rented building, subject to non-ejectment certificate covering the duration of loan.
- You must have the technical know-how or be in a position to engage such persons.
- You must have financial resources to invest fully or partially in the project.
- The proposed project should be technically and economically feasible.

SSIC complains about the banks' strongly security oriented selection approach. It has, however, to be questioned, whether the Corporation does have the professional, qualitative and quantitative potential to soundly examine an annual 150 to 200 projects, in quite different sub-sectors and locations. It is felt that the advisory department should be reinforced to meet this important task.

SSIC has undertaken the courageous effort to work out an operational masterplan for the next 20 years. According to the plan, the following results are foreseen for the first 5 years' period:

- A yearly number of 50 to 60 units should be served.
- The proposed projects will create 200 job opportunities per year in different job categories.
- The projected number of trainees reaches 500 per year. They will be taken over by the public sector.
- Rs. 10 million credit facilities are needed per year, generating investments of the private sector of Rs. 15 million. Thus, the private sector will generate an additional 450 job opportunities.
- The annual costs of about Rs. 25 million are divided into Rs. 20 million for investments

and Rs 5 million for operational costs. The latter will increase proportionately in later phases of the plan.

- It is expected that training institutions will generate saleable products at a value of Rs. 4 million per year during the first 5 years' period.

The masterplan is not explicit enough on operational aspects of the future SSIC performance and gives the impression that emphasis is put on development of cottage and household units. Their requirements for services and advisory structure are different from those of properly run small manufacturing units. It is, therefore, recommended to complete the masterplan with a detailed definition and characterization of the target groups envisaged, followed by clear operational job and project descriptions for the advisory personnel dealing with the clients. The masterplan shows on the whole a fairly stagnant tendency, thus confirming the impression gained from the analysis of recent years' SSIC performance. Even if there is no possibility or intention of increasing funds for the Corporation, it appears that the potential for an increased efficiency through organizational and motivating measures is not yet fully exhausted. These reserves should be mobilized by a reorientation of the actual organization which should be worked out in an operational masterplan.

4.4.3.2 Punjab Small Industries Corporation, Lahore (PSIC)

PSIC is the most traditional and experienced organization for SSI development in Pakistan. The Corporation was sponsored by international financial and technical aid programmes from the very beginning. The basic strategic concept was laid down in the early sixties and revised in the PSIC Act of 1973, when PSIC succeeded the former WPSIC organization, which covered the western Pakistani territory. The original plan of action already showed a very modern structure of SSI development policy. It was divided into three basic functions: research, advisory services and architecture. Only the economic studies' sector was staffed with 8 officers whose salaries at the time were comparatively high. The advisory service department comprised counsellors in the fields of chemistry, accounting, business management, and marketing, including a training section for entrepreneurs. The architecture department, was responsible for the planning and setting-up of the various industrial estates and common facility centres. Before this organizational background and provided with considerable IDA financing, a systematic and basically successful industrialization process was started in Punjab. The yearly allocation for SSI purposes in this province amounts to more than double of the total outlays of the three remaining provinces. The advisory service wing alone comprises 42 staff members, a number of whom being highly qualified.

Besides the important task of participating in the formulation of an adequate SSI development policy, PSIC's main functions are focussed on:

- Setting up of industrial estates (even though the greatest part of the small firms are located outside. These companies can also receive PSIC services.)
- Setting up of common facilities/training centres inside or outside industrial estates.

- Encouraging small businesses to settle in less developed areas.
- Formulating and implementing training schemes for artisans and small industrialists.
- Promoting and marketing of SSI products (own structure for commercialization).
- Undertaking a census and surveys in the field of SSI. Executing market and product research for specific industries, including project feasibility studies.
- Appraisal of applications for new industrial establishments and expansion projects. Advisory services related to loan applications.

This wide range of services is covered by a planning and executive staff of various organizational units:

- 1 head office, small industry advisory service and design centre
- 5 zonal offices
- 10 district/divisional offices
- 8 service centres
- 83 handicraft and carpet centres
- 7 industrial estates.

Development expenditure has increased continuously during the last years from approximately Rs 10 million in 1975/75 to about Rs 30 million at present. From the relation between non-development expenditure (mainly operating costs) and the volume of capital outlays conclusions can be drawn concerning the Corporation's development strategy. While in the other provinces operation cost do not stay below 30 % of the total SSI promotion expenditure, costs for PSIC salaries, training, transport, etc. account for less than 10 % of the budget. It is questionable as to whether this repartition between "hardware" (investments in buildings, equipment, etc.) and "software" (advisory services, training, etc.) represents the most efficient distribution of the relatively scarce development funds, especially in the light of the recent performance of industrial estates and technical centres.

PSIC statistics reveal that between 1972 and 1979 a total of about 1,300 SSI units have been sanctioned, creating 25,000 job opportunities. Fixed investments of Rs 730 million (including Rs 210 million loans) have contributed to a Rs 1,700 million worth capacity in the Punjab manufacturing sector and cottage/household units. In this context about Rs. 85 million were invested in PSIC activities. The only way of assessing PSIC's contribution to the creation of the additional jobs and the expansion of production capacity is to carry out a survey amongst the supported and non supported small entrepreneurs. Their judgement of the availability and adequacy of PSIC services may inform on the suitability of the Government's SSI development policy and contribute to create a tailor-made action programme for the coming years. Interviews carried out in the context of this study revealed that a considerable number of industrialists do have different ideas on how their problems should be handled in the future. A more demand oriented approach would probably further increase the efficiency of governmental development funds.

The current action plan of the Corporation calls for:

- Promotion of new small industries in the private sector, mainly in the fields of agro-based industries, light engineering industries, and export oriented textile industries (ready made garments, hosiery and knitted goods).
- Elaboration of direct development plans in order to identify industrial investment opportunities based on local development potentials and markets.
- Publication of information about possible investments in Punjab, focussing on Pakistanis living abroad.

These operational objectives can be achieved by applying simultaneously a variety of instruments, as follows. In the first instance, advisory services are provided in the form of pre-investment counselling and guidance to prospective entrepreneurs. In 1979/80, roughly 6,000 interested investors were attended. This impressive figure demonstrates that great emphasis is still put on units of the cottage and household industry group. In the light of an intended more qualitative and selective approach, in a later chapter recommendations will be developed with the objective to reduce the above mentioned number or, at least, to separate small manufacturing units from cottage industries. The advisory service wing informs about general investment opportunities, advises prospective investors in relevant fields, assists in the preparation of various types of documentation as well as in loan applications and offers general consultancy to already set-up industries in the areas of production, marketing, and administration. In general these services are free of charge.

Financial assistance for existing and new industries regarding fixed and working capital requirements is provided in the form of a consortium of PSIC with commercial banks and IDBP. Long term loans can be obtained for a period of 7 to 10 years. Working capital and modernization credits are provided for a period of 3 to 5 years. According to various sources, about 50 % of all loans to SSI units are handled by PSIC. This proportion is three times as high as that given for Sind. Special attention is paid to the investment potential provided by Pakistanis living in the Gulf region and in Europe. The idea is to offer thoroughly prepared investment opportunities in selected sub-sectors in the form of turn-key projects. Several PSIC delegations to the Gulf region and to Europe have met with a lively demand for these projects. Approximately 200 applications, totalling investment commitments of more than Rs 300 million, are filed with the Corporation. In the long run, however, it is questionable when bearing in mind the existing tough competition in most of the sub-sectors, whether it is advisable, to continuously create new production units. The strict channelling of this capital into modernization and expansion of already existing businesses should be ensured by means of strong supervision and eventually with a risk sharing scheme by PSIC.

As Pakistan's population and the country's economic and settlement structures offer a great potential for promoting a strategy of auto-centred regional development, great emphasis should be placed on the further elaboration of district development plans. Only a careful evaluation of the differently structured regions' development potential, completed by a description of the demand pattern of the mostly rural population, can guarantee a proper utilization of the available development means. The integration of the various sub-plans will eliminate the danger of competitive productions and finally lead to a complementary sub-contracting oriented industrial structure of the province.

PSIC has created a considerable network of industrial estates and technical training centres. A total of 7 estates has been established, most of them are still in the course of foundation. The estates situated in Gujranwala, Gujrat, Sialkot, Lahore, Bahawalpur, Faisalabad, Sargodha, Jhelum and Sahiwal host only a very small portion of the estimated 45,000 SSI units of the province. According to a PSIC statement, only 2 % of this number is reached by active promotion measures. Thus, industrial estates acquire a more demonstrative than actually helping function. In particular, the schemes for setting up mini estates in the Barani areas serve as a proof of the Government's objective with respect to the industrial development of those backward areas. As shown later, PSIC's understanding of the industrial estates concept reflects the traditional approach. Physical infrastructure, zoning considerations and the establishment of common facilities attract most of the Corporation's attention, while specific requirements for continuous extension services and training of entrepreneurs seem of less importance. Thus, the industrial estates had but minor spin-off or multiplier effects. The concept and actual management of the estates appear too inflexible to take advantage of the effects of a proper nursery estate. The policy is reflected in the low "software"/"hardware"-ratio of the PSIC budget of less than 10 %.

The main features of the two most developed estates of Gujranwala and Sialkot may serve to characterize the principal development concept of PSIC's industrial estate policy. The Gujranwala Industrial Estate (GIE) was created in 1961 and is supposed to be the most rapidly completed estate. The total of 103 acres is divided into 291 plots, which are all sold. A total number of 214 projects created 5,400 jobs absorbing an investment of Rs 68 million which generated an annual production capacity of Rs 180 million. Light engineering industries (87) followed by textile producing units (46) represent half of the sectoral distribution within GIE. A number of 102 artisan workshops, each measuring 1,200 sq. ft. cover 45 % of the total area.

The Sialkot Industrial Estate (SIE) with 98 acres of land was established in 1961, too. However, this estate took considerably longer to develop. Out of a total of 322 plots, 281 have been allotted and 221 only been colonized. With 86 completed projects, less than half of sanctioned projects (184) have in fact gone into operation. Projects are generally bigger than in GIE. According to PSIC calculations, the 184 sanctioned projects are expected to create 6,800 employment opportunities with an investment of Rs 100 million, which is to generate an annual production capacity of Rs 220 million. Surgical instruments (78), sports goods (25), textile (15) and light engineering industries (14) are the biggest production sectors in the sub-sector composition. It should be mentioned that the investment/capacity ratio of almost 1 : 2 does not appear very promising, especially when taking into account, that the feasibility reports usually overestimated the production capacity. As machinery and equipment of most visited units are fairly modest, it can be concluded that fixed investment into buildings is out of proportion when compared with the average production output. Lack of working capital, high ratio of fixed costs and generally also high unit production costs are the inevitable consequence. This was confirmed during the interviews carried out by the sub-sector experts.

Most other industrial estates are in an even less favourable situation, principally due to their difficult and partly unattractive location for industrial activities. This fact, however, should not discourage PSICs efforts to decentralize industrial growth in direction of backward areas.

It is rather discouraging to look at the common facilities and training centres, originally so well conceived. The centres (for specific sub-sectors like leather, ceramics, metallurgy, light engineering, cutlery, sports goods and rubber and plastics) were started with technically adequate equipment and well designed action programmes. In the course of time, the more progressive industries adopted the centres' pioneer technology. All of these SC's have fulfilled the envisaged planning targets; "Assist and Develop SSI". Technology transfer has been executed, common facility services provided and manpower was trained. Through extension services the private sector was developed and could reach its present importance.

However, nowadays a great deal of the service centres' product and process technology is outdated with the result that by the actual policy service and training centres are converted into mere industrial production units, partly competing with the private sector. The modernization of service programmes and machinery in accordance to the changing demands has obviously been neglected. Lacking motivation amongst a number of qualified officers appears to increase the tendency of the centres' decreasing productivity. The Metal Industries Development Centre (MIDC) in Sialkot alone employs 111 persons, out of which 31 are skilled and 22 unskilled workers. The available space is not fully utilized, additional adequate and modern machinery is needed for several teaching and service functions. The number of jobs completed stagnated between 1974 and 1977 (about 20,000 per year) and then continuously dropped (16,000 in 1979). Though the turnover increased slightly, growth does not cover inflation. For regular trainees (2-years' courses) 10 openings are sanctioned. The effective output dropped from 10 in 1975, to 3 in 1979. A similar tendency can be observed with short-course (3 months) trainees (1972: 20; 1979: 1) as well as with graduates of a 6 months' Dehi Mazdoor course. As there are only a few other vocational training facilities available, a recovery of MIDC's traditional potential should have absolute priority.

The Leather Institute in Gujranwala is practically out of operation. No services are rendered to the industries, and the production rhythm has slowed down to almost zero. The institute's administration has made strong appeals to PSIC demanding either new orientations or the closing down of the centre. The Gujranwala Light Engineering Service Centre occupies a production space of 21,250 sq. ft., with a total staff of 56, of which 15 are technical, 16 skilled and 25 trainees. The training activities gave the impression of being properly organized, while the progress chart of common facilities shows a decline of one third in relation to 1974/75 activities. The centre is trying to use idle capacity by commercial and subcontracting jobs. Trainees have immediate employment opportunities in the private sector. Some of them stay with PSIC. On the whole, extension-service and training functions of the existing centres lack dynamism. Minor investments and a general reorganization, however, could reactivate the former development potential within a relatively short span of time. The prevailing tendency to make the centres independent through profit orientation cannot be recommended. Extension services and training have strong nursery and demonstration components. They should be reactivated without the obligation to be cost covering. Short term profits automatically lead to neglect of strategic development objectives, i.e. in the case of the cited examples, the provision of extension services to SSI units and the execution of training programmes to meet the industrial sector's needs for skilled workers. Technical advisory services are to be offered free of charge. The number of advisory jobs amounted to 335 in 1978/79, though the rendered services exceeded only slightly those performed by 282 jobs in 1971/72. Solely in the carpet weaving sector, with 73 carpet centres and a yearly output of 2,000 trainees, can a systematic approach to build up a professional potential be observed. In this sector another PSIC function has shown considerable success: Marketing efforts, including first steps into exports, have resulted in continuously growing sales (1972: Rs 1.2 million; 1978: Rs 30 million) with satisfactory profits. Finally, the Dehi Mazdoor scheme which provides technical training for rural workers, has graduated 1,350 trainees since its foundation in 1975.

4.4.3.3 N.W.F.P. Small Industries Development Board, Peshawar (SIDB)

N.W.F.P has a fairly recent industrial tradition. A small agriculture oriented population (12 % of the country's total population) scattered over a topographically difficult territory with modest natural resources, does not represent a market volume that encourages industrial investment in this province. Nevertheless, there has been a noticeable development in the last years, in the course of which market oriented smaller units were set up and bigger industries became inclined to sub-contracting. The provincial Government's SSI development is reflected by a well conceived and properly managed promotion policy. Looking at specific sectors, e.g. textile, leather, light engineering for agricultural implements and repair jobs, there are excellent opportunities in Peshawar as well as in more remote rural areas. In some areas (Bannu for leather, Kohat for metal working), new industries can rely on highly developed craftsmanship as a source for skilled labour at reasonable cost. The favourable business climate, as a result of the Government's pursued policy and the attitude of class representatives (Chamber of Commerce, etc.) should be able to compensate the political reservations sometimes made with respect to border territories.

Between 1947 and 1975 industrial investments in the provinces have brought 263 units with 43,000 jobs to the area. 66 projects were installed between 1947 and 1959, 129 in the sixties, another 68 between 1970 and 1975. Almost half of the factories were installed at Peshawar. In 1970, NWFP's share in Pakistan's industrial sector amounted to 3 % of the factories, 11 % of the fixed industrial assets, 7 % of industrial employment and 8 % of industrial production. These key figures demonstrate that investments in this province are generally more capital intensive and mostly bigger than in other regions. Above average labour productivity confirms this conclusion as long as it is not entirely attributable to the renowned motivation and capability of the NWFP workman. Out of the 147 units in operation (with above 10 employees each), 53 belong to the textile sub-sector, 32 to food manufacturing and 12 to the metal working sector. The leather sub-sector with more than 1,500 units contributes with the modest number of 3 factories producing leather or leather goods.

The SSI promotion body SIDB was formed in 1972 with the following objectives:

- establish and manage small industrial estates
- establish and manage training-cum-production centres in various sub-sectors
- provide technical guidance and advisory services free of charge (including technical and economic feasibility studies)
- arrange and sanction long and short term loans for SSI units within a consortium arrangement between the Board and Commercial Banks and IDBP.

Industrial estates have been erected in Peshawar (51 acres), D.I. Khan (29 acres), Mardan (30 acres), Abbottabad (19 acres) and Khalabat (20 acres). Two more estates will be provided for Kohat (50 acres) and Bannu (59 acres). Including the latter, a total of 1,155 plots of four different categories are available to interested investors. With respect to the already established estates, out of a total of 782 plots, 422 are allotted to prospective industrialists. They will host 153 factories. 74 are already in existence, 15 units closed down

and 62 are under construction. Excluding the new Kohat and Bannu estates, 339 of a total of 782 plots are available. What really counts, however, is the number of factories in operation, the amount of fixed asset investments and loans spent on their erection, and finally the employment created by and the total output of these industries. For lack of common facilities and local advisory services, the estates are reduced to mere urban zoning policy. When taking into account that the total number of SSI units estimated by SIDB amounts to 5,400, the activities of the Board acquire more demonstration and development promoting characteristics. These constraints should be taken into account when selecting candidates to be sponsored.

There is only one service centre like the Punjab ones in Peshawar, i.e. the Pak.-German Wood Working Centre. Another wood processing centre is under way in Havelian. For a light engineering and metal centre to be located in Mardan, first project studies have been completed. This centre could render the existing estate more attractive and serve local needs for repair and other facilities. The Pak.-German Wood Working Centre is considered to satisfactorily combine extension service, common facility training and production. Trainees are inspired by the realistic atmosphere of the factory and are expected to integrate themselves easier into the production process at the end of the course. Actually 27 trainees attend the different programmes. A more advanced training is offered to skilled workers who want to become supervisors and instructors (3.5 years' course). Due to mixed financing and the existence of German technical and financial cooperation, it is difficult to judge the profitability of the undertaking. This, however, should not be a major concern with respect to SIDB in view of its strict nursery development function.

The centre serves as sub-contractor to local industries against cost covering charges. It helps at the same time to analyse and solve problems of these companies. Other centres, like the ones for wool spinning, carpet, embroidery and knitting (more than 30 in total) fulfil very specific tasks in training and production, basically at handicraft level. Although, they can also provide for skilled labour required in industrially organized textile manufacturing ventures, the output of qualified trainees is on the whole still very limited and basically restricted to the traditional fields of textiles. Some more emphasis is actually being put on the sub-sectors of leather, food-processing, and metal working.

Though SIDB handles only a certain part of all SSI loan applications, its activities are not restricted to firms settled in the industrial estates. Amongst other regional incentives, the fact that only 30 % equity is required makes the province attractive for new industries. From 1977 to 1979, out of 500 to 600 applications, 89 were fully carried through and recommended to the competent lending institutions demanding a loan volume of Rs 31 million. The banks sanctioned 27 applications and disbursed a total of Rs 9 million. SIDB activities have improved in securing financing over the last years. The tendency to traditionally bigger investments in NWFP becomes clear when comparing IDBP with PICIC outlays for the 204 companies with more than 10 employees. Between 1976 and 1978, IDBP sanctioned Rs 78 million (disbursed Rs 61 million) while PICIC sanctioned Rs 122 million (disbursed Rs 106 million).

It is interesting to note, that SSI related development expenditure (Rs 5 million SIDB staff costs and another Rs 5 million development costs) represents approximately 30 % of the loan volume to be sanctioned in favour of SIDB applicants. Calculating that this amount stands

for one third of the total amount to be disbursed by the lending institutions, the ratio of development expenditure (SIDB budget) to total capital outlay is considerably higher than that in Sind. While this fact may be considered positive, demonstrating a service oriented approach to SSI development, members of the Chamber of Commerce in particular, explain it with the phenomenon that in NWFP the portion of savings going out of the province is considerably higher than that involved in lending. It has to be found out whether this is a problem of lacking investment opportunities or whether the banks must be criticised for artificially reducing the credit potential in NWFP. Another claim, made by Chamber representatives is the financing of existing "sick" units. Most of the credit is said to go into new investments. This argument would have to be examined case by case, without neglecting the fact that credits channelled into expansion projects often show a more favourable risk/profitability ratio than loans for new ventures. In a way the Chamber's desire to reduce equity requirements from 30 % to 20 % contradicts this argument.

4.4.3.4 Directorate of Small Industries, Government of Baluchistan

SSI environment in Baluchistan is substantially different from that in other provinces. There is no Corporation to serve small manufacturing units of the private sector. A so-called Directorate of Small Industries is concerned with small industries of the public sector and at the same time represents all other industries of the private sector, regardless of their size. In practice, only Government ruled units obtain the Directorate's attention. Since its creation in 1970, the number of industrial units rose from 9 to 94, comprising

- 1 wool spinning centre
- 36 carpet development-cum-training centres
- 49 embroidery centres (including 2 leather embroidery centres)
- 2 sales depots
- 6 other miscellaneous centres.

The potential for the development of private small enterprises is felt to be rather limited. In order to offset the lacking initiative the Government created the above centres in partly very remote locations. A second characteristic is the concentration on specific sub-sectors, mainly on textile bases. The effect of this policy can be illustrated with the example of the 36 carpet centres. They are spread over 14 districts, having trained 1,067 persons between 1970 and 1976. 350 have found work in the said centres. Actually, more than 1,750 persons are working there, 1,315 as trainees. The production units have been continuously increasing their output. Sales rose from Rs 68,000 in 1975, to Rs 460,000 in 1977.

The Directorate employs 2,200 persons, 101 stationed in the Head Office. A peculiarity is the high proportion of female employees (628); it reflects the Directorate's orientation to sub-sectors related to the textile industry. A great part of the women work on a piece-rate basis. The structure of the Directorate's budget has changed fundamentally during the last decade. In 1970, Rs 500,000 out of a total of Rs 800,000 were spent on investments. In 1978, non-development costs (salaries, etc.) represented the biggest part (Rs 10.7 million) of the budget (Rs 11 million). It has to be analysed, in how far the actual budget can be qualified as development activity, and to which extent it is to be considered as assisting the unemployed population in rural areas.

There is only one industrial estate in Quetta (besides the atypical one at Hub). Industries in this estate do not receive much services and advice from the Directorate. It could not be found out whether a change in the actual development policy (accompanied by a conversion of the Directorate into a corporation) would promote the Government centres and private investment. Especially in distant places, cottage industries could attend the needs of the local market (textile, food processing, repair jobs, etc.) or transform regionally available inputs like leather, wool, marble, wood, etc.). There is no great hope for immediate results of SSI development policy in Baluchistan. For the moment, the population has found ways that guarantee its survival. In the long run, however, a systematic development concept should be introduced in order to integrate this province more closely into the rest of the country.

4.4.4 SSI Loan Financing and the Banking Sector

SSI loan and credit schemes acquire a twofold significance in Pakistan's manufacturing sector development strategy. On the one hand, financing is the most important development instrument, both in volume of funds and number of industrial units reached. This, however, is nothing surprising, since everywhere subsidised loans are one of the most applied SSI instruments. On the other hand, and here Pakistan's development concept differs considerably from those in many other countries with ambitions for industrialization, financing is also considered to be the most effective one. If a decision is to be taken as to whether a loan should be granted to a non-experienced applicant with the necessary equity of 30%, or to a highly trained and qualified specialist without the required investment contribution, according to a high development official preference is given to the unexperienced entrepreneur. Especially in small ventures, this appears an ambiguous approach. In many cases, a proper professional education, sometimes to be acquired even abroad, calls for considerable amounts of money. Thus, a part of the entrepreneur's equity may be considered as invested in favour of his training. On the other hand, deficient management is supposed to waste up to 30% of Rs 1 million, the owners equity share, within 1 - 2 years' company operation. A well run company is supposed to reach higher turnovers within a shorter time and to make profits, or at least avoid losses, in this case, a lack of equity would be compensated by efficient management. As it is rather difficult to appraise an applicant's qualification at first sight, the Small Industries Corporations provide screening and monitoring services in order to promote the business and to inform the bank of unplanned risks in due time. When looking at SSI policy this way, loan finance loses its characteristic as an end in itself and becomes a natural although secondary consequence of other service oriented development instruments.

Pakistan's banks are nationalized. Industrial loans and credits are provided mainly by 5 commercial banks and 2 specific institutions (IDBP for SSI loans and PICIC for big industries). More than 6,500 branches collect savings throughout all provinces and maintain credit relationships with approximately 1 million account holders, more than half of whom belong to the agricultural sector. As per March 31, 1979, credit users showed the following distribution:

Table 4.6: Credit Situation of all Pakistan Banks

Economic Groups	No. of Accounts	Amount of Advances	% of Total of Advances
Agriculture, Forestry, Hunting and Fishing	593,970	5,123	13.8
Mining and Quarrying	1,539	227	0.6
Manufacturing	21,454	15,180	40.9
- (Textile)	5,509	6,297	17.0
- (Leather)	549	299	0.8
- (Metal Products, Machinery, Electrical Machinery)	1,890	1,217	3.3
Construction	11,232	708	1.9
Electricity, Gas, Water	4,324	226	0.6
Commerce	1 31,865	9,288	25.7
Transport, Storage, Communication	13,220	487	1.3
Services	96,938	3,338	9.1
Grand Total (State Bank of Pakistan)	1,060,955	37,052	100.0

The number of deposit accounts exceeds 13 million, 90 % of which are below Rs. 5,000. Saving accounts reach almost 11 million, totalling Rs 21,000 million. Foreign banks have extended credits to 7,300 companies to the amount of Rs 2,700. 13 % of the accounts are held by clients from the manufacturing sector; they received 68 % of the total advances granted by foreign banks. Advances to the manufacturing sector (Rs 15,180 million) are distributed according to rates of interest as follows:

Table 4.7: Advances to Manufacturing Sector Classified by Rates of Interest
(As per March 31st, 1979)

Rate of interest in %	Advanced amount (million Rs.)
00.00	425
03.00	781
07.50	520
09.00	533
10.25	594
13.00	739
14.00	9,642

While advances at 14 % interest represent 64 % of all loans and credits forwarded to the manufacturing sector, advances at this rate to the total of economic groups reach only 50 %. Industry pays thus higher interest rates than other sectors. With respect to bills, on March 31, 1979, the manufacturing sector participated with 1 % (170) in number and 0.7 % (Rs 2.5 million) in amount in the banking sector's stocks. Sub-sector interviews showed that the majority of small industries is without any bank account. The above figures do not exactly indicate the number of units using bank relations, since many companies maintain accounts with different banks.

There is a general awareness of the fact that SSI financing is inadequate in volume and kind. However, the Government, together with the State Bank of Pakistan (SBP) and representatives of the industrial sector, have not yet reached an agreement on future SSI lending. This concerns

- the amount of short and long term loans to be made available to SSI
- interest rates according to sub-sector, size, and location of the applicant
- securities or guarantees to be provided by the borrower or by a development body
- usefulness of linking other development instruments (industrial estates, advisory and extension services) with a credit.

A first step has been taken by SBP through a so-called Small Loans Scheme for Businessmen and Industrialists. This programme defines small loans as:

- all loans irrespective of amount provided to industrial units with fixed assets (excluding land), whose original investment does not exceed Rs 3.0 million,
- any loan up to Rs 100,000 provided to small businesses and firms.

It was intended to ease and speed up small loans procedures for starting and running companies. For this purpose, SBP started in 1972 to set mandatory targets for SSI loans. These rose for all groups (agriculture, business, industry, housing) from Rs. 456 million in 1973/74, to Rs. 2,012 million in 1979/80. Business and industry receive roughly 50 % of the small loan programme. It has to be noted, however, that most of these loans have gone to business and commerce rather than industry, mainly because the former maintain traditional contacts with banks. Loans for fixed investments account for about one third of the lendings to business and industry. The remaining two thirds are shorter term credits, mainly for working capital requirements (see Table 4.8). In order to motivate commercial banks to intensify SSI lending, a Credit Guarantee Scheme has been set up by SBP providing credit guarantees up to 50 % of the amount disbursed. Another scheme, involving provincial Small Industries Corporations promises to be more efficient. Here, SICs would promote loans to SSI, analyse and appraise project applications and finally guarantee up to 50 % of their recommended commercial bank loans and up to 75 % of the respective IDBP loans. This consortium agreement represents the basis for cooperation between the SSI development corporations and the banking sector. While SICs will be responsible for project feasibility

Table 4.3: Development and Distribution of Commercial Bank's Loans to Small Enterprises (Million Rs)

	SMALL LOANS														
	AGRICULTURE			BUSINESS AND INDUSTRY			HOUSING			AGRICULTURAL (DEVELOPMENT)			TOTAL		
	Targets	Achievements	%	Targets	Achievements	%	Targets	Achievements	%	Targets	Achievements	%	Targets	Achievements	%
1972-73	300.0	56.8	71.0	266.0	418.7	157.4	90.0	73.9	82.1	20.0	12.5	62.5	456.0	561.9	123.2
1973-74	250.0	99.5	39.8	450.0	73.5	16.3	50.0	112.7	225.4	50.0	20.2	40.4	800.0	305.9	38.2
1974-75	300.0	205.8	68.6	670.0	581.4	86.8	80.0	191.3	239.1	120.0	44.1	36.7	1170.0	1022.6	87.4
1975-76	520.0	604.1	116.2	690.0	921.8	133.6	60.0	248.5	414.2	85.0	107.3	126.2	1355.0	1881.7	138.9
1976-77	550.0	650.8	116.2	845.0	782.0	92.5	100.0	143.8	143.8	130.0	121.5	93.5	1635.0	1698.1	103.9
1977-78	720.0	851.6	118.3	850.0	1001.1	117.8	110.0	148.9	135.4	160.0	195.6	122.2	1840.0	2197.2	119.4
1978-79	650.0	827.2	127.3	930.0	815.9	87.8	150.0	205.9	137.3	159.8	174.1	109.0	1889.8	2023.1	107.1
July-December 1979-80															
Fixed Investment	-	-	-	108.0	87.9	81.4	44.0	144.8	329.0	129.0	127.1	98.5	281.0	359.8	128.0
Working Capital	255.0	378.2	148.3	269.0	527.4	196.1	-	-	-	-	-	-	524.0	905.6	172.8
TOTAL	255.0	378.2	148.3	377.0	615.3	163.2	44.0	144.8	329.0	129.0	127.1	98.5	805.0	1265.4	157.2
Targets Jan-June	382.0			565.0			66.0			194.0			1207.0		
TOTAL Target 1979-80	637.0			942.0			110.0			323.0			2012.0		

and its general recommendation under economic and development aspects, the commercial banks will analyse the applicants' creditworthiness. Problematic cases will be discussed by a technical advisory committee. However, the fact that considerably less than 50 % of the SSI loans is handled by the banks without any participation on SIC's side and the latter's repeated intention to create their own Small Industry Bank leads to the conclusion that the actual procedure does not meet both sides' requirements. A PSIC statistic, showing that only 2 % of the Punjab SSI units are reached by loans, might complete this picture as it allows to assume that the clients with the most need are not served either.

According to data provided by the Pakistan Banking Council on the activity of the nationalized banks under the SBP Small Loans Scheme between July 1979 and June 1980, their advances to the industrial sector amounted to Rs 730 million which represents one third of the total credit outlay to small firms. Rs 530 million serve working capital purposes. In order to identify the specific situation of the five sub-sectors dealt with in this report, a survey has been carried out by the Pakistan Banking Council. Aggregated results are shown in Tables 4.9 and 4.10. It should be noted, however, that the various sources often quoted differing figures for the same item. Nevertheless, certain conclusions may be drawn from this information: Firstly, banks are involved in SSI lending to a differing extent. Secondly, certain banks maintain larger credit relations with the five sub-sectors (up to 50 % of total advances to SSI) than others. Thirdly, a declining participation of the five sub-sectors (from 32 % in 1977, to 17 % in 1980) in commercial banks SSI loans can be observed. There are good reasons to believe that the figures provided to the Banking Council are not complete. Nevertheless, personal interviews with various banks lead to believe that the above mentioned three conclusions are reasonable. Unfortunately, no information was available on the regional distribution of SSI advances. Government officials and representatives of chambers of commerce of Punjab, Baluchistan, and NWFP complained, however, that the amount of savings leaving their provinces is substantially above the sum of loans and credits handed out to companies in these regions. The Peshawar Chamber of Commerce states that only 30 % of the provincial savings was invested in NWFP. It therefore demands that not only the total bank deposits of the province's inhabitants but also all premiums collected by insurance companies be rechannelled into the province's industrial development. Punjab suggests to move the Headquarters of at least one commercial bank to Lahore, not only to avoid the drain of local resources but also to speed up decision taking in normal SSI loan procedures. There is a general complaint of the length of credit procedures on account of the fact that all engagements have to be approved by Karachi Headquarters. Often they take up to two years and in the meantime prices of machinery and other input factors might have risen, making initial feasibility and loan requirement calculations obsolete. Such price rises are generally covered by equity which then lacks as working capital making the entrepreneur's start-up even more difficult.

The prevailing loan and credit conditions are not particularly appreciated by the small entrepreneurs interviewed. First of all, there should be easier access, specifically to working capital loans. It is often cumbersome and expensive to provide the securities demanded by the banks. Furthermore, the loan/equity ratio of officially 50 : 50 as required in PSIC documentation is beyond most applicants' possibilities and interest. In NWFP, entrepreneurs ask equity requirements to be reduced to 20 %. This question, however, can only be solved in combination with a reorientation of the whole system of incentives. A so-called

Table 4.9: Position of Small Loans Provided by Commercial Banks to Various Sub-Sectors^{1.)} (Million Rs.)

Bank	Sub-Sector	31.12.1975	31.12.1976	31.12.1977	31.12.1978	31.12.1979	30.6.1980
HABIB BANK Ltd.	(1) Textile			0.1	0.2	0.1	
	(2) Leather						
	(3) Light Engineering				0.5	0.6	
	(4) Sports Goods						
	(5) Surg. Instr. & Cutlery						
	(6) Others			0.2	0.5	1.5	0.3
	(7) Total ¹⁾			0.2	1.2	2.2	0.3
NATIONAL BANK OF PAKISTAN Ltd.	(1) Textile	5.1	7.1	10.4	9.3	13.5	16.5
	(2) Leather	0.9	1.3	2.9	3.7	3.7	3.9
	(3) Light Engineering	2.4	4.4	6.5	8.2	10.4	11.7
	(4) Sports Goods	0.3	0.6	0.9	1.1	1.7	1.5
	(5) Surg. Instr. & Cutlery	0.2	0.5	0.6	0.8	1.2	1.3
	(6) Others	89.8	130.6	167.1	191.8	395.4	511.5
	(7) Total	98.8	144.7	188.6	214.9	425.9	546.5
UNITED BANK Ltd.	(1) Textile			17.7	15.0	15.6	8.0
	(2) Leather			3.3	1.9	9.5	1.8
	(3) Light Engineering			19.5	14.9	18.6	4.0
	(4) Sports Goods			1.7	3.1	29.2	6.2
	(5) Surg. Instr. & Cutlery			1.8	1.2	14.5	4.1
	(6) Others			30.1	45.4	64.4	7.3
	(7) Total			74.2	81.7	151.8	31.5
MUSLIM COMMERCIAL BANK Ltd.	(1) Textile	0.5	1.0	0.4	0.1	2.2	0.5
	(2) Leather		0.2	1.5	1.0	0.4	
	(3) Light Engineering						
	(4) Sports Goods						
	(5) Surg. Instr. & Cutlery						
	(6) Others	0.1	8.8	6.5	11.5	10.4	27.5
	(7) Total	6.6	9.9	8.3	12.6	13.0	28.0
ALLIED BANK Ltd.	(1) Textile	18.3	34.7	26.1	34.7	37.6	39.4
	(2) Leather	0.6	1.8	4.1	4.4	4.9	5.1
	(3) Light Engineering	0.3	0.2	0.2	0.2	0.3	0.3
	(4) Sports Goods	6.6	4.6	5.0	5.3	8.7	7.7
	(5) Surg. Instr. & Cutlery	1.6	1.8	2.3	2.2	3.6	2.1
	(6) Others	13.0	16.5	20.4	30.5	27.0	33.7
	(7) Total	40.4	59.7	58.0	77.4	82.1	88.0
Grand Total of Disbursement to Subsectors of all Commercial Banks		-	-	329.3	387.8	675.0	694.3
% Participation of Subsectors (1) - (6)				32 %	28 %	26 %	17 %

1) Total disbursement during the year under SBP - Small loan scheme (6)

1.) Only partial data. (Figures of SIC's lending scheme are kept separately only by some banks)

Table 4.10: Position of Small Loans to Target Sub-Sector Units of Commercial Bank as per 31-12-1979 ¹⁾ (Million Rs.)

Sub-Sector Bank	Textile	Leather	Light Engineering	Sports Goods	Surgical Instruments	Others	Total
Habib Bank Ltd.	0.635	-	0.635	-	-	1.500	2.170
National Bank of Pakistan Ltd.	13.555	3.667	10.391	1.707	1.206	395.393	425.919
United Bank Ltd.	15.660	9.460	18.572	29.262	14.472	64.379	151.805
Muslim Commer- cial Bank Ltd.	2.240	0.400	-	-	-	10.400	13.040
Allied Bank of Pakistan Ltd.	37.630	4.930	0.270	8.700	3.580	27.040	82.150
Total Loans to Target Sub-Sectors ²⁾	69.120	18.457	29.868	39.669	19.258	498.712	675,084

1) Loans on the SPP (G) Scheme as reported to Pakistan Banking Council during October of 1980 (partial data, see under table 4.9)

2) Without IDBP

Comparison of Target Sub-Sector of SSI-Lending, Production and Export

SSI-Lending (31.12.79)	Financing	Production (1976/77)	Exports (1976/77)
Textile	39 %	28.5 %	63.6 %
Leather	10 %	50.7 %	26.1 %
Light Engineering	17 %	18.9 %	-
Sports Goods	22 %	0.9 %	6.2 %
Surgical Instruments	12 %	1.0 %	4.1 %
Total (177 Million R.S.)	100 %	26 %	
Total SSI-Lending (675 Million R.S.)	100 %	100,0 %	100,0 %

"accompanied loan scheme" (funds are only disbursed together with extension services) would meet the banks' safety needs and improve fund utilization. Most of the loans are granted for a period of 2 to 5 years. The investment in fixed assets can certainly not be recovered within this span time, taking into account the prevailing competition in the sub-sectors as well as most companies' poor productivity and financial performance. To avoid a diversion of funds, a system could be worked out by which the applicant receives equipment and/or raw materials instead of money. Such procedure would have to be decided by SICs or the pertinent regional offices (industrial estates). The question of interest rates appears to be difficult to solve. To start with, many entrepreneurs are reluctant to paying interests at all for religious motives. Others consider the actual interest rate of 11 % too high. This might not necessarily be true for working capital credits. Fixed investments, however, do not immediately generate liquidity to pay the required interest. Even after a grace period of 2 or 3 years, turnover very often stays considerably behind investment. This situation could be less aggravating if loans were provided only for ventures with strong comparative advantages in less competitive markets.

Another source of SSI financing are IDBP loans, both in national and foreign currency. However, although PICIC and NDFC are mainly geared towards bigger industries, IDBP, too, serves larger units. Out of a total number of 187 applications approved in 1978/79 (value of Rs 547 million), 103 loans (Rs 31 million) were for new SSI units while 44 applications (Rs 314 million) came from large establishments. From the bank's start until 1978/79, it approved 3,720 loans with a lending volume of Rs 3,326 million. While SSI's share in the total of new units oscillated from 80 % to 65 % back to 70 %, their participation in the yearly annually registered total amount of units dropped from 25% to 21 %, settling at 10 %. Out of all applications made since beginning (3,720), only 26 % were handled by provincial Small Industries Corporations. During the last three years, this ratio dropped to less than 10 %. As a result, it can be resumed, that neither lending institutions nor SICs are properly prepared to meet SSI's financial requirements. A new strategy for selecting applicants and different loan types will have to be developed in the near future.

4.4.5 Training Schemes and Facilities

SSI requires training both for labour and entrepreneurs. Advance of training in general management, marketing, finance and production management is only offered by a few specialized courses at the universities of Lahore and Karachi. The service combination required for SSI development, consisting of carefully planned and tuned advisory services, extension services and proper training programmes, is not found in Pakistan. This is certainly one of the major reasons for the poor performance of most smaller businesses.

Programmes for vocational and advanced professional training have to meet the twofold requirements of the labour market: On the one hand, the increasing demand for skilled and semi-skilled workers, mainly in rural areas, calls for a growing supply of better trained labourers. On the other hand, job opportunities for migrant workers absorb a considerable portion of training course graduates. It is yet to be found out, in how far returning migrant workers can contribute to satisfy domestic needs for better trained and experienced labour. For the time being, the outflow of hundreds of thousands of skilled and semi-skilled, mostly

highly motivated workers, drains the country's labour market. Between 1974 and 1979, a total of 215,000 artisans (welders, masons, carpenters, electricians, mechanics, etc.) leaving the country were registered with the Bureau of Emigration and Overseas Employment.

This figure has to be related to the 10,000 annual training vacancies available with (Table 4.11):

- 24 Government Vocational Institutes
- 11 Technical Training Centres
- 21 Centres of the Overseas Workers Foundation
- 30 Centres of the Manpower Division (Crash Training Programme)
- 297 Industrial Establishments Operating Apprenticeship Programmes.

According to calculations of the National Training Bureau ¹⁾ the demand for skilled workers both, at home and abroad, will reach 80,000 by 1983. By the same time, only about 51,500 skilled workers will have graduated from existing training institutions so that some 28,500 vacancies for technicians and skilled workers will still be left. The NTB has prepared a project according to which 10,000 workers per year will be trained in various SSI concerned fields. The existing labour capacity would thus be doubled. In addition, some 1,300 instructors could be trained at the same time through investments in the following areas:

- Training infrastructure
Construction, furniture and equipment for the office of the National Training Board (NTB) and the National Training Development Institute (NTDI).
- Industrial training
Construction, furniture and equipment for 6 new training centres to be located at Karachi, Hyderabad, Lahore, Islamabad, Sialkot and Mardan. Rehabilitation including extensions and equipment for 22 existing training centres.
- Instructor training programme
- Inplant training programme.

Costs per trainee are calculated at Rs 3,244. Investment and start-up costs are expected to reach Rs 430 million out of which Rs 230 million are hoped to be made by IBRD/IDA assistance and UNDP grants.

One of the well organized and efficiently working institution for advanced professional training is the Pakistan Industrial Technical Assistance Centre (PITAC) in Lahore, where about 350 trainees are being acquainted with modern machines and sound design and production techniques. Branches in Karachi, Peshawar and Quetta, however, are mere administration offices.

There is no doubt that in almost all trades qualified and experienced labour is scarce. This

1) National Vocational Training Project, July 1980

Table 4.11: OUTPUT OF TRAINEES FROM THE FORMAL GOVERNMENTAL TRAINING SYSTEM

PROVINCES	Government Vocational Institutes		Technical Training Centres		Overseas Workers Foundation Training Programmes		Industrial Establishments		Crash Training Programme	
	No. of Institutes	Output of Trainees	No. of Centres	Output of Trainees	No. of Centres	Output of Trainees	No. of Estimates	Output of Trainees	No. of Centres	Output of Trainees
PUNJAB	13	148	6	807	20	1600	203	600	15	1958
SIND	6	175	2	388	1	36	73	586	6	2104
NWFP	3	78	2	108	10	364	21	70	6	513
BALUCHISTAN	2	-	-	-	-	-	-	-	3	499
TOTAL:	24	401	10	1303	21	2000	297	1256	30	5074

Note:

- 1) In Punjab and Baluchistan the administration of the Government Vocational Institute has been transferred from the Educational Department to the Labour Department. In other Provinces, they are administered by the Education Departments.
- 2) The Technical Training Centres are administered by the Provincial Labour Departments.
- 3) The Industrial Establishments are administered by the Provincial Departments under the Apprenticeship Ordinance, 1979
- 4) The "Crash Training Programme" and the Overseas Working Foundation Training Programmes are administered by the Ministry of Labour and Manpower by utilizing 3 existing Polytrade Schools, existing institutes of the Provincial Governments in afternoon shifts, and some facilities in Private Sector.

is why the proposal to install "vocational guidance units" that became known in NWFP, should be supported. Such units would inform students leaving school about requirements and chances of different professions, have at the same time a selecting and channelling function, and could, finally, serve as labour agency for the local SSI. It must be noted, that graduates of any type of training course find easily a job, either with the Government, private industries, or abroad. This might explain the fact that many small industrialists are rather reluctant to send promising young men for training. They are afraid that these might not return to their original work place, and that those who do, might disturb the firm's salary structure. As long as there will be no compulsory inplant training scheme, this kind of prejudice will not be easily overcome.

4.4.6 Other Specific Promotion Programmes

Due to the deteriorating tendency of Pakistan's balance of payments, additional efforts have been undertaken in order to raise exports, preferably of manufactured or semi-manufactured goods. The Government felt that besides the traditional foreign traders in Karachi, an Export Promotion Bureau (EPB) was to be set up for services beyond mere commercial activities, such as general public relations, marketing, country and/or productwise market survey, analyses of international competition, etc. In the opinion of some of its managers, EPB should try to get away from its actual main function of coordinating exporters' and GOP's foreign trade interests and instead develop into a service body, not only to export traders, but to the entire exporting industry. It is felt that SSI entrepreneurs are reluctant to travel abroad and to participate in international fairs. They have also little knowledge of market information and general marketing requirements. Here, the above bureau should close the gap of information, communication, and transaction between international buyers and domestic producers. First steps towards this direction are undertaken by means of representative market studies for selected subsectors that are actually being prepared in cooperation with international cooperation agencies. At the same time, EPB should represent the industrialists' position vis-à-vis GOP, specifically in regard to draw-back and export rebate questions.

It appears more reasonable to leave the proper trading function with specialized firms. As the general foreign trade structure rather favours the big dealers, private or Government sponsored new trading houses should be promoted. In this respect, the Japanese example is frequently cited. It has been observed that small manufacturers are not familiar with trade aspects, whether within or outside the country. A great part of production profit potential is thus siphoned by well-to-do export firms in Karachi.

Export zones, as vehemently required in Lahore, should not be a commonly applied instrument for SSI export purposes. In some specific sub-sectors (sports goods, surgical instruments, etc.) the production of which is directed to foreign markets and whose industrial units are gathered in one location, these might be considered in exceptional cases. The free zone of Karachi is justified by its unique location.

5. AGGREGATED SUB-SECTOR INFORMATION OF TARGET INDUSTRIES

5.1 General Considerations

SSI statistics are characterized by an almost complete absence of systematic and reliable figures. Though SICs have their individual statistical and research department, independent surveys of specific target groups and regions are the only source of reliable information¹⁾

During the process of data collection it was found, that almost all sources quote different figures on the same item²⁾.

- 1) Industrial Census (CMI) 1960 and 1970; PSIC - Census of Small and Household Manufacturing Industries, 1975/76; Survey of Small and Household Manufacturing Industries in Baluchistan, NWFP, and Sind (1976/77) by Statistical Division.
- 2) This situation shall be demonstrated by a sub-sector that is comparatively easy to handle, i.e. the sports goods industry. It is concentrated on practically one town (Sialkot). Compared to other sub-sectors, its number of units is fairly small (between 400 and 700 registered firms), and, last not least, almost its complete production is exported and thus registered with various entities. Even in this sub-sector, the figures on (1) number of units, (2) yearly production, and (3) export value differ from one source to the other, as follows:

	Number of Units	Production		Exports		Source
		Year	Million Rs.	Year	Million Rs.	
1)	745	76/77	126.4			Development Statistics of the Punjab (1979)
2)				76/77	199.0	Pakistan Economic Survey (1979)
3)				76/77	223.8	Export Promotion Bureau
4)	732	78/79	200.0			Expert Working Group f. Five Year Plan (78)
5)	432	78/79	223.7			Punjab SSI-Survey (1975) updated sales for 1978/79 ¹⁾

As long as the data on a sub-sector as homogeneous as the above vary to such an extent from one statistical source to the other, comprehensive planning with respect to SSI development policy is bound to be rather unprecise.

The main reason for this fact appears to be the lack of planning and coordinating activities with respect to Pakistan's SSI sector. It is not surprising that SIC officers are overwhelmed by the enormous number of small manufacturing units in their province and do not really know "where" and "how" to begin constructive and systematic development work. Only 2 % of all Punjab SSI companies were reached by loans and even less firms obtained location in industrial estates, use of common facilities or free of charge extension-services. In order to motivate development officers, define clear-cut operational targets and achieve demonstration and multiplier effects in Pakistan's SSI policy, the total universe of small industrial units has to be grouped and representative units of these groups to be selected. For these pilot companies as well as for different types of extension-services it will then be necessary to design specific development programmes.

When relating SSI specific figures (number of units, employment, output, capital stock, etc.) to global data of the manufacturing sector or the whole economy, the small industries sector may be characterized as follows:

A huge number of minute firms (80,000) employ a great number of mostly unskilled workers (2.25 million) and contribute with about 75 % of the work force to roughly 40 % of the manufacturing production. If Pakistan's industry could be structured in a way that the share of small companies in the manufacturing sector amounts to 85 % (actually more than 95 %) which employ 70 % of the industrial labour and produce approximately 60 % of the manufacturing output, the country's resources would probably be better utilized and domestic and export markets be more adequately supplied. The great number of independently operating units is the most burning SSI problem. Financial and management potential is deconcentrated and prevailing competition suffocates all profit generating industrial activities.

5.2 Comparative Sub-Sector Performance

Despite methodical doubts sub-sector relevant figures have been collected from various sources in order to elaborate at least a certain amount of macro-data and to indicate some points of reference for the qualitative recommendations. Tables 5.1/5.2 are based on a SSI survey actually published by the Statistical Division. Pertinent field work was carried out in 1975 and 1976. Punjab was left aside, an individual SSI survey having been carried out for this province. The most important conclusions to be drawn from the mentioned table are:

- 1) There is a considerable imbalance of industrial concentration in the four provinces. Punjab alone has seven times more industrial units than Baluchistan and NWFP together, not only in absolute terms, but also when related to the population size.
- 2) The aggregated importance of the five target industries reaches different degrees of penetration in each province's overall manufacturing performance (SSI contribution), as follows:

Table 5.1: Essential Variables of Small Industries Based on Surveys carried out between 1975 and 1977
 Focusing on Selected Sub-Sections and on provincewise Distribution (Amounts in R.S. of Survey Year) 1)

		Total Industry 100 %	Textile		Leather		Light Engineering		Cutlery Surgical Instruments		Sports Goods	
1. BATHURTHI	1.1	Number of Units	602	13	2.15 %	149	24.75 %	99	16.44 %	-	-	-
	1.2	Number of Persons Engaged	1,769	57	0.32 %	477	26.96 %	280	15.83 %	-	-	-
	1.3	% of Total Value of Production	66,000,000	-	1.43 %	-	26.26 %	-	6.49 %	-	-	-
	1.4	% of Total Value Added	23,000,000	-	1.29 %	-	30.01 %	-	11.40 %	-	-	-
Units	Persons Engaged	Production	Value Added									
%	%	%	%									
2. HIVEP	2.1	Number of Units	5,574	380	6.81 %	1,698	30.46 %	696	12.48 %	-	-	2
	2.2	Number of Persons Engaged	23,880	1,659	6.94 %	3,394	14.21 %	2,168	9.08 %	-	-	6
	2.3	% of Total Value of Production	240,000,000	-	16.13 %	-	21.77 %	-	12.09 %	-	-	-
	2.4	% of Total Value Added										
Units	Persons Engaged	Production	Value Added									
%	%	%	%									
3. PULLAB	4.1	Number of Units	45,486	16,989	37.35 %	2,008	4.41 %	8,210	18.05 %	450	0.98 %	432
	4.2	Number of Persons Engaged	212,696	65,101	30.60 %	6,574	3.09 %	50,394	23.69 %	4,500	2.11 %	4,017
	4.3	% of Total Value of Production	7,841,000,000		29.48 %		1.28 %		14.10 %		2.20 %	
	4.4	% of Total Value of Fixed Assets	3,753,000,000		15.20 %		-		7.20 %		-	
Units	Persons Engaged	Production	Value Added									
%	%	%	%									
100 %	100 %	100 %	-									

1) "SME" data not available during field work"

Table 5.2: Contribution of Selected Sub-Sectors Pakistan's Economy (in Current Million R.S.)

Year	Surgical Instr. and Cutlery		Sports Goods		Light Engineering		Leather and Leather Goods		Textile		Total 1-5		Total Exports		Total Manufacture		Total GNP
	M. Rs.	%	M. Rs.	%	M. Rs.	%	M. Rs.	%	M. Rs.	%	M. Rs.	%	M. Rs.	%	M. Rs.	%	M. Rs.
	1		2		3		4		5		6		7		8		9
1969/70	15	2.8	30	5.6			209	39.4	277	52.2	531	33	1,609	2.5	6,963	16.0	43,348
70/71	18	3.0	33	5.6			207	34.8	336	56.6	594	30	1,998	4.4	7,570	16.6	45,620
71/72	23	2.9	51	6.5			293	37.1	423	53.5	790	23	3,371	6.8	7,773	15.8	49,268
72/73	45	2.0	136	6.1			694	31.3	1,345	60.1	2,220	26	8,551	13.9	9,695	15.8	61,258
73/74	85	3.5	188	7.6			642	26.1	1,584	64.3	2,463	24	10,161	12.5	12,751	15.7	81,058
74/75	130	5.3	205	8.3			569	23.1	1,557	63.3	2,461	24	10,286	9.7	17,479	16.5	105,787
75/76	131	4.7	189	6.8			782	28.0	1,688	60.5	2,790	25	11,252	9.0	20,054	16.1	124,415
76/77	134	4.2	199	6.2			834	26.1	2,021	63.4	3,188	28	11,293	8.0	22,234	15.8	141,166
77/78	161	5.2	194	6.3			836	27.2	1,880	61.2	3,071	24	12,980	7.7	25,278	15.0	168,701
78/79	211	4.7	212	4.7	4		1,547	34.5	2,512	55.6	4,486	27	16,925	8.8	27,870	14.5	191,534
79/80	171	4.1	180	4.4	3		1,331	32.2	2,443	59.2	4,128	24	17,566	7.7	33,782	14.8	227,618

Table 5.2 a: Total Production (Domestic and Export Sales) Million R.S.

Year	M. Rs.	%	M. Rs. ²	%	M. Rs. ³	%	M. Rs. ⁴	%	M. Rs. ⁵	%	M. Rs. ⁶	%	M. Rs. ⁷	%	M. Rs. ⁸	
1976/77	211	1.9	200	0.9	4,000 [†]	18.9	10,694	50.7	6,000 ^{††}	28.5	21,105	100	11,293	100	22,234	
Export	134	4.1	199	6.2	7	-	834	26.1	2,021	63.6	3,195	19	3,195	28.0		
Export %	83.5%		99.0%		-		7.8%		33.7%							
Units	Data not available															
Employment	Data not available															
	Large 15,579 70%															
	SSI 6,655 30%															

[†] Estimate of total light engineering production based on Punjab Figures (1976/77 2,514.5 Million R.S.) including all items, thus exceeding given for product groups

^{††} Excluding yarn and carpet production (Estimated 4,000 Million R.S.)

Table 5.2 b: Analysis of Sub-Sectors Basis Year 1976/77

Sub-Sector	Production		Export	
	Mill. Rs.	%	Mill. Rs.	%
Surgical Instruments	211	1.0	134	4.1
2. Sports Goods	200	0.9	199	6.2
3. Light Engineering	4,000	18.9	7	-
4. Leather + L. Goods	10,694	50.7	834	26.1
5. Textile	6,000	28.5	2,021	63.6
Total Sub-Sectors	21,105	100.0	3,195	100.0
Share of SSI	6,330	30.0	640	20.0
Total of Manufacturing			11,293	(ca 5.6)

Province	Participation of Target Sub-Sectors in %		
	Number of Units	Industrial Employment	Manufacturing Production
Baluchistan	43 %	46 %	-
NWFP	49 %	30 %	-
Punjab	62 %	61 %	35 %
Sind	data not available during field work		

The comparison of the target industries' participation in the provinces' industrial employment shows, that they are perfectly qualified to contribute to the objective of industrializing less developed provinces.

- 3) SSI performance varies from one province to the other. This results from the production key-figures per manufacturing unit and per employee:

Province	Average Industrial Production (in Rs. of 1976)	
	per Unit	per Employee
Baluchistan	Rs 109,000	Rs 37,000
NWFP	Rs 44,000	Rs 10,400
Punjab	Rs 83,000	Rs 17,600
Sind	data not available during field work	

It has to be repeated, that the figures are not exact and incomplete. However, the evident trend to higher production per unit and per employee in more developed provinces may be considered realistic, although probably not in the range of the above figures.

- 4) The target sub-sectors' share in exports rose from 2.5 % in 1969/70, to 7.7 % in 1979/80 reflecting the growing contribution of manufactured goods in foreign sales. The importance of exports in the sub-sectors' production and their contribution to the target industries' exports are as follows:

Sub-Sector	Export Share in the Sub-Sectors' Production	Sub-Sectors' Share in Exports of all Target Industr.
Textile	33.7 %	63.6 %
Leather	7.8 %	26.1 %
Light Engineering	-	-
Surgical Instruments	63.5 %	4.1 %
Sports Goods	99.0 %	6.2 %
		<u>100.0 %</u>

1.) export figures could not be obtained

As to the Fifth Plan's projected export increase the foregoing figures suggest, that additional efforts in highly export oriented, though relatively small sub-sectors like sports goods and surgical instruments, are not likely to contribute substantially to this objective. However, with the exception of light engineering with its insufficient export standards, textiles and most of all leather and leather products have a considerable export potential. The fact that the export share in the total SSI leather output is of 7.8 % and accounts for 26.1 % of the leather industries' participation in the sub-sectors' total exports recommends to pay more attention to these sectors' modernization.

- 5) In Table 5.3 sub-sector figures are given for Punjab, because of their break-down into large, small and household manufacturers. Though the two different sources ¹⁾ quote different figures for the total number of manufacturing unit, i.e. from 40,828 (large, small and household units) and 45,486 (only small and household units), respectively, production ratios per company and employee show interesting trends:

Size of Unit	Average Industrial Production (in Rs of 1976)		
	per Unit	per Employee	Employees/Unit
Large manufacturers	Rs 3,160,000	Rs 234,000	14
Small manufacturers	Rs 87,000	Rs 18,000	5
Household units	Rs 55,000	Rs 13,400	4

Again, output figures in particular, confer only an incomplete picture of reality. However, in the present case, they give evidence of the tremendous difference between the unit output of large manufacturers and that of smaller units, while the unit output of small manufacturers compared with that of household units shows a much smaller variation. These two groups are fairly equal in their output per company and per employee as well as in their number of workers per unit. The productivity gap between large, mostly sufficiently mechanized factories, and small, mainly labour oriented units explains great deal of SSI problems. When identifying criteria for the definition of the various groups, it has to be questioned, whether a firm with 14 employees and a Rs 3.2 million yearly production should already be called "large".

¹⁾ Development Statistics of Punjab, SSI Census

5.3 Principal Characteristics and Prospects of Sub-Sectors

5.3.1 Textile Industry

The textile industry is the second most important manufacturing sub-sector after the agricultural raw material processing one. It is based predominantly on domestic raw materials, is highly labour intensive, requires relatively little divisible investments in the processing of yarn and fabrics, contributes to the satisfaction of basic needs and accounts for a considerable share of foreign exchange earnings. This report includes hosiery, garments, towels, canvas and the power loom sector. It is GOP's intention to verticalize the textile industry in order to reduce exports of raw cotton and yarn in favour of further finished products like woven fabrics, garments, etc. In view of these products' high value added (indigenous raw materials, high percentage of labour cost, possibility to use domestically manufactured machinery) the existing market potentials should be exploited to the greatest possible extent.

The domestic market for textile products seems to be saturated, due to a great number of regionally well distributed manufacturing units. Growth can only be expected at the dimension of population growth and also little impact from an increase of the low incomes. Such additional demand can easily be met by the existing production capacity. Product design and production technology are considered to satisfy domestic demand standards. The potential for increasing exports appears more promising. An expansion of foreign sales is expected for:

Hosiery	100 %
Garments	1,000 % ¹⁾
Towels	200 %
Canvas	250 %
Power-Loom	100 %

given an effective restructuring of the sub-sector (see recommendations).

5.3.2 Leather and Leather Products

The leather sector is divided into leather production (tanning), footwear, and other leather products (garments, bags, etc.). Similar to the textile industry, domestic raw materials of high international demand are utilized. However, on account of necessary imports of specific machinery and chemicals, and due to a lower participation of labour in the production cost, the sector's value added situation is a little less favourable than that of textiles. If new plants with a more efficient production lay-out and equipment were established, and/or existing units grouped into cooperatives, the leather sector could certainly increase its already significant contribution to GNP and foreign earnings. Here again, verticalization and thus improvement of the sector's actual value added ratio, will have to be envisaged by development efforts. It is expected, that with improving processing technology, more careful selection of raw materials, and the utilization of high quality chemicals, the leather industry may double its exports.

1) Garments making is not a traditional industry in Pakistan. The first companies were set up in the early seventies and made remarkable progress. With the raw material at hand, low labor cost, and phasing out of industrialised countries due to high labor cost it is expected that the Pakistan Garments industry will multiply its export sales by 10 times over a period of 5 years.

Table 5.3: STRUCTURE ANALYSIS of SUB-SECTORS in PUNJAB (Figures of 1975/76 and 1976/77)

Size of Unit	Footwear Goods			Leather & Leather Goods			Textile Goods			Light Engineering			Total Production of Punjab Manufact.					
	No. of units + employ.	Production		No. of units + employ.	Production		Value added %	No. of units + employ.	Production		Value added %	No. of units + employ.	Production		Value added %	No. of units	million Rs.	
		million Rs.	%		million Rs.	%			million Rs.	%			million Rs.	%				
1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2					
Large Manufacturers	16 2,000	40.0	32	55	30 2,000	404.0	79	24	428 125,000	4,230.0	74	33	519 20,000	1,003.0	40	36	1,795 24,300	5,677.0
Small Manufacturers	391 3,350	55.4	45	8	1,718 5,657	94.9	18	37	8,548 36,616	1,216.8	21	35	6,280 37,432	1,480.8	58	33	32,741 158,546	2,848.9
Household Units	338 2,325	30.0	23	41	290 917	13.0	3	35	3,072 12,133	274.8	5	36	498 3,243	30.7	2	49	26,096	348.5
Total	745 7,675	126.4	100		2,038 8,574	511.9	100		12,248 162,823	5,721.6	100		7,297 60,675	2,514.5	100		40,828 208,942	8,874.4
												Units	Production in Rs.	Employment				
Punjab Total												(1) Large Manufacturers	1,795	16,052	24,300			
Manufacturers												(2) Small Manufacturers	32,741	6,753	158,546			
Industries												(3) Households	6,292	420	26,096			
(Data of Punjab Development Statistics)													40,828	23,225	208,942			
(Data of Punjab SSI-Census (2 + 3))													45,486	7,841	212,696			

With the exception of less than five bigger factories, shoe production lies in the hands of cottage units. Their productivity must increase, if exports of footwear are aspired. At the moment, a fairly low share of the leather and leather goods production is sold outside the country (7.8 %), contributing, however, with 26.1 % to the target sub-sectors' total exports.

5.3.3 Light Engineering

For the time being, Pakistan has to import iron and steel. With the Karachi Steel Mill opening in 1981 and later expected down-stream activities, the raw material supply might become less expensive. Apart from this, light engineering is of great importance to the national economy. In the range of medium technology products it can contribute to import substitution efforts. Another field of this sector's activities lies in the intended mechanization of agriculture. As agricultural production and development of rural areas are a high ranking objective of the current development plan, light engineering acquires crucial importance as vehicle to implement this new policy. Therefore, the sub-sector will not only need more effective production facilities, mainly in technologically advanced industrial regions, but also a widely spread network of maintenance and repair units.

In the light of the country's balance of payments situation, its energy balance and the need to import ferrous raw materials, the prospects of other light engineering products appear less favourable. Diesel engines are produced with an enormous input of raw material. Electric motors, due to their outdated design and technology, are by far less efficient than imported products. The same applies to pumps. In these three fields, great efforts will have to be made in order to achieve reasonable products for the national market. Their export potential will probably be restricted to Arab and African countries, with strong competition from Asian producers with partly own raw material resources.

5.3.4 Surgical Instruments and Cutlery

This sector, too, relies totally on imported materials. It is traditionally export oriented and has a long tradition in foreign markets. Growing competition from other Asian countries, however, together with stagnant product design and production technology, endanger Pakistan's position in the markets of industrialized countries. Without improvements in productivity and development towards the standards of more sophisticated products groups, the sub-sector will hardly be able to fight the comparative advantages of Indian and Chinese competitors, who work with modern, partly mass production technologies, utilize domestic raw materials and enjoy more effective export incentives, and its general growth potential is considered to be modest. In order to survive, the mainly Sialkot located sub-sector, besides diversifying into neighbouring product lines, should aim at further concentration.

5.3.5 Sports Goods Industries

This small sub-sector is in a similar position as surgical instruments. Located in practically one city (Sialkot), it depends totally on exports, where it has achieved good reputation in low price range products. Increasing quality consciousness on the side of the customer, however, resulted in an increased share of imported material in the product cost calculation. Furthermore, the sector will face strong competition from other low cost countries in that very broad range of technologically different products manufactured with a great variety of raw materials and production processes by a huge number of units (over 400 firms manufacture Rs 200 million worth of goods).

6. RECOMMENDATIONS

6.1 General Considerations

Pakistan's SSI sector with more than 2 million workers has the advantage that its need for development is generally recognized. Furthermore, most of the classic incentives and institutions for SSI promotion have existed in the country for years. The objective to improve the small manufacturers' environment and the availability of the necessary legal, institutional, labour, and financial resources are vital components by the pursuance in SSI policy. Now it is required to survey the achieved results, to design a development concept which is suitable to contribute to both overall socio-economic and SSI specific objectives, and finally to elaborate and implement the operational strategy for further SSI promotion. Basically, the availability of the instrumental framework represents an advantage, though there is a risk to maintain existing structures and traditional procedures. Sometimes a new beginning can be easier.

Before focussing on specific aspects of SSI policy improvements, the most important recommendation shall be introduced. The desired broad development of the manufacturing sector should be tackled with a comprehensive "systems" approach. Each industry turns up with hundreds of problems in various problem areas, and for each deficiency one or more recommendations could be made. Moreover, almost all problems being linked, isolated therapies will have little effect on the patient's overall condition. Finally, it is only normal that only a modest part of all small entrepreneurs can be reached by development measures (less than 2 % in Punjab). In the light of these arguments, promotional activities and incentives should be designed in a way that they contribute to improve the general SSI business environment. Specific instruments should always be applied within an integrated concept, and not only serve the individual beneficiary but produce multiplier effects. A systematic approach, however, requires the agreement on common goals and policies by all parties concerned. Therefore, it is proposed to create a National SSI Development Committee, representing all provincial and national SSI institutions as well as SSI lending institutions and representatives from private sector. The committee should work in close co-operation with the Ministry of Industry of the Federal Government. This preliminarily consultive body should be composed of competent representatives of the Government, lending institutions, employers associations and trade unions. Alone, the government will never be in the position to really understand the entrepreneur's problems and aspirations, bank officials not be able to seize the industrialists' risk attitude, and trade union leaders always over-estimate business profit potentials. On the other hand, the individual entrepreneur is little informed about macro-economic and social implications of Government policies, he is not aware of credit sanctioning procedures, and often under-estimates productivity stimulating effects of better physical working conditions and participation schemes. Sub-sector interviews led to the impression that there is a basic industrial structure and that principal SSI development instruments are applied. So, if later described recommendations are not be restricted to insignificant and isolated efforts, an overall development concept will have to be identified, to be elaborated and implemented simultaneously by all parties involved. Such procedure promises to generate more direct and spin-off effects than all other "hardware", "software" and financial development instruments together, although it will require considerable Government funds.

Besides this more general approach towards an improvement of investment climate and working conditions for the small industrialist, the production factor oriented recommenda-

tions (technology, raw material, labour and management, production, marketing, and finance) can be grouped in one of the three traditional development instruments:

- "hardware" (industrial estates, common facilities)
- "software" (extension and advisory services, training)
- finance (direct and indirect loans for fixed investments and working capital requirements).

Usually, finance and hardware receive preferential treatment by SSI development authorities. While it is relatively uncomplicated to set up industrial estates and common facility buildings, the creation of an effective advisory body turns out to be far more cumbersome and less public relation oriented. The same applies to financing, no matter whether the money has been used properly and productively or not. Though extension services are generally the least expensive in a development organization's budget, advisory services as well as management and vocational training are commonly neglected. It should be realized, that entrepreneurship stands for "coordination of production factors", and, therefore, qualifies predominantly as intellectual. Physical installations and finance, though necessary, are not decisive production factors. If the industrialist has not sufficient knowledge of administration, production technology and marketing, industrial estate facilities and loans will turn out to be unproductive investments of scarce public funds. In the light of this development policy interpretation, the promotion of financial dispoñibility and organizational efforts in favour of software services is strongly recommended.

SSI promotion has to be analysed under structural, sectoral, and regional aspects. Sectoral considerations are unnecessary, as the study's terms of reference indicate the 5 promotable sub-sectors. The structural aspect of the recommended development strategy should receive greatest attention. It has already been mentioned that in all five sub-sectors an exaggerated number of units shares a fairly limited market. In the surgical instruments and sports goods industries, more than 400 units account for a total production of about US \$ 20 million. This turnover is usually materialized by one sole medium sized manufacturer of these industries in Europe or the United States. The European countries have a smaller total number of production units than Sialkot hosts in the above two sub-sectors. Thus, it is only logical that but a marginal number can enjoy industrial estates, common facilities and extension services. As a consequence of the target sub-sectors' fragmental industrial structure criteria must be established for screening and selecting promotable companies. This will have a two-fold result:

It is understood that the most promising, dynamic and well managed units will receive more incentives, whereby a proper utilization of development funds and extension services will be guaranteed. Extension Service however has to be provided to the less developed companies as well in order to develop these industries to a higher standard and enable progressive entrepreneurs to change from the traditional to the modern sector of industry. A selection of companies for extension service would be done in accordance to the acceptance of advisory services and promotional aspects. A strictly specified development will gradually reduce the exorbitant number of independent companies, favour specialization, diminish competition and prepare a market for sub-contracting activities. There is no reasonable argument against a selective approach of development activities. A great part of the problems stated below can be solved by reducing the number of unproductively coexisting companies. The argument, that job opportunities will be destroyed is only correct in the short run. At least 90% of the SSI companies must shortly improve their efficiency, especially in the export field; otherwise substantial losses of market shares will destroy even

more work places. The growth potential mentioned for textile, leather and light engineering requires relatively bigger, financially stronger and better managed factories than those actually available. A concentrated development strategy with restructuring effects will contribute to improve Pakistan's internal and export competitiveness. Concentration under structural aspects does not automatically mean regional concentration as well. On the contrary, in view of both, production costs and socio-economic criteria, the development of decentralized industrial concentrations, in the sense of the auto-centred regional development theory, may ensure a higher economic use of locally available production factors as well as a more adequate supply, in quality and quantity of urban and rural markets. It is suggested to promote careful studies for industrial locations outside the traditional agglomerations in Karachi and Lahore in order to achieve a more balanced regional structure of SSI throughout the country.

Frequency and timing of promotional instruments are another aspect to be considered when designing a comprehensive development model for a great number of sub-sectors and for a whole country. Certain incentives come into play only once, mostly during the set-up of the company. The greater part, in particular software activities, are required at any time of the companies' life. Pre-operational advisory services are eventually transformed into permanent extension services, such as consultancy for product and production technology, bookkeeping, marketing, organization, etc. While it was recommended to not increase the number of units per sector, the greater part of promotional efforts should be directed towards the modernization and expansion of existing companies. Even when an already operating firm is expanding, pre-operational services for new product lines (market studies, etc.) can become necessary.

Finally, cost intensity of promotional efforts has to be considered. As budgetary means are always rather limited, even when complemented by foreign aid financing, alternative uses will have to be studied. Investments into industrial estates and common facilities require substantial capital and freeze a good part of future budgets for complementary investments. Furthermore, the financing of SSI units also absorbs large funds (95 % of Pakistan's actual SSI development expenditure). Software activities require the least funds; they are fairly flexible, but require highly experienced, qualified and motivated personnel. Preference should be given to indirect promotion efforts. Investments into institutional infrastructure, training facilities, advisory services, etc. can be provided to a considerably larger group of entrepreneurs than direct loan financing, location in industrial estates and common facilities services.

It must be stressed again, that a systematic SSI development policy calls for a balanced application of funds in all instrumental fields. Individual measures have to be tuned and should follow an integrated promotional concept. Before discussing more pragmatic and functionally grouped sub-sector recommendations, basic development recommendations shall be repeated:

- The existing industrial structure, applied incentives and the institutional SSI development framework require an integrated promotion concept to be elaborated and implemented by a National SSI Development Board.

- Out of the three basic development instruments (hardware, software, finance) increased attention should be paid to personnel intensive extension-services, thus increasing the productivity of SSI loans and funds invested into industrial estates.
- Under structural and regional development aspects, preference should be given to a selective, concentrated and regionally decentralized approach, utilizing locally available resources. Expansion of existing units should be preferred to setting up of new companies.
- Emphasis should be placed on free-of-charge extension-services to promising dynamic well run factories of a productive minimum size and in expanding product lines.
- More funds should be directed into the improvement of indirect promotion instruments (training, common facilities, etc.) in order to reach a greater number of small enterprises.
- Regional industrial decentralization should be achieved through shifting the manufacturing growth potential, not existing productive capacities, to less developed regions, especially to NWFP.

6.2 Representative Sub-Sector Problem Structure

Three different problem categories have to be distinguished. Firstly, general structural, sectoral and regional macro-economic problems, including deficiencies of SSI development policy. Secondly, 5 important functional problem fields, applicable to all target sub-sectors (marketing, production and technology, manpower, raw materials, and finance). Thirdly, specific sub-sector related structural and functional problems (i.e. certain operational minimum-sizes for industrial production units, etc.). As there exist various approaches to group and characterize these different types of problems, the report's objective suggests to separate general impediments from functional and specific sub-sector constraints. Main emphasis will be put on generally observed functional problems, as they are representative for all sub-sectors. Recommendations will be structured in the same way.

The basic problem of Pakistan's SSI is its structural composition of thousands of sub-sized production units in almost all manufacturing sub-sectors. The greatest part of functional deficiencies observed in the enterprises interviewed stem from throat-cut competition in locally overcrowded markets. The consequence of this highly critical situation is the classic chain-reaction of little specialization and standardization, insufficient sale volumes, over-capacity in production facilities and manpower, absence of research and technological improvements, lacking potential for profit generation, capital build-up and bank financing, deficient funds for financing of market and physical expansion, etc. Besides the exorbitant number of manufacturing units per sub-sector there is a strong and sometimes peculiar regional concentration of the factories. Very often, manufacturers of identical products gather in the same street and thus aggravate the mentioned suicidal competition. The city of Daska (Punjab) is an extreme example, where all traditional diesel engine producers have settled, while products are needed all over the country. As a third characteristic, SSI units, instead of trying

to avoid competition by diversification in design, technology or product quality, strongly tend to copy as precisely as possible their neighbour's product.

Which are the reasons for the highly pulverized industrial structure, the units' regional and local concentration and lacking diversification and specialization? Pakistan's entrepreneurial class is traditionally speculation oriented, due to its economic history. Agricultural and commercial enterprises are as a rule family businesses with modest administrative, technological and organizational requirements. Capital and man-power are the main assets. This is different with industrial enterprises. Their success depends on prerequisites like long term planning, the application of adequate technologies, understanding of relationships between sales, raw material, labour and capital markets, and a new business philosophy. A further aspect is the production side of the two mentioned types of enterprises: similarities and differences between *craftmanship and manufacturing entrepreneurship*. Handicraft units are practically one man enterprises with simple, though specialized helpers. Traditional products are manufactured with simple production techniques, mostly for a local market. Job orders reduce market and financial risks. Industrial manufacturers, on the other hand, produce properly developed products in a larger scale for a basically anonymous market. On account of a longer turn-over period of their working capital, they require more liquidity than the cottage or household industries. Finally, a rather curious phenomenon contributes to Pakistan's SSI problematic. This is the strong family orientation combined with an exceptional technical ability of the ordinary worker. Both facts, though basically positive characteristics of a society, have negative impacts on the country's industrial structure. On account of their technical competence, the workers believe themselves able to become independent entrepreneurs. Their families provide necessary starting funds. This way, thousands of small industries (described as household, cottage or small industrial units) have been set up. In accordance with the agro-patriarchal family structure, family members have a basic right to a job in the business. Therefore the typical SSI unit is faced with two major constraints regarding productivity and expansion. In the first place, the obligation to give preference to family members, impairs the choice of labour, in particular for managing functions. The second constraint develops as follows: While the technical skill of the business founder leads as a rule to quick results - a current experience in the informal sector - it soon reaches its natural growth limit. The small industrialist hardly realizes, that he needs a completely different approach to expand his cottage unit into a proper industrial establishment. He ignores the crucial importance of management, marketing and finance considering technical abilities the main prerequisites for an industrial enterprise, too. (If, by chance, the entrepreneur realizes the need for administrative or marketing expertise, the constraint, to first employ family members makes the choice of adequate personnel rather difficult.)

How can SSI specific problems be tackled? As the majority of functional problems stem from the above mentioned structural characteristics, a comprehensive long term approach of SSI development policy is needed. Instead of trying to cure isolated symptoms, and to thereby solve individual difficulties, strategic changes of the industrial behaviour pattern should be focussed on. This concept may be little publicity effective, yet it promises to solve the problem at its root.

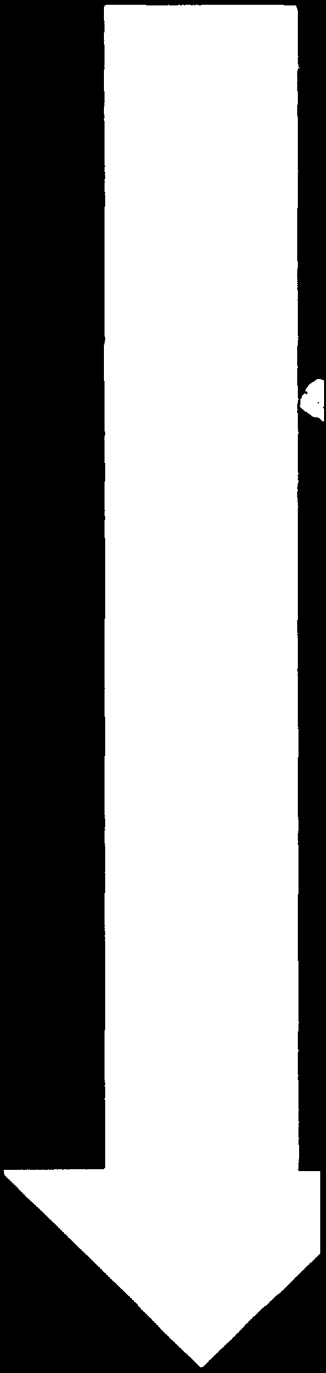
Besides this more conceptual aspect of Pakistan's SSI problems, specific functional deficiencies may enlighten the day-to-day difficulties of the small entrepreneur. It is obvious,

that he sees such problems with respect to the support he expects from the Government. As sub-sector specific problems are listed in detail in the individual sub-sector studies, they will here be dealt with in a more systematic and less descriptive way:

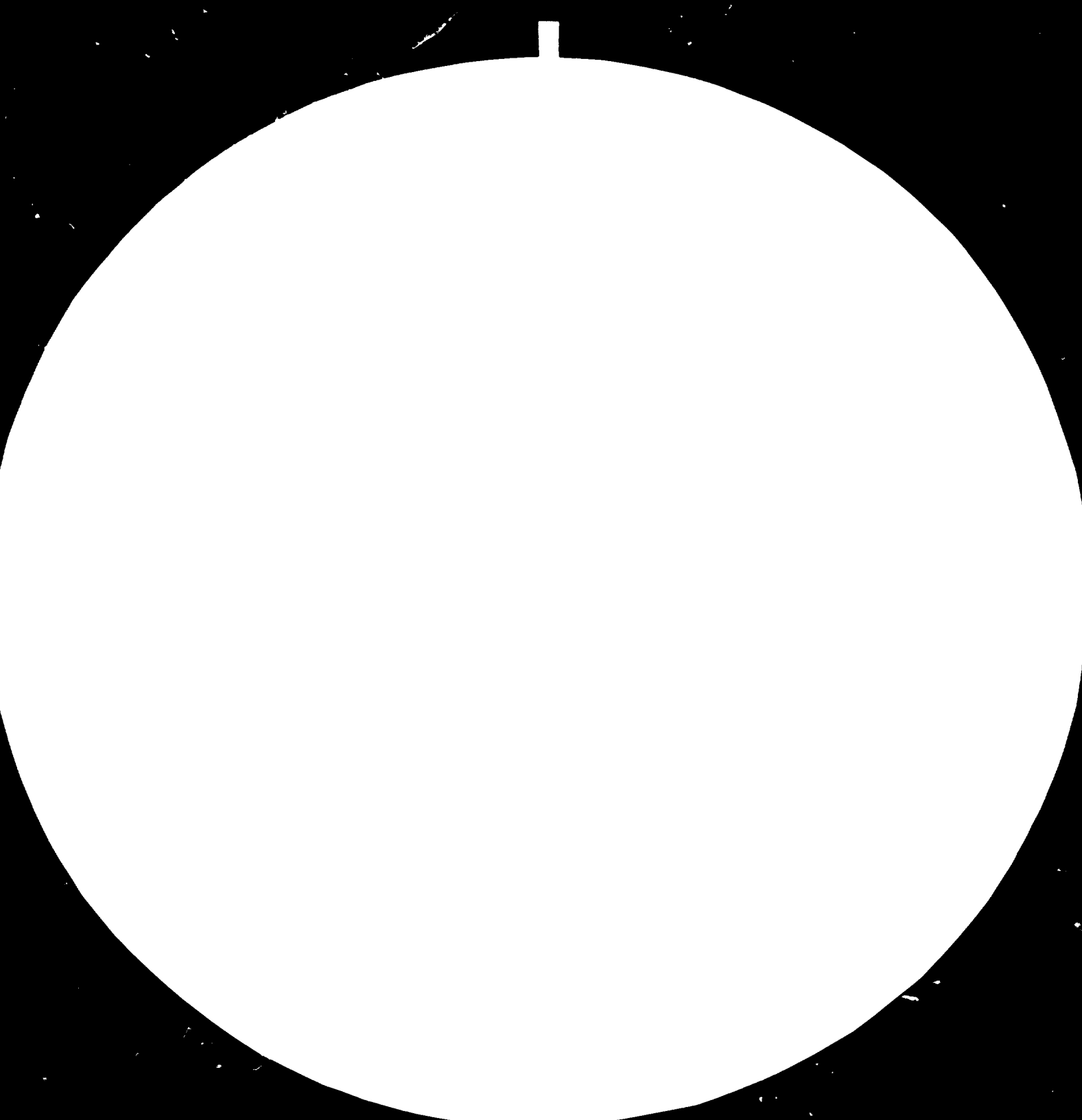
Problems with Product Marketing

The typical SSI unit of the target sub-sectors is principally production, and not market oriented. This means that the entrepreneur starts with a product which he thinks he is technically able to produce and then tries to place it in a not specifically defined market. A market oriented approach would begin on the other end, i.e. it has first to be found out which type of product is continuously demanded, its quality, competitive situation and location. Then it has to be examined whether at the given technical skill and managerial talent this good can be produced at a certain unit cost. If these considerations were taken before setting up an industrial unit (either by the entrepreneur or the Small Industries Corporation) the greatest part of the existing mini-factories would not exist. Most of the pragmatic problems arise from this basically failing business orientation. The mostly heard complaints concern:

- The non mono-structured units generally produce a wide, unbalanced and/or inconsistent product mix at uneconomic scales. The lack of liquidity, commercial abilities and innovative talent result in a cash transaction oriented production, mostly on job order basis.
- Strong local competition of uniform, but not standardized products reduces the factories' "competitive differential" to almost zero. Therefore, legally and economically independent companies produce under market aspects like isolated production cells of a big firm, without, however, enjoying the cost advantages of mass production.
- Price policy is not based on cost accounting and proper cost calculation (including fixed costs and overheads), but rather on the prevailing market prices. Due to almost perfect competition (a great number of locally concentrated producers offer uniform products to a great number of customers) these prices oscillate around the companies' subsistence level. Costs not representing expenditures (entrepreneur's own salary, depreciation, etc.) generally do not enter into price calculation, thus reducing the potential for self financing through profit generation.
- Marketing is generally confused with sales. Even though, the basically agile small industrialist showed but little aggressive and systematic salesmanship. The typical marketing policies such as product differentiation, development of product families with standardized components, qualitative and imagewise distinction for different customer classes, regional differentiation of product quality, appearance and price, etc. are generally not applied, mostly due to lacking know-how and strong traditionalism.
- Pakistan's commercial structure impairs proper and economic logistical operating. The existing network of wholesalers does not sufficiently cover the territorial market. After-sales service for and maintenance of technical products (mainly in light engineering) is poorly developed. In cases where dealers are engaged, production profits are diminished by the resulting high sales costs.



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Resolution Test Chart
1.0 1.1 1.25 1.4 1.5 1.6 1.75 2.0 2.2 2.5 2.8

However, in view of the companies' weak liquidity situation and their exorbitant number, the dealers are in a privileged position. A structurally and regionally balanced distribution network would contribute significantly to a more sophisticated product standard and render more profitable SSI operations. In this context, the Government is expected to set up trading companies or promotional bodies for the national market (comparable to the Export Promotion Bureau for the export market).

- The lack of specialization is less of a production problem, than of a marketing one. As a consequence of the prevailing job order orientation and limited working capital, the typical industrial mass production process cannot develop. Without producing reasonable series, however, neither research and development nor cost reducing manufacturing technologies (economies of scale) can be afforded. Therefore, specialization in product mix (with respect to markets as well as product groups), production techniques, machinery and manpower is an absolute prerequisite for promoting a SSI company. This fact should be considered when selecting promotable entrepreneurs.
- Due to lacking standardization and as a consequence of poorly developed personal contacts between clients and producer, the delivered products' quality is frequently objected to. Farmers, e.g. complain about an inferior quality of many agricultural implements. However, there is only little feed-back and hardly a possibility to pursue an unserious producer. A better organized commercial structure, improved product standardization, increased penetration of product brand names, etc. will contribute to detect the manufacturers' direct product responsibility and thus eliminate anonymous products from the market. Unpunctual delivery and differences between the quality of order samples and final consignments are problems arising from lacking standardization and product image.
- There are different marketing and technological requirements for locally sold products on the one hand and for export goods, on the other. While products for the domestic market, especially basic need goods (textiles, footwear, household goods, etc.), should be simple and practical, of durable quality and cheap, this does not apply to products which have to compete on international, mostly more sophisticated markets. It is, however, not only the product quality, design and price that have to be adapted to international standards, but also the commercial attitude, customer service and general public relation efforts for market penetration and image build-up of the products.

Technology and Production

Pakistan's industrial take-off started only a few decades ago. The country's economy is still agriculture and service oriented. Industrial enterprises of mainly artisan origin, find themselves in the first or second owner generation. Entrepreneurial potential in the sense of readiness to planned risk taking and organized multifunctional management is still the exception in SSI. As a consequence, there is little understanding for strategic company development involving long term product planning, product and production technology development, and improvement of the so-called non-productive entrepreneurial functions (administration, labour relation, etc.). However, there are impressive resources of technical skills at artisan level and of a basically industrious population. This is proven by its internationally employed labour force. Now, product design, quality standards and processing techniques will have to

be developed from the traditional craftsman's level to simple and adapted industrial technologies. Actually, most of the target sub-sectors, especially the export oriented surgical instruments and sports goods, are at the stage of transition from simple, unorganized production methods to international basic standards of products and production processes. The basic potential being available, it will be a question of how this objective will be approached, in what time span and to what extent SSI product and production technology will have been upgraded to the required level. Though the technical problems vary greatly from one target sub-sector to the other, the main difficulties can be listed as follows:

- Most of the target sub-sector products are characterized by an outdated material intensive design. For a country with limited resources of mineral raw materials (specifically for diesel engines, surgical instruments and sports goods) this fact contributes to the relatively high prices of manufactured goods. Products of the light engineering sector are furthermore highly energy consuming, mainly due to their heavy and not very functional construction. Thus, certain domestic capital goods may become more expensive for the user, though they might be for sale at lower prices. The non-economic design is often accompanied by low material and functional quality of the product, thus contributing to the product's eventually short life time.
- Production technology often qualifies as principally artisan, and poor factory lay-out hampers an efficient work flow. Non-standardized material handling and machining techniques induce frequent interruptions of the work process. Insufficient preparation of the production flow leads to an uncoordinated use of machinery and labour, a fact which is not so strongly felt by the entrepreneurs because of the high idle capacity. With understandable pride the visitor was shown difficult sample pieces, which were claimed to be up to international standards. Even if this were the case, it is mostly forgotten that in industrial activities it is not only a certain product with a given quality that counts, but also its production time and cost. To an artisan, this cost oriented industrial way of thinking is strange if not immoral.
- With the exception of most of the units located in industrial estates and some bigger sized factories, factory buildings and working conditions are inadequate or obsolete. There is no proper space for the storage of raw materials and finished products. Sanitary facilities are poor and offices inconveniently located and not well equipped. Small units are frequently squeezed in between residential houses, contributing to general pollution in urban areas. Working conditions are unhealthy and impair productive work. Main problems are poor lighting, scarce ventilation and difficulties with energy, water and sewerage. Though there exist minimum working standards, public control is sporadic and inefficient.
- The state of machinery and equipment is mostly inadequate, due to lacking funds for modernization. As depreciation equivalents are not reinvested as a consequence of inadequate calculation methods and pursuant lack of liquidity, machinery has to be used, that even if carefully maintained, loses in precision and general performance level after at least five years. Machinery is bought under the aspect of serving all kinds of purposes.

In view of the mentioned poor specialization and unpredictable demand the entrepreneur's machine park must be modernized and balanced. Machines and tools used in the production process are often inadequate resulting in increased equipment wear and unsatisfactory products. With more specialized equipment, work could be done quicker, with more precision, less waste and reduced energy and labour cost. This, however, calls for higher specialization, more product standardization and finally for an industrial approach in the marketing field.

- The high verticalization of manufacturing steps requires over all skilled workers. So far, difficult performances are carried out with the same material and work attitude as are simple jobs. Multi-purpose machinery cannot ensure the required quality of complicated parts, that the products are frequently of unsatisfactory standard. Specific technology applied in transformation processes (foundry, heat-treatment, bleaching of textiles and tanning with proper chemical mixtures) is traditional and does not allow for quality products and economic manufacturing processes. Apart from lacking knowledge of more sophisticated techniques, it is frequent conservatism attitude that impairs the introduction of more advanced technologies.
- Almost no testing equipment for quality control and little understanding for the necessity of quality control were found with the SSI entrepreneur. However, export oriented producers are aware of their sale potentials' lacking international standards due to insufficient standardization and quality control. Central testing equipment facilities and the introduction of certificates on quality and origin are suggested by progressive entrepreneurs.

Raw Material Supply

The target sub-sectors have to be distinguished according to the origin of their raw material inputs. Leather and textile are based on domestic agriculture based materials sports goods are based on local material and to an lower extend on imports, while light engineering, surgical instruments depend heavily on imported inputs. Apart from the fact that the individual sub-sectors are of different importance under macro-economic aspects, indigenous and imported raw materials differ as to their availability, cost and quality. The market for imported materials (including production goods and machinery) is generally better organized than that for domestic inputs. The main problems observed in raw material supply are:

- Domestic textile and leather raw material supply is subject to frequent price fluctuations (not only due to weather and crop conditions), unsteady provision with respect to desired quantities and substantial quality variation. This impairs a steady quality level of finished goods as well as cost intensive stock holding and increases the dependence on speculation inspired daily commodity prices. With raw materials in the metal working sub-sectors, high prices, partly due to exaggerated commissions of import houses, represent a greater problem to the supply of the respective raw materials than their availability or quality.
- Almost all units lack testing equipment for sporadic or systematic quality control of input materials. Besides outdated production techniques and lacking standardization, this is

the main reason for the insufficient and unstable quality of finished goods. Especially the delicate components and the differences in raw material contribute to high deviation in the products' quality and durability.

- The material intensive production technology in some sub-sectors contributes to high production costs. New product designs and more sophisticated machinery and production techniques should be able to reduce material costs considerably.
- Besides exaggerated profit margins of raw material dealers, cost increasing effects of import duties are criticised. While new SSI specific import regulations combined with regional incentives have already alleviated import constraints with respect to machinery and equipment, the necessity for imports of raw materials and other production components, even in the export oriented manufacturing sector reduces Pakistani goods' competitiveness and increases prices on the domestic market.

Manpower and Management

Manpower is sufficiently available and at relatively low cost. Professional skill and labour productivity, however, are scarce in small industrial units. The constant exodus of skilled and motivated workers to foreign countries with better job opportunities results in a lack of experienced efficient manpower in the manufacturing sector. The local workers' technical talent and positive attitude towards regular work are not sufficient to develop Pakistan's SSI production from its actual artisan level to more sophisticated and industrially organized working techniques without a comprehensive plan for Government supported long term manpower training. This overall labour development strategy has to be completed by compulsory inplant training programmes in order to reach a maximum of the active population. As compared with other developing countries Pakistani labour benefits are relatively high since the beginning seventies. However, not all benefits from the global social security plan are as yet applicable in SSI. The cost structure in most of the target sub-sector units does not allow for social security and old age benefit payments without jeopardizing the company's existence. New, more pragmatic schemes will have to be developed in cooperation of all parties involved in order to create a minimum protection for the worker. This policy will have to be coordinated with efforts to increase productivity and general work moral. Besides frequently unacceptable working conditions, the following deficiencies were observed in target sub-sector units visited:

- Independent of qualification, there is a generally high labour fluctuation in the greater part of SSI companies. Only some well managed firms with better work places and on account of a more delicate labour policy make an exception.
- A great number of firms operate with a small part of fixed employed workers and with a varying potential of so-called contract workers. Apart from flexibility reasons this is a consequence of the Factory Act regulation covering manufacturing units with ten and more employees. Smaller firms enjoy administrative, fiscal and other privileges. The regulation which led to a maximization of minute power loom sector units also accounts for the unstable employment situation.

- Despite the workers' exceptional technical talent and work motivation, their productivity is generally low. Scarce equipment, outdated machinery and lacking coordination of the work flow are in part responsible for this situation. The major reason, however, lies in the lack of vocational training and poor technical know-how. Professional skills are mainly acquired by on-the-job training. Theoretical and systematic education in the various trades are exceptional. Only about 10,000 trainees per year follow the complete training system for industrial professions.
- Unhealthy and unproductive working conditions (partly against the law) were found even in larger firms of the SSI sector. Children's work is tolerated in all sub-sectors, hidden by the contract worker scheme at piece rate remuneration. It would be unrealistic to expect children's work to disappear in the near future. Specific working conditions and minimum training should be aimed at for this segment of labour force. This recommendation takes also account of economic and social implications of better working conditions as well.
- However, Government activities in the fields of labour legislation and more extensive training facilities cannot be expected to give the decisive impulse for increased labour productivity. It is rather the entrepreneurs' attitude vis-a-vis their employees that will mainly account for reducing fluctuation and improving manpower productivity. Labour related development concepts should, therefore, include training programmes for small industrialists to inform them on the decisive role of work relationships in the factory. This approach will be easier applicable in bigger units. Only in factories of a given minimum size (i.e. above 30 employees) a properly organized labour representation will be in a position to negotiate on improvable working conditions, because a company's position in the market and its industrial, administrative and financial organization become less flexible with its growth. Higher productivity leads to higher profits and wages (as was found with properly run units) and initiates a process of socio-economic improvements.
- As long as compulsory inplant training system is not legally binding, SSI entrepreneurs cannot be expected to send qualified young men to training courses. Graduates of these courses tend to leave their prior work place in order to work with big companies or the Government and if they don't, they will demand above average remuneration and might cause psychological problems should they have become technically more qualified than their entrepreneur. This problem is less important in the larger units.

Capital Stock and Loan Financing

The capital function of industrial enterprises has always been overemphasized. This might be explained by the country's predominant agricultural and commercial background. In industry, especially when it develops from the artisan level into properly organized industrial mass production for anonymous markets, management and organization are of greater importance than the availability of investment capital. Actually, the criteria for the selection of entrepreneurs to be SIC sponsored, as well as the applied sanctioning procedure the banks' creditworthiness concept favour the applicant who has the required equity, instead of going by his entrepreneurial ability. Another deficiency of the current SSI financing scheme is

its passive approach. SICs and banks wait for the applicant to take the initiative. As not even 2 % of the Pakistan's SSI units are provided with bank financing, it has to be questioned whether SICs and banks should not be advised to carefully select candidates with dynamic entrepreneurial concepts in not yet overcrowded sectoral and regional markets. This argument should not suggest equity to be unimportant for starting or expanding a business. It is just less important than the owner's management skill. There are certain forms of financing, like investment funds for migrant workers' remittances, controlled equity financing models, etc., which could serve to compensate an eventual lack of starting equity for a talented entrepreneur. More decisive than the amount of initial capital is the profit generating potential of the business which entirely depends on a company's management. Besides these basic problems, some other shortcomings were observed with the target sub-sector units interviewed:

- In many cases, fixed assets exceeded the annual production volume. This is indicative of chronic overcapacities but also of a highly investment oriented business approach. Although non-expenditure costs frequently do not enter into the price calculation, business results are as a rule very poor in relation to capital investment and number of employees. Common facilities would relieve entrepreneurs from heavy investments in overdimensioned buildings and special machinery that is not in continuous use.
- Company owners are generally production oriented and have insufficient entrepreneurial know-how. As only a few maintain relations with SICs and banks, most of them may be assumed to set up their business without consulting experienced professionals. Thus, investment budget planning is mainly oriented at expected capital needs for fixed assets. These are, usually underestimated, a fact which is only realized once the investment is accomplished. As a consequence, funds reserved for working capital purposes have to be diverted for the payment of fixed assets, leaving the business without the necessary means for raw material purchases, salary payments and marketing expenditures. Thus, the business starts behind schedule, financial improvisation becomes the rule and a strategic planning of company growth will be impossible and superfluous. On account of its poor financial ratios the firm does not qualify for loans and credits, and its marginal profit generation potential condemns it to stay smaller than originally planned. Resignation combined with frequently lacking funds reduce the initially projected business volume to day-to-day cash transactions on job order basis. A great number of SSI units have made the above described experience. Structural concentration and increased facilities for pre-operational advisory services (indicating the risks of starting a business) will contribute to reducing the number of inadequately started and conducted SSI units.
- Most entrepreneurs ignore the difference between fixed assets and working capital, costs and expenses, and between economic and liquidity aspects of finance. Cash operations are, therefore, the preferred transaction. Dispersal of the industrial structure leads to a passive marketing approach, making management by objectives (market, production, finance) impossible and unnecessary. This lack of managerial knowledge explains the frequently met attitude of not wanting to expand the enterprise's size. This somewhat refractory reaction reflects the entrepreneur's helplessness with respect to the numerous difficulties of any kind, marketing, technical and administrative. Their insistence on

on traditional production techniques and outdated "business concepts" should, thus, also be seen under psychological criteria. A training programme for adequate management techniques, offered to a number of dynamic entrepreneurs should contribute to improve the pessimism prevailing in SSI companies.

- Loans and credits available to SSI are commonly considered insufficient. In the light of the actual division of work between SICs and the lending institutions and SSI loans lacking appeal for the banking sector the problem cannot be expected to be solved.
- SICs should be convinced of their predominantly service oriented development function. As long as they consider themselves destined to conduct SSI loan operations, they ignore their true function within an integrated SSI development concept. The Corporation should attempt to advise a maximum of SSI companies that intend to approach the banks so as to be engaged to the greatest possible extent in SSI lending without having to build up an individual banking structure. If revenues from loan activities are the main reason for planning the set-up of a specific SSI bank, SICs could participate with a servicing fee in the banks' interest revenues from SIC service units. Commercial and development banks should receive a higher share for their activities. SSI lending involves more intensive sanctioning procedures, more time and, consequently, higher costs and sometimes higher risks than other bank activities. These additional efforts should be compensated by higher gross earnings.
- Regional disparities in loan financing are heavily criticized. The fact that all bank headquarters are located in Karachi and that even small credits have to be approved by them, contributes to delays of lending applications. This problem could be solved by delegating more responsibility to regional bank representations. The claim of Lahore's Chamber of Commerce, to shift at least one bank's headquarter to Punjab is not likely to solve the problem quickly. Another claim from Punjab and NWFP, i.e. that regional savings and insurance premiums should be invested in regional projects and not be diverted to other provinces, should be given serious consideration.
- Sometimes development loans are feared to be misused for the applicant's private purposes. This is surely very rare. However, a scheme should be studied, by which an applicant who intends to finance machinery by means of a credit, would receive the machine instead of the money. In such cases, SIC could prepare a project feasibility study, apply for the credit, purchase the machine and supervise its installation. Such a combination of advisory service, SSI financing, control of effectiveness and start-up consultancy would increase the overall productivity of development efforts that are provided by different organizations of the institutional framework.
- Entrepreneurs frequently complain about high interest rates. Apart from the considerable number of industrialists who claim that the payment of interest is incompatible with their creed, the majority of small units simply cannot afford to pay interest. Better organized companies with higher profit potentials are perfectly able to take advantage of the leverage effect. Interest rates at 11 % in less competitive markets can be easily covered by according price increases. In view of the planned better designed and applied concept for loan applicant selection, interest rates would not have to be reduced. However, the existing loan guaranty scheme should be improved in order to increase the volume of funds to be channelled into the SSI sector.

6.3 Conclusions and Outlook on SSI Development Policy

Talks held with entrepreneurs, union representatives, bank officers and Government officials led to the impression that there exists a general awareness of necessary changes, though without a clear concept on "how" and in "which direction" industrialization policy should be developed. The Fifth Development Plan is clearly oriented towards SSI promotion and regional deconcentration of the industrial park. Macro-economic analysis reveals that vertical and horizontal forward and backward linkages within the present manufacturing production pattern may be further developed. Thoroughly planned and defined inter-regional and multi-sectoral SSI development concepts should be able to activate the hitherto latent potential of a steadily growing domestic market, of specific export opportunities on the demand side, and of an already operating SSI development programme on the supply side. The principal key-words of a modernized comprehensive SSI policy approach should be:

- structural concentration
- sectoral balancing (under socio-economic market and resource oriented cost-benefit considerations)
- concentrated regional decentralization
- functional specialization (product families, homogeneous production technology)
- methodological market diversification
- diversified target group oriented development approach for SSI units.

It appears unreasonable to stimulate the creation of new industrial ventures.

Government efforts should be concentrated on modernizing and expanding promising enterprises in socio-economically desired sub-sectors and locations. Thus the limited SSI promotion potential will result in maximum development activities, exemplary to neighbouring SSI units. SSI development concepts are suggested to pursue combined strategy of hardware, software and financial incentives, as follows:

- Clearly defined sectoral, structural and regional target groups of SSI candidate firms should be analysed and described with their problems and potentials. For each target group a proper development programme will have to be designed, including a combination of specific development instruments, operations work programmes and control mechanisms.
- No instrument of SSI promotion should be isolatedly applied. Industrial parks and common facilities will be mainly open to applicants in need of and prepared to accept pre-operational and accompanying advisory and extension services. Financing of fixed assets (modernization, expansion) and working capital requirements should only be approved after prior examination of the applicant by SIC. A combination of credit and extension services should be made obligatory to the furthest possible extent.
- This selective and integrated SSI promotion concept requires a competent and properly working advisory body. The analysis of SIC's potential proved to be adequate, once the insufficiently tapped personnel resources are mobilized by restructuring and motivating

measures. Clear operational plans with regular control mechanisms, promotion prospects for the staff and eventually revenue oriented incentive schemes for field officers can contribute to canalize and improve the productivity of SIC's advisory services.

- The existing network of industrial estates and common facilities with training programmes should be reactivated before investing into new installations. This policy will allow to allocate more funds in non-development expenditure. It must, however, be repeated that only a small part of SSI units are reached, so that demonstrational effects are more important than specific help to individual enterprises. SSI development policy is characterized by a non-profit oriented (or cost covering) concept. Therefore, financing of service activities (consulting, training) should have priority before investments into hardware of SSI lending.

Generally, the receivers (targetgroup) of SSI promotion efforts are rather sceptical about the efficiency and honesty of respective governmental efforts. However, SICs' and the banks' actual development policy do not justify this feeling. In this context, it is recommended to first design a comprehensive SSI development strategy with participation of all parties involved and then to start a public relations campaign which will give proof of the Government's readiness and ability to assist SSI entrepreneurs in developing their businesses.

7. SUMMARY AND MACRO-ECONOMIC DEVELOPMENT SCHEME FOR TARGET SUB-SECTORS

7.1 Introduction

The analysis of general SSI problems in Pakistan and those of the five selected target sub-sectors reveals that the scope of required technical and financial assistance cannot be met by the respective governmental promotional means. Consequently, priorities must be set by structural, sectoral and regional criteria. In the case of the sports goods industry, for example, an amount of some 10 million Rs is considered to relieve the sub-sector of some of its most urgent problems. The same amount, however, would be of a significantly higher socio-economic rentability when invested in the leather or textile industry. In order to achieve a balanced multi-sectoral development strategy with a given amount of personnel and financial means, it will be necessary to evaluate quality and quantity, as well as macro-economic costs and contributions of the various target sub-sector inputs and outputs. For this purpose, the Government's economic development objectives will be examined as well as the country's development potential related to specific sub-sector requirements and long-term constraints for sub-sector expansion under consideration of actually required development activities and the role of the institutional framework.

A very rough evaluation of the individual sub-sectors requirements and contribution will help to set development preferences and in general a pragmatic promotion policy. Figure 7.1 shows the interdependency of objectives, potentials and constraints.

7.2 SSI Sub-Sector in the View of "Fifth Plan" Objectives

The principle development objectives of Pakistan's current Five Year Plan have been thoroughly discussed and up-dated with competent members of planning and development institutions. Emphasis was put on a clear-cut ranking of partly conflicting targets. As a major result it was found that for the time being, balance of payments considerations predominate Pakistan's economic policy. Under this aspect, the basic development objectives are listed below in order of preference as defined during the interviews held.

- 1) Self reliance. Pakistan is undertaking major efforts to become more independent of imports of vital basic commodities and capital goods. This strategy calls for sizable long-term investments which have already bound major parts of the Government's budgets for the upcoming years. These imports substituting investments are currently made by large capital intensive companies reducing financial means for SSI development accordingly.
- 2) Export boost. A further strategy to relief balance of payments pressure is to increase the real value of exports, by further promoting the industries based on domestic inputs. In this context, policies are applied to develop further verticalization, mainly of agricultural products in order to achieve a higher rate of value added. In terms of foreign currency earnings migrant workers policy also becomes an important issue.

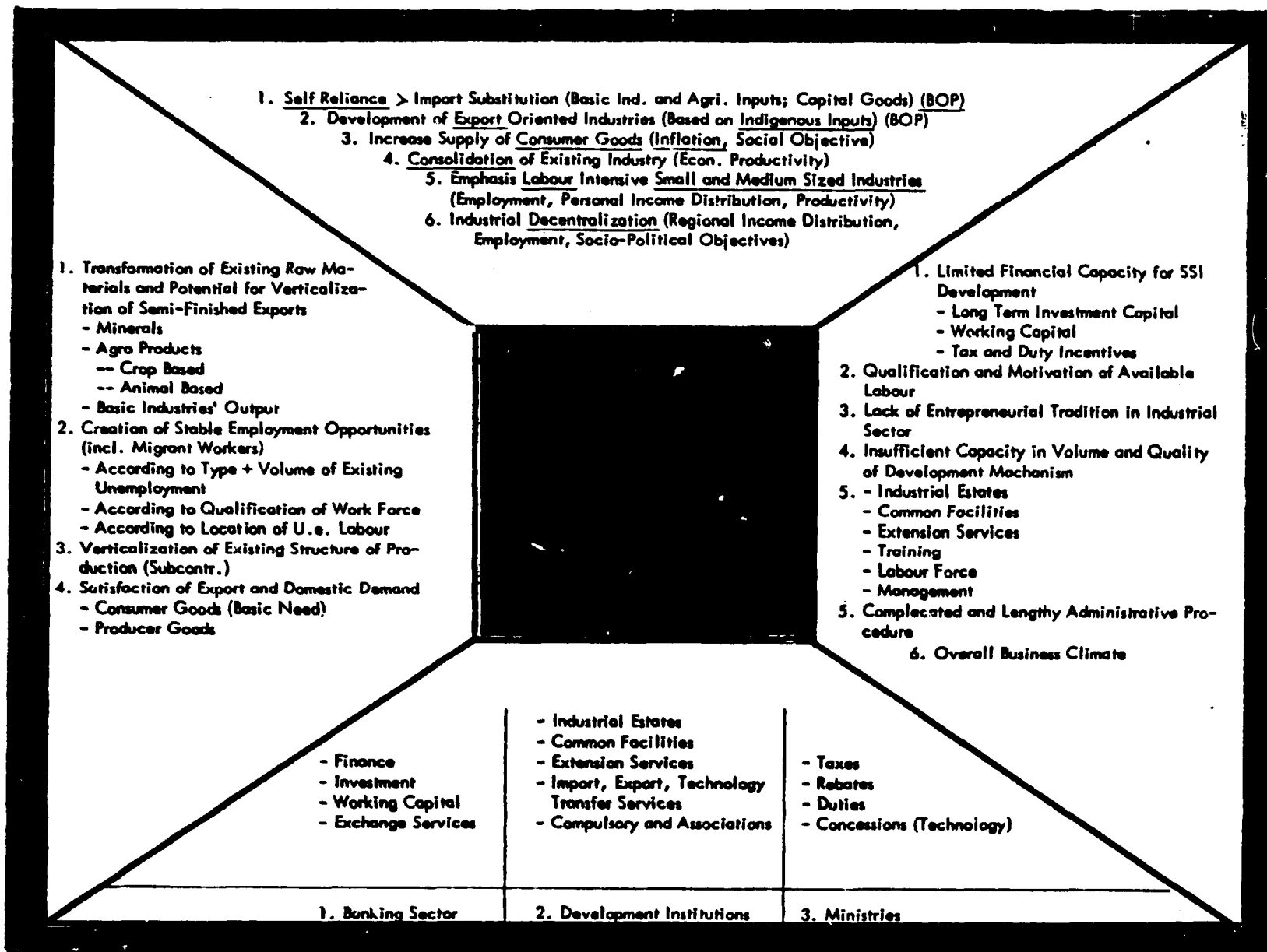


Figure 7.1: INFLUENCING FACTORS ON SSI DEVELOPMENT POLICY

- 3) Increase of consumer goods. Apart from social reasons urging a considerable increase in production of consumer goods, inflation rate considerations, partly nourished by transfers of Pakistani labour abroad, suggest to improve the supply of basic need goods.
- 4) Consolidation of industry. Partially prevailing idle capacities in Pakistan's industrial assets as a consequence of the rather low production activity in the past as well as the heavy recent investments, and the need for improving its overall economic productivity suggest the promotion of complementary investments. New product ideas should be implemented as part of a diversification strategy by existing units, instead of creating additional production capacity through newly established factories. This objective will promote a tendency for concentration, and specialization whenever a sector is faced with strong competition (expressed by a large number of units).
- 5) SSI promotion / labour intensity. SSI should be promoted for several reasons:
 - to serve local basic need demand at acceptable prices (little overhead and transportation cost)
 - to employ various types and qualifications of labour
 - to contribute to improve the regional distribution of income
 - to contribute to improve the individual distribution of income.

Unemployment is not considered of particular significance. In view of the fact that more than 3/4th of the labour force is located in rural areas, and that the number of job opportunities abroad are expected to increase, the Government does not pursue any specific policy with respect to job creation for the moment.

- 6) Decentralization. Despite the prevailing urban pressure, the Government tends to promote mainly for social and political reasons, the decentralization of economic activities in order to reduce regional disparities. However, such efforts should take also into account the prevailing local demand and the locally available resources.

Considering development priorities and the available, not yet tied up resources it becomes obvious that only unsatisfactory financial support can be given by the Government to promote SSI. Therefore, the socio-economic impact of the limited funds will have to play a major role when analysing sub-sector specific recommendations. Combined actions, bundling finance, common facilities and extension services to thoroughly selected units will be required in connection with the distribution of the available scarce funds.

7.3 Relevance of Pakistan's Development Potential to SSI

Besides the achievement of self reliance, the maximum use of Pakistan's development potential is given major consideration by the Government. It will, therefore, give priority to such sub-sectors that utilize locally available resources in order to improve verticalization and thus the value added. Sub-sector promotion will depend on the availability of domestic production factors, such as:

- 1) Raw material. Industries, which utilize locally available mineral or agriculture (crop and livestock) based raw materials, or which transform locally produced semi-finished goods will attract governmental promotion.

Out of the target sub-sectors, the leather and textile industry are well qualified for the transformation of national raw material and semi-finished products.

- 2) Employment. Although there is a certain labour shortage in some areas, especially with respect to skilled labour, there will be a vast and continuously increasing potential of labour of all types available. In view of the migrant workers situation in the EEC, long-term economic policy will have to provide for a substantial number of job opportunities.

The employment objective conflicts with the need for specialization, quality and productivity improvement, and concentration of overcrowded sub-sectors. Therefore, sub-sectors with labour-intensive technologies will be given preference.

- 3) Subcontracting. The set-up of large basic industries will substantially promote the subcontracting sector. The intended reinforcement of the capital goods sector, too, will foster specialization in the production of components. The promotion should take into account both, the growing demand of large industries as well as the subcontracting potential to be created on account of the concentrated development policy suggested for some of the sub-sectors. Subcontracting is an important part of Pakistan's industrial structure and as such considerably contributing to personal income distribution.

Light engineering is assumed to profit substantially from the planned down-stream schemes in connection with the Karachi steel mill, which is going to be set into operation.

- 4) Demand. Demand for Pakistan's SSI is basically coming from three sources. Domestic demand is likely to increase according to the growth of population and increase of productivity. Additional demand stems from overseas remittances. The third source, i.e. the export demand is the most unstable factor as it not only depends on the efforts of Pakistan's industry but also on general and product specific changes in world demand and competition.

7.4 Long-term Constraints Hampering SSI Development

Although Pakistan is in the fortunate position to offer a reasonably attractive development potential to its SSI, the analysis of the "Fifth Plan" objectives has shown that the means are limited. Besides, other factors might jeopardize the improvement of the sub-sectors' actual situation, e.g.:

- 1) Restricted capital stock and financing. Due to the low per capita income level, national saving is still rather insignificant compared to the financial requirements of the envisaged development strategy. There is a lack of long-term investment capital due to insufficient resources, both in the public and private sector. The greater part of the industrial units cannot apply for working capital loans on account of the highly security oriented lending policy.

Fiscal and financial incentives are limited for the same reasons, so that sectoral, regional, and segmental (SSI) promotion of industrial activities do not meet the demand.
- 2) Labour qualification and motivation. Overseas job opportunities, both for skilled as well as for unskilled labour have drained Pakistan's employment potential, especially the highly motivated part. Apart from this, well meant improvements in the labour legislation have burdened the industry with heavy charges and at the same time increased the employees' aspirations. The difficulty to dismiss staff has a negative effect on labour productivity. The industry reacts with increased employment of contract workers, thus avoiding labour legislation obligations.
- 3) Lack of entrepreneurial know-how. As the lending policy focuses mainly on loan security criteria, most of the entrepreneurs have to start their business with a high share of equity. As a rule, it is derived from agricultural or trade activities and its generation thus frequently subject to uncertainties. So, a considerable number of firms is run rather irresponsibly. In many cases company owners do not even realize their lack of know-how in marketing, financial administration and organization. Besides the mentioned lack of motivation, the insufficient prerequisites for efficient business management are a main reason for the industry's low productivity.
- 4) Insufficient development framework. As Pakistan is mainly agriculture oriented, the intended industrialization on a broader scale has to be based on a strong and competent promotion set-up. Especially for SSI, promotion and assistance mechanisms will have to make up for entrepreneurial deficiencies. To company owners the development framework appears too complex and little pragmatic. PSIC's experience, that only 2 % of Punjab's SSI units are reached by credit financing shows that there has still a lot to be done in providing more financial assistance (investment and working capital), coupled with software (extension services), training (managerial and technical) and hardware (common service facilities).
- 5) Time consuming administrative procedures. Entrepreneurs who want to get in touch with institutions, have to follow cumbersome procedures. More simplicity and efficiency are required in this respect.

7.5 Entrepreneurial Demand for Institutional Framework

As SSI is not in the position to develop fast enough by itself to meet its expected role in Pakistan's growth strategy, a development oriented institutional framework has to provide different types of assistance. Basically the SSI entrepreneur has to deal with various organizations during different stages of his company's life cycle:

- The banking sector provides financing for investment, current activities and services for foreign trade activities.
- The development institutions are supposed to sponsor entrepreneurial activities through providing infrastructural assets (industrial estates), common facilities (demonstration, labour training, subcontracting of sophisticated services) and extension services (entrepreneurial training and assistance). Cooperative services (purchasing schemes, general product marketing, etc.) as well as the set-up of entrepreneurial associations should encourage less experienced entrepreneurs.
- The Government represented by its respective ministries will influence the general business climate to a great extent through its fiscal, incentive and labour policy.

As Pakistan's institutional framework for development is considered too complex, recommendations based on the discussions with private and public sector representatives will be made for its simplification and improvement.

7.6 Evaluation of the Target Sub-Sectors' Requirements and their Contributions to Pakistan's Economy

As personnel and financial resources for SSI promotion are limited, development authorities will have to set structural, sectoral and regional priorities. A first criterion to determine a sub-sector's promotion worthiness should be its absolute and relative contribution to general socio-economic development objectives. Consequently the textile, leather and light engineering sub-sectors will be given more attention than those of surgical instruments and sports goods which represent less than 2 % of the target sub-sectors' aggregated output and about 10 % of the combined sub-sectors' exports. Besides the sub-sectors' sizes, functional criteria like certain socio-economically desirable sub-sector characteristics, should enter the decision on priorities. Positive and negative effects will have to be compared in order to assess a sub-sector's net-contribution to Pakistan's economic development objectives. In this context, a tentative qualitative approach has been made in table 7.1. The three symbols (N, R, I) indicate the importance of the various evaluation criteria for each target-sub-sector. The colours illustrate whether the criterion exercises a negative or a positive effect on socio-economic development.

Table 7.1: Evaluation Scheme of Target Sub-Sectors' Contribution and Requirements towards Pakistan's Economy

N = not relevant
R = relevant
I = important

The scheme does not take into consideration different relative importance of sub-sectors due to their share in Pakistan's manufacturing output.

Evaluation Criteria \ Target Sub-Sector	Textile					Leather			Light Engineering				Surgical Instruments	Cutlery	Sports Goods
	Power Loom	Handery	Garments	Towels	Canvas	Tanning	Footwear	Garments	Agr. Implements	Diesel Engines	Pumps	Electric Motors			
1. Potential for import substitution	N	N	N	N	N	N	N	N	-	-	-	-	N	N	N
2. Export potential	I	I	I	I	I	I	R	I	N	N	N	N	I	R	I
3. Contribution to basic needs supply	I	R	R	R	R	I	I	N	N	N	N	N	N	N	N
4. Use of national raw material	I	I	I	I	I	I	I	I	N	N	N	N	N	N	N
5. Aggregated value added	I	I	I	I	I	I	I	I	R	R	R	R	R	R	R
6. Potential for inter-sectoral development stimulation															
a) Factor side	I	I	I	I	I	I	I	I	R	R	R	R	R	R	R
b) Market side	I	N	N	N	I	I	N	N	I	I	I	I	N	R	N
7. Net foreign currency earnings	I	I	I	I	I	I	R	I	N	N	N	N	I	R	I
8. Significance of not reexportable imports (machinery, material)															
9. Potential for expansion and divisible complementary investments	I	R	I	R	R	R	I	I	I	I	I	I	R	R	I
10. Capacity for absorption of unskilled labour	I	I	I	I	I	I	I	I	R	R	R	R	I	I	I
11. Potential for specialization and subcontracting	N	N	N	N	N	N	N	N	I	I	I	I	R	R	R
12. Suitability for typical SSI development instruments															
13. Suitability for regional decentralization	I	I	I	I	I	R	I	I	R	R	R	R	N	N	
14. Capital intensity and need for loan financing															
15. Great requirements towards SSI development policy															
Participation in aggregated target sub-sector output and exports 1)	Output:		28.5 %			50.7 %			18.9 %				1.0 %		0.9 %
	Exports:		63.6 %			26.1 %			-				4.1 %		6.2 %

Yellow colour stands for positive or desirable effects
Red colour stands for negative socio-economic effects

1) % calculated on value basis

In the case of the textile industry, as an example, the various evaluation criteria reveal the following:

- 1) None of the textile sub-sectors is likely to contribute substantially to further import substitution given the country's low rate of imports of semi-finished and finished textiles.
- 2) Because of a high degree of verticalization, the use of indigenous raw materials and labour intensive production techniques, Pakistani made textiles are internationally competitive and contribute significantly to the country's exports.
- 3) The domestic demand for textile products is more or less saturated.
- 4) The textile industry relies to a great extent on national agricultural products.
- 5) The textile industry's verticalization and labour intensity contribute substantially to value added.
- 6) Inter-sectoral impacts on the factor side will lead to increased demand for agricultural products (raw material) and for nationally manufactured simple machinery. Hosiery, towels and canvas require more sophisticated equipment, which has to be imported.
- 7) As a consequence of decreasing imports of raw material and machinery on the one hand and to the high volume of exports on the other, net foreign currency earnings are substantial.
- 8) Compare 7).
- 9) The expansion potential depends on the international demand for Pakistani textile products. In the power loom and garment sector expansion can be achieved with minor investments, whereas more sophisticated production techniques of hosiery, towels and canvas call for more expensive and mostly bigger machinery.
- 10) The textile sector is known for absorbing quickly training unskilled labour, in particular female workers.
- 11) The comparatively high specialization in products and production techniques leave little possibility for subcontracting with the exception of fully verticalized production units, which, however, are rare.
- 12) The various textile lines require individual minimum-sizes in relation to their production technology, capital intensity and possible expansion. While hosiery, towels and canvas are practically beyond the SSI definition (investment exceeding 30 lakhs), the power loom and garment business can start with less minimum capital. It, therefore, qualifies for SSI development activities.
- 13) Textile industry is basically a foot-loose industry. It can be located wherever cheap labour is available, and lends itself to regional decentralization policies.

- 14) Capital intensity and consequent need for loan financing are different for the power loom and garment sectors and those of hosiery, towels and canvas production. With a given volume of SSI lending, higher effect on output and employment can be reached in less capital intensive product lines.
- 15) Dependence on SSI development activities varies with the level of marketing, production and administrative technology of the particular product group. Textile as a relatively specialized sub-sector with a satisfactory product and production technology demands less attention than other SSI sub-sectors.

When combining the sub-sector's positive and negative contributions to overall socio-economic development with its factual importance it becomes obvious that development efforts should mainly concentrate on textile, leather and light engineering; surgical instruments and sport goods should be granted a substantially smaller amount of hardware, software and financial incentives.

UNIDO/IBRD Sub-Sector Study Pakistan :

Meetings Attended by Macro-Economic Team

Mr. Stefan TOBISCH (GOPA) and
Mr. Firasat ALI (IACP)

<u>PERSON CONTACTED</u>	<u>POSITION</u>	<u>ORGANIZATION</u>
Abdulla Ismail	President	Entrepreneurial Association
Firasat Ali	Counterpart	IACP
Shakil Ahmed	Director	Universal Tannery
Project Meeting Visit to I.E. Hub		Baluchistan
Reza H. Syed	Man. Director	IACP
Imtiaz Rasool	Man. Director	SSIC
Bashir Ahmed	Man. Director	PICIC
Imtiaz Rasool	Man. Director	SSIC
Reza H. Syed	Man. Director	IACP
Asif Nemami	Director	National Bank
Nesiem	Vice President	Habib Bank
Mohammed	Ass. Director	Dir. of Industries
S.A. Imran	Director	EPB (Export)
Khalil Ahmed	Vice President	United Bank Ltd.
M. Faruqi	Member	Banking Council
Mian Miftahud	Director	State Bank
Altaf Ahmed	Member	Banking Council
Dr. Muez	Director	IACP
Khalid Mahmud Ichan	Jt. Director	PSIC
Saeed Quereshi	Secretary	Government of Punjab
Brig. Faruqi	Man. Director	PITAC
Project Coordinator	Joint Secretary	-
Visit Gujranwala	Jt. Directors	I.E./Centres

continued →

<u>PERSON CONTACTED</u>	<u>POSITION</u>	<u>ORGANIZATION</u>
Khalid Mahmud Ichan	Jt. Dir. Plan.	PSIC
Visit to Soalkot	Jt. Directors	I.E./MIDC/Industry
Sheik	Jt. Director	PSIC (I.E.)
Muhammed Sharief	Secretary	Chamber of Com.
BO Jonsson	Coordinator	House of Labour
Rowat / Balkind	Chief	World Bank
Bashir A. Buksh	Vice President	Chamber of. Com.
Dr. Muez	Director	IACP
Shah Wali Khan	Dep. Man. Dir.	SIDB
Visit to I.E.	Jt. Director	-
Meeting Presidency	Pres., V. Pres.	Chamber of Commerce
Mukhtar Ahmad	Director	Planning Commission
Field Research	Entrepreneurs	Mutan
Shah Wali Khan	Dep. Man. Director	SIDB
Schmidhammer	Manager/Advisor	Pak.-German Wood Centre
Razak Sheik	Deputy Chief	Planning Commission
Jawaid Burki	Joint Secretary	Min. of Commerce
Pres. Interim Report	-	Ministry of Industries
P.A. Popiel	Res. Economist	World Bank
Col. Syed Ali Shah	Dep. Secretary	Ministry of Industry
Ibqal Saeed	Secretary of I.	Ministry of Industry
Dr. Mushtac Ahma	Econ. Advisor	Finance Division
Muin Ud Din Khan	Joint Secretary	Min. of Labour
Sayed Wasiaq Shah	Joint Secretary	Min. of Labour
Khalid Durrani	Dir. General	Nat. Train. Bureau
Asad Ahmad	Add. Fin. Secr.	Min. of Finance
Abdul Madi Khan	Joint Director	SIDB (I.E.)
Masud Hayat	Controller	SIDB
Shah Wali Khan	Dep. Man. Dir.	SIDB
Khawaja Habib Ullah	Chief Inc. Tax	CBR

continued →

<u>PERSON CONTACTED</u>	<u>POSITION</u>	<u>ORGANIZATION</u>
Riaz Hussain Naqui	Chief Exise Tax	CBR
Zafar Hussain	Chief Sales Tax	CBR
Col. Syed Ali Shah	Dep. Secretary	Min. of Industry
Masoud Ahmad Dahir	Director. Rebate	CBR
Sheik Anwar Ul Haq	Director	Directorate
Z.A. Durani	Ch. Accountant	Of Small Industries
Noor Ahmad Bugti	Ass. Dir. I.E.	Baluchistan
Visits to Industries	-	I.E. Quetta
Shakil Ahmad	Secretary Finance	Government Baluchistan
Agha Syed Sard Moh.	President	Chamber of Commerce
S.R.M. Zaidi	Sen. Vice. Pres.	Habib Bank
Representatives	Chamber of Commerce	-
Reza H. Syed	Man. Director	IACP
Makoto H. Syed	Man. Director	EPB
M.Y. Bhutta	Direction	EPB
G.N. Khan	Commissioner	Pak. Textile
Mahammad Yousuf	Vice Chairman EPB	Commission
Altaf Ahmed	Member	Banking Council
S. Amjad Ali	Board Member	National Bank
Visit to I.E.	Officers	Hyderabad
Altaf Ahmed	Member	Banking Council

STATISTICAL APPENDIX

Table 1

CONSUMER PRICE INDEX NUMBERS, 1969/70-1978/79

(1969/70=100)

	Income Groups ^{/a}					
	All Income Groups		Up to Rs 300 Per Month		Above Rs 1,000 Per Month	
	General	Food/ ^b	General	Food/ ^b	General	Food/ ^b
1969/70	100.0	100.0	100.0	100.0	100.0	100.0
1970/71	105.7	106.0	106.2	106.8	105.0	115.1
1971/72	110.7	109.6	110.6	109.7	110.3	113.7
1972/73	121.4	121.2	120.7	121.4	120.3	136.0
1973/74	157.8	163.3	159.4	163.5	154.1	165.9
1974/75	200.0	206.7	201.1	206.5	192.8	210.3
1975/76	223.3	231.6	225.5	231.4	219.5	232.6
1976/77	243.9	255.3	246.7	254.5	239.1	257.3
1977/78	259.9	270.7	263.0	269.5	259.5	274.1
1978/79	282.5	288.7	284.6	286.1	279.7	295.1
<u>1978</u> July	276.3	288.3	277.5	283.9	274.0	296.4
August	277.8	288.3	279.1	284.2	275.3	296.8
September	278.9	288.1	280.9	285.6	275.5	293.2
October	281.3	290.7	283.7	288.5	276.9	294.9
November	280.5	286.9	282.9	284.8	277.1	293.3
December	278.1	282.7	281.3	280.5	275.7	289.0
<u>1979</u> January	281.0	283.6	283.2	281.4	277.9	288.4
February	282.4	285.5	284.5	283.0	280.4	292.3
March	285.5	290.0	287.6	287.2	283.3	297.4
April	287.8	294.3	289.7	290.7	286.1	303.4
May	289.0	293.3	292.1	293.6	287.2	298.1
June	289.8	292.5	293.2	293.3	287.6	296.7
July	308.4	318.1	312.4	319.3	306.2	323.1
August	310.5	318.3	315.4	320.4	306.6	321.2
September	309.9	315.4	314.8	317.6	306.5	318.4
October	310.9	315.6	315.9	318.1	307.8	318.9
November	304.3	301.6	308.8	308.8	303.7	307.3
December	303.3	299.4	307.2	307.7	303.2	304.5

/a Combined indices of industrial, commercial and Government employees.

/b Food, beverages and tobacco.

Source: Ministry of Finance and Economic Affairs.

Table 2

GROSS FIXED CAPITAL FORMATION IN SMALL-SCALE MANUFACTURING INDUSTRY, 1969/70-1978/79

(million rupees)

	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79
Industry Type										
Food, Beverages, Tobacco, etc.	10.0	10.7	11.7	13.6	17.3	n.a.	26.9	30.9	33.5	36.3
Leather, Bamboo and Wood Work	29.5	31.7	34.3	40.1	51.0	n.a.	79.6	91.4	99.0	107.4
Glass, Ceramics and Non-Metallic	16.1	17.3	18.8	21.9	27.8	n.a.	43.5	49.9	53.9	58.5
Footwear	20.8	22.4	24.3	28.4	36.1	n.a.	56.4	64.8	70.3	76.2
Textile Work and Machinery	31.0	33.3	36.2	42.3	53.8	n.a.	84.3	96.8	104.9	113.8
Paper, Paper Products, Pharmaceuticals, Chemicals and P.E.	1.4	1.5	1.6	1.8	2.3	n.a.	3.8	4.4	4.7	5.1
Textiles	72.2	77.6	84.4	98.7	125.6	n.a.	196.6	225.9	244.8	365.5
Miscellaneous	6.7	4.2	7.8	9.1	11.6	n.a.	18.4	21.3	23.3	25.3
Total	<u>187.7</u>	<u>201.7</u>	<u>219.1</u>	<u>255.9</u>	<u>325.5</u>	<u>446.5</u>	<u>509.5</u>	<u>585.3</u>	<u>634.4</u>	<u>688.1</u>

n.a. Not available.

Source: National Accounts of Pakistan 1969/70-1978/79, Statistics Division.

Table 3

GROSS FIXED CAPITAL FORMATION IN PRIVATE LARGE AND MEDIUM-SCALE INDUSTRY,
1969/70-1978/79

(million rupees)

	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79 ^{/a}
Industrial Groups										
Food except beverages and tobacco	51.5	152.5	172.0	51.4	60.2	66.6	58.0	81.2	143.8	136.0
Beverages	5.4	1.1	1.9	1.8	4.8	4.8	1.3	2.0	3.3	20.4
Tobacco	17.4	20.1	14.5	7.4	5.1	18.5	1.9	9.6	5.6	4.6
Sub Total	74.3	173.7	188.4	60.6	70.1	89.9	61.2	92.8	152.7	161.0
Textiles	174.6	182.9	112.4	156.7	132.5	195.0	306.4	403.1	302.0	234.8
Footwear, wearing apparel and others	6.5	6.3	5.6	5.0	11.1	10.6	5.1	11.3	17.4	14.1
Sub Total	181.1	189.2	118.0	161.9	143.6	205.6	311.5	414.4	319.4	248.9
Wood working	6.5	6.3	5.6	5.0	11.1	10.6	5.1	11.3	17.4	14.1
Furniture and fixtures	0.2	0.1	-	0.3	0.3	1.5	0.3	0.1	0.2	1.2
Sub Total	6.7	6.4	5.6	5.3	11.4	12.1	5.4	11.4	17.6	15.3
Paper and paper products	8.3	21.9	10.1	17.4	19.8	21.0	44.5	42.1	40.4	67.1
Printing and publications	8.5	10.9	12.0	9.4	8.2	3.7	7.7	3.0	1.4	1.6
Sub Total	16.8	32.8	22.1	26.8	28.0	24.7	52.2	45.1	41.8	68.7
Leather and leather products	1.6	4.5	3.6	17.1	8.0	17.1	1.5	4.4	3.8	3.7
Rubber products	1.5	1.2	0.8	3.9	1.9	4.7	1.9	4.4	4.7	4.3
Chemicals and chemical products	34.2	60.2	37.8	37.6	51.8	59.0	58.6	133.8	107.6	143.6
Products of petroleum and coal	8.1	24.1	21.1	10.0	9.2	36.6	25.4	29.5	45.0	22.7
Non-metallic minerals	50.0	14.7	4.2	6.3	11.8	30.3	4.8	26.1	3.6	4.9
Basic metal industries	24.1	17.1	5.0	1.5	3.0	2.9	1.8	8.5	5.9	14.7
Metal products	18.6	12.1	7.7	11.5	11.1	13.7	16.4	14.8	14.6	17.1
Sub Total	42.7	29.2	12.7	13.0	14.1	16.6	18.2	23.3	20.5	31.2
Machinery	20.9	21.3	8.5	12.8	28.1	14.4	16.0	15.8	54.8	6.1
Electrical machinery and appliances	8.3	31.3	12.9	10.3	12.8	27.4	13.3	27.1	39.9	42.9
Sub Total	29.2	52.6	21.4	23.1	50.9	41.8	29.3	42.9	94.7	49.0
Transport equipment	11.5	19.8	7.8	7.4	2.3	0.9	10.3	18.3	4.2	8.1
Miscellaneous industries	9.0	11.6	13.6	15.3	17.0	17.0	15.7	18.6	21.8	17.6
Total in production	466.6	615.1	457.2	383.3	411.7	555.2	621.2	915.3	811.6	725.3
Under construction	758.9	634.5	574.4	389.9	239.2	457.2	707.0	628.6	731.6	861.1
Total	1,225.5	1,249.6	1,031.6	774.2	710.9	1,012.0	1,328.2	1,544.1	1,543.2	1,587.5
Total excluding cost of land and residential holdings	1,202.2	1,224.0	1,016.3	763.1	697.8	990.4	1,309.0	1,524.3	1,529.1	1,566.6

^{/a} Provisional data.

Source: Statistics Division.

Table 4

GROSS FIXED CAPITAL FORMATION IN INDUSTRY, 1969/70-1978/79

(million rupees)

	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79
<u>In Current Rs. Million</u>										
Private Large and Medium-Scale Industries	1,208.2	1,224.0	1,016.3	763.1	697.8	990.4	1,309.0	1,526.3	1,539.1	1,616.8
Small-Scale Industry	187.7	201.7	219.1	255.9	325.5	446.5	509.5	585.5	634.4	688.1
Public Industry (of which Steel Mill)	179.2	68.2	98.5	110.6	382.3	1,064.9	4,514.0	4,514.0	6,143.5	5,967.4
					(1.8)	(194.6)	(668.4)	(1,714.0)	(2,845.4)	(3,389.7)
Total	<u>1,575.1</u>	<u>1,493.9</u>	<u>1,333.9</u>	<u>1,129.6</u>	<u>1,405.1</u>	<u>2,501.8</u>	<u>5,000.1</u>	<u>6,625.6</u>	<u>8,317.0</u>	<u>8,272.1</u>
<u>In Constant 1969/70 Rs Million</u>										
Private Large and Medium-Scale Industries	1,208.2	1,038.4	699.9	313.1	231.0	182.8	344.5	369.0	347.1	360.2
Small-Scale Industry	187.7	182.5	171.0	147.6	138.5	152.3	157.1	167.4	172.5	180.2
Public Industry	179.2	57.9	64.9	45.4	115.8	279.0	837.3	1,091.6	1,385.6	1,329.6
Total	<u>1,575.1</u>	<u>1,278.8</u>	<u>905.8</u>	<u>506.1</u>	<u>499.1</u>	<u>614.1</u>	<u>1,338.9</u>	<u>1,628.0</u>	<u>1,905.2</u>	<u>1,870.0</u>

Source: National Accounts of Pakistan, 1969/70-1978/79 and Bank staff estimates based on detailed information provided by Statistics Division.

Table 5

INTEREST RATES ON BANK DEPOSITS AND ADVANCES, 1972-79

(in percent)

	June 30							
	1972	1973	1974	1975	1976	1977	1978	1979
<u>Interest Rates on Bank Deposits</u>								
<u>Special Notice Deposits</u>								
Deposits withdrawable at notice of 7-29 days	3.00	4.00	4.00	4.00	5.00	5.50	5.50	5.50
Deposits withdrawable at notice of 30 days or over	3.25	4.25	4.25	4.25	6.00	6.50	6.50	6.50
<u>Savings Bank Deposits</u>								
Accounts with checking facilities	4.00	5.00	6.00	6.00	6.50	7.50	7.50	7.50
Accounts without checking facilities	4.50	5.50	6.75	7.50	8.00	8.50	8.50	8.50
<u>Fixed (or term) Deposits</u>								
For 3 months and over but less than 6 months	4.50	5.50	6.75	7.50	8.00	9.00	9.00	9.00
For 6 months and over but less than 1 year	4.75	5.57	7.25	8.00	8.50	9.50	9.50	9.50
For 1 year and over but less than 2 years	5.00	6.00	8.00	9.00	9.50	10.50	10.50	10.50
For 2 years and over but less than 3 years	5.50	6.50	8.50	9.50	10.00	11.00	11.00	11.00
For 3 years and over but less than 4 years	6.00	7.00	9.00	10.00	11.25	11.75	11.75	11.75
For 4 years and over but less than 5 years	6.00	7.00	9.00	10.50	11.25	12.25	12.25	12.25
For 5 years and over	6.00	7.00	9.00	11.00	11.75	12.75	12.75	12.75
<u>Interest Rates on Bank Advances</u>								
<u>Ceilings on Advance Rates</u>								
General	n.a.	10.00 ^{/a}	11.00 ^{/a}	13.00	13.00	14.00	14.00	14.00
Fixed industrial investment	n.a.	10.00 ^{/a}	11.00 ^{/a}	13.00	13.00	14.00	12.50	11.00
Fixed agricultural investment	n.a.	10.00 ^{/a}	11.00 ^{/a}	13.00	13.00	14.00	11.00	11.00
Export finance ^{/b}	n.a.	7.00	9.00	10.00	10.00	10.00	6.00	3.00
(SSP refinance rate)	n.a.	4.00	6.00	7.00	7.00	7.00	3.00	0.00
<u>Minimum Advance Rates</u>								
Finished goods (except capital goods)	n.a.	10.00	11.00	12.00	12.00	13.00	13.00	13.00
Other advances	n.a.	10.00	11.00	10.00	10.00	11.00	11.00	11.00
<u>Weighted Average Interest Rates</u>								
Deposits	3.38	3.59	3.94	4.67	5.10	6.32	6.23	6.49
quasi-money deposits	4.90	5.76	7.32	8.18	9.79	9.05	9.24	n.a.
Advances	8.65	8.54	9.48	10.31	10.92	11.68	11.80	11.66
<u>Call (inter bank) money rate</u>	5.35	5.25	8.48	10.63	9.40	10.03	11.20	8.99
<u>Bank Rate</u>	6.00	6.00	8.00	9.00	9.00	10.00	10.00	10.00

Table 6

ANNUAL DEVELOPMENT PLAN CLASSIFIED BY SECTORS, 1971/72-1979/80

(million rupees)

	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80 ^{/a}
Agriculture	225	551	687	956	1,052	1,347	1,421	2,445	3,086
Water	192	351	583	1,047	1,244	1,852	1,556	1,747	1,610
Power	377	532	907	2,008	2,316	2,422	2,646	2,935	3,239
Industry	78	249	630	1,559	1,239	3,466	4,593	4,575	4,057
Fuels and Minerals	57	113	315	630	751	422	587	664	835
Transport and Communications	438	622	1,285	2,148	2,412	3,175	3,158	3,760	3,919
Physical Planning and Housing	126	268	476	949	1,209	1,277	1,273	1,534	1,427
Education	124	210	318	534	706	566	647	772	891
Health	57	96	176	363	629	540	512	569	717
Population Planning	26	27	103	145	189	183	105	114	169
Social Welfare	7	7	11	13	16	18	17	17	32
Manpower	3	6	35	53	30	23	18	39	59
Works Program/Rural Development	37	117	148	154	193	181	123	214	203
Indus Basin/Tarbela	905	719	741	812	915	619	436	1,031	1,052
Miscellaneous	2	2	-	-	243	141	58	69	90
Gross Total	<u>2,654</u>	<u>3,869</u>	<u>6,417</u>	<u>11,372</u>	<u>13,144</u>	<u>16,239</u>	<u>17,150</u>	<u>20,485</u>	<u>21,597</u>

^{/a} Revised allocations.

Table 7

CONSOLIDATED FEDERAL AND PROVINCIAL GOVERNMENT TAX REVENUES, 1970/71-1979/80

(million rupees)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79 ^{/a}	1979/80 ^{/b}
Direct Taxes	1,208	1,606	1,505	1,665	1,919	2,775	3,115	3,362	3,976	4,533
Federal Income and Corporation Tax	915	1,236	1,120	1,191	1,390	2,145	2,659	2,852	3,290	3,647
Federal Property Taxes	24	30	42	59	57	74	38	48	58	376
Provincial Property Taxes ^{/c}	257	331	360	408	467	547	407	409	591	468
Provincial Other Direct Taxes	12	9	3	7	5	9	11	33	37	42
Indirect Taxes	4,437	4,511	3,992	8,822	10,919	12,769	16,646	18,263	20,621	25,034
Taxes on Production, Consumption and Domestic Transactions	2,583	2,854	3,060	4,160	5,272	6,719	7,381	8,587	9,145	11,092
Federal Sales Taxes (Excluding Sales Tax on Imported Goods)	170	150	190	227	312	313	239	324	370	388
Federal Surcharges (Excluding Price Equalization Surcharge)	126	298	217	563	515	985	1,056	877	1,006	616
Federal Excise Duties	2,022	2,119	2,265	2,742	3,458	4,323	4,832	5,994	6,487	8,798
Provincial Excise Duties	54	58	61	93	121	147	142	73	62	21
Other Indirect Taxes ^{/d}	211	229	327	534	816	951	1,112	1,319	1,227	1,269
Taxes on International Trade	1,854	1,661	2,932	4,662	5,697	6,050	7,263	8,656	11,476	13,943
Taxes on Imports	1,906	1,497	1,942	2,758	4,615	5,236	7,124	9,233	11,246	13,193
Import Duties	(1,358)	(1,149)	(1,554)	(2,265)	(3,836)	(4,348)	(6,000)	(7,367)	(9,770)	(11,750)
Sales Tax on Imported Goods	(438)	(332)	(270)	(465)	(763)	(886)	(1,124)	(1,266)	(1,476)	(1,943)
Price Equalization Surcharge	(10)	(16)	(18)	(28)	(16)	(-)	(-)	(-)	(-)	(-)
Taxes on Exports	-	142	1,060	1,876	1,042	738	82	345	120	200
Miscellaneous	48	22	30	28	60	78	57	78	100	550
Provincial New Tax Measures	-	-	-	-	-	-	-	-	-	-
Total Tax Revenues	5,645	6,121	7,497	10,487	12,838	15,542	17,759	21,585	24,597	29,567

^{/a} Provisional.^{/b} Government (November 1979) estimates.^{/c} Includes land revenue, surcharge on land revenue, motor vehicle tax and property tax.^{/d} Federal and Provincial other indirect taxes, viz., stamp duties, registration, entertainment duties, electricity duties and others.^{/e} Actual amounts authorized by the Provincial Assemblies add up to Rs 59 million; the balance is to be met from Federal grants and expenditure cuts.

Source: Ministry of Finance and Economic Affairs.

Table 8

CONSOLIDATED REVENUES AND EXPENDITURES OF FEDERAL AND PROVINCIAL GOVERNMENTS, 1970/71-1979/80

(million rupees)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79 ^a	1979/80 ^b
Current Account										
Current Revenues	7,339	8,080	9,665	13,757	16,488	19,826	22,506	27,128	31,721	37,490
Tax Revenue ^c	5,645	6,121	7,497	10,487	12,838	15,544	17,759	21,585	24,597	29,567
Non-Tax Revenues	1,494	1,959	2,168	3,270	3,651	4,282	4,747	5,543	7,124	7,923
Current Expenditures	6,606	7,837	10,078	14,272	19,633	22,331	23,058	28,005	33,790	36,139
Non-Development	6,228	7,515	9,123	13,022	17,423	19,487	19,809	25,028	28,831	32,022
Development	378	322	955	1,250	2,210	2,844	3,249	2,977	4,959	4,107
Current Account Surplus	533	243	-413	-515	-3,145	-2,507	-552	-877	-2,069	1,351
Capital Account										
Capital Expenditures	3,065	3,449	5,086	7,024	11,308	14,456	15,734	16,350	21,153	24,632
Non-Development	864	1,321 ^d	2,222	1,890	2,906	3,898	3,023	2,206	3,931	7,445
Development	2,401 ^d	2,128 ^d	2,864	5,134	8,402	10,558	12,709	14,144	15,222	17,187
Financed by Domestic Resources	1,311	1,266	777	2,660	487	1,094	2,095	3,560	3,194	9,297
Revenue Account Surplus	533	243	-413	-515	-3,145	-2,507	-552	-877	-2,069	1,351
Non-Bank Borrowing	353	460	579	937	1,514	1,715	1,364	2,400	2,377	2,306
Recoveries of Loans and Advances	234	186	443	563	591	473	483	609	871	930
Accretions to Reserve Funds	60	277	447	369	1,307	840	807	732	1,031	1,229
Other Deposits and Remittances	130	-68	-861	1,144	22	-316	-415	-25	-234	298
State Trading	-	-	-	-	-	177	25	-	36	639
Autonomous Bodies	-	-	-	131	180	417	353	523	775	2,188
Other Capital Receipts	1	148	7	91	18	295	30	198	177	356
Foreign Assistance	1,249	378	3,357^e	3,865	8,785	9,461	7,630	7,237	10,754	12,288
Project Aid	703	482	620	694	1,266	2,117	2,690	3,807	4,916	-
Rupee Generating Aid	546	396	2,737	3,171	7,520	7,344	4,940	3,430	5,838	-
Expansionary Financing	505	1,205	1,307	439	2,038	3,901	4,009	5,553	7,205	3,247
Total Expenditures	9,671	11,286	15,164	21,296	30,941	36,789	38,792	44,355	54,943	60,771
Non-Development	6,892	8,836	11,345	14,912	20,329	23,385	22,834	27,234	34,762	39,476
Development	2,779	2,450	3,819	6,384	10,612	13,404	15,958	17,121	20,181	21,294

^a Provisional.^b Government estimates (November 1979).^c Excluding transfers to A&K Government.^d Inclusive of loans to and investment in autonomous bodies amounting to Rs 835 million in 1970/71 and Rs 85 million in 1971/72, channeled through the provincial budgets but funded by the Central Government.^e Inclusive of foreign aid received to finance non-ADF programs (included in non-development capital expenditures).

Source: Ministry of Finance and Economic Affairs.

Table 9

WORKERS' REMITTANCES BY MONTH, 1976/77-1979/80

(million US\$)

	1976/77	1977/78	1978/79	1979/80
July	33.5	81.6	105.0	122.0
August	33.4	95.4	108.4	129.1
September	33.9	75.1	104.6	115.0
October	38.6	90.8	134.9	139.1
November	43.4	78.2	111.1	103.7
December	37.9	91.4	95.4	147.5
January	58.8	105.1	139.0	169.0 ^{/a}
February	47.1	93.6	109.5	
March	65.1	110.7	123.4	
April	75.2	109.0	124.6	
May	57.2	117.7	122.8	
June	53.7	107.6	119.0	
Total	577.7	1,156.2	1,397.7	

^{/a} Approximate figure.

Source: State Bank of Pakistan.

Table 10

COMPOSITION OF EXPORTS, ^{1/a} 1969/70-1978/79
(million rupees)

	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79
Raw Cotton	209.7	270.0	954.8	1,167.0	376.1	1,543.9	980.5	292.1	1,093.6	655.2
Cotton Yarn	254.0	344.2	592.3	1,941.0	1,810.6	851.4	1,422.3	1,171.7	1,059.5	1,956.1
Cotton Cloth	257.6	311.3	387.1	1,247.1	1,416.8	1,312.5	1,359.4	1,603.3	1,741.2	2,135.2
Rice	93.3	173.0	274.1	1,136.1	2,098.4	2,303.7	2,479.1	2,477.9	2,408.5	3,380.0
Fish and Fish Preparations	83.3	61.3	111.1	233.7	276.0	156.6	278.8	381.3	341.4	462.0
Tanned Leather	109.3	107.0	173.5	544.9	418.5	367.3	295.9	647.4	636.5	1,247.3
Carpets and Rugs	55.1	64.7	108.7	281.5	456.7	456.0	719.2	911.9	1,170.8	1,764.7
POE Products	48.5	38.6	41.3	128.6	175.6	138.5	192.0	268.5	625.9	643.5
Cement and Cement Products	19.2	20.5	43.9	106.2	167.2	279.6	44.6	5.6	0.2	-
Sports Goods	30.0	32.7	50.7	136.1	188.0	204.5	189.2	199.1	194.9	212.1
Raw Wool	26.6	20.9	24.6	82.8	64.1	20.1	66.2	76.2	72.7	107.9
Others	421.4	554.2	609.3	1,546.2	2,713.2	2,652.0	926.7	3,258.9	3,635.3	4,360.9
Total	<u>1,608.0</u>	<u>1,998.4</u>	<u>3,371.4</u>	<u>8,551.2</u>	<u>10,161.2</u>	<u>10,286.3</u>	<u>11,253.9</u>	<u>11,293.9</u>	<u>12,980.5</u>	<u>16,925.0</u>
Exports to East Pakistan	1,666.9	1,377.6	474.0	-	-	-	-	-	-	-
Total Exports	<u>3,275.5</u>	<u>3,376.0</u>	<u>3,845.4</u>	<u>8,551.2</u>	<u>10,161.2</u>	<u>10,286.3</u>	<u>11,253.9</u>	<u>11,293.9</u>	<u>12,980.5</u>	<u>16,925.0</u>

Table 11

COMPOSITION OF IMPORTS, 1970/71-1978/79

(million rupees)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79 ^{/a}
Capital Goods	1,885	1,486	2,499	3,975	6,152	7,158	8,750	9,316	10,970
Iron and Steel Bars	28	25	32	58	58	45	38	57	30
Plates and Sheets of Iron and Steel	129	103	245	566	690	512	775	768	1,067
Hoop and Strip Iron	15	14	34	51	-	35	17	21	29
Rails and Railway Track	13	11	6	2	4	93	78	26	78
Iron and Steel Wire	14	14	21	31	53	60	53	59	79
Tubes, Pipes and Fittings	45	45	50	77	147	412	366	139	222
Power Generating Machinery									
Other than Electric	50	8	40	146	21	129	259	204	458
Agricultural Machinery	65	56	72	201	295	534	837	939	1,090
Textile and Leather Machinery	143	196	202	243	14	714	581	573	508
Machines for Special Industries	94	76	60	121	205	407	567	573	528
Electric Power Machinery	87	78	107	168	272	433	383	532	633
Road Motor Vehicles	193	35	398	544	505	843	1,059	1,141	1,598
Others	1,009	825	1,232	1,858	3,888	2,941	3,757	4,314	4,617
Consumer Goods	385	795	2,484	3,214	4,714	4,337	3,651	5,555	8,969
Wheat	83	270	1,112	1,546	2,461	1,785	660	1,337	3,505
Other Food	12	180	834	896	931	1,281	1,386	2,078	1,871
Petroleum Products	-	69	25	151	390	390	601	1,538	2,200
Medicines and Drugs	56	79	120	184	186	272	348	513	601
Printed Matter	11	6	13	14	34	21	24	49	71
Others	223	191	380	423	712	588	632	40	721
Raw Materials	1,332	1,218	3,415	6,290	10,059	8,970	10,611	12,944	15,449
Crude Petroleum	167	172	463	1,055	2,145	2,524	2,711	3,180	3,046
Edible Oil	183	131	224	821	1,297	1,047	1,478	1,353	2,953
Chemicals	103	389	471	690	625	483	550	648	814
Dyeing and Tanning Materials	51	206	148	165	203	208	208	363	311
Fertilizers	118	51	390	895	960	559	623	1,018	2,808
Chemical Materials, n.e.s.	66	53	151	295	388	449	629	449	429
Pig Iron, Sponge Forms of Iron	21	46	57	37	280	64	39	47	96
Ingot and Primary Forms of Iron	101	55	165	176	481	134	243	295	330
Non-Ferrous Metals, n.e.s.	18	2	12	3	7	3	4	344	327
Iron and Steel Forgings	7	-	-	5	17	48	18	11	14
Copper	28	17	-	2	127	42	50	86	78
Aluminum	15	18	2	75	106	35	188	140	135
Others	455	78	1,332	2,011	3,423	3,374	3,870	4,591	4,108
Total	3,602	3,495	8,398	13,479	20,925	20,465	23,012	27,815	36,385

^{/a} Provisional.

Source: Ministry of Finance and Economic Affairs.

Table 12

SUMMARY BALANCE OF PAYMENTS, 1972/73-1978/79
(million US\$)

	1972/73			1973/74			1974/75		
	Credit	Debit	Balance	Credit	Debit	Balance	Credit	Debit	Balance
Goods and Services	919.7	1,195.0	-275.3	1,238.1	1,936.9	-698.8	1,288.9	2,596.1	-1,307.2
Merchandise	766.6	991.2	-124.6	1,219.7	1,493.1	-473.4	977.6	2,116.2	-1,138.6
Non-Monetary Gold	-	-	-	-	-	-	-	-	-
Freight and Insurance	3.1	82.0	-78.9	2.0	153.9	-151.9	1.7	208.0	-206.4
Other Transportation	57.7	35.7	22.0	97.5	65.6	31.9	129.4	53.3	76.1
Travel	15.1	29.8	-14.7	20.3	35.5	-15.2	27.5	45.9	-18.4
Investment Income	17.3	101.5	-84.2	36.1	108.1	-72.0	37.4	135.1	-97.7
Government (n.i.e.)	37.7	32.7	5.0	27.6	45.0	-17.4	40.0	68.0	-28.0
Other Services	22.3	22.3	-	36.9	35.6	-0.7	75.4	59.6	15.8
Unrequited Transfers	181.1	6.1	175.0	222.7	5.1	217.6	378.5	5.1	373.4
Private	146.3	1.3	145.0	151.2	0.9	150.3	229.9	0.5	229.4
Government	34.8	4.8	30.0	71.5	4.3	67.2	108.6	4.6	104.0
Capital and Monetary Gold	378.9	286.0	92.9	635.8	149.2	486.6	1,295.1	246.1	1,049.0
Private and Long Term	58.7	45.9	12.8	100.9	43.4	57.5	144.9	49.2	95.7
Private and Short Term	1.0	-	1.0	0.1	-	0.1	0.1	-	0.1
Local Governments	33.0	41.8	-8.8	106.0	17.0	89.0	123.8	35.5	88.3
Central Government	262.9	15.1	247.8	244.8	32.6	212.2	793.4	68.1	725.3
Central Monetary Institution	11.5	162.6	-151.1	128.8	6.3	120.4	214.1	93.3	120.7
(of which account with IMF Net)	(-)	(4.5)	(-4.5)	(53.2)	(-)	(53.2)	(201.0)	(-)	(701.0)
Other Monetary Institutions	11.8	20.6	-8.8	55.2	27.9	27.2	16.8	(-)	16.8
Errors and Omissions	7.4	-	7.4	-	-5.3	-5.3	16.7	-	16.7
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	1975/76			1976/77			1977/78		
	Credit	Debit	Balance	Credit	Debit	Balance	Credit	Debit	Balance
Goods and Services	1,460.6	2,706.1	-1,245.5	1,437.0	3,079.0	-1,642.0	1,685.5	3,511.8	-1,826.4
Merchandise	1,162.1	2,139.4	-977.3	1,132.0	2,418.0	-1,286.0	1,282.5	2,751.4	-1,468.9
Non-Monetary Gold	1.3	-	1.3	-	-	-	4.2	-	4.2
Freight and Insurance	1.2	201.4	-200.2	2.0	229.0	-227.0	1.8	287.8	-286.0
Other Transportation	125.4	59.5	65.9	127.3	50.0	77.3	132.6	66.6	66.0
Travel	35.0	56.8	-21.8	44.0	52.0	-8.0	69.9	52.7	17.2
Investment Income	28.4	173.2	-144.8	33.0	202.0	-169.0	34.1	214.7	-180.6
Government (n.i.e.)	46.8	75.8	-29.0	38.0	79.0	-41.0	71.1	87.0	-15.9
Other Services	80.4	52.0	28.4	61.0	49.4	11.6	89.2	51.6	37.6
Unrequited Transfers	691.4	18.4	673.0	744.0	4.7	739.3	1,352.2	16.6	1,335.6
Private	353.4	0.4	353.0	591.0	-	591.0	1,276.2	0.4	1,275.8
Government	138.0	18.2	119.8	153.0	4.0	149.0	126.0	16.2	110.8
Capital and Monetary Gold	1,257.3	431.8	825.5	1,259.0	416.0	843.0	1,157.3	644.8	512.5
Private and Long Term	182.6	43.1	139.5	148.0	41.0	107.0	153.4	44.9	108.5
Private and Short Term	78.4	24.3	54.1	158.0	105.0	53.0	159.3	139.4	19.9
Local Governments	212.2	29.8	182.4	302.0	43.0	259.0	421.0	76.0	345.0
Central Government	593.4	154.2	439.2	397.5	225.0	172.5	490.2	85.9	314.3
Central Monetary Institution	157.0	180.4	-23.4	223.0	-	223.0	4.7	139.9	-129.2
(of which account with IMF Net)	(135.5)	(-)	(135.5)	(41.0)	(-)	(41.0)	(-)	(7.1)	(-7.1)
Other Monetary Institutions	43.7	-	43.7	29.2	-	29.2	18.7	4.7	14.0
Errors and Omissions	-	8.8	-8.8	57.0	-	57.0	-	23.8	-23.8
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	1978/79								
	Credit	Debit	Balance	Credit	Debit	Balance	Credit	Debit	Balance
Goods and Services	2,155.5	4,763.6	-2,608.0						
Merchandise	1,644.2	3,815.8	-2,171.6						
Non-Monetary Gold	7.1	-	7.1						
Freight and Insurance	2.6	338.4	-335.8						
Other Transportation	190.8	86.4	104.4						
Travel	84.0	74.5	9.5						
Investment Income	46.3	278.7	-232.4						
Government (n.i.e.)	78.9	110.8	-31.9						
Other Services	104.9	61.0	43.9						
Unrequited Transfers	1,633.6	3.6	1,630.0						
Private	1,476.9	0.7	1,476.2						
Government	156.7	2.9	153.8						
Allocation of GPs	38.2	-	38.2						
Capital and Monetary Gold	1,462.6	755.6	707.0						
Private and Long Term	154.8	61.7	93.1						
Private and Short Term	154.1	154.1	-						
Local Governments	400.7	228.9	171.8						
Central Government	109.8	109.8	-						
Central Monetary Institution	109.8	(84.7)	254.5						
(of which account with IMF Net)	(-)	(-)	(-)						
Other Monetary Institutions	109.8	51.9	57.9						
Errors and Omissions	-	34.6	-34.6						

Table 13

FIXED CAPITAL FORMATION BY ECONOMIC SECTOR, 1969/70-1978/79

(million rupees)

	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79 ^{1/}
Total Fixed Capital Formation	6,834.0	7,045.4	6,814.3	7,646.5	10,613.9	16,217.9	22,770.4	26,421.4	29,228.2	31,675.0
Private	3,493.3	3,531.4	3,545.9	3,726.3	3,840.0	5,207.3	6,483.9	7,779.7	8,894.0	9,970.4
Agriculture	476.1	463.4	535.2	612.1	737.9	845.7	1,348.5	1,600.0	2,077.0	2,163.6
Mining and Quarrying	17.5	18.8	18.0	19.0	22.7	30.2	33.2	36.5	40.1	44.1
Large-Scale Manufacturing	1,206.2	1,224.0	1,016.3	763.1 ^{1/b}	697.3 ^{1/b}	1,990.4 ^{1/b}	1,309.0 ^{1/b}	1,526.3	1,539.1	1,666.6
Small-Scale Manufacturing	187.7	201.7	219.1	255.9	325.5	446.5	509.5	585.3	634.4	688.1
Construction	61.0	4.4	28.1	23.7	26.7	62.3	49.5	119.3	104.9	102.9
Electricity and Gas	108.3	107.7	71.3	111.8	0.9 ^{1/c}	1.0 ^{1/c}	1.5 ^{1/c}	1.6 ^{1/c}	2.0 ^{1/c}	2.0 ^{1/c}
Transport and Communication	514.7	518.3	606.9	968.0	999.6	1,016.4	1,070.7	1,167.0	1,227.3	1,592.4
Financial Institutions and Banking Insurance	51.2	52.0	33.2	34.5	9.6 ^{1/d}	5.6 ^{1/d}	7.2 ^{1/d}	13.8 ^{1/d}	13.4	13.4
Ownership of Dwellings	502.3	555.6	603.9	493.8	500.3	1,136.4	1,341.2	1,709.0	2,034.6	2,392.4
Services	366.0	385.5	413.9	444.4	519.3	673.3	813.2	1,020.9	1,221.2	1,354.9
Public	3,304.1	3,514.0	3,267.4	3,920.2	6,773.9	11,010.1	16,286.5	18,641.7	20,334.2	21,704.6
Government Enterprises	314.8	353.8	262.0	355.3	397.5	915.9	911.9	1,122.0	1,063.2	1,477.3
Railway	219.2	233.1	114.2	106.9	111.7	602.0	645.0	643.4	655.1	997.5
Post Office, Telephone and Telegraph	95.6	120.7	147.8	248.8	285.8	313.9	266.9	478.6	428.1	479.8
Semi-Public Organizations	1,962.4	2,218.0	2,089.4	1,979.9	3,692.6	6,311.0	10,467.4	11,515.3	13,471.4	13,383.5
Indus Basin	1,024.8	983.3	981.2	719.4	728.6	1,043.2	1,477.2	581.3	855.0	813.2
Mining and Quarrying	8.3	7.4	10.5	33.0	14.6	59.6	37.4	295.2	335.8	191.1
Large-Scale Manufacturing	177.1	67.7	96.9	109.9	375.4	1,056.6	3,159.5	4,487.8	6,133.3	5,946.8
Small-Scale Manufacturing	2.1	0.5	1.6	0.7	6.8	8.3	22.1	26.2	10.2	20.6
Electricity and Gas	155.8	575.1	410.1	383.2	704.5	2,419.1	3,184.7	2,519.5	2,778.8	2,302.8
Financial Institutions and Banking Insurance	8.0	5.3	10.3	13.5	59.4	81.1	110.4	160.7	202.1	219.2
Rural Works Program	99.2	40.3	39.1	139.6	140.4	142.2	160.7	98.8	73.4	109.0
Others	487.1	536.4	539.7	500.6	1,662.8	1,500.9	2,315.4	3,345.8	3,083.8	3,780.8
General Government	1,063.5	942.2	917.0	1,585.0	2,683.8	3,783.2	4,907.2	6,004.4	5,779.6	6,843.8
Federal	352.0	299.5	352.3	571.5	1,021.7	1,417.7	1,816.3	2,420.9	2,432.8	3,124.6
Provincial	559.9	487.3	373.4	812.7	1,407.5	1,952.0	2,632.6	3,010.9	2,894.9	3,203.0
Local	151.6	155.6	191.3	200.8	254.6	413.5	458.3	572.6	451.9	516.2

^{1/a} Provisional.^{1/b} Excludes Rs 25.8 million for the year 1972/73; Rs 35.4 million for 1973/74; Rs 78.6 million for 1974/75; and Rs 106.7 million for 1975/76 mainly as investment in BDM industries.^{1/c} Includes only private share of investment in electricity companies arrived at on the basis of paid-up share capital. Investments in KESC and gas companies are shown under public sector.^{1/d} Excludes Rs 55.1 million for 1973/74; Rs 58.3 million for 1974/75; Rs 91.9 million for 1975/76; and Rs 100.1 million for 1976/77 as investment in nationalized banks.

Note: The Statistics Division's estimates do not tally with the Planning and Development Division's due to conceptual differences. The former relate to physical investments while the latter include financial investments, for example, cost of land, as well as advance payments for imports of equipment and funds remaining unutilized.

Sources: Planning and Development Division and Statistics Division.

Table 14

SECTORAL GROWTH RATES AT CONSTANT 1959/60 FACTOR COST, 1960/61-1978/79

(annual percent rate)

	Average Annual Growth Rate		1965/66	1966/67	1967/68	1968/69	1969/70	1970/71
	Second Plan/ ^a	Third Plan/ ^a						
Agriculture	3.79	6.35	0.45	5.48	11.73	4.52	9.55	-3.07
Mining and Quarrying	11.84	5.26	9.02	-	3.01	2.92	11.35	0.64
Manufacturing	11.74	8.11	8.59	5.66	6.27	8.63	11.31	2.55
Construction	20.74	6.20	4.86	-3.71	-0.19	27.00	3.04	2.43
Electricity, Gas and Water	14.91	38.89	14.53	5.08	8.21	12.05	154.58	15.96
Transport, Storage and Communications	11.48	5.00	6.30	4.32	5.39	5.87	3.10	-2.32
Commerce	8.51	7.11	8.65	5.26	3.67	7.09	10.87	0.27
Financial Institutions and Insurance	15.38	12.65	10.94	12.68	11.75	8.50	19.38	9.67
Ownership of Dwellings	3.12	2.64	3.07	3.28	2.69	3.00	1.18	3.33
Public Administration and Defense	7.10	9.63	56.52	-14.44	-2.55	5.02	3.59	2.55
Services	4.18	4.61	3.98	4.28	4.05	3.94	6.79	4.93
GDP at Factor Cost	6.79	6.75	7.95	2.72	6.79	6.49	9.78	0.30
	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79 ^b
Agriculture	3.47	1.67	4.18	-2.12	4.47	2.48	2.50	4.18
Mining and Quarrying	1.92	1.26	11.80	0.56	-3.31	17.71	1.94	3.33
Manufacturing	-3.55	10.68	7.45	0.57	1.55	0.43	9.19	4.79
Construction	-16.33	15.74	10.70	17.72	19.38	-0.86	8.29	9.07
Electricity, Gas and Water	5.26	15.77	18.27	-11.14	3.79	16.04	8.92	8.11
Transport, Storage and Communications	2.32	16.30	4.71	4.42	1.16	1.69	13.36	8.72
Commerce	-0.49	6.66	14.89	3.17	1.81	-1.12	8.14	6.49
Financial Institutions and Insurance	0.79	29.06	6.42	14.44	3.28	8.18	10.41	12.01
Ownership of Dwellings	3.39	3.62	3.57	3.61	3.63	3.58	3.60	3.60
Public Administration and Defense	6.80	14.09	14.77	33.15	-2.97	7.29	11.08	7.42
Services	5.05	5.23	5.45	5.65	5.74	3.24	8.46	5.76
GDP at Factor Cost	1.65	7.21	7.74	3.94	3.32	2.53	6.96	5.90

^a Second Plan 1960/61-1964/65; Third Plan 1965/66-1969/70.^b Provisional.

Source: Ministry of Finance and Economic Affairs.

10801
(2 of 6)

**STUDY ON SMALL SCALE INDUSTRIES
IN PAKISTAN**

**Volume 2
SUB-SECTOR: LIGHT ENGINEERING**

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STUDY ON SMALL-SCALE INDUSTRIES
IN PAKISTAN

SUB-SECTOR STUDY
- LIGHT ENGINEERING -

Volume 2

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1. Introduction and Method of Approach

In the following chapters it is tried to give as complete and precise a picture as possible of selected light engineering industries, i.e.

- pumps and pump components
- electric motors and components
- diesel engines and components
- agricultural implements and components.

The exposition will be based on the findings of the survey carried out from September 11 to October 15, 1980, in the course of which 54 units of the above product lines have been visited all over Pakistan. However, it should be mentioned that the scope of the findings was prejudiced by the following constraints:

- statistical data on the selected product lines are only scarcely available. In most cases data on the light engineering sector are compiled on an aggregate basis. Even in more detailed surveys like the Punjab Small Industries Corporation's Survey Report 1977-78¹⁾ agricultural implements are put together with pumps, oil engines with machine tools, electric motors with fans, transformers, heating appliances etc.;
- the data received are subject to future changes. Within only two years following the completion of the PSIC survey new companies came up, old ones disappeared and there have been numerous changes within the existing units. Data of earlier surveys are thus difficult or almost impossible to compare with newer ones;
- most important, a prerequisite for a critical evaluation of the figures received is a personal visit to the units. Otherwise the statistical data cannot be interpreted realistically. In this context it should be mentioned that entrepreneurs for different reasons tend to not revealing certain details of their enterprises.

Nevertheless, large parts of the following analysis and recommendations are based on statistical data. In almost all cases these statistics are compiled for all product lines in one table each so as to allow a comparison between the previous sub-branches. A break-down by provinces, however, does not seem advisable as in that case the statistical basis except for Punjab would be too small to be meaningful. As an alternative, specific provincial features are dealt with verbally. The interpretation of the tables will be given great importance anyway.

Finally, it should be mentioned, that although 3 units have been visited in Baluchistan, these were not included in the evaluation of the sector analysis since their product line does not fall under any of the categories described above. In the NWFP-district of Mardan, too, there are numerous household-type manufacturers with similar features. For this reason, these enterprises were aggregated into one unit in the statistical evaluation (and the questionnaire).

1) Punjab Small Industries Corporation (PSIC): Survey Report 1977-78: Basic Statistics on Small Light Engineering Industry in Punjab

Furthermore, it must be mentioned that the totals given in the tables do not always correspond to those of the units visited. This is because data for one or the other unit was not available or not considered applicable.

2. Structure, Significance and Overall Potential of Sub-Sector

2.1 Size of Sub -Sector

This chapter deals with the volume and structure of the light engineering sector in Pakistan, table 2.1 summarizing the overall data based on the statistics available.

Table 2.1: Basic Data on Light Engineering

	Punjab			Sind ¹⁾			NWFP			Baluchistan		
	Total SSI	Light Engin.		Total SSI	Light Engin.		Total SSI	Light Engin.		Total SSI	Light Engin.	
			%			%			%			%
Number of units	45,486	8,210	18			-	5,574	696	12	602	99	16
Number of employees	12,696	50,394	24			-	23,880	2,168	9	1,769	280	15
Production value ¹⁾	7,841	-	14			-	248		12	66		6
Value added ¹⁾						-				23		11
Fixed assets ¹⁾	3,752		7			-						

1) Mio Rs.

The above figures show the relative importance of light engineering in small scale industry in the different provinces. It is, however, not possible to give a breakdown by the four product lines for all provinces as in the case of PSIC Survey Report 1977-78 ²⁾.

Furthermore, the number of units are of different relevance according to the provinces. Whereas in Punjab the ratio between household units and small manufacturing units in 1975/76 was 6,292 to 32,741, in NWFP and Baluchistan household units were clearly dominating.

In other words, in these regions the majority of the units is engaged in repair work, mainly in connection with cars, trucks, agricultural equipment and implements like tractors, trolleys, cultivators etc. and not in production. This statement is confirmed by the findings, c.f. a report carried out by the Small Industries Development Board (SIDB) in NWFP ³⁾ according to which only 7 or about 3 % out of 205 units are solely manufacturing units. This relationship is practically unchanged.

1) No detailed data available during time of mission

2) PSIC: Survey Report 1977-78: Basic Statistics on Small Light Engineering in Punjab, p. 1

3) SIDB: Report on Light Engineering and Metal Working Bazar Shops (1975)

As regards the number of units in the different product lines, the Punjab report shows the following breakdown, the present number being estimated on the basis of the average annual growth rate (table 2.2).

Table 2.2: Number of Units According to Product Lines in Punjab

Product Line	Number of Units 1977/78	Average Annual Growth Rate	Number of Units 1979/80
Agric. Implements	269	12,5 %	340
- thereof power driven (threshers, cultivators, etc.)	(105)	(12,5 %)	(133)
Pumps	37	12,5 %	47
Oil engines (all sorts)	224 ¹⁾	o ¹⁾	224
Electric motors	51	23 %	77
Total	581		688

Source: PSIC. Survey Report 1977/78. Passim.

1) Oil engines are not defined. According to the Survey, in Daska alone are found 109 units, a number which cannot be for diesel engines only. Similarly, an annual growth rate of about 30 % for diesel engines definitely is too high. According to the "Report of the Expert Working Group in Machinery other than Electrical Industrial Sub-Sector for the Fifth Five Year Plan 1978-83," the number of manufacturers is about 100.

For the other provinces no similar details are available. Hence, only estimations are possible. According to our information, in the Sind province there are definitely no manufacturers of diesel engines and electric motors on a small scale basis. As regards pumps, the 7 units visited during the survey are more or less all the units in Sind. Similarly, the 2 units visited in Hyderabad belong to the manufacturers of agricultural implements in Sind. In NWFP, too, the units visited cover practically all the different product lines. In Baluchistan there is no manufacturer of the products in question to be found. In the light of this situation and the inaccuracy on an estimate based on growth rates the figures in table 2.2 may reflect the bulk of units in the different product lines (with exception of diesel engines).

An interesting characteristic of Pakistan's industry is its centralization in major cities on the basis of product specialization. This phenomenon is particularly striking in Punjab but also in NWFP. In Punjab, the production of agricultural implements is thus concentrated in Faisalabad (33% of the units), followed by Gujranwala (19%) and Sargodha (10%). As regards power driven agricultural implements, their production seems to be even more con-

centrated in Faisalabad though there is no statistical proof. In NWFP, where household unit size manufacturers of agricultural implements form the only major product line within the small scale industry relevant for this survey, these units are predominantly concentrated in the Mardan district, i.e. in the villages along the road from Nowshera via Mardan to Malakand, Gujarharhi, Chakhtabai, Sahakot, Darghai and Jehangira.

Pumps and electric motors are concentrated in Lahore and Gujranwala, whereas diesel engines are mainly found in Daska and Lahore.

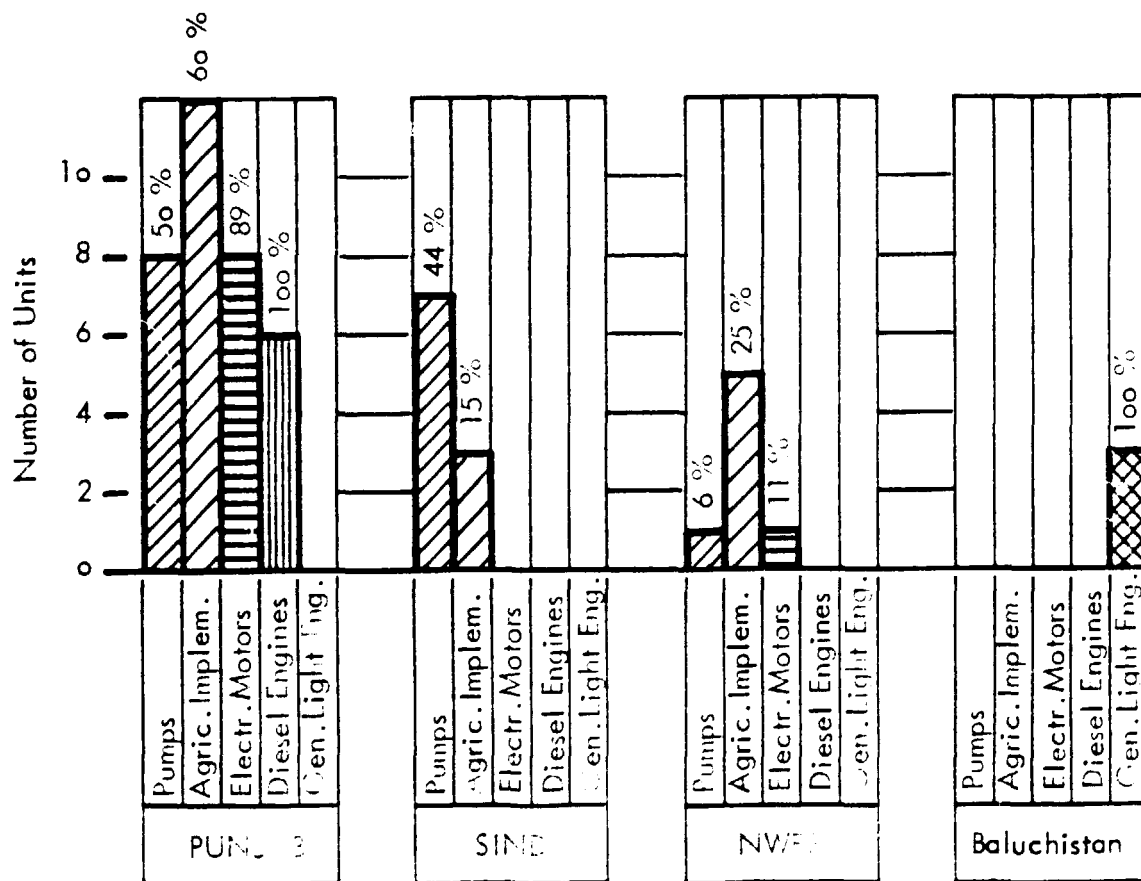
In the Sind province, the few units of interest are situated in Karachi with the exemption of those producing agricultural implements in sizeable quantities which are found in Hyderabad.

2.2 Characterization of Units Interviewed

2.2.1 Number of Units and Regional Distribution

The regional distribution and breakdown by product line of the 54 units visited during the survey is illustrated in figure 2.1.

Figure 2.1: Regional Distribution of the 54 Units Visited



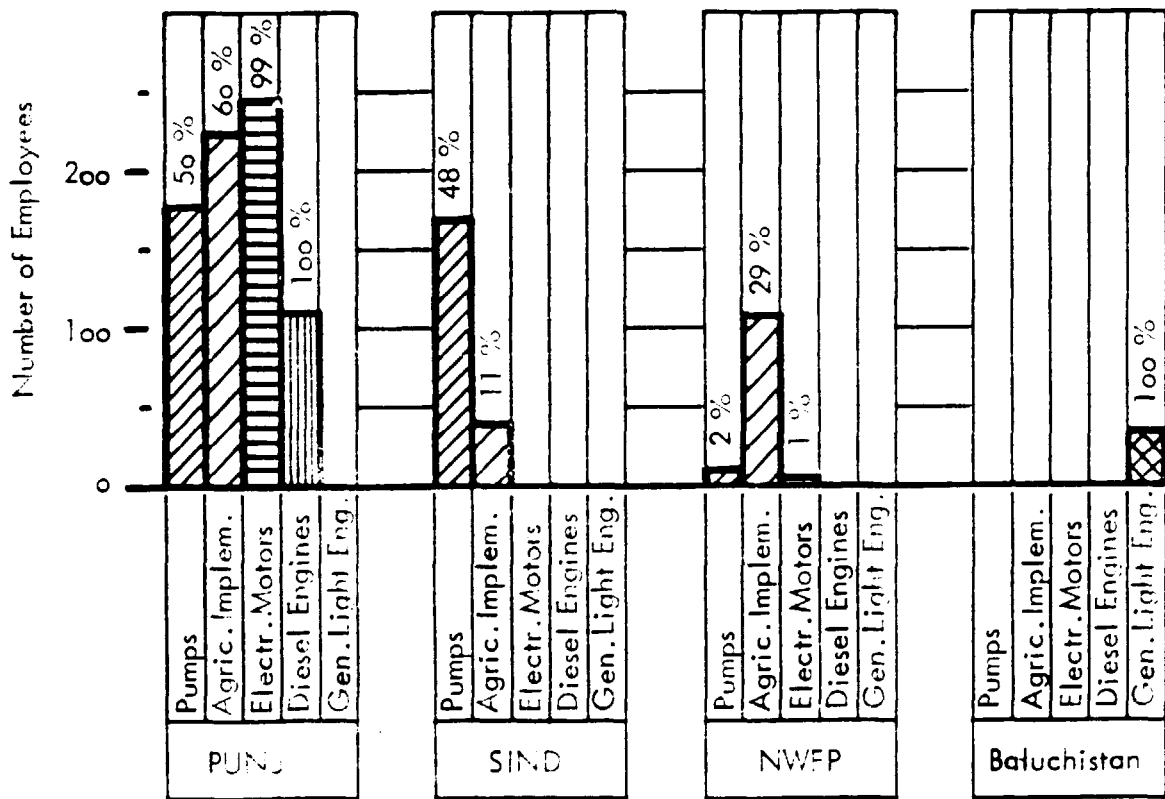
The distribution diagram indicates the high concentration of industry in Punjab, where 63 % of all units visited are located. 89 % of all manufacturers of electric motors and 10 % of those producing diesel engines are located in this province. In Sind the majority of companies visited are pump manufacturers, whereas in NWFP the manufacturers of agricultural implements are dominating.

2.2.2 Classification of Units

The following figures show the distribution of employees, investment and sales by region and production line.

According to figure 2.2, in 1980, 1,113 employees (including management) had been employed in the 54 units visited, 67 % of which in Punjab, 20 % in Sind, 10 % in NWFP and 3 % in Baluchistan.

Figure 2.2: Distribution of Employees

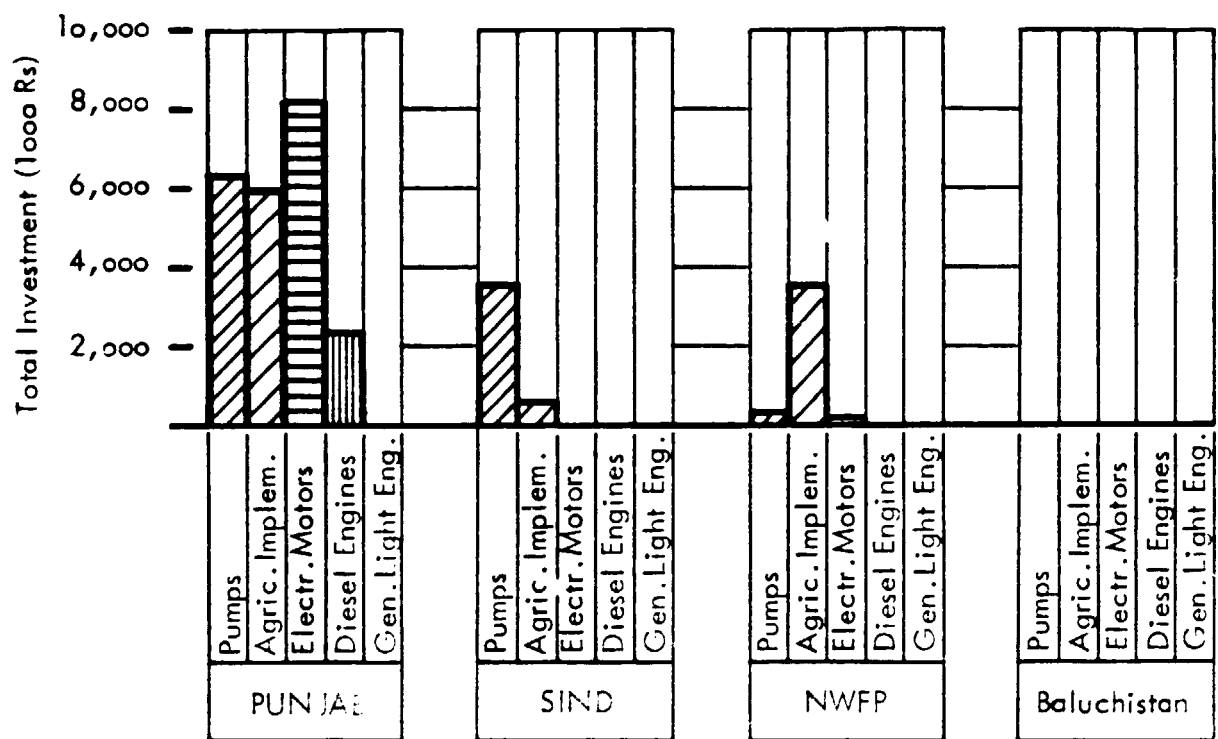


The average number of employees per unit is as follows:

- pumps 22
- agricultural implements 6 - 8
- electric motors 30
- diesel engines 18
- general light engineering 12

In figure 2.3 the total investment in fixed assets (without land) is broken down by province and product line.

Figure 2.3: Distribution of Total Investment (1000 Rs)



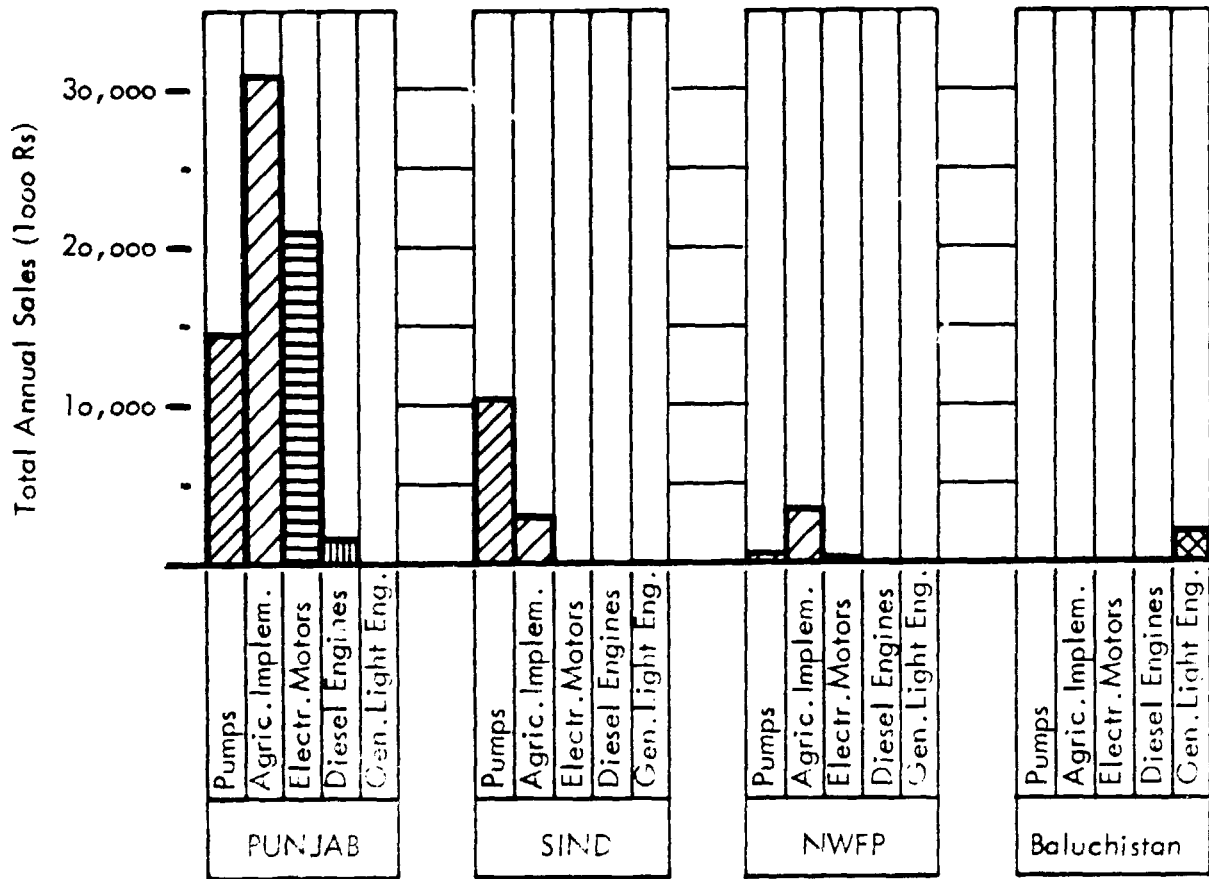
Based on the number of units visited per product line the average total investment per unit and per employee can be estimated as follows:

	per unit (Rs)	per employee (Rs)
- pumps	631,000	28,390
- agricultural implements	507,900	27,600
- electric motors	914,700	33,700
- diesel engines	403,300	22,000

However, in the sector of agricultural implements in NWFP province, there are mainly small manufacturers, in particular in the informal sector, producing predominantly items for basic needs or engaged in repair works. Their total investment per unit and employee may be considered to be much lower (Rs 23,000 per unit or Rs 5,000 per employee). Their activities being carried out in the open air or in temporary shelters and by means of simple equipment.

The total annual sales by province and product group are shown in figure 2.4.

Figure 2.4: Distribution of Total Sales (1000 Rs)



The average annual sales per employee for the product lines in question are as follows:

	<u>per unit (1000 Rs)</u>	<u>per employee (Rs)</u>
- pumps	1,554	69,900
- agricultural implements	1,867	101,750
- electric motors	2,496	92,070
- diesel engines	631	34,000

This comparison stresses the difficult situation of the diesel engine manufacturing sector, with its low output as a consequence of the prevailing market situation, while the sector of agricultural implements faces a comparatively prosperous outlook.

2.2.3 Organizational Aspects

As to the legal status, the units visited are organized as follows:

- 31 (57 %) are partnerships between family members
- 14 (28 %) belong to a sole proprietor and
- 8 (15 %) are limited liability companies.

According to this breakdown, family partnership is most common in small scale industry. Most of the limited companies are either part of a bigger company or have formerly been part of bigger units which then fragmented into the small industries bracket and are now to be found throughout all product lines.

The registration status with the Provincial Industries Departments is summarized in the following table 2.3:

Table 2.3: Registration Status According to Product Lines and Size of Company (number of employees)

Product Line	Size of Company							
	1 - 9 empl.		10 - 24 empl.		25 - 50 empl.		more than 50 e.	
	reg.	not r.	reg.	not r.	reg.	not r.	reg.	not r.
- pumps	2	5	4	-	3	-	2	-
- agric. implements	3	4	4	2	4	1	1	-
- electr. motors	1	1	2	-	4	-	-	-
- diesel engines	1	1	2	1	1	-	-	-
Total	7	11	12	3	12	1	3	-

In total, two thirds of the companies are registered. Registration is obviously correlated with the size of the companies but even in the lowest size bracket still more than half of the companies are registered.

2.2.4 Location Inside / Outside Industrial Estates

Out of the 54 units visited in all provinces only 8 (or 15 %) were located in industrial estates (three more in the industrial area in Lahore), as follows:

	<u>No. of units</u>
- Karachi	2
- Gujranwala (Small Industries Estate)	3
- Peshawar (Jamrud Estate)	2
- Quetta	1

3. Technical, Economic and Financial Analysis of Target Units

3.1 Production and Technology

3.1.1 Range of Products

Due to the mainly used multi-purpose machinery, most of the small scale enterprises are in a position to manufacture a wide range of products and to switch easily from one product to another according to demand. However, on account of the great similarity of the products, competition is very tight. In fact a product that proves to be successful is immediately copied by numerous competitors and practically all units of a specific branch are in a position to manufacture the entire range of its products.

Pumps and Pump Components

The units visited are commonly producing centrifugal pumps for pumping water for domestic, industrial and agricultural purposes. Their sizes range from 3/4" x 1" to 8" x 8" with electric motors from 0,25 HP to 10 HP and delivery heads of up to 150 feet. Piston pumps, however, are less frequently produced; they serve the same purposes as centrifugal pumps in particular where high pressure is needed, e.g. in service stations for vehicles. Special pumps like submersible pumps or pumps for liquids other than water such as chemicals, oil, slurries, juices etc. are very rarely produced and mostly on special demand only. The same is true for multi-stage centrifugal pumps. As regards pump components, a few units are specialized in the production of cast iron casings for centrifugal pumps as well as impellers. Furthermore, valves, fittings and flanges are manufactured.

The present product mix of the 16 units visited in their product line is as follows:

- 6 exclusively centrifugal pumps
- 3 centrifugal pumps and piston pumps
- 3 centrifugal and special type pumps
- 1 piston pumps only
- 3 pump components (cast volute casings and impellers).

In total, 15,000 centrifugal pumps, 5,600 piston pumps and some 330 special type pumps (mostly submersible) had been manufactured.

In most cases, the whole range of production processes is carried out within the company, except 6 companies that have the casings and impellers made by specialized foundries on a sub-contracting basis. In two cases in Karachi, the testing of raw materials and balancing is casually done outside. In all other cases no use is made of outside facilities available at large size companies or public institutions like service wings of Industrial Estates.

Most units, however, expressed the need for additional facilities in the foundry and machining section as well as special equipment to achieve better quality on their products in particular:

- foundry equipment, e.g. die casting units, sand mixers, core blowing machines and moulding machines
- more sophisticated and specialized tool cutting machines, e.g. milling-, boring (horizontal and vertical)- and lathe machines
- testing equipment and balancing machines.

Electric Motors

Electric motors produced by small-scale industry are single phase and three phase motors. The motors are used for powering water pumps in agriculture and households as well as in industry for smaller machine tools and looms. Most of the motors produced are of small size, i.e. ranging from about 0.3 to 2 KW. Although almost all of the factories visited claim to be able to produce motors of 20, 25, 30, 40 and even 50 KW, no example of such motors could be found. Due to technical constraints, all motors are of the low speed type, i.e. with 1450 rpm and below.

Diesel Engines

This industry is rather old in Pakistan; some of the units in this field have an experience of around fifty years. The diesel engines produced by the small-scale industry are of the slow speed stationary type (abt. 350 rpm), and mostly used in agriculture for irrigation and in small industries as power source. At present, the demand ranges from 16 and 18 HP engines but the producers could cover the whole range from 6 to 70 HP.

Agricultural Implements

This industry is comparatively new, a great number of the units having been established only recently. Of course, hand tools used in agriculture have been produced for a long time in Pakistan and still form in some parts of the country (Baluchistan, NWFP) the backbone of the industry producing agricultural implements. Tractor driven implements, however, are being introduced in Pakistan. The range of products manufactured is actually quite impressive and covers mainly the following items:

- threshers
- cultivators
- disc ploughs
- mould-board ploughs
- disc harrows
- seed drills
- maize shellers
- cane crushers
- levellers
- scrapers etc.

Threshers being the most important implement.

3.1.2 Quality and Standardization

The manufactured electric motors, water pumps and agricultural implements can be considered of low to medium standard. The electric motors in particular suffer from low quality as a result of inadequate production methods described below. The same is true for the production of centrifugal pumps. Though agricultural implements are of better quality due to a simpler production process they, too, still need improvement. As a rule, the quality standards are in correlation with the company sizes: the bigger the company, the better the product. Exemptions are small size units specializing in certain fields, for example in special water pumps. In this context it is interesting to note that most company owners are not aware of the short-comings of their products but claim their products to be well received by the market. For this, there are two main reasons: first of all the buyers' lacking quality consciousness and secondly the fact that their complaints do not reach the producer since there is no guarantee system, broken-down machines being repaired in the bazar workshops.

Similar arguments are applicable to product standardization. Retained by the lack of proper precision machinery and the application of jigs, fixtures, tools and dies which are lacking even in the bigger units visited there is no standardization. Every product manufactured is unique, a fact which affects the interchangeability of parts and the easiness of repairs.

3.1.3 Classification by Markets

At present, almost the entire production of the units visited is sold on the local market, with the exemption of one manufacturer of agricultural implements who sells threshers to Madagascar and South America and one other larger manufacturer of centrifugal pumps who sells about 10 % of his output to the Middle East. Formerly one manufacturer of electric motors and another one of diesel engines exported their products to Afghanistan.

3.1.4 Level of Technology

The level of technology and the processes applied differ from one product line to another as described below:

Pumps and Pump Components

The process commonly applied in manufacturing pumps can be broken down into the following steps:

- pattern making (mostly the pattern is made according to the design of a dismantled pump of a competitor or an imported pump)
- casting (iron melting is done in bigger companies in cupola furnaces and/or rotary furnaces. Smaller companies generally use crucibles. Casting is done in the traditional way without using any machinery)

- machining (machining is done in a special workshop, generally using lathes -, drilling - and shaping machines)
- assembling
- testing (pressure test for leakage detection)
- finishing (painting).

In most of the units no logical flow of production in the sense of a correct sequential operation could be observed, the products being machined and assembled wherever space is available. The production normally amounts to small series, depending on the size of the company.

Electric Motors

The production process of electric motors with the exception of the application of specific production technology is very similar to that of pumps and can be described as follows:

- pattern making for casings
- casting of casings
- machining of casings and shafts
- punching of blades for rotors and stators
- winding of stators
- assembling of rotors and varnishing
- aluminium casting of short circuit rotors
- assembling of complete motors
- testing (only simple torque tests are made)
- finishing.

Normally winding, casting, machining and assembling are performed in separate production areas within the company.

Out of the 9 units visited, 6 (75 %) manufacture the complete product; 1 has the casting and another the casting and rotor making done outside. Only 1 unit in NWFP reconditions used motors. Apart from this, none of the units visited are using any further facilities from outside.

Regarding additional requirements, the entrepreneurs expressed similar wishes as those manufacturing pumps. Besides the demand for more sophisticated machinery in the machining section, testing facilities and balancing machines are ranking high. Furthermore, casting machines for aluminium are needed to replace the presently used method of producing the rotors by hand-casting. Similarly, hydraulic presses are looked for to replace the hand presses used for assembling. Foundry equipment forms no priority because of the simple process involved in casting engine bodies.

Diesel Engines

The manufacture of slow speed diesel engines requires the following production processes:

- pattern making
- casting of engine beds, pistons and fly wheels
- forging of crankshafts (only in sophisticated units)
- machining of cast parts, crankshafts and auxiliary parts
- assembling
- finishing.

Due to the heavy weight of the engines produced, the foundry section, which is usually separated from machining, has to be quite spacious. Equipment such as cupola furnaces for melting and sand beds for moulding are used. Machining and assembling of the engines is done piece by piece according to the production sequence.

There are no additional requirements for the present types of engines manufactured. Due to the old tradition of manufacturing these diesel engines, all units visited have suitable equipment. The traditional types of engines up to 350 rpm can be produced with the commonly applied technology. The production of medium and high speed engines, however, requires additional equipment for

- forging and grinding a more sophisticated type of crankshaft
- machining, e.g. boring, milling, grinding and honing
- hardening.

Agricultural Implements

Basically, the manufacturing of agricultural implements is black smith's work. Main production processes are:

- cutting of profiles
- metal joining and welding
- machining of shafts etc.
- sub-assembly
- painting
- final assembly.

The production processes involved being comparatively simple, no sophisticated machinery is required nor is the level of technology very high.

The profiles used are bought from outside as well as springs and parts requiring hardening of certain quality. The equipment is thus reduced to basic metal working machinery as lathes, drilling machines and bench grinders in addition to several welding sets. As a rule there are no machines for shearing and bending of steel sheets. These processes are still mostly done by hand - even in the bigger units visited. Facilities from outside are normally not required.

Only 1 out of the 20 units visited producing hydraulic equipment for tractor mounting of front blades (levellers) reported the outside use of shearing machines.

The above mentioned steps of production processes are applied basically in Punjab factories. With the exemption of a few factories, the situation in NWFP, where also agricultural implements are produced, is totally different, the technological level being much lower, even for the manufacturing of threshers. Most of the units produce only hand tools and animal drawn implements in a very traditional way. Out of facilities required, shearing and bending machines are mentioned together with equipment for hardening.

3.1.5 Plant and Machinery

3.1.5.1 Age Structure

Numerous entrepreneurs have risen from the shop floor; this applies in particular to the general engineering and agricultural implement branches which developed from artisan-entrepreneurs to SSI, with lasting business experience as can be seen from table 3.1.

Table 3.1: Age Structure of Units Visited by Product Line and Province

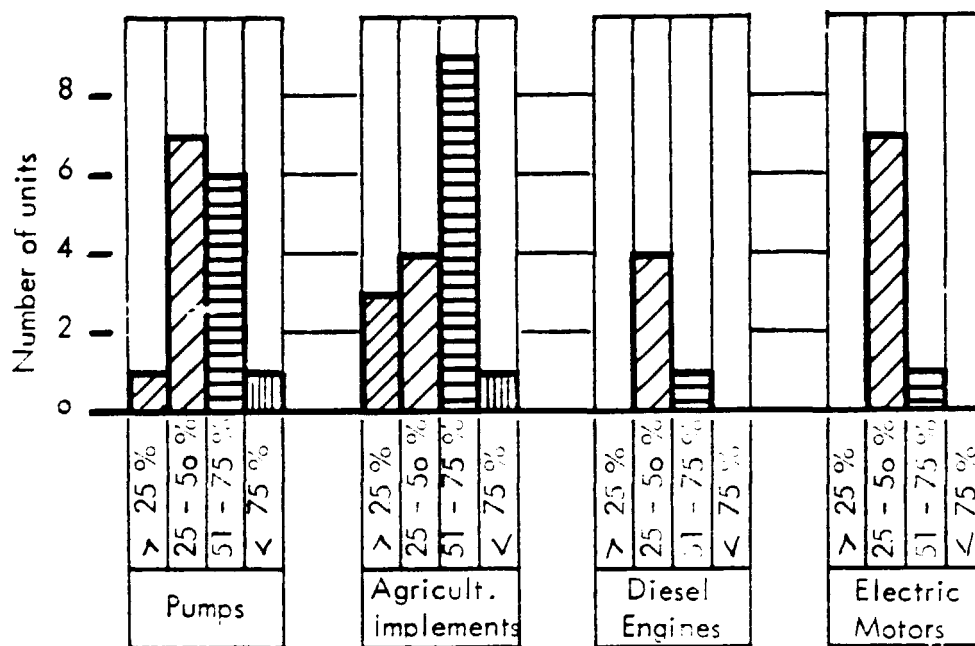
Location Product Line	Years		less than 2 years		2 to 5 years		5 to 10 years		10 to 20 years		more than 20 years	
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
SIND	-	-	1	10	1	10	3	30	5	50		
- pumps	-	-	1	14	-	-	2	29	4	57		
- agr. implem.	-	-	-	-	1	33	1	33	1	33		
PUNJAB	2	6	5	15	9	26	11	22	7	21		
- pumps	1	12	-	-	1	13	3	27	3	28		
- agr. implem.	1	8	4	33	4	34	2	17	1	8		
- elec. motors	-	-	1	13	2	25	5	62	-	-		
- diesel engines	-	-	-	-	2	33	1	17	3	50		
NWFP	1	20	1	20	1	20	-	-	2	40		
- pumps	-	-	-	-	-	-	-	-	1	100		
- agr. implem.	1	25	1	25	1	25	-	-	1	25		
BALUCHISTAN	1	33	-	-	1	33	-	-	1	34		
TOTAL	4	8	7	13	12	23	14	27	15	29		

While, according to the age structure agricultural implements are the products taken up most recently, followed by electric motors, pumps and diesel engines have been produced for rather a long time. The table shows furthermore, that in Punjab 47 % of the units are less than 10 years old, whereas in Sind this rate lies by only 20 %. This indicates the stronger drive in Punjab to embark on new ventures. For NWFP the figures are not representative because of the numerous small units visited in the Mardan district where no reliable data could be obtained. However, since these units produce mainly traditional products as agricultural implements it is assumed that they have existed for a long time, none being much younger than 15 years.

3.1.5.2 Capacity Utilization

As to the degree of utilization, it is noticed that none of the branches use their equipment to full capacity. On the contrary, a considerable under-utilization of equipment has been registered in the majority of firms as shown in the following figure 3.1.

Figure 3.1: Capacity Utilization per Product Line



On the whole, there is ample scope for expanding production in all product lines, though the sectors of pumps and agricultural implements are slightly better developed. The reasons for this will be dealt with, later.

3.1.5.3 Machinery and Equipment

Pumps and Pump Components

The composition of machinery in the units visited can be seen from the following matrix where numbers 1 - 16 indicate the units (table 3.2).

Table 3.2: Composition of Machinery: Pumps and Pump Components

Type of machinery \ Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lathe	12	14	6	-	3	2	6	20	9	8	6	5	4	4	4	4
Drilling	7	6	2	-	1	1	2	5	4	3	2	1	2	1	-	3
Shaping	3	2	1	-	-	-	1	3	1	1	2	2	1	1	-	-
Electric welding set	4	2	1	-	-	-	1	5	-	-	-	-	2	1	-	-
Bench grinder	3	3	2	-	2	2	1	3	1	1	1	1	1	1	1	1
Milling	1	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Lathe spec.	-	2	-	-	-	-	-	-	3	-	-	-	-	-	-	-
Grinding	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Others	3	7	-	-	-	-	1	4	-	-	1	-	1	-	-	-
Cupola	-	1	1	-	-	-	-	2	1	-	2	2	-	-	-	-
Rotary furnace	2	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-
Crucible	5	1	1	2	-	-	-	-	-	2	-	-	-	-	-	-

According to the above table an ordinary unit is equipped with simple machine tools like lathe machines, drilling machines, shapers, electric welding sets and bench grinders. More sophisticated machinery like special lathes, milling machines, surface and cylindrical grinders are very rare. The same is true for boring machines of horizontal and vertical type and polishing machines. These machines are substituted by lathe machines which in fact serve as multi-purpose machines. The absence of balancing machines is not surprising; only one unit placed an order for this urgently needed machine.

The following table 3.3 gives details on the average age and condition of the machinery.

Table 3.3: Average Age and Condition of Machinery: Pumps and Pump Components

Average age (years)	No. of units	%	Average condition	No. of units	%
2 - 5	2	13	Good	4	25
6 - 10	9	56	Fair	10	62
11 - 20	4	25	Bad	2	13
above 20	1	6			
Total	16	100	Total	16	100

The picture revealed by this table is not bad. It has to be taken into account, however, that some of the machinery is bought second-hand, especially by smaller units. Out of a total of 234 machines employed only about 10 or 4 % were new when put into operation and practically all by bigger companies.

Regarding the origin of the machinery, only 11 (or about 5 %) are imported, again by the bigger companies. All other machinery is produced locally. To a very small extent, simple machine tools are produced by the units themselves. The bulk of the machinery is in fair condition.

The relatively poor outfit in machinery and equipment is reflected by comparatively low investment costs, (based on present value) as shown in table 3.4.

Table 3.4: Distribution of Investment: Pumps and Pump Components

Investment (Rs)	Number of units	%	% cumulated
20,000 - 50,000	4	25	25
50,000 - 100,000	4	25	50
100,000 - 500,000	4	25	75
500,000 - 1,000,000	3	19	94
more than 1 million	1	6	100
Total	16	100	0

According to this distribution, 75 % of the units do not exceed Rs 500,000 for investments in machinery. The average investment per unit is in the range of Rs 150,000 to 200,000.

Electric Motors

The composition of machinery and equipment used in this branch is given in table 3.5.

Table 3.5: Composition of Machinery: Electric Motors

Type of Machinery \ Units	1	2	3	4	5	6	7	8	9
Lathe machines	5	10	8	16	8	6	3	3	3
Shaping machines	1	2	1	1	-	1	7	-	-
Milling machines	4	1	1	-	1	-	-	-	-
Power presses	2	3	9	7	8	-	3	-	-
Notching presses	2	4	9	10	4	4	2	-	-
Drilling machines	-	3	3	6	6	4	1	1	1
Cylindrical grinders	-	1	1	-	1	-	-	-	-
Other machinery	2	3	5	3	-	3	3	1	-
Foundry	1	1	1	1	1	1	-	-	-

Apart from special machinery such as power and notching presses, the production outlet is quite similar to that of pumps. Multi-purpose machines are again dominating, although there are more milling machines and cylindrical grinders in this sector. Balancing machines and testing sets were only found once; but they were not in operation.

Compared with pumps, the average age of the machinery installed is younger: almost 50 % is less than 5 years old, 25 % between 5 and 10 years and the remainder between 10 and 15 years. Similarly, the condition of the machinery is rated better: 55 % is considered to be good, 10 % fair and 35 % bad. Out of a total of 190 machines, about 10 (5 %) are very new. In regard to the origin of the machinery, 15 (or about 8 %) are imported, i. e. the cylindrical grinders, the balancing machine, the testing set and some of the milling machines.

The distribution of investment in machinery (present value) can be seen from the following table 3.6.

Table 3.6: Distribution of Investment: Electric Motors

Investment (Rs)	Number of units	%	% cumulated
below 50,000	2	22	22
100,000	1	11	33
350,000 - 500,000	4	44	77
above 500,000	2	22	100
Total	9	100	-

On account of the small statistical basis the above table is not very representative. From the figures available, the average investment may be assumed to be about Rs 340,000 which would approximately correspond to that of the line of pumps. However, this figure is not indicative, since one of the 9 companies solely reconditions electric motors and two others exclusively assemble motors. When eliminating these companies, the average investment for a company manufacturing the complete product amounts to Rs 486,000, which is considerably higher than that of the pumps sector.

Diesel Engines

The type of machinery used for the manufacturing of diesel engines is rather simple, as can be seen from table 3.7:

Table 3.7: Composition of Machinery: Diesel Engines

Type of machinery \ Units	1	2	3	4	5
Lathe machine	16	6	4	4	4
Wheel lathe (large)	1	-	-	-	-
Milling machine	1	-	-	-	-
Planing machine	1	-	-	-	1
Shaping machine	2	2	1	1	1
Bench grinder	1	1	1	1	1
Drilling machine	4	2	1	2	2
Boring machine	1	-	-	-	-
Hacksaw	-	1	-	-	-
Cupola furnace	1	-	1	-	1

Due to the type of machinery prevailing in this branch and the lack of more sophisticated equipment, the manufacturers are strictly limited to the production of low speed diesel engines. For a more advanced technology (medium speed diesel engines) additional equipment would be required, such as

- high precision machine tools
- forging equipment
- hardening equipment
- testing facilities (balancing etc.).

The average age of the machinery, which is mainly produced locally, ranges between 2 and 15 years. One company replaced its equipment only two years ago; this brings the share of new machinery to about 16 %.

The investment in machinery at present values per unit averages Rs 250,000. Even with an attached foundry this amount does not vary significantly, since the foundries normally required little equipment and thus little investment.

Agricultural Implements

The manufacturing of agricultural implements does not call for any sophisticated machinery, it is purely black smithing, metal joining, welding and some simple machining. The composition of machinery, installed in the units visited can be taken from table 3.8.

Table 3.8: Composition of Machinery: Agricultural Implements

Type of machinery \ Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Lathe machine	2	4	2	6	6	9	13	1	5	4	3	2	3	4	6	3	4	4	3	2
Drilling machine	2	4	1	5	3	5	8	1	2	2	1	3	2	2	2	2	6	2	2	1
Elec. welding/ gas welding	6	3	1	9	3	6	-	2	3	5	2	2	5	3	-	5	24	-	1	1
Bench grinding	2	1	1	2	2	2	2	1	1	1	1	1	2	1	-	1	1	-	2	1
Shearing/bending machine	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	4	-	-	-
Shaping machine	-	1	1	2	2	1	5	-	1	1	-	-	2	1	4	1	1	1	1	-
Presses	1	2	-	2	-	2	2	-	1	-	-	1	-	2	-	-	-	-	-	-
Other machines (f = foundry)	-	-	-	1	1	3	3	2	-	1	-	-	-	1	2	2	1	2	1	-
				f.	f.		f.	f							f			f	f.	

Some of the companies are also operating an attached foundry section. Unit number 20 can be considered a typical small-scale enterprise, prevalent in the Mardan district/NWFP. Only one unit producing hydraulic equipment for the tractor-mounting of levellers is in the possession of a honing machine which is indispensable for achieving the quality of surface needed for hydraulic equipment. Quite astonishing is the fact that only few shearing and bending machines are in use. Even power or hacksaws are hardly used and this in a trade where cutting and bending of profiles and sheets are common. All these operations are still widely done by hand with chisel and hammer or by using simple hand operated shears. Similarly, hardening and annealing equipment is not very common. Therefore, all parts needing a certain hardness have to be bought from outside.

Details on the average age of the installed machinery and its condition will be found in the following table 3.9.

Table 3.9: Average Age and Condition of Machinery: Agricultural Implements

Average age (years)	No. of units	%	Average condition	No. of units	%
below 5	7	35	Good	7	35
5 - 10	10	50	Fair	8	40
10 - 15	2	10	Bad	5	25
above 15	1	5			
Total	20	100	Total	20	100

The agricultural implements producing industry being the youngest among the 4 product lines; the favourable age structure of its machinery (85 % 10 years old) is not surprising. Similarly, 35 % of the machinery is in good condition. Two units have gone into production recently or are about to do so.

Of the 302 machines employed in this field, 14 (or about 5 %) are imported, mostly electric welding sets, some punching presses and the honing machine.

The distribution of investment in machinery and equipment at present values is as follows (table 3.10):

Table 3.1o: Distribution of Investment: Agricultural Implements

Investment (Rs)	Number of units	%	% cumulated
15,000 - 50,000	2	10	10
50,000 - 100,000	5	25	35
100,000 - 250,000	6	30	65
250,000 - 500,000	5	25	90
more than 500,000	2	10	100
Total	20	100	-

The above table underlines the former statement that investment in agricultural implements is comparatively low: 90 % of the units do not exceed 500,000 Rs and 65 % not even Rs 250,000. The average investment is of about Rs 254,000.

3.1.6 Technological Constraints

3.1.6.1 Technical Aspects

The stated low production productivity and product quality have their reason among others in the formerly described inadequate production facilities and the insufficient organization of the production process. While specific short-comings in this respect will be dealt with in a later chapter, under the present heading only constraints resulting from power and machinery break-downs etc. will be discussed.

Power supply breakdowns are reported to be frequent. Estimates range from once a week to 2 hours per day causing a loss of 25 % capacity utilization. As regards the break-down of machinery, no major complaints were made by the entrepreneurs, it was mentioned that from time to time gears or bearings are worn out but this does not pose any problem. As most of the companies are not operating at full capacity there is normally a possibility to switch to an idle machine in the case of machine break-downs.

Similarly, the procurement of spare parts stays without any significant problems. As the units dealt with here are all machine shops, most of the spare parts can be manufactured within the units. This is done frequently, the rest is bought in the bazar. No problems were reported in this respect either. As most of the equipment is locally made, it can also be easily repaired.

3.1.6.2 Quality and Quality Control

In order to maintain an adequate product quality the implementation of standard specifications is of crucial importance; they are prerequisites for solving technical questions and problems which continuously arise and thus serve to free manpower, capital and material for other objectives. Furthermore, the use of standards promotes the application of advanced and efficient production methods.

Even in the field of agricultural implements, although tolerance requirements are rather rough, quality standards are badly needed. This applies even more to pumps and electric motors, where interchangeability of parts is most important.

The following table 3.11 shows the statements of the entrepreneurs as to the application of quality.

Table 3.11: Application of Quality Standards by Product Lines

Product line	Application of quality standards			
	Yes	%	No	%
Pumps	5	31	11	69
Electric motors	4	44	5	56
Diesel engines	6	100	0	0
Agricultural implements	1	5	19	95
Total	16	31	35	69

It is not surprising to find the manufacturers of agricultural implements at the lower end of the table. Much more serious, however, is the fact that especially manufacturers of pumps, but also those of electric motors only rarely apply quality standards, as e.g. the British Standard Specification.

To sum up, any standard specification is only useful if its application is efficiently controlled.

- Pumps and pumps components:

Normally, control consists in a simple pressure test to detect leakages. Only one factory, the biggest one, carries out tests in an organized way, i.e. after each production step (casting, machining, assembling).

- Electric motors:

The normal procedure applied by Pakistan SSI is to test a prototype. Only few of the motors are produced on a random basis. Power brakes as well as ampere and volt meters are used for testing the torque of the motors.

- Diesel engines:

All engines produced are tested by using power brakes for torque measurement.

- Agricultural implements:

Functioning is tested with prototypes in the field; production control mostly consists of visual inspection

It is thus obvious that quality control and organization are not very advanced in any of the branches, being restricted to controlling the basic functions of the product. Controlling facilities used are most simple. The same is true for in-production control which is hardly anywhere organized. In many cases the instruments for measuring are not beyond the standard of calibers. Casually, gauges are used but, on account of wear and tear, often lack accuracy. On the whole, the visits to the factories did not confer the impression that quality control is a major objective, but rather the contrary. The manufacturers seemed to be satisfied once their products were in operation.

3.1.7 Working Conditions

Apart from a few bigger companies, where the working conditions are satisfactory, the situation in most of the smaller units cannot be considered adequate. The workshops are much too small and packed with machinery, (working and outworn), raw material and scrap in a way that hardly any room is left for the workmen. Furthermore, in some cases the working conditions are impaired by noise, dust, heat and lack of lighting installations, the latter being a particular problem where shop-like premises are used with the only source of natural light from the front door. But even in better suited workshops, the position of the working places with respect to light is mostly unsatisfactory. Furthermore, in many cases there are no protective measures against dust, etc. and machinery is operated without safety devices.

To illustrate the foregoing, the following tables 3.12 and 3.13 shows plants' sizes and the derived space per worker.

Table 3.12: Size of Plants by Product Line

Product line	Size of plant (sqm)				
	less than 100 sqm	101 - 250	250 - 500	501 - 1000	more than 1000 sqm
Pumps	6	5	3	1	1
Electric motors	2	-	3	2	2
Diesel engines	-	2	-	2	1
Agricult. implem.	4	7	3	5	1

Table 3.13: Space per Worker by Product Line

Product line	Space per worker (sqm)				
	less than 5 sqm/w.	5 - 10	10 - 25	25 - 50	more than 50 sqm
Pumps	4	3	6	2	1
Electric motors	-	1	4	4	-
Diesel engines	-	-	1	3	2
Agricult. implem.	2	3	11	3	1

3.1.8 Main Problem Areas

As far as technology and production are concerned, the units visited are marked by the following main problem areas, applying to all product groups:

- Machinery and equipment used are quite often obsolete. As a consequence, productivity is low and production processes requiring high accuracy cannot be carried out properly.
- New machinery very often does not ensure higher accuracy, as the machines are very often bought from small local manufacturers who cannot comply with the standards needed for precision work.
- Specialized machinery is very rarely installed. Hence, intricate production processes are executed with improper machinery resulting in low productivity and inferior product quality.

- The use of improper tools has the same negative influence on product quality.
- Due to the use of cheaper multi-purpose machine tools instead of machinery designed for the particular production processes the machines are overburdened and wear out quickly. Furthermore, production in a series is badly hampered.
- As the products are mainly copied instead of being designed by the company itself phasing and layout of the production process are insufficient resulting in inadequate production methods.
- Proper tools and dies are rarely used and in most cases outworn. Similarly, the use of jigs is not common. As a consequence, the products are all slightly but decisively different and their components are not interchangeable, whereby repairs are time consuming and expensive.
- Interchangeability also is negatively effected by not or not properly using standards and control devices to insure adherence to standards.
- The habit of copying other products increases the inaccuracies drastically because copying is done only roughly.
- The lack of own designing facilities and the inadequate equipment of the machinery prevent practically any development of production methods and products do not meet local requirements.
- Outdated production methods like bending and cutting of steel sheets by hand lead to inefficient production and substandard products.
- Due to lack of quality consciousness there is no objection made to imperfect surfaces as a result of clumsy welding or lack of polishing etc., which seriously impair the competitiveness of the products.

In regard to individual product groups, the following problem areas are noticeable:

Pumps and Pump Components

- A main problem is the lack of technology in the foundry. The volute casings as well as the impellers are intricately designed and only a well equipped foundry with adequately trained personnel is able to produce them with the proper quality. The same is true for pattern making where it is imperative that the pattern is modelled exactly according to the drawing and does not loose its proper shape when being used. As these requirements are rarely met, the efficiency of the pumps manufactured is very low, sometimes as low as 60 %, (though around 80 % could be achieved), resulting in a highly unsatisfactory relationship between energy input and water output.
- There are improper surfaces and blow holes in casings and impellers; some parts should be filed manually, but not doing this, losses in efficiency are the result.

- Dynamically unbalanced impellers, improper seat of the shaft and undersized ball bearings lead to noises and ultimately to the destruction of the pump.
- In piston pumps the excentric system is often poorly fitted leading to break-downs and loosening of the connection rod.
- Inadequate material for pistons leads to low efficiency.

Electric Motors

- Low quality of armature lamination sheets used and insufficient insulation lead to high consumption of electricity and thus to very low efficiency.
- The same short-comings, together with wrong dimensioning of the motors (poor winding), cause rising temperatures and finally the burning of the motor when it is heavily used. This defect is not detected by the quality tests performed because the standing time is not checked.
- Unbalanced rotors and badly fitted shafts lead to vibrations which not only affect the motor but also the motor driven aggregates (powered by the same).

Diesel Engines

- As regards the presently produced low speed diesel engines there are no major production problems which cannot be solved by the unit itself, since these engines have been produced for a long time. However, the whole industry is far behind the present level of technology. The heavy weight of the low speed diesel engines is a severe disadvantage. A machine of 16 or 18 HP weighs about 2 tons or 125 kg/HP, compared to less than 10 kg/HP for a modern medium/high speed diesel engine. Furthermore, the type of machinery installed does not offer any possibility for switching over to medium or high speed engines because of lacking accuracy.

Agricultural Implements

- Similar to the other product lines no attempts have been made to improve the basic designs hitherto adopted. Wheat threshers are still the same as 10 and more years ago; solely the recent product development of IRRI-PAK threshers has brought some positive change.
- As no quality standards are adhered to, the products tend to be substandard. This is also the reason why the farmers are reluctant to introduce new mechanized farming methods.
- The frames of cultivators are said to break easily.

- Due to lacking hardening techniques the cutting edges of levellers are outworn too quickly. The same is true for cultivators. For the same reason discs for disc harrows and ploughs cannot be produced locally.
- The traditional beater-type wheat thresher tends to break the grain which affects germination and increases spoilage during storage.
- Power consumption of these threshers is quite high due to their construction principle.

3.2 Material and Components

The approximate annual raw material consumption of an average standard company is compiled below for each product line (table 3.14).

Table 3.14: Type and Quantity of Annual Material Consumption by Average Company and Product Line

Specification	Source	Approx. price per unit (Rs)	Pumps 1)	Agricultural implements 2)	Electric motors 3)	Diesel engines 4)
Pig iron	i	4,000	180 t	-	100 t	60 t
Mild steel shafts	l	7,500	48 t	10 t	3 t	4 t
Brass	i	28,000	2 t	-	-	-
Ball bearings	l	20 - 120	10,000 p	2,100 p	18,000 p	-
Coke	i	3,200	40 t	-	25 t	15 t
Copper wire	i	82,000	-	-	25 t	-
Aluminium	i	36,000	-	-	12 t	-
Electric steel sheets	i	12,000	-	-	144 t	-
Crankshafts	l	1,200	-	-	-	40 p
Profiles	l	7,500	-	50 t	-	-
Ms steel sheets	l	7,500	-	35 t	-	-
Castings	l	7,500	-	12 t	-	-

Legend: i = imported l = local t = ton p = piece

1) Pumps: Annual production 4,800 pumps piston and centr. type

2) Agricultural implements: Annual production about 50 wheat threshers, 50 cultivators, 100 rear blades, 75 seed drills

3) Electric motors: Annual production 9,000 units

4) Diesel engines: Annual production 40 units

Apart from the items listed above, other materials used, though less important in terms of quantity, like stainless steel shafts, carbon steel, high tensile steel wire, nuts and bolts, welding rods, capacitors, springs, paints, varnishes, belts, gaskets, furnace oil, moulding sand, washers, rivets, bushes etc. are needed by the sub-sector.

Besides the imported items listed in table 3.14, indirect imports have to be considered too.

While castings are made locally, pig iron has to be imported. The same applied to copper wire. Including indirect imports the average share of imports in the four product lines can be estimated at about 85 % of the processed materials. When computing the indirect imports, it was assumed that inputs processed in Pakistan have a value added of ca. 20 %.

The bulk of material is purchased through local wholesalers: Only a few other sources were mentioned by the enterprises visited such as:

- trading corporations of Pakistan (6)
- local retailers (12)
- local manufacturers, e.g. foundries (7)
- manufacturers abroad (4)

Most of the enterprises do not maintain fixed relations over a long period to a certain supplier. About 63 % of the entrepreneurs change their source of supply frequently according to availability and price-worthiness. It is interesting to note that in places like Daska and Sialkot suppliers are changed rarely. Out of 18 entrepreneurs who stuck to their suppliers, 14 were located in one of these places and only 2 each in Lahore and Gujranwala.

Stocks of material are usually not maintained over a longer period: 84 % of the units keep stocks only for about one month, and almost one third does not keep stocks at all (see table 3.15).

Table 3.15: Raw Material Stocks by Product Line

Product line	Time period				
	no stocks	0.5 months	1 month	2-3 months	above 3 m.
Pumps	6	6	-	2	2
Agricult. implements	6	5	6	3	-
Electric motors	1	4	3	1	-
Diesel engines	3	-	3	-	-

One of the reasons for the limited amount of stocks kept within the companies is the lack of working capital, especially in the smaller units. Secondly, and this seems to be even more important, the entrepreneurs are not particularly concerned about the raw material specifications. If the required quality is not available, substitutes of mostly lower quality are used instead. The insecure availability of high quality raw materials is the reason why more quality-conscious manufacturers keep stocks of basic raw material for half a year and even longer.

As far as the quality of raw material is concerned, the following statements can be made:

- Since testing facilities are lacking within the units and outside facilities are not applied to (in only one case the use of outside facilities for raw material tests was reported) the use of proper materials is not ensured
- The high percentage of scrap used in casting without proper analysis makes good casting a matter of luck. The results are castings with low quality (hardness, surface, blow holes etc.
- The general knowledge about materials is poor and may result in the use of unsuitable material and inadequate processing.
- As there is practically no competition by quality, the method to enter the markets is to undercut prices. As materials are the main cost component, there is also a tendency to use cheap materials to be competitive.

Apart from the problems mentioned above, the entrepreneurs complain about:

- high and frequent price fluctuations, with a strongly increasing tendency. This applies particularly to small units who purchase small quantities at unfavourable conditions,
- high custom duties and sales tax, amounting up to 100 % and more of the purchase price.

3.3 Manpower, Management and Organization

3.3.1 Manpower

3.3.1.1 Employees by Category

The structure of manpower is compiled below for each product group. As already mentioned, most of the companies visited are organized as family-companies with the family members working as administrative or technical managers. In smaller companies, the owners are mostly integrated in the production process and may have the function of a manager and foreman at the same time. Therefore it is often difficult to make a clear distinction between management, staff and technical personnel.

Quite evidently, the percentage of unskilled workers is lower in smaller units than in bigger ones. This is probably due to the fact, that bigger units can afford a higher amount of helpers and trainees on a regular basis, whereas the smaller manufacturers are unable to ensure employment all the year round to unskilled labourers.

Contrary to othersub-sectors like leather and textiles, there is no female participation in this branch, and child employment only has been noticed rarely.

Table 3.16: Pumps and Pump Components

Category	Units	Sind						Punjab									NWFP
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16
Staff	29	4	1	3	2	1	1	8	5	8	33	3	3	1	1	1	
Skilled labourers	20	9	9	6	2	4	4	35	22	15	10	10	10	8	8	4	
Unskilled labourers	60	5	8	-	2	-	-	15	6	5	2	-	-	-	-	3	
Total	109	18	18	9	6	5	5	58	33	28	45	13	13	9	9	8	

Table 3.17: Electric Motors

Category	Units	Punjab								NWFP
		1	2	3	4	5	6	7	8		9
Staff	8	2	4	7	2	5	1	1	-	
Skilled labourers	25	37	21	25	25	10	8	2	3	
Unskilled labourers	18	4	15	5	5	4	7	-	-	
Total	51	43	40	37	32	19	16	3	3	

Table 3.18: Diesel Engines

Category	Units	Punjab					
		1	2	3	4	5	6
Staff	4	5	3	1	1	1	
Skilled labourers	30	12	8	10	7	7	
Unskilled labourers	-	6	10	5	-	-	
Total	34	23	21	16	8	8	

Table 3.19: Agricultural Implements

Category \ Units	Sind			Punjab											NWFP					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 ⁺
Staff	6	2	1	3	3	5	6	2	4	1	1	1	1	1	1	7	9	2	-	-
Skilled labourers	16	8	4	42	15	20	21	9	12	15	9	7	7	7	7	25	5	15	-	5
Unskilled labourers	-	-	4	-	10	2	-	7	-	-	-	2	-	-	-	10	24	3	-	-
Total	22	10	9	45	28	27	27	18	16	16	10	10	8	8	8	42	38	20	-	5

+ Average of units in the Mardan District

3.3.1.2 Qualification of Technical Staff

There is no officially sanctioned apprenticeship scheme, but rather a bias in favour of on-the-job training. Only few graduates from vocational schools find their way to the private industrial sector.

All skilled and unskilled labourers employed by the companies visited are reported to have gained their experience on-the-job. If most of these are reported as "skilled" this means that they have been trained within the enterprise for a certain period (at the most up to three years) and are in a position to carry out their particular jobs independently, but not that they have passed a formal apprenticeship or vocational training.

However, in most of the branches the general level of skills is rather low, all the more as there is a continuous drain of skilled workers by emigration to the oil-producing Gulf States where the wages are much higher than in Pakistan. Thus, there is an urgent need for employees able to carry out tasks at higher technology levels and precision work; in this context, fitters, mechanics and machinists should be trained to make tools, dies, jigs, fixtures, etc.

3.3.1.3 Employment by Term and Remuneration Structure

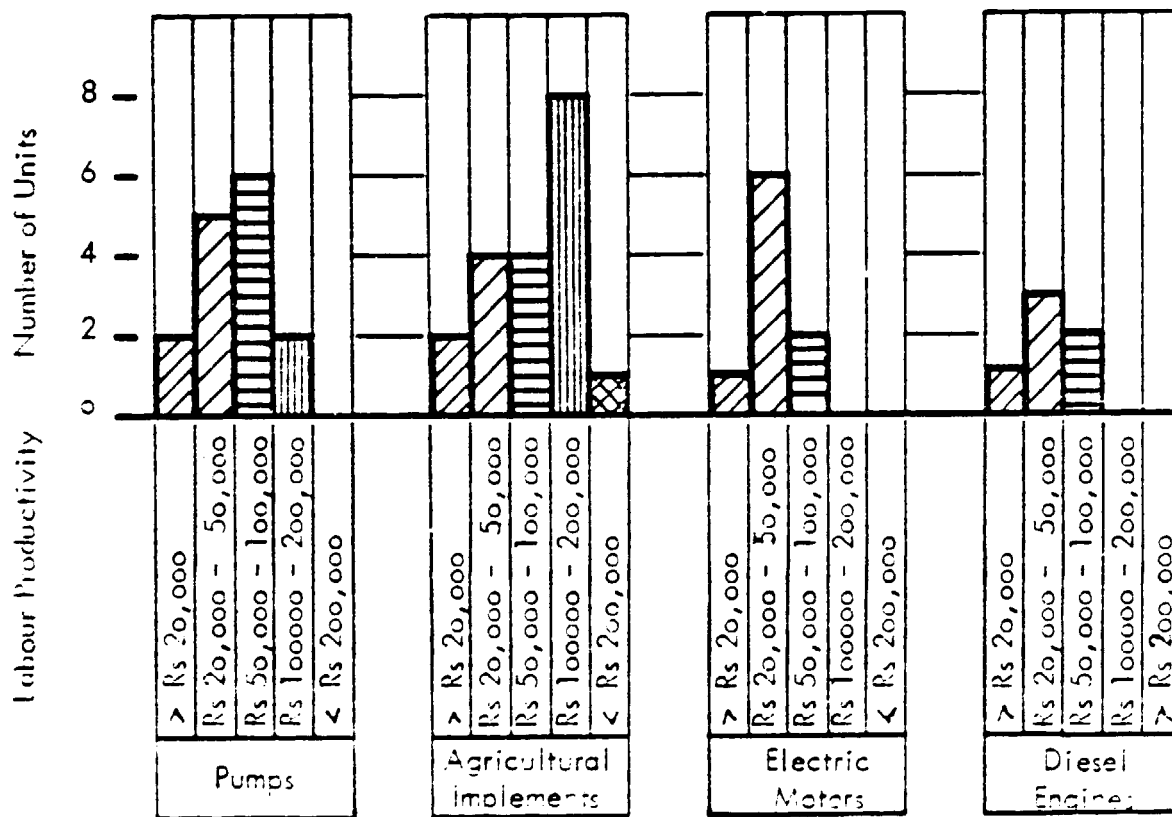
As regards the terms of employment there is no significant difference between the product lines nor between locations. Normally, the workers are employed on a regular basis. Contractual labour is very rare (pumps 1 case, agricultural implements 2, electric motors 2, diesel engines 1) and always restricted to a small proportion of the workers. Employment on a daily basis is a little more frequent (pumps 4 cases, agricultural implements 4, diesel engines 1) but in most cases also restricted to few workers. In agricultural implements as a seasonal business, employment on a daily basis serves to enlarge the staff during the season, whereas the labourers kept all the year round are regularly employed.

There is not much difference in the remuneration schemes either. Daily wages range from 20 to 40 Rs/day for skilled workers and from 10 to 20 Rs/day for unskilled labour. Monthly wages paid to skilled labourers are of a wide range, from 700 to 1300 Rs, in exceptional cases up to 2,000 Rs. Unskilled labour is paid 200 to 600 Rs/month. The average annual costs per worker are estimated to be 10,000 Rs. This amount includes fringe benefits as well as payments for social security schemes if applicable.

3.3.1.4 Labour Productivity

Labour productivity is defined as the ratio between output in terms of value and input of employment in the production process. In the case of small industries, however, it is not very practical to relate the output only to the labour engaged in the production process, as it is difficult if not impossible to separate workers employed in the production process from those working in other fields. The distribution of labour productivity within the product lines in question are given in figure 3.2.

Figure 3.2: Labour Productivity by Product Line (Annual Turnover / Total Labour Force)



The highest productivity rates are found in agricultural implements. 42 % of the units achieve a productivity between 100,000 and 200,000 Rs/worker, one unit even exceeds 200,000 Rs. This figure, however, must be questioned because it was calculated on three months' production only. The lowest productivity is found in the diesel engines sector, two thirds of the units achieving a productivity up to 50,000 Rs. Of all production lines, 24 % each fall in the bracket Rs 20,000 - Rs 50,000 and Rs 100,000 - Rs 200,000 respectively, 37 % in the brackets Rs 50,000 - Rs 100,000.

It should be mentioned that the lowest labour productivity was registered for NWFP, where 75 % of all units visited achieve a labour productivity of not even Rs 20,000. This calculation, however, includes only one of the numerous small units in the Mardan district. If all units were taken into account, the percentage of the above reported low productivity units would rise to 85 %.

3.3.1.5 Availability of Workers

Labour is short for small scale industries. Out of 51 units about 85 % reported difficulties in finding skilled workers; only 8 are not facing any problems regarding labour supply. Out of these, 4 are manufacturers of agricultural implements and located in Faisalabad.

The reason why the latter are not so short of labour may be that this product line requires comparatively low skills.

3.3.1.6 Labour Fluctuation

Although the majority of the units visited complained about fluctuation problems it was quite difficult to get figures on the fluctuation rate. The rates given in the following table 3.20 are only rough estimates by the entrepreneurs.

Table 3.20: Fluctuation Rate by Product Lines

Product line	Fluctuation (by number of employees per year)					
	0	1 to 5	6 to 10	11 to 25	26 to 50	51 to 100
Pumps	4	1	2	5	3	1
Agricult. implements	5	2	1	5	2	3
Electric motors	1	-	2	3	2	1
Diesel engines	5	-	-	1	-	-
Total	15	3	5	14	7	5

The table indicates, that there is hardly any fluctuation in the diesel engine group which is concentrated in Daska, whereas in other branches most companies suffer from fluctuations. Seasonal fluctuations are in particular reported in rural areas. Especially at harvesting and ploughing times labourers leave their job. This, of course, is quite understandable as all the labourers have roots in agriculture and do need the income from this source to support their families.

Besides seasonal fluctuations, there is a drain of labour due to the low remuneration. As mentioned above, large numbers of qualified workers move especially to the Middle East countries where the wages are very attractive. All entrepreneurs stressed this point.

3.3.1.7 Training Requirements and Facilities

Training institutes and Service Centres play only a marginal role in providing manpower for this subsector of the small scale industry. Only 5 units (10 %), all located in Sialkot, reported to employ workers who were trained by such institutes as MIDC in Sialkot. This low quotation is somewhat incomplete, because apart from MIDC in Sialkot other institutions, like PITAC (Pakistan Industrial Technical Assistance Centre) offer training courses in metal working, which is also done by small scale industry. However, most of the entrepreneurs have to train their own staff. The institutionally trained staff seems to be absorbed by the medium and large scale industry, as small scale industries cannot offer them attractive salaries or adequate employment. SSI are also reluctant to send their staff to the above training centres, on account of the costs involved and because very often their trained employees are lured away by other companies.

3.3.2 Management

A characteristic of the small scale manufacturing sector is the concentration of the managerial functions to a few persons. Except for the actual production operations the owner normally carries out all activities involved in running the business. Repartition of management functions has been observed to commence when an enterprise is about to reach the 20 employment bracket and increases with the size of the establishment.

However, the evaluation of management efficiency must be based on the impressions gained during the plant visits. In this context it is tried in table 3.21 to assess the efficiency of the unit's technical and administrative side by a rating system, distinguishing good (+) and fair (-) categories, keeping in mind, however, that this appraisal applies only to the group of small industrial units.

Table 3.21: Standard of Managerial Capabilities

Product line	Technical management		Administrative management	
	+	-	+	-
Pumps	12	4	5	11
Agricult. implements	13	7	5	15
Electric motors	7	2	2	7
Diesel engines	5	1	-	6
Total	37	14	12	39

It is obvious that the entrepreneurs' managerial capability lies more on the technical than on the administrative side. However, this fact does not allow any conclusion as to a corresponding innovative drive of the entrepreneurs. In fact, in the case of diesel engines, not a single unit made any improvement in design, efficiency and the like; the engines are still built the way they have been for decades and changing demand pattern will put ultimately an end to the future production of this type of engines; whilst the entrepreneurs have thus long business experiences they seem to be lacking one important component of entrepreneurship and that is to adapt their output to changing markets.

Quite different is the attitude of the manufacturers of modern agricultural equipment. Those located in Faisalabad for example produced mainly textile accessories (power looms etc.) up to the early seventies but then adapted themselves to changing demand. Also new entrepreneurs of this product line gave proof of entrepreneurial versatility.

3.3.3 Organization

Organizational aspects can be subdivided into those related to

- administration
- accounting
- marketing
- production.

Administration and Accounting

As regards these functions it is obvious that the small units visited can only have rudimentary forms of organization. Administrative work is partly done by the owner/manager and the accountant, whereas accounting is fully left to an accountant, often not employed by the company but only hired. Only companies reaching the employment bracket of approx. 20

workers usually have a separate accounting section. This of course does not apply to those units which do not keep books at all. Out of the units visited, 13 or about 25 % pretended not to do any bookkeeping. As regards the others it is difficult to appraise the quality and reliability of their records because balance sheets and profit and loss accounts were rarely made available. In any case it may be assumed, that such records are kept primarily to comply with the demands of income tax regulations and not to serve as a basis for business strategy. Only a few bigger companies make an exception. This allows the conclusion that in most cases business is run on the basis of simple revenue/expenditure arithmetics.

Marketing

There is hardly any marketing organization either. Only 13 or about 25 % of the companies make distinct efforts in this field and may be said to pursue marketing in a somewhat organized way. Advertisements, leaflets, show rooms, appointed representatives and after-sales services are the means employed to build-up a personal company trade mark.

Production and Work Flow

Planning and organization of production depends on the size of the units. In small units, as a rule, machines are not correctly located for sequential operations. Admittedly the structural set-up of numerous premises make a rational flow of work impossible. But also in those units where this is not the case much is left to do in organizing the production process.

3.3.4 Main Problem Areas

Since the main problems in manpower, management and organization are more or less the same for all branches, they are not dealt with by sectors but may be summarized as follows:

Manpower

- Labourers normally do not have formal training in their particular field of work. Having gained their skill on-the-job, they are only skilled for one job. However, they lack understanding for more complex production processes and are not used to work on the basis of drawings. Accuracy and keeping tolerances pose problems and they are not familiar with the use of jigs, tools and dies. Their knowledge about materials and appropriate processing methods is equally insufficient.
- The high rate of labour-fluctuation impairs the achievement of higher quality standards and productivity.
- The high rate of unskilled labour employed also prejudices product quality and productivity.

Management

- As already mentioned, in most cases the administrative side of the business is less developed than the technical field. This is quite normal because of the primarily technical background of the owners. Nevertheless, to run a company efficiently, accounting and administration are as important as the technical performance. However, the present low standard of accounting in particular does not allow the management to make decisions about taking up or dropping a production on the basis of cost calculations. Management is based on intuition rather than on rational considerations. This is not necessarily bad. However, as decision making will be increasingly complex also for small units, a better data basis will be indispensable.
- Generally, the entrepreneurs are not innovative enough. Basically there are two ways of behaviour: Either the traditional pattern is followed or competitors are copied. Only very few entrepreneurs are entering new fields. And if they are successful, their product is immediately copied by numerous competitors. Thus overall development is much too slow.
- Due to the adherence to traditional products and the imitation of products, research and development efforts are neglected.
- The entrepreneurs do not have enough knowledge about institutional facilities, tax system, incentives, credit facilities, administrative procedures and the like which are of importance to their business.

Organization

- Cost accounting as a basis for decision making is in most cases neglected; thus product prices are often below the actual production costs.
- Improvement in marketing organization is needed.
- In many cases the production process is not well organized.
- Due to the lack in training and because of their traditional behaviour the entrepreneurs are reluctant to adopt new and more efficient techniques especially in the field of business administration. While it is already difficult to convince the entrepreneurs of better technical processes which can be demonstrated to them, it is almost impossible to make them introduce more efficient management techniques which in their eyes only cause additional work and costs.

3.4 Demand and Marketing

3.4.1 Demand

3.4.1.1 Demand Pattern

The following general statements are entirely based on interviews with entrepreneurs, dealers and buyers, as no official statistical data are available for the individual product lines.

Pumps and Electric Motors

As already pointed out, the pumps produced by the small scale industry are only for the domestic market where they compete with imported pumps and those locally manufactured by large scale enterprises. According to market sources, demand goes for the cheaper pumps of the small scale industry. Imported pumps as well as those produced by larger manufacturers are more expensive because of trade barriers in the case of imported pumps and higher costs in the case of large manufacturers aiming at good quality products. As the buyers are not very quality conscious, the price is the decisive factor for them. And it is very difficult to make them understand the importance of good quality, i.e. that this implies higher efficiency, lower energy costs and a longer life-time of the products.

Diesel Engines

Low speed diesel engines are mainly demanded by farmers. Their popularity is due to some specific advantages, such as their long life-time and the need for very little maintenance which can be done locally. Also repairs, if any, are simple to make and can normally be done everywhere by the local blacksmith. Furthermore, the farmers are used to this type of engines and its familiar sound.

Agricultural Implements

The demand for agricultural implements depends largely on the degree of mechanization of the farms. This again is determined by the amount of available financial means on the one hand and by the adherence to traditional farming on the other. The change to modern farming methods is a slow process and requires a lot of demonstration. The farmers' low technical standard and quality consciousness encourage some manufacturers to produce low quality products, which, in turn, may disappoint certain users and make others hesitant to change the old techniques.

3.4.2 Marketing

3.4.2.1 Description of Markets

With the exception of two cases, the output of the units visited is sold locally. Due to the great number of manufacturers producing the same, almost identical article, competition is very strong in all product lines. Most of the manufacturers of all product lines are located in Punjab. Their products are sold practically all over Pakistan. The same is true for the output of the bigger Sind manufacturers. Only the manufacturers of NWFP are confined to their province and face heavy competition from products coming from Punjab. Figures on the regional distribution are, however, not available.

3.4.2.2 Market Mechanism

Out of the broad variety of possible arrangements, the most important distribution channels generally used by the enterprises, are summarized for the four product lines in table 3.22 below.

Table 3.22: Important Distribution Channels by Product Line

Product line	Distribution Channels													
	100 % job order		100 % wholesaler		100 % enduser		wholesaler/ enduser		arrangement w/ dealer		joborder/ enduser		arrangement w/ retailer	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Pumps	6	38	2	13	1	6	5	31	2	12	-	-	-	-
Agricult. implements	7	37	-	-	7	37	-	-	-	-	4	21	1	5
Diesel engines	3	50	-	-	3	50	-	-	-	-	-	-	-	-
Electric motors	-	-	2	25	-	-	3	37	3	38	-	-	-	-
Total	16	33	4	8	11	23	8	16	5	10	4	8	1	2

The above table may be supplemented with the following remarks:

As regards pumps, the job order system is mainly applied in the very small companies visited in Karachi (pumps and pump components) and by a small manufacturer in NWFP. Dealers as a marketing channel are used in 2 Punjab based companies (25 % / 50 % of their production respectively). As a rule, pumps are sold via wholesalers, or directly to the end users.

Agricultural implements are sold either directly to end users or on a job order basis. In only one case, part of the production (66 %) was sold via retailers. Except for one manufacturer who sells 90 % of his products to end users, all other Faisalabad based manufacturers do so with their entire output. Equally interesting is the fact that out of the four NWFP based com-

panies, 3 produce exclusively on a job order basis, the fourth sells only 60 % of his production by this scheme. In Daska, out of the 5 companies visited, the 2 bigger ones sell directly to end users, whereas the 3 smaller ones produce on a job order basis. An analysis of these findings indicates a correlation between the size of a company and its marketing channel used. The fact that the smaller units produce on a job order basis is not surprising, as this procedure requires less funds than the production on stock.

Diesel engines are either sold on a job order basis or directly to end users. The small number of units visited does, however, not allow a respective conclusion for the whole sector.

As regards electric motors dealers are involved in 3 cases with shares between 10 % and 95 % The rest of the motors is mostly sold via wholesalers, in two cases exclusively.

In this connection, the attitude of the entrepreneurs with respect to keeping stocks of finished goods should be mentioned (table 3.23).

Table 3.23: Stock Keeping Practices for Finished Goods According to Product Line

Product line	No stock keeping		Stock keeping					
	No. units	%	up to 2 weeks		up to 1 month		1 to 3 months	
			No. units	%	No. units	%	No. units	%
Pumps	10	67	3	20	1	7	1	6
Agric. implements	13	65	1	5	3	15	3	15
Electric motors	8	89	-	-	1	11	-	-
Diesel engines	5	83	-	-	-	-	1	17
Total	36	72	4	8	5	10	5	10

According to the above table stock keeping is not very common. If practiced, it finds more frequently application in the pumps and agricultural implements sector than in the field of electric motors and diesel engines.

Pump manufacturers seem to keep small stocks for sales to endusers. Stock keeping for longer periods is unnecessary in this branch due to the short pumps' production time. The 3 months' stock reported for one unit are not indicative as these were the result of sluggish demand.

Agricultural implements, on the contrary, are generally kept on stock for longer periods. This is partly explained by the seasonality of the respective demand. Furthermore, units

that sell their entire production to end users are bound to keep larger stocks, while production on a job order basis requires less stocks.

Sub-contracting is rare in the branches under review. Only 4 units are engaged as subcontractors, two of them are foundries in Karachi, working for pump manufacturers. Farming out work to sub-contractors was only reported in two cases.

3.4.2.3 Prices

About 25 % of the units visited claimed to calculate their prices by their costs, the others fix them according to the market situation. However, it may be assumed that these statements only apply to the few units engaged in repair work and producing on special order. In view of the strong competition in all product lines, it seems pretty impossible to insist on cost prices. The entrepreneurs explained that when finding their cost prices too high, they adjust them to the prevailing market prices. The market is more or less ruled by principles of perfect competition where prices correspond to the production cost of the cheapest competitor. As soon as a competitor rises his price the buyers will shift to others who, due to unused capacities, can satisfy the additional demand. In fact the products' sales prices are practically the same, regardless of the producer and his location. A few examples will illustrate this:

12 - 14 HP diesel engines are presently sold uniformly at 1000 Rs/HP and larger ones at 900 - 950 Rs/HP. The price for cultivators is of about 3500 Rs all over the country; wheat threshers are sold at 17,500 to 20,000 Rs, depending on the number of beaters, and simple ploughs at about 4,000 Rs. Only the manufacturers located in Hyderabad are reported to ask higher prices, i.e. 6,000 Rs for a cultivator made of imported parts.

As regards electric motors and pumps, the prices depend on the size of the motors and pumps, e.g. prices for electric motors range from 700 Rs for a 0,3 KW motor to 5,000 Rs for a 15 KW motor. Small sizes of centrifugal pumps without engines are sold at 175 to 500 Rs, bigger sizes (8" x 8") at up to 3,000 Rs.

In view of the prevailing inflationary tendency in Pakistan, prices are likely to continue to rise accordingly.

As regards the terms of payment, wholesalers usually enjoy 30 days' credit. Sales to end users are normally on cash basis with occasional credit periods of 1 to 2 weeks. For job orders a down payment of 25 % is asked for as a rule, the rest being due upon delivery. Wholesalers are granted rebates of about 15 %, dealers only of some 10 %.

3.4.2.4 Competition

All product lines are facing heavy competition. Generally, there are three groups of competitors:

- comparable industries
- medium and large size domestic producers in the same field
- imports.

Table 3.24 below shows the entrepreneurs' own appraisal regarding their competitiveness vis-à-vis larger domestic industries and importations.

Table 3.24: Competitive Position by Product Groups

Product line	Imports				Local production			
	by quality		by price		by quality		by price	
	good	poor	good	poor	good	poor	good	poor
Pumps	Imports are banned				15	1	15	1
Agricult. implements	2	6	8	-	17	2	13	6
Electric motors	4	4	7	1	5	4	7	2
Diesel engines	No imports				6	-	6	-

According to the above table many small manufacturers, in particular those of agricultural implements, esteem their quality and prices to be competitive. While, as far as prices are concerned, the above appraisal may be agreed to, the smaller units over-estimate definitely their product quality. This applies in particular to the pump sector and to a certain extent also to the electric motors section.

Their assessment regarding their competitiveness with imported goods is, as far as agricultural implements are concerned, more realistic. In fact, quite often there is no competition at all with imports, e.g. in the case of threshers and cane crushers. The imports of electric motors are mainly from China. Trade sources confirmed the manufacturers' assessment with regard to the competitiveness of their product quality with that of imported goods.

3.4.2.5 Market Potential and Development Prospects

Electric motors

Any statements concerning potential and prospects in this product line are badly hampered by the lack of statistical data, such as figures on imports, local demand, etc. The following conclusions are thus based on trade sources and are only estimates.

The local market for electric motors can be subdivided into two categories:

- electric motors up to 0.75 KW; mainly manufactured by SSI and imported
- electric motors from 0.75 - 75 KW; large scale industry and imports.

For the product range 0.75 - 75 KW the total demand is estimated at about 40,000 units p.a. with a potential increase to 50,000 units p.a. Out of these, 20,000 are manufactured by the companies listed below, 15,000 being imported and the remainder of 5,000 probably mainly manufactured by SSI enterprises.

Table 3.25 shows in how far electric motor capacities of important producers are actually used.

Table 3.25: Annual Capacity of Large Scale Producers of Electric Motors

Name of company	Capacity installed (units)	Capacity used (units)
Siemens	20,000	10,000
Climax	20,000	5,000
PECO	20,000	2,000
Senko	10,000	2,000
Bell	10,000	1,000
Total	80,000	20,000

According to the above table, all large scale units have the possibility to extend enormously their present capacity utilization. This fact and their product quality advantage render SSI development highly difficult if not unlikely. In fact, from the capacity and technical point of view, the large scale manufacturers could easily conquer the market of small electric motors. If the large scale manufacturers, due to this overcapacity decide to enter into the market of small electric motors (a step which technically poses no problems), the whole market can be conquered by the large companies. Together with the considerable quantities of cheap and reliable small motors imported, particularly from China and other east block countries - imports which due to barter agreements cannot be stopped easily -, future pros-

1) which is estimated to be not more than 50,000 units/p.a.

pects for the small scale industries are not very bright and only those who will manage to offer better quality motors might have a chance to survive.

Pumps

For the assessment of the market potential of this product line no statistical data had been available either. From the small units' low capacity utilization it has to be assumed, that the market prospects for low quality products are not very favourable.

Diesel Engines

The annual production capacity of the ca. 100 manufacturers presently engaged in this product line, is estimated at around 11,400 engines/year¹⁾. The actual capacity utilization, as assessed during the plant visits, however, is only of 30 to 50 %. This overcapacity is not likely to decrease in future. On the contrary, with the country's increasing electrification they will no longer be used for electricity generating and waterpump powering, regardless of the fact that the actually manufactured diesel engines have proved to be of lasting quality and easy in operation and maintenance. Also as prime movers for agricultural purposes they have severe disadvantages, since the engines are very heavy (a 16 HP engine has a weight of almost 2 t) and can be used only stationarily. There is growing demand for light, moveable high power engines which can be mounted on threshers, waterpumps, etc. For this purpose high speed engines are needed, which at the present stage cannot be built by the low speed engine producers. High speed diesel engines are also needed for road and construction equipment, small tractors, power tillers, generating sets, wheat, flour and rice mills. The prospects for diesel engines as such are thus quite good but with other properties than those of the engines actually produced by the small scale industry.

Agricultural Implements

Agricultural implements such as hand tools, animal drawn implements and tractor implements have in general good market prospects. Whereas hand tools are produced in sufficient quantities by local small manufacturers and are not further dealt with, emphasis has to be laid on animal drawn, and in particular, on tractor implements. Most of the farm holdings in Pakistan are small and animal drawn implements widely used. In this field demand is expected to rise steadily and thus to be met by the presently existing production facilities. In the field of tractor implements and other powered farming equipment (threshers, mills), however, the market is expected to grow fast, the respective demand being appraisable by the agricultural power input. The present input in Pakistan is of about 0.120 HP per acre, whereas developing countries need 0.2 HP/ acre for obtaining adequate crop yields²⁾.

1) Report of Expert Working Group on Machinery other than Electrical Industrial Sub-Sector for the Fifth Five Year Plan 1978-83. Jan., 1978, P. 10

2) IRRI-PAK Machinery Program Report: Farm Machinery Requirements in Indigenous Production in Pakistan, Jan., 1978

On the assumption that the existing power deficit in Pakistan will be met by tractors and that there is a fixed correlation between the number of tractors and the use of powered agricultural equipment a steadily increasing demand of agricultural implements may be forecasted.

3.4.3 Main Problem Areas

The main problems in the field of marketing and sales can be summarized as follows:

- Active marketing is rare. Due to limited resources and unawareness of the need for marketing the small entrepreneurs are reluctant to make their products known. Only a few print leaflets, advertise or try by other means to build up a trade mark and a corporate image.
- There are no after-sales services and hardly any guarantee systems. Especially when new markets are to be conquered or new products to be introduced this is a serious handicap.
- The frequently offered low price and quality products prejudice future sales.
- Products are poorly presented and often lack an attractive finishing touch. Furthermore, operating manuals are rarely available.
- Some small manufacturers' bad habit of using the trade mark of well-known companies for their own products spoils the reputation of the better producers. As lawsuits are cumbersome and time consuming these practices are unpunished.
- Legal and illegal imports increase the difficulties for small scale industry (e.g. electric motors).

In any case all these problems were hardly ever spontaneously reported during the consultant's interviews. The awareness of the small entrepreneurs of marketing is obviously not well developed.

3.5 Investment and Financing

3.5.1 Capital Structure

3.5.1.1 General Remark

The investment figures are all based on present values, i.e. the assets are not valued at their historical prices minus depreciation but at the value they are attributed by the entrepreneur and the expert. Hereby the figures of the different companies whose assets were invested at differing times become comparable.

However, land and buildings are overvalued by this method because their prices have gone up at a quicker rate than those of the other assets due to the scarcity of land. Furthermore, the figures given are only estimates because it was impossible in the given time to evaluate each asset individually.

In view of the fact that practically no balance sheets were available the described evaluation of the companies' assets would have had to be done in any case and thus served a double purpose.

3.5.1.2 Long and Short-term Loans

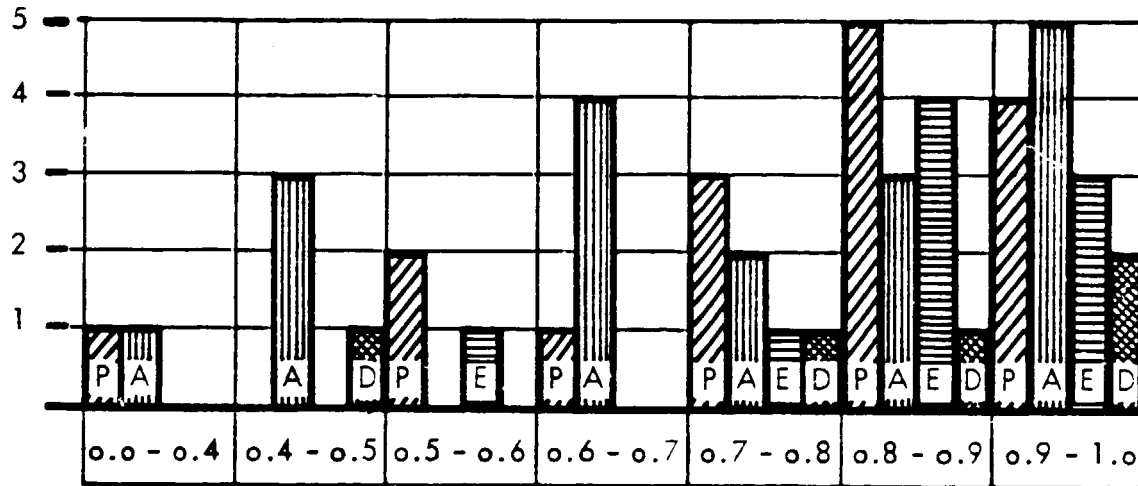
Out of the 54 companies visited only 9 (17 %) finance their fixed assets partly by loans. The share of long term loans ranges from 3% to 65 %, the median lying by 35 %. In one case, which cannot be considered representative, short-term loans were used for financing fixed assets.

Working capital is partly financed by short-term loans (13 units, or 24 %). In 8 cases they are in the form of trade liabilities, the other short term loans are from credit institutions and the like. The relation between liabilities and working capital ranges between 4 % and 100 %.

3.5.1.3 Fixed Assets / Total Investment Ratio

The ratio of fixed assets to total investment is shown in figure 3.3 by product line.

Figure 3.3: Fixed Assets / Total Investment Ratio by Product Line



P = Pumps A = Agricultural Implements
 E = Electric Motors D = Diesel Engines

The above figure indicates that there is a heavy concentration of companies with a fixed assets / total investment ratio of 0.8 - 1.0, which means that in most companies the major part of investment consists of fixed assets. When analysing the above relationships for individual enterprises it must be considered whether their land and/or buildings are leased or purchased and also in how far their current assets are enlarged by stocks and accounts receivable or their businesses are carried out on a job order basis, i.e. without receivables and stocks.

3.5.2 Sources and Funds

Loans do not play a major role in financing small scale industry, most of the capital being contributed by the entrepreneurs and their families who then form family partnerships. The following table 3.26 gives details on the sources of funds.

Table 3.26: Sources of Funds According to Product Lines (in 1,000 Rs)

Product line	Total investment			Long-term loans				Short-term borrowings			
	fixed assets	working capital	total	banks	other sources	total	% 1)	banks	trade liability	total	% 1)
Pumps	21,076	6,407	27,503	-	30	30	.	984	65	1,049	4
Agricult. implements	15,965	6,966	22,931	1,215	-	1,215	5	2,297	400	2,697	12
Electric motors	14,532	2,091	16,623	815	-	815	5	-	440	440	3
Diesel engines	5,290	533	5,823	-	20	20	.	-	-	-	-
Total	56,883	15,997	72,880	2,030	50	2,080	3	3,281	905	4,186	6

1) % of total investment

The above table shows that only a minor portion of the total investment is financed outside, i.e. by credit institutions, trade liabilities, etc. and thus reveals the companies' high equity ratio.

3.5.3 Lending Institutions, Borrowers and Credit Schemes Used

Most loans are from commercial banks at the normal interest rate of 13 to 14 % p.a. against securities. The difficulties faced by the small scale industry in institutional borrowing can be summarized as follows:

- Interest rates are very high. Some entrepreneurs pretend the interest of 13 or 14 % to be nominal, the factual burden including credit costs, insurance for mortgaged property etc. amounting to almost 20 %. It was also claimed that loans are not always distributed according to banking rules but that grants often depend on personal likings and dislikings and thus certain persons or groups are favoured.
- The securities asked for are felt to be too high. Mostly loans are only granted against mortgage on the company's assets or even on the entrepreneurs' private property (houses). In addition, personal guarantees of the entrepreneurs' relatives are asked for. In many cases the claimed securities exceed the loan amount.
- The lending procedures often exceed the small entrepreneurs' administrative facilities. In this context the lack of reliable balance sheets and/or profit and loss accounts are a serious drawback.
- Quite a lot of the entrepreneurs interviewed declared themselves reluctant to enter credit transactions. This reluctance has its root in a general distrust in authorities and institutions and their procedures, but also in the entrepreneurs' pride to manage the own business without help from outside. In addition, the Islamite religion pleads against the payment of interest.

3.5.4 Availability of Capital

There is a great need of capital for purposes like the modernization, expansion and diversification of product lines. Working capital is even scarcer, its lack hampering the daily business in some cases severely. In the following table 3.27 the investment needs stated by the entrepreneurs are related to the size of their companies expressed in terms of the number of workers. A break-down according to the motive of the investment, however, cannot be given because modernization and expansion due to a rise of production and/or product diversification, often go hand in hand. As regards diversification in general, the entrepreneurs do not look much for such possibilities. The smaller the units, the more they stick to their product line. This, of course, can be explained with their very limited business experience and knowledge of development possibilities.

Table 3.27: Investment Requirements According to Employment Range and Product Lines
(in 1,000 Rs)

Product line	less than 25		26 to 50		more than 50	
	No. units	(1000 Rs)	No. units	(1000 Rs)	No. units	(1000 Rs)
Pumps	1	400	1	1,100	2	2,400
Agricult. implements	3	3,050	4	14,000	-	-
Electric motors	-	-	3	5,500	1	5,000
Diesel engines	1	500	-	-	-	-
Total	5	3,950	8	20,600	3	7,400

The above figures quote a total investment requirement (fixed assets and working capital) of roughly 32 million Rs for 16 units (31 % of total units interviewed). On account of the low profit margins these funds are not very likely to be raised within the companies, but may come rather from outside, either by bringing in new equity or by taking up loans. In view of the entrepreneurs' reluctance to fully reveal their financial position it is not possible to determine whether they have enough funds at their disposal for further investments.

3.5.5 Cost-to-Sales Structure

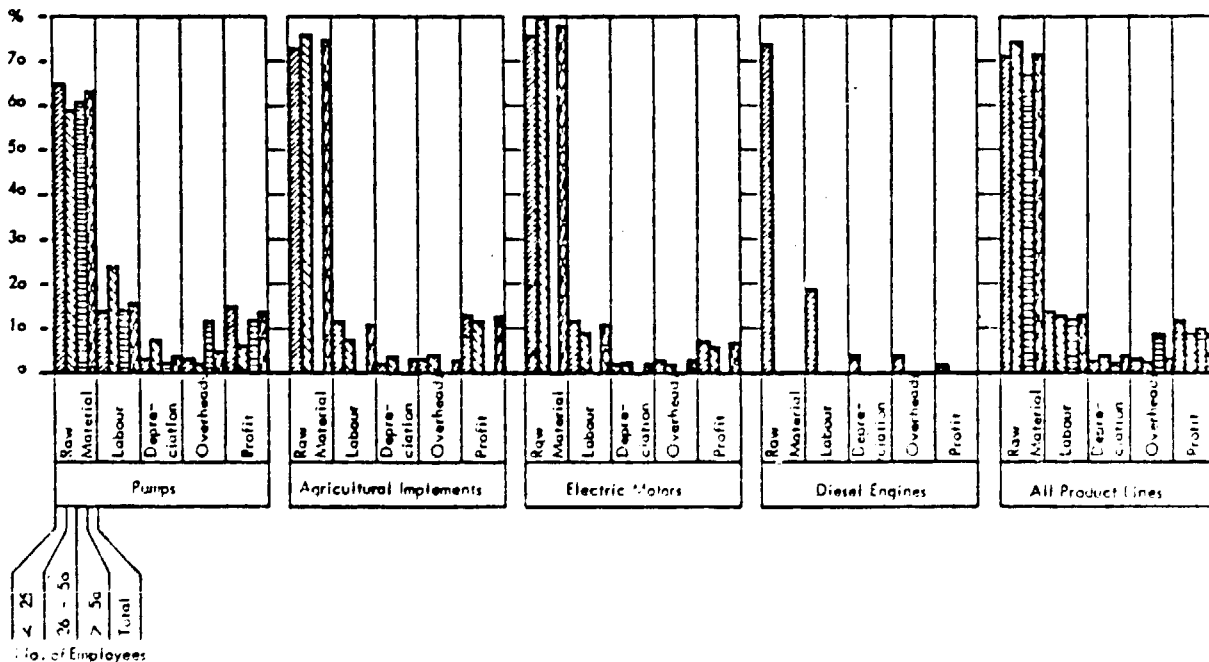
Due to the lack of relevant profit and loss statements the respective cost break-down is not very detailed but restricted to main cost categories as input of raw materials, labour cost, depreciation and overheads. Since depreciation has rarely been taken into consideration by the small entrepreneurs it had to be estimated.

The cost structure shows a pattern that changes from one company to another, depending on its size, production programme, horizontal or vertical integration, etc. Furthermore,

the cost structure, i.e. in particular depreciation and eventually labour costs, are influenced by the rate of capacity utilization, especially as far as depreciation is concerned and also with respect to labour costs.

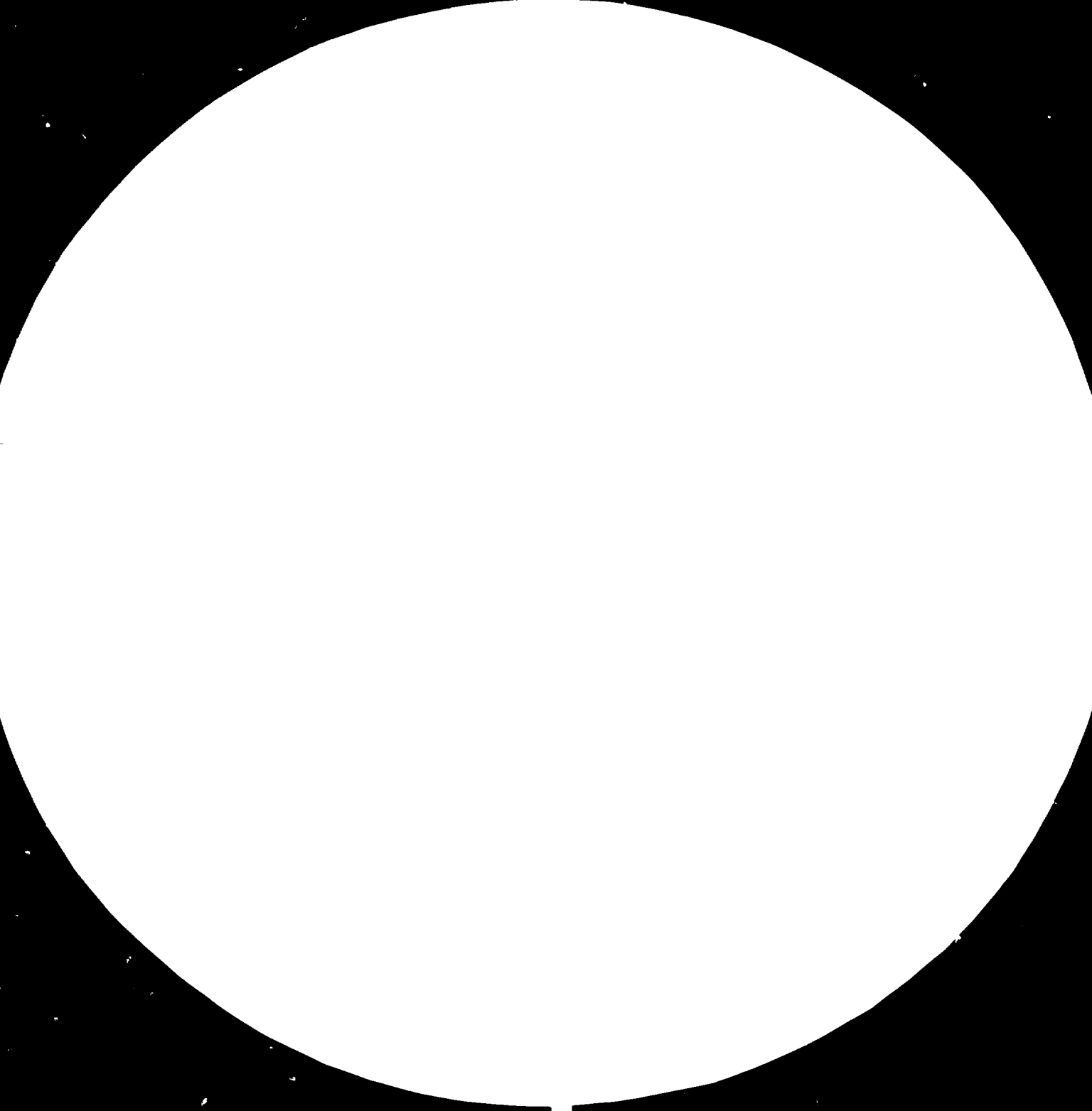
The cost structure of the individual units is aggregated by unit size (employment ranges) for the product lines in question in figure 3. 4. According to this figure all product lines have a high intensity of material consumption, in the first place electric motors, followed by agricultural implements, diesel engines and pumps. The labour-costs are ranging in between 10 and 25 % and depreciation in between 3 and 7 % of the total costs. The highest profit margins are registered in the agricultural implements and pumps sector.

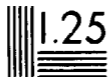
Figure 3.4: Cost Structure by Product Line and Range of Employment





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Resolution Test Chart
1.0 1.1 1.25 1.4 1.6 1.8 2.0 2.2 2.5

3.5.6 Profitability

As in the case of the cost structure, profitability rates are averages, related to certain investment ranges. In this context it is of great importance at which basis the related investment will be determined in view of the formerly mentioned high value of land and buildings; it appears indicated to relate profitability to the investment sum representing the enterprise's actually realizable value.

Table 3.28: Profitability According to Product Lines and Range of Investment (%)

Product line	< than Rs 200,000	Rs 200,000 - Rs 750,000	Rs 750,000 - Rs 1,500,000	Rs 1,500,000 - Rs 3,000,000	> than Rs 3 mill.
<u>Pumps</u>					
1 (total 50) ¹⁾	116	30	25	2	8
2 (total 53)	123	30	25	2	9
<u>Agricult. implements</u>					
1 (total 29)	37	36	24	20	-
2 (total 32)	37	44	25	23	-
<u>Electric motors</u>					
1 (total 19)	37	-	-	10	9
2 (total 23)	50	-	-	10	10
<u>Diesel engines</u>					
1	18	-	-	-	-
2	20	-	-	-	-

- 1) 1 = profits/total investment
2 = profits/equity

As to the above table, no total is given for diesel engines, because there is only one profit making factory enclosed; another one was left out for lack of detailed information. Besides the one profit making unit, 2 quote losses and 2 other ones break even. Similarly, in the line of agricultural implements, 3 units are making losses and are not included in the above table; all these units are situated in NWFP.

From the above table profits decline relative to the companies' scope of investment. While the small companies' outfit with machinery and equipment is very poor, the owners are actively working in these units; as their incomes are not registered as wages, but as profits, the latter are increased accordingly. This is particularly true for the pumps sector where 4 very small companies having neither land nor buildings, only pay nominal rents and thus achieve high profitability rates. If these companies were left out, the total figure for pumps would come down to 17 % for both total investment and equity, this relationship would be much more in line with that of the other product lines.

3.5.7 Overall Entrepreneurial Attitude Towards Financial Management

All but one of the entrepreneurs interviewed have a bank account with one of the commercial banks in Pakistan, but 31 out of 53 units reported to have never approached their bank for a loan. In this context it will be interesting to examine the units' attitude towards banks according to their size as shown in table 3.29.

Table 3.29: Loan Requests by Unit Size and Product Line

Product line	< 20 employ.				20 - 40 employ.				41 - 60 employ.				> 61 employ.			
	yes		no		yes		no		yes		no		yes		no	
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
Pumps	2	13	9	56	2	13	1	6	1	6	-	-	1	6	-	-
Agricult. implements	3	16	9	47	3	16	2	11	2	10	-	-	-	-	-	-
Electric motors	1	11	3	33	1	11	1	11	2	23	1	11	-	-	-	-
Diesel engines	1	17	2	33	1	17	2	33	-	-	-	-	-	-	-	-
Total	7	14	23	46	7	14	6	12	5	10	1	2	1	2	-	-

According to the table, the smaller the units, the less are their applications for loans, a statement which may allow a generalization with respect to the entrepreneurs' financial management; i.e. the smaller the companies, the less financial management can be expected. Bigger companies, though beginning to include financial management in their business administration, are still far from having a sophisticated financial management. This is without doubt mainly due to the fact that the basis of financial management, a well developed accounting system, does not exist.

3.5.8 Main Problem Areas

From the foregoing statements the main problem areas in the field of investment and financing may be summarized as follows:

- Most of the units visited are undercapitalized. Quite a number of them are in need of upgrading their equipment but cannot do so for lack of funds. Furthermore, the small units are unable to cover their working capital demand which hampers their activities as they are confined to day-to-day transactions.
- Any further development implies the assistance from the banking sector. This applies not only to the financing of investments but even more to that of working capital.
- The cooperation between the banking system and the small scale industry is hardly

developed. Reasons herefore are high interest rates and handling charges, administrative obstacles and the demand for excessive securities.

- In relation to the achievable sales prices raw materials are very expensive on account of customs duties.

4. Evaluation of Main Problem Areas, Analysis of Interdependencies and Overall Development Prospects

4.1 Ranking and Structure of Problem Areas

Of the main problem areas: supplies, production, manpower, marketing and finance, those which were found to be most problematic over the average of all firms were mainly finance, marketing and manpower (figure 4.1), whereby considerable differences were found to exist between the investigated product lines. Figure 4.2 summarizes the structure of each problem area for each of the product lines.

4.2 Potential Growth

As to the product lines examined in the present study development prospects are differing. Whereas those of agricultural implements may in fact be considered as favourable in the light of the agricultural sector's advancing modernization and mechanization and the existing gap between this sector's power requirements and the present level of power input, this does not apply to the diesel engine line. On the contrary, the demand for low speed diesel engines is likely to furthermore decrease. This tendency may be explained with the steadily changing demand pattern as a consequence of the mentioned structural changes. Advancing electrification of the country and the need for mobile, light weight, cheap and efficient power sources will, in the consultant's opinion, sooner or later put an end to the production of this type of diesel engine. Nor are the prospects for most of the manufacturers of pumps and electric motors considered promising. On account of their poor technical standard these companies are not likely to cope with their competitors. It is a well-known fact that in developing economies promotional prospects are to be considered favourable for practically any product line. In fact, Pakistan's Fifth Five Year Plan for manufacturing value added aims at a 10 % annual growth, 12 % for large scale industries, 7 % for the others. Furthermore, the Plan assigns first priority to the creation of manufacturing units for the production of basic industrial and agricultural inputs, i. e. agricultural machinery. Light engineering is expected to have particularly good prospects¹⁾.

4.3 Specific Constraints and Requirements

4.3.1 Technology

The specific problems of the product lines have been dealt with in chapter 3.1.8. In the following these problems will be summarized and possible interdependencies shown.

A main characteristic and most important technological constraint is the fact that the small industries manufacture their machines practically entirely by means of multi-purpose machinery. There is thus no specialization, neither in the manufacturing process nor in the use of machinery. This, of course, impairs the product quality as in the case of using inadequate tools, dies, jigs, etc. As there is no standardization, the interchangeability of parts is not secured.

1) cf. UNIDO: Country Industrial Development Profile of Pakistan, Febr. 1980 P.5,6,48,52.

Figure 4.1: Main Problem Areas by Functions

The tables below indicate the relative importance of the problem areas recognized.

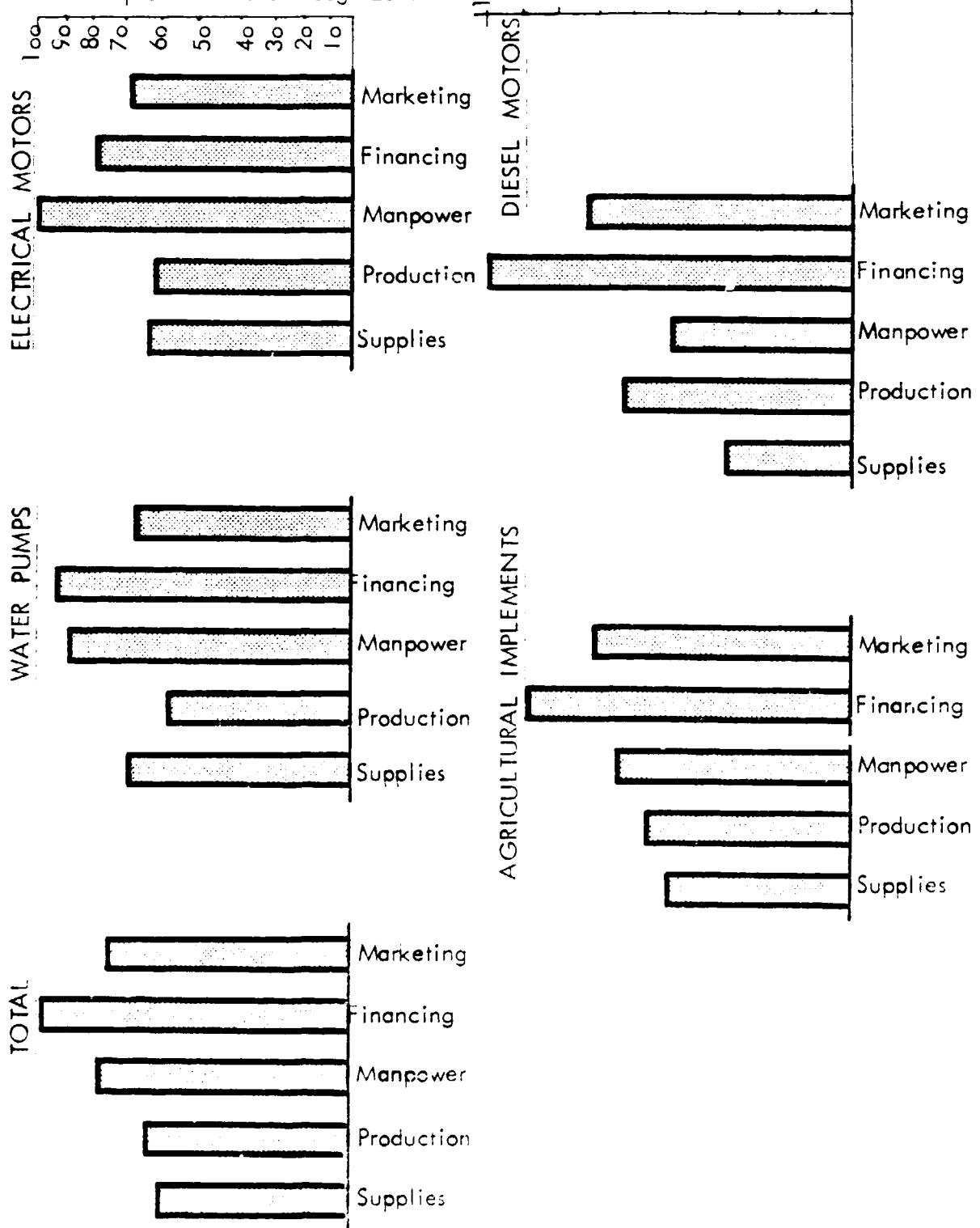
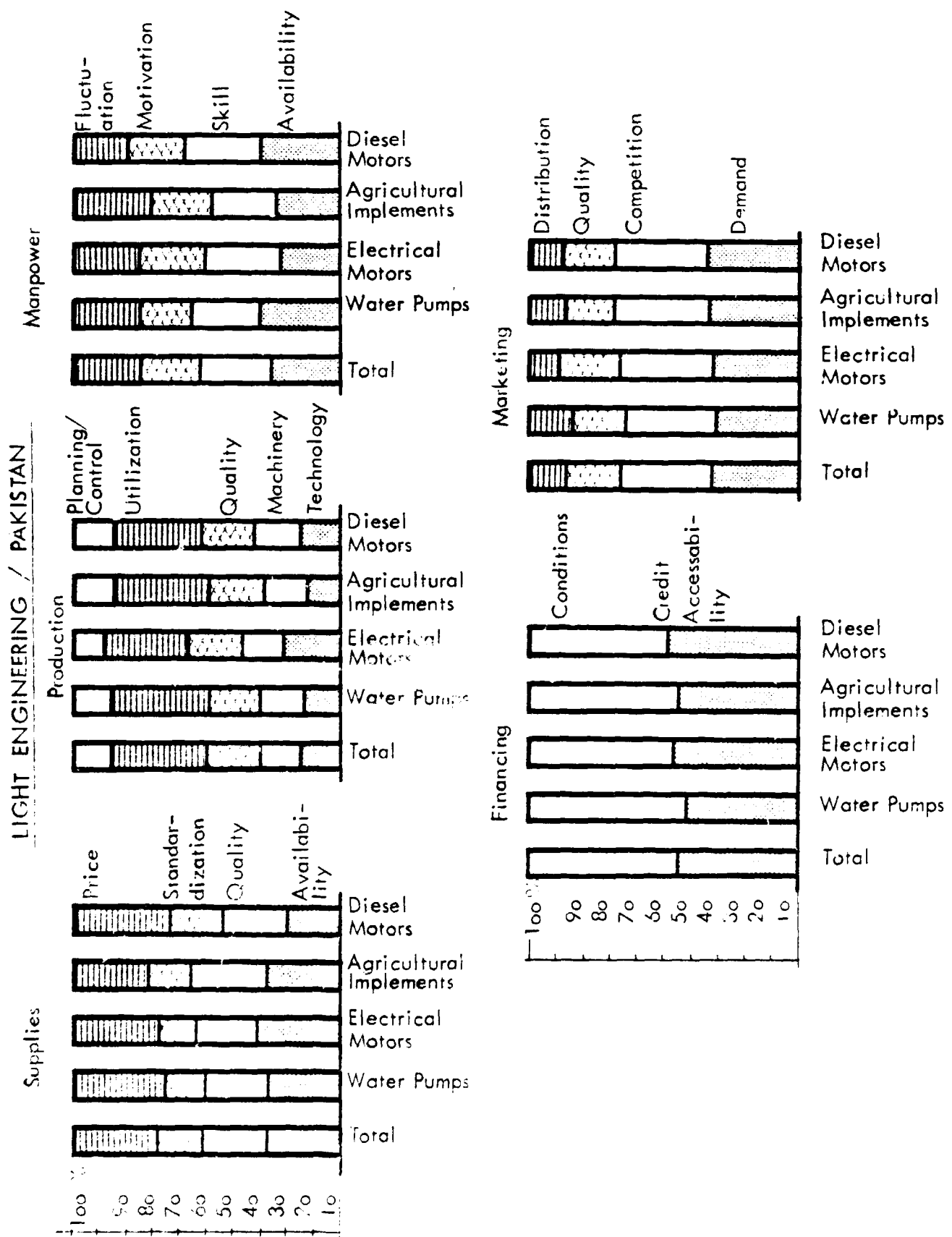


Figure 4.2: Structure of Main Problems



A second problem area is the lacking knowledge and/or understanding of important technological processes such as the heat treatment and foundry technology. As a result, the methods applied are inadequate, production is inefficient and the product quality low. Similar problems arise from the application of outdated technology as, for example, in the case of diesel engines. In the absence of research work there is no development either in this sector, or in others. This drawback could partly be offset by copying more advanced products. However, since the applied production processes are inadequate, the copied products turn out to be inaccurate and less efficient than the originals.

In addition, the small scale industry does not adhere sufficiently to quality standards and specifications. There is no specialized machinery for control and testing and the general attitude towards quality control is highly unsatisfactory.

4.3.2 Plant, Machinery, Production

The most crucial problem in this respect is the machinery employed by the small scale industry. The fact that part of the machinery installed is very old is of less importance than the inadequacy of the machines used. As already mentioned, multi-purpose machines are very widely used in all production processes for lack of process specific designed machinery. While multi-purpose machinery is adequate for units engaged in repair works where it even allows a certain flexibility, it is not for overall production in which most of the units are actually engaged. Used in overall production, multi-purpose machines are overburdened and soon worn out, all the more as little care is taken with respect to the maintenance of the machinery. Furthermore, due to financial constraints and lacking knowledge, too, poor machinery is bought from minor local machine tool producers. In this context it should again be stressed that it is not necessarily the age that makes machinery obsolete and unsuitable for precision work and mass production but rather factors as the above mentioned.

In addition, the small units use too few sophisticated machine tools. This applies in particular to

- milling machines
- horizontal and cylindrical grinding machines
- other machinery for surface treatment
- horizontal and vertical boring machines in the machining sections
- foundry machinery in the foundry sections.

The work that should be performed on these machines is presently done on the prevailing simple machinery like lathe and shaping machines or just by hand as in the case of the foundries. The inadequate equipment with machinery is not only due to a lack of funds but to the fact that such machinery is not sufficiently available and that suitable production processes are unknown.

As already mentioned above all these deficiencies are of negative influence on the product quality and production process efficiency. The latter is also impaired by the lack of proper plant lay-outs which do not meet the requirements of a smooth production flow. Both low quality and efficiency are badly hampering the small scale industry's competitiveness and will do so all the more as the users' quality consciousness will increase. Actually these products sell hardly abroad and in fact they do not stand the comparison with the imported goods.

4.3.3 Raw Materials and Components

The most important problem is that the units have neither the equipment nor the technological knowledge for testing raw materials according to the required specifications. As a consequence, unsuitable materials are used. This applies in particular to the foundry section. Due to the heavy use of scrap for castings, the composition of each charge is more or less different causing different product qualities and quite often difficulties in machining. Moreover, unsuitable materials for more sophisticated parts like shafts, electric windings, cores of electric motors, leveller blades etc. influence negatively the life expectancy of the products.

Besides the technical disadvantages, the price for raw materials which is quite high on account of heavy import duties is another one. In addition the small units are not as closely related to the importers or even foreign suppliers as the bigger units and due to their size cannot make use of quantity rebates or bonuses.

4.3.4 Labour and Management

Problems in connection with labour are numerous. The scarcity of skilled labour together with the mentioned high fluctuation have a very bad influence on the small manufacturing units' efficiency. Moreover, the educational shortcomings are to be considered serious.

Trained on-the-job, the workers doubtlessly develop remarkable skills but they lack knowledge of industrial mass production and the theoretical background for the understanding of more complicated production processes. Together with the mentioned inadequate machinery these deficiencies result in a low labour productivity. Despite the low wage levels labour costs are high in relation to the output.

In the small units there is no proper management. In many cases the company owner is a former foreman of a medium or large size company. Thus managerial abilities are not abundant. Even in large small scale units adequate management is rare. The entrepreneurs are often only technically oriented and neglect the administrative side of the business. Accounts are kept but only to comply with tax regulations. Hardly any attempt is made to use accounting, especially cost accounting, for decision making. Similarly, active marketing is rare and administrative regulations are so little known that many small entrepreneurs are not even aware of possible governmental incentives. All this is the result of deficient education and training.

4.3.5 Financing

The lack of funds is the most serious constraint in the field of financing but also the use of the same. Outworn machinery is not replaced; multi-purpose machines are bought instead of sophisticated machinery, cheap machinery is preferred and there is hardly any investment on modernization and expansion. Whereas enough funds are available to keep the installations

running, the lack of working capital is serious, especially in the smaller units that are thus reduced to simple cash transactions on a job-order basis and without any development possibilities.

Unfortunately, these problems can only rarely be solved by taking recourse to the banking system. The mentioned administrative deficiencies, lack of securities and a widespread dislike towards loan arrangements on the one hand and the banks' reluctance to embark on the cumbersome and time-consuming procedure of small credit schemes on the other, have so far prevented any fruitful cooperation between the small scale industry and the banking sector.

The above analysis of the problems faced by small scale industry shows that all problems are closely connected. The solution to any one of these will thus imply an overall approach.

5. Recommendations

5.1 General Recommendations

5.1.1 Technology

According to the consultant, the upgrading of technology is one of the most pressing problems in small scale industry. In the following possible steps to improve the situation are listed, though without going into details of the institutional and organizational aspects:

- Training courses should be provided for all kinds of metal working like turning, fitting, welding, casting, moulding, etc., as a first step to improve the standard of technical knowledge. In order to overcome the lethargy on the workers' side and the entrepreneurs' reluctance in view of training costs and labour fluctuation, both should be offered financial incentives. Furthermore, to make the trained workers stay with their company, their subsidies should be repayable in case they leave within a certain period. The same plus a penalty should apply to employers who give notice to their trainees. Such training courses should be understood as short term crash courses. They could take place in training centres, public enterprises with respective facilities or university institutes.
- Apart from the training courses it is thought necessary to set up institutions for introducing and developing specific processes which were found to be inadequately performed, i.e. foundry techniques together with pattern making, moulding and heat treatment. These technologies need definitely improvement, at least as far as the casting of impellers and volute casings for water pumps are concerned. Therefore, it is recommended to set up an institute for foundry technology, possibly in the form of a service centre attached to an industrial estate. Such a centre could also serve as a nucleus for formal training in this field. As far as the existing foundry institute MAS in Lahore can be made available to the small industries in this respect it should focus on these purposes.
- Similarly, tools and dies shops should be set up. As tools and dies are absolute prerequisites for standardized mass production the lack of such facilities is considered serious. In view of the small units' lack of trained manpower and their impossibility to afford the set up of own tool and dies departments, such centralized shops also should be considered in connection with service centres attached to industrial estates.
- Of major importance is the introduction of quality control and standards to improve the reputation of Pakistani products. The standards should be worked out by a government authority and made obligatory. Producers and products meeting the quality standards should be marked accordingly with a badge or the like. The adherence to the standards should be controlled.
- As testing facilities are expensive and cannot be afforded by all companies, the centralization of such facilities could be considered. However, every manufacturer should be provided with a minimum of testing equipment as, in the long run, only those will survive who invest in this field as well.
- Industrial development will not be ensured by the copying of imported products. This can

only be a first step; own research work and design will be indispensable. As most units are too small to make efforts in this direction, a superordinate authority should be charged with such tasks and also test the finished products. However, such institutions are not or not permanently required for all product lines. Research and Development are mostly needed in the field of agricultural implements and their institutionalization should be confined to this sector.

- In all four product lines the transfer of technology from more advanced countries should be encouraged. The first step in this direction can be to buy prototypes of machinery, testing and adjusting them to local conditions. This should be followed by licence agreements with foreign companies.
- Sub-contracting should be encouraged. At present, there is a distinct reluctance vis-à-vis such labour division, every unit preferring to manufacture all parts itself. A prerequisite for successful sub-contracting, whereby more specialization and, as a consequence, higher product quality could be achieved, is an increase in quality standards and reliability on the side of the small manufacturers. Sub-contracting cannot be enforced but is a process which should develop within the economy. As it will have to be initiated by larger and medium size units, those should be encouraged to look for suitable partners, especially in case of new government projects, for instance in the automobile and tractor sector. With materials provided by the vendor, prior training and rigid quality controls, sub-contracting should be possible. In connection with licence agreements mentioned above international sub-contracting could also be considered.

5.1.2 Plant, Machinery, Production

The level of technology depending on the plant layout and its machinery,

- the small units need assistance in industrial engineering in order to
 - plan their plant lay-out in accordance with the flow of production and other specific conditions,
 - choose proper machinery
 - introduce the use of tools and dies, jigs and fixtures.

As no entrepreneur can be forced to introduce new production methods, the granting of loans should, whenever possible, be coupled with the modernization of the plant. For this purpose the lending institutions must have staff who are familiar with all pertinent questions or be able to make use of such employees of other institutions;

- maintenance schedules and training courses in machinery maintenance should be worked out. The larger machine tools' manufacturers should be invited to render their experienced services;
- at least in more complex processes, each production step should be controlled and the production flow be set up accordingly; enough store room should be available for intermediate stocking;

- working conditions have to be improved, such as lighting, particularly needed for precision work;
- assembly line techniques should be introduced wherever possible and replace the fitting of each individual piece separately as a jobbing operating. Sub-contracting could help to get the production figures needed to apply such techniques efficiently. A prerequisite would again be the ability to produce within specified tolerances;
- machinery which does not ensure production with the required accuracy should be replaced. Tax and credit facilities should encourage such measures. Tax facilities could consist of rebates and accelerated depreciations.

5.1.3 Raw Materials

As regards raw materials, the following recommendations refer first to the technical aspect and then to the cost side.

- Testing equipment for raw materials and components is urgently required. Every unit should have such equipment; in the case of product testing adequate equipment could be provided centrally.
- Training courses in basic metallurgy are needed as well, especially in the field of foundry.
- The availability of specified raw materials should be increased and the prevailing time-consuming and complicated import licensing should be simplified. In this context, it may be considered to establish purchasing cooperatives in the various product lines which should be entitled to import licences. Thereby larger quantities could be ordered and better conditions be achieved. As there is a strong concentration of units of one and the same trade, the set-up of such cooperatives should pose no problem.
- The heavy burden of custom-duties on raw materials, which are even higher than on machinery imports, should be thoroughly examined and, if possible, be reduced. As long as the local producers' competitiveness with imports is impaired by high custom-duties the aim of import substitution cannot be pursued.

5.1.4 Manpower, Management, Organization

Manpower, whether in the form of labour or management, is the most crucial component in the improvement of the small units' situation. According to the consultant, particular efforts should be made with a view to improving the quality of manpower.

- The above mentioned training courses may be a short-term solution. In the long run, however, it should be seriously considered to replace the hitherto practiced on-the-job training, which can only confer limited abilities and knowledge by regular apprenticeship

in the main technical trades. In this case the apprentice would be trained in the theoretical and technical fields of his trade for a certain period, say three years, and then pass an examination. Together with further practical experience gained after the apprenticeship, such training would produce the foremen needed urgently, provided they are free of white-collar mentality. The expected results justify such investment in human capital.

- The workers' performance should be encouraged by adequate incentives. Thereby negligence, absenteeism and the like could be favourably influenced, relations between labour and management improved, and labour fluctuation be reduced. Properly designed social welfare systems would work in the same direction.
- The small scale industry management needs training as well. Surely, it is not the latest management methods those managers/owners are in want of, but they should be made understood the advantages of basic factory management and the necessity of simple and efficient administrative procedures. The institutions in charge will have to set up appropriate curriculae. In order to reach the potential trainees, manufacturer associations should be set up to which all managers/owners would have to belong.
- Steps have to be taken to introduce meaningful bookkeeping, not to comply with tax regulations but as an entrepreneurial tool for company management. Though small units do not need extremely specified accounting, they should adhere to its basic principles, in particular the comparatively larger enterprises. For this purpose, manufacturers associations could organize training courses.

5.1.5 Marketing

At present, the product lines under review produce almos. exclusively for the local market. The following recommendations, therefore, refer primarily to this market:

- The managers/owners need also training in marketing. The presently prevailing attitude of waiting for customers should be replaced by a more aggressive marketing approach. As regards agricultural implements for example it should be tried to set up a countrywide distribution system, especially in rural areas, using agents and dealers.
- The use of agricultural implements should be promoted by large scale demonstrations to the farmers, who can only be convinced of the usefulness of a new implement once they have seen it in operation. Such demonstrations could also be arranged by governmental institutions concerned with agriculture.
- Similarly, repair and maintenance facilities should be set up and the after-sales services be generally improved. The actually numerous small repair shops are not sufficiently specialized and have no spare part stocks. According to past experience spare parts are always difficult to get so that quite often urgently needed equipment cannot be used. Such repair and maintenance facilities could be set up in cooperation with dealers and agents.

- The customers' needs should be identified by marketing research. So far, the entrepreneurs have a strong tendency to stick to their product line and do not look particularly for diversification. As regards agricultural implements mainly threshers and cultivators are produced. But there are many more products which could be helpful to the farmers, as for example different sorts of ploughs, disc harrows, sub soilers, rotavators, sowing-, fertilizer- and spraying equipment, etc.
- Most of the units under review are too small for own export efforts. It should therefore be considered to set up a special institution for the promotion of the small scale industry's exports, preferably in cooperation with the mentioned manufacturers associations. Before aiming at export promotion, however, most of the products require a decisive improvement in quality.

5.1.6 Financing

Most recommendations require capital investment, especially those concerned with technology and plant equipment. Financing is thus an essential component of small scale industry's development.

- Special credit schemes should be developed for financing both fixed assets and working capital. The banks concerned should make the procedures as simple as possible and the whole credit scheme should be tailored to small scale industry needs. It is, however, not recommended to grant credits or loans to any applicant but only to those who appear promising and willing to cooperate. The latter should be granted sufficient loan amounts and simultaneously be assisted in the solution of their other problems. That means that a whole package of measures should be engaged to make the loan a success.

This implies a thorough analysis of the applying unit and proposals for the improvement of its situation. Assistance is as much needed in choosing suitable machinery as in planning marketing campaigns or in encouraging managers/owners to attend training courses. For the small industrialists a mere bank-customer relationship is not enough; they need urgently advice in the utilization of their loans. Whether this task should be taken over by the banks is another question. Such assistance could also be rendered by specially assigned institutions who would also arrange for the loans. Another possibility would be to set up a special working group at the disposal of the lending institutions. Such assistance is likely to render better results than the present procedure, whereby too small loans are granted to numerous recipients unable to ensure a promising follow-up.

- The conditions for the loans should be as soft as possible, not only as regards interest rates and fees but also with respect to collaterals. Direct and lasting contacts to the entrepreneurs as suggested above and their confidence in the advice they are offered provide a better and cheaper security than mortgages etc.
- Streamlining of lending procedures is also badly needed. Too much red tape will make small entrepreneurs reluctant to apply for loans.

5.2 Specific Recommendations

5.2.1 Recommendations by Product Line

With emphasis on foundry technology in the field of pumps and on electricity in that of electric motors, the above recommendations can be considered sufficient for these sectors. This is different for diesel engines and agricultural implements. As already mentioned, diesel engines are expected to disappear from the market because of the changing demand. This industry should already now be advised as to an adaption to the expected changes. In this context it might be encouraged to embark on the production of light weight high speed diesel engines which will be increasingly used in agriculture for many purposes. To begin with, a particularly promising company could be selected and given assistance, possibly in connection with a foreign partner. This company would then serve as a nucleus and other companies may be expected to also take up the production of this kind of engine to embark on sub-contracting. The latter could be the ideal mean to make other producers familiar with the new product and its technology. The production of small tractors (below 35 HP) should also be considered as it would contribute to the mechanization in agriculture.¹⁾ Special importance has to be given to the design of the mentioned high speed light weight diesel engines. In order to develop this upcoming industry the assignment of an experienced foreign engineer should be envisaged.

As regards agricultural implements, in view of the increasing demand and the necessity to promote mechanization in agriculture it is imperative to give every possible assistance to this production line also in the small scale sector.

5.2.2 Recommendations According to Regions

As shown in the foregoing chapters, small scale industry is centralized in Punjab. From the view point of balanced regional growth, there is thus no special need to put emphasis on Punjab. As regards Sind, small scale light engineering is not very abundant, and in Baluchistan it is more or less non-existent. In NWFP there is an old tradition of producing agricultural implements, mostly hand tools and animal drawn implements, and lately also threshers and cultivators. However, the output does by no means meet the requirements of this region with its vast and expanding agricultural sector, and most of the agricultural implements are from Punjab.

For several reasons it is felt that a more expanded small scale industry should be set up in this region. First of all, because the different regions' growth rates should be more keeping in line. Secondly, because by promoting the existing small industry a new growth pole could be created, which, thirdly, would provide employment and contribute to the needed mechanization in NWFP agriculture which is lagging considerably behind that in Punjab. As agriculture plays a major role in NWFP the small industry which already serves this sector's needs should be decisively promoted.

While the light engineering sector in Punjab is comparatively well developed, NWFP needs particular promotion in this field. There are only 3 major units, all others are small workshops

1) See Khan, U.: Machinery Requirements and indigenous Production in Pakistan. Rawalpindi 1978. Unpublished.

producing simple implements by means of simple methods; the workers, however, are highly skilled.

In the light of this economic set-up, i.e. the need for agricultural implements and the promotion of the small units, it is recommended to establish a combined service-cum-production centre in NWFP based on three lines, i.e.

- production of suitable agricultural implements like cultivators, threshers and seed drills
- common facility services
- repair service for agricultural implements

concerned with the needs of the local small scale industry and to be located either in Peshawar or Mardan 1).

This centre would not only serve the needs of the local industry with respect to training and common facilities; by integrating the local small units into the centre's planned activities, the entrepreneurs would also become acquainted with production methods that promote the output of urgently needed agricultural implements.

Besides these measures the set up of a repair center may be envisaged later. Later on the centre could concentrate on designing and adapting new products. The centre could even enlarge its radius by employing mobile service units and thus promote not only the agriculture based small scale industry, but the global agricultural sector. While at this stage it is not possible to make a detailed proposal for such a service centre in NWFP, the following table 5.1 outlines at least its possible promotional effects.

1) cf. Stilz, D.: Feasibility Study Light Engineering and Metal Centre in the North-West Frontier Province. Unpublished GTZ, Eschborn 1979

Table 5.1: Promotional Effects of a Service Centre Based in NWFP

Function	Common deficiencies in small scale industry	Promotional possibilities	Facilities needed in service centre
Planning	Planning process	Advice	Workshop plus production facilities
	Layout of plant Organization of production	Advice plus demonstration in service centre	
	Product mix	Advice, sub-contracting	Production facilities, designing wing, manufacture of prototypes
	R + D	Designing	
Production	Obsolete machinery	Financial aid	Credit programme
	Improper machinery	Advice, demonstration	Workshop
	Lack of special machinery	Common facilities	Common facilities
	Maintenance	Training	Training course
	Quality control	Testing equipment	Training course, common facilities
	Technology	Advanced training, advice	Courses, common facilities, tools and dies, jigs, fixtures
Personnel	Qualification	Training of apprentices	Workshop for training apprentices, production
Administration	Management techniques	Training, advice	Courses
	Cost accounting	Demonstration, training	Courses, production
	Marketing	Advice, taking over by service centre	Production
	Financing	Financial aid	Credit programme

5.2.3 Conclusions

With the objective to upgrade and promote the Pakistani small scale light engineering industry four selected sectors have been analysed, short-comings been described and on their basis relevant recommendations been made. For the more developed regions, especially Punjab, with its concentration of light engineering at a remarkable level of technology, the suggested measures aim at strengthening this industry's competitiveness in the local markets and, in the long run, in export markets as well. As it is impossible to reach the vast number of units, the most promising ones should be selected and concentrated on.

A different approach is recommended for NWFP. In the light of this region's vast agricultural resources and poorly developed small industry it is recommended to set up a service-cum-production centre in the field of agricultural implements as a nucleus for its further industrial and agricultural development.

Finally it should be pointed out that the effectiveness of the measures proposed will depend on whether the Government will favour small scale industry promotion in particular, and private enterprises in general. There will be no private investment without public encouragement.

SUB-SECTOR PROFILES

6. Sub-Sector Profiles

As part of the results of the study, typical sub-sector profiles have been prepared in order to facilitate institutional, financial and technical support. The profiles contain the following criteria:

- production programme
- technology and production facilities
- raw materials
- manpower and management
- investment
- cost structure
- financial ratios.

The actual situation of each product line or type of industry (labour intensive, mechanized, export oriented) has been drawn up. It reflects the target group units' specific pattern with respect to structure and ranges of the above criteria.

Based on the experience and know-how of the sector, a profile for a typical new company has been elaborated. This profile contains the estimated structural data and ratios for a model unit, with sub-sector specific

- technology and machinery
- personnel outfit
- investment and cost-structure.

The financial ratios represent estimates and may fluctuate in both directions.

A detailed proposal for such a "pilot unit" will require a thorough analysis within the framework of a comprehensive feasibility study.

SUBSECTOR: LIGHT ENGINEERING

CATEGORY: PUMPS + PUMP COMPONENTS

NEW COMPANY

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:		an % Capacity	
Major Products:		Units:	Rs.		
Centrifugal pumps		3,000	1,500,000		
Piston pumps		1,600	1,000,000		
			2,500,000		
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:		Imported local	
Pattern making		in addition to already existing equipment			
Casting		Testing equipment		x	
Machining		Milling machines		x	
Assembling		Cylindrical grinders		x	
Testing		Balancing machines		x	
Finishing		Special lathe machines		x	
		Foundry equipment (sand mixer, core blowing moulding machines)		x	
Land and Buildings:		Building Area/ Employee			
Buildings: Value / sam.		average:	1,000		
Land: Value / sam.		average:	300		
3	RAW MATERIALS:				
Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:	Quality:
Pig iron	180 / tons	4,000	i	up to 120 %	low to medium
Mild steel shafts	48 / tons	7,500	i		
Brass	2 / tons	28,000	i		
Ball bearings	10,000 / pieces	20-120	i/l		
Coke	40 / tons	3,200	i		
4	MANPOWER AND MANAGEMENT:				
Management:		average:	Entrepreneurial Background of Sponsor/Owner:		
Staff:		5			
Skilled Workers:		17	External Technical Cooperation necessary?		
Semi-Skilled Workers:					
Unskilled Workers:		6			
TOTAL:		28			
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (Ranking):		
Domestic:		Exports:	Domestic:		Exports:
100 %			Whole sales		
			Retailer:		
6	INVESTMENT:				
Fixed Assets: Rs. '000:		average:	Working Capital (Rs. '000):		
Land:		500			
Buildings:		400			
Machinery/Equipment:		500	average: 200		
Miscellaneous:					
TOTAL:		1,200			
7	COST STRUCTURE:				
Raw Materials:		average:	Remarks:		
Manpower:		70	Based on above sales figures		
Depreciation/Interest:		18			
Others:		1			
Profit:		2			
8	FINANCIAL RATIOS: Rs. '000				
Turnover / Employee		average:	Remarks:		
Turnover / Machinery and Equipment		35	Based on above manpower and investment figures		
Machinery and Equipment / Employee		17			
Total investment / Employee					
a. Building owned		40			
b. Building rented					
Fixed Assets / Working Capital					
Profit / Investment		0.15			
Loans / Total Capital		0.3			

SUBSECTOR: LIGHT ENGINEERING

CATEGORY: AGRICULTURAL IMPLEMENTS

ACTUAL SITUATION

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:		on % Capacity	
Major Products:		Units:	Rs. per unit:		
Cultivators		200	3,500	35	
Threshers		100	18,000	35	
Cane crushers		300	2,750	5	
Trailers		10	15,900	5	
Rear and front blades		400	1,000	15	
Ploughs and harrows		30	3,000	5	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:		Imported	Local
Cutting of profiles Machining Sub-assembly Painting Final assembly		Lathe machines Drilling machines Shaping machines Electric welding sets Bench grinders Foundry equipment			ca. 80% local
Land and Buildings:		Building Area/ Employee			
Buildings: Value / sqm.		min.: 420	max.: 1,250	average: 685	
Land: Value / sqm.		min.: 333	max.: 1,333	average: 650	min.: 9 max.: 40 average: 20
3	RAW MATERIALS: (average consumption per unit)				
Type:	Quantity:	Price/Unit:	Imported/Local:	Import Duties:	Quality:
Mild steel shafts	10 / tons	7,500	|	up to 120 %	low to medium
Ball Bearing	2, 100 / pieces	20-120	1/1		
Profiles	50 / tons	7,500	|		
MS sheets	35 / tons	7,500	|		
Castings	12 / tons	7,500	|		
Belts, chains			|		
4	MANPOWER AND MANAGEMENT:				
	min.:	max.:	average:	Entrepreneurial Background of Sponsor/Owner: Low to medium technical background Administrative know-how rarely existing External Technical Cooperation necessary? Yes	
Management:					
Staff:	1	3	3		
Skilled Workers:	7	42	14		
Semi-Skilled Workers:			3		
Unskilled Workers:					
TOTAL:	8	45	20		
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (rankings):		
Domestic:		Exports:	Domestic:		Exports:
100 %		?	Job order by enduser		?
6	INVESTMENT:				
Fixed Assets: Rs. 1000	min.:	max.:	average:	Working Capital: Rs. 1000	
Land:	50	500	410	min.:	50
Buildings:	40	975	310	max.:	1,075
Machinery/Equipment:	40	320	275	average:	386
Miscellaneous:					
TOTAL:	140	2,395	995		
7	COST STRUCTURE:				
	min. %	max. %	average %	Remarks:	
Raw Materials:	52	87	73		
Manpower:	4	24	14		
Depreciation/Interest:	1	3	2		
Others:	1	5	3		
Profit:	2	33	3		
8	FINANCIAL RATIOS: (Rs. 1000)				
	min.:	max.:	average:	Remarks:	
Turnover / Emp. over	24	300	104		
Turnover / Machinery and Equipment	1.3	30	10		
Machinery and Equipment / Emp. over	3.0	27.5	14.7		
Total Investment / Employee					
a) Building owned	30.0	126.0	60.7		
b) Building rented	22.5	22.5	22.5		
Fixed Assets / Working Capital	0.7	15.0	3.3		
Profit / Investment	10.0	50.0	13.0		
Loans / Total Capital		20.0	3.2		

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:		on % Capacity	
Major Products:		Units:	Rs.:	%	
Threshers		120	2,150,000	50	
Cultivators		750	2,625,000	50	
			4,795,000		
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:		Imported	
Cutting of profiles		2 Lathe machines		occ.	
Machining		2 Drilloresses		x	
Sub-assembly		6 Welding sets		x	
Painting		1 Pedestal grinders		x	
Final assembly		1 Heavy duty grinders		x	
		1 Hacksaw		x	
		1 Sheet metal forming machine (shearing and bending)		x	
		1 Arbor press		x	
		Vises, handtools, compressor, spray gun etc.		x	
Land and Buildings: Land: 1,000 m ²		Building: 500 m ²			
Buildings: Value / sam.		average: 685		Building Area/ Employee	
Land: Value / sam.		average: 350		average: 20	
3	RAW MATERIALS:				
Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:	Quality:
MS shafts	40 / tons	7,500	|	/	good
Ball bearings	20,000 / pieces	20-120	|		
Profiles	230 / tons	7,500	|		
MS sheets	60 / tons	7,500	|		
Castings	20 / tons	7,500	|		
Belts, chains			|		
4	MANPOWER AND MANAGEMENT:				
	average:	Entrepreneurial Background of Sponsor/Owner:			
Management:	1				
Staff:	6				
Skilled Workers:	36				
Semi-Skilled Workers:	3	External Technical Cooperation necessary?			
Unskilled Workers:	3	Yes			
TOTAL:	49				
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (Ranking):		
Domestic:	Exports:		Domestic:	Exports:	
100%	/		Enduser	/	
6	INVESTMENT:				
Fixed Assets: (Rs. '000)		average:		Working Capital (Rs. '000)	
Land:			650		
Buildings:			950		
Machinery/Equipment:			400	average: 325	
Miscellaneous:			40		
TOTAL:			1,440		
7	COST STRUCTURE:				
	average:	Remarks:			
Raw Materials:	75				
Manpower:	18	Based on above sales figures			
Depreciation / Interest:	2				
Others:	2				
Profit:	11				
8	FINANCIAL RATIOS: (Rs. '000)				
	average:	Remarks:			
Turnover / Employee:		Based on above manpower and investment figures			
Turnover / Machinery and Equipment:	3.6				
Machinery and Equipment / Employee:	8.1				
Total Investment / Employee:					
a. Building owned					
b. Building rented	29.4				
Fixed Assets / Working Capital:	4.4				
Profit / Investment:	0.15				
Loan / Total Capital:	0.1				

SUBSECTOR: LIGHT ENGINEERING

CATEGORY: ELECTRIC MOTORS

ACTUAL SITUATION

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:		on % Capacity	
Major Products:		Units:	Rs. unit		
Slow speed single and three phase motors of about 0.5 to 2 HP		4,500	700	100	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:		Imported Local	
Pattern making		Lathe machines		x	
Casting		Shaping machines		x	
Machining		Milling machines		x	
Punching		Power presses		x	
Winding		Notching presses		x	
Assembling		Drilling machines		x	
Testing					
Finishing					
Land and Buildings:					
Buildings: Value / sqm.		min.: 715	max.: 1,230	average: 880	
Land: Value / sqm.		min.: 408	max.: 750	average: 550	
		Building Area / Employee			
		min.: 9	max.: 45	average: 25	
3	RAW MATERIALS: (average consumption per unit)				
Type:	Quantity:	Price/Unit:	Imported/Local:	Import Duties:	Quality:
Pig iron	100 / tons	4,000	|	up to 120 %	low to medium
MS shafts	3 / tons	7,500	|		
Ball bearing	18,000 / pieces	20-120	1/1		
Coke	25 / tons	3,200	|		
Copper wire	25 / tons	82,000	|		
Aluminium	12 / tons	30,000	|		
Electric steel sheets	14 / tons	12,000	|		
4	MANPOWER AND MANAGEMENT:			Entrepreneurial Background of Sponsor/Owner:	
	min.:	max.:	average:	Low to medium technical background	
Management:	1	8	4	Administrative know-how rarely existing	
Staff:				Extremal Technical Cooperation necessary?	
Skilled Workers:	2	25	19	Yes	
Semi-Skilled Workers:		18	7		
Unskilled workers:					
TOTAL:	3	51	33		
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (Ranking):		
Domestic:	Exports:		Domestic:	Exports:	
100 %			- Dealers - Enusers - Wholesale		
6	INVESTMENT:			Working Capital (Rs. 1000)	
Fixed Assets: Rs. 1000	min.:	max.:	average:		
Land:	400	1,700	1,050	min.:	70
Buildings:	400	1,500	790	max.:	500
Machinery/Equipment:	100	550	330	average:	300
Miscellaneous:					
TOTAL:	500	4,050	2,320		
7	COST STRUCTURE:			Remarks:	
	min. %	max. %	average %		
Raw Materials:	72	83	75		
Manpower:	6	13	11		
Depreciation / interest:	1	3	2		
Others:	1	7	3		
Profit:	2	0	1		
8	FINANCIAL RATIOS: Rs. 1000			Remarks:	
	min.:	max.:	average:		
Turnover / Employee:	31	132	89		
Turnover / Machinery and Equipment:	3.15	11.0	7.1		
Machinery and Equipment / Employee:	3.3	20.6	12.3		
Total Investment / Employee:	33.5	111.9	77.3		
a. Building owned					
b. Building rented	11.9	14.3	13.1		
Fixed Assets / Working Capital:	1.1	15.3	5.7		
Profit / Investment:	0.00	0.12	0.07		
Users / Total Costs:	0	55	11.0		

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:	on % Capacity		
	Major Products:	Units:	Rs.:		
	Electric motors	6,000	4,000,000		
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:	Imported cost		
	Pattern making	In addition to already existing machinery			
	Casting	Milling machines	x		
	Machining	Horizontal- and cylindrical grinding machines	x		
	Punching	Boring machines (horizontal and vertical)	x		
	Winding	Testing equipment	x		
	Assembling	Balancing machines	x		
	Testing	Foundry equipment (aluminium casting)	x		
	Finishing	Hydraulic presses	x		
	Land and Buildings:				
	Buildings: Value / sam.	average: 715	Building Area/ Employee		
	Land: Value / sam.	average: 750	average: 25		
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:
	Pig Iron	100 / tons	4,000		
	MS shafts	3 / tons	7,500		
	Ball bearing	18,000 / pieces	20-120	/ /	
	Coke	25 / tons	3,200		up to 120 %
	Copper wire	25 / tons	82,000		
	Aluminium	12 / tons	36,000		low to medium
	Electric steel sheets	144 / tons	12,000		
4	MANPOWER AND MANAGEMENT:				
	Management:	average:	Entrepreneurial Background of Sponsor/Owner: External Technical Cooperation necessary?		
	Staff:	7			
	Skilled Workers:	25			
	Semi-Skilled Workers:	5			
	Unskilled Workers:	5			
	TOTAL:	47			
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (Ranking):		
	Domestic:	Exports:	Domestic:	Exports:	
	100 %	/	Wholesalers Retailers	/	
6	INVESTMENT:				
	Fixed Assets: (Rs. '000)	average:	Working Capital (Rs. '000)		
	Land:	900	average: 800		
	Buildings:	675			
	Machinery/Equipment:	500			
	Miscellaneous:	100			
	TOTAL:	2175			
7	COST STRUCTURE:				
	Raw Materials:	average:	Remarks: Based on above sales figures		
	Manpower:	10			
	Depreciation / Interest:	5			
	Others:	5			
	Profit:	5			
8	FINANCIAL RATIOS: (Rs. '000)				
	Turnover / Employee	average:	Remarks: Based on above manpower and investment figures		
	Turnover / Machinery and Equipment	10			
	Machinery and Equipment / Employee	10.5			
	Total Investment / Employee	10.5			
	a. Building owned	50			
	b. Building rented	50			
	Fixed Assets / Working Capital	2.7			
	Priority Investment	500			
	Loans / Total Capital	500			

SUBSECTOR: LIGHT ENGINEERING

CATEGORY: DIESEL ENGINES

ACTUAL SITUATION

(no proposal for New Company, since no future prospects for this product line)

1	PRODUCTION PROGRAMME:				
	Type of Products: Major Products:	Annual Average Output: Units:	Rs./unit	an % Capacity	
	Slow speed stationary diesel engines from 6 to 7½ HP; standard type 16 to 18 HP	35	18,000	100 % actual capacity utilization: 30-50 %	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery Equipment:	Imported	Local	
	Pattern making Casting of engine bed, piston, fly wheel Forging of crankshaft Machining of parts Assembling Finishing	Lathe machines Shaping machines Drilling machines Bench grinders Foundry equipment		ca. 30% local	
	Land and Buildings: Buildings: Value / sam. min.: 600 max.: 1,365 average: 860 Land: Value / sam. min.: 450 max.: 925 average: 530	Building Area/ Employee min.: 19.9 max.: 50.5 average: 25.7			
3	RAW MATERIALS: (average consumption per unit)				
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties: Quality:
	Pig iron MS shafts Coke Crankshafts	60 / tons 4 / tons 15 / tons 40 / pieces	4,000 7,500 3,200 1,200	| | | |	up to 120 % low to medium
4	MANPOWER AND MANAGEMENT:				
		min.:	max.:	average:	
	Management:	1	5	2	
	Staff:				
	Skilled Workers:	7	12	9	
	Semi-Skilled Workers:		6	4	
	Unskilled Workers:				
	TOTAL:	9	23	15	
	Entrepreneurial Background of Sponsor/Owner: Low to medium technical background Administrative know-how rarely existing External Technical Cooperation necessary? Yes				
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (Ranking):		
	Domestic:	Export:	Domestic:	Export:	
	100 % (decreasing potential)	?	job order by enduser	?	
6	INVESTMENT:				
	Fixed Assets: Rs. 1000	min.:	max.:	average:	
	Land:	120	2,000	720	
	Buildings:	90	600	400	
	Machinery/Equipment:	180	480	250	
	Miscellaneous:				
	TOTAL:	390	3,280	1,370	
	Working Capital: Rs. 1000	min.:	max.:	average:	
		100	133	106	
7	COST STRUCTURE:				
		min. %	max. %	average %	
	Raw Materials:	57	77	73	
	Manpower:	13	19	17	
	Depreciation/Interest:	1	0	4	
	Others:	2	7	5	
	Profit:	5	2	0	
	Remarks:				
8	FINANCIAL RATIOS: Rs. 1000				
		min.:	max.:	average:	
	Turnover / emp. avee	27.4	50.0	49.4	
	Turnover / Machinery and Equipment	1.3	5.7	3.3	
	Machinery and Equipment / emp. avee	10.0	43.3	19.3	
	Total Investment / Employee				
	a) Building owned	55.0	147.0	109.0	
	b) Building rented	11.0	43.0	30.0	
	Fixed Assets / Working Capital	3.4	9.0	6.2	
	Profit / Investment	0.0	0.19	0	
	Loans / Total Capital	0	0.0	0.0	
	Remarks:				

BASIC DATA AND RATIOS
of
UNITS INTERVIEWED

LEGEND FOR BASIC DATA AND RATIOS

- 1) Sales figures 1979
(estimates of yearly sales volume)
- 2) 1 = Wholesaler
2 = Commission agent
3 = Retailers
4 = Job order
5 = direct sales to end user
6 = Exporters
- 3) g = good
f = fair
b = bad
- 4) TTD = Traditional Technology Developing Countries
UTD = Upgraded Technology Developing Countries
ATI = Adapted Technology Industrialized Countries
UTI = Unchanged Technology Industrialized Countries
- 5) Staff = administrative and management personnel
- 6) % of total raw material (in terms of value)
- 7) Turnover/value of machinery and equipment
- 8) Value of machinery and equipment/employees
- 9) Cost-to-sales ratio (%)

Province	District	Project	No. of Units	Sales Market			Land			Totals		
				Value	Area	Per Acre	Area	Per Acre	Per Acre	Value	Area	Per Acre
Sindh	K 1	Waterpumps	53	6000000	90	101,5	230	500000	2174	110	500000	109
	K 2	"	56	1000000	100	01,5	300	1000000	1250	300	1000000	3033
	H 3	" (foundry)	47	1680000	100	04	300	400000	1333	300	200000	100
	K 4	" (foundry)	68	630000	100	04	60	-	-	60	rent 300	0
	K 5	"	65	187500	100	01	20	-	-	20	rent 45	2
	K 6	"	75	450000	100	04	10	-	-	10	rent 100	17
	K 7	"	57	176000	100	04	23	-	-	23	rent 400	7
	H 8	Agr. implements	72	1692500	100	04,5	120	150000	1250	50	40000	100
	H 9	"	48	594000	100	04,5	150	200000	1333	120	100000	103
	K 10	"	65	550000	100	04	80	60000	750	80	40000	500
Punjab	L 11	Waterpumps	61	8430000	100	05	5400	6000000	1111	3000	500000	139
	G 12	"	50	900000	100	01,5	1000	1500000	1500	300	600000	750
	L 13	"	65	3500000	100	02,5	200	-	rent 100	200	200000	1000
	S 14	"	63	200000	100	01,5	660	540000	120	400	200000	500
	S 15	"	46	345000	100	01,5	1224	750000	613	1100	660000	600
	G 16	"	72	400000	100	04	240	200000	833	240	400000	1570
	G 17	"	78	-	100	0	100	-	-	100	150000	150
	L 18	"	64	900000	100	02,5	50	-	-	50	rent 500	10
	F 19	Agr. implements	60	10800000	100	05	1700	600000	352	540	300000	550
	F 20	"	77	4450000	100	05	1250	500000	400	560	300000	536

K Karachi G Gujranwala S Sialkot
H Hyderabad L Lahore

SECTION 1

No.	Sales Market				Land			Buildings			Machinery & Equipment		Total		Miscellaneous				
	Value	Area	Per Sq. Ft.	Per Acre	Area	Total Value	Value per Sq. Ft.	Per Sq. Ft.	Per Acre	Value	Per Sq. Ft.	Per Acre	Per Acre	Per Acre	Per Acre	Per Acre	Per Acre	Per Acre	
3	600000	90	10	1,5	230	500000	2174	117	300000	4340	1000000	10	G	X	75	159	20	50	2
4	1000000	100	0	1,5	800	1000000	1250	300	1000000	3333	690000	3	G	X	60	13	9	3	4
5	1680000	100	0	4	300	400000	1333	300	200000	666	1000000	23	B	X X	100	10	9	0	1
6	630000	100	0	4	60	-	-	60	rent 500	8	20000	15	B	X	40	9	3	-	3
7	187500	100	0	1	20	-	-	20	rent 45	2	25000	15	F	X X	60	8	2	2	2
8	450000	100	0	4	10	-	-	10	rent 150	15	20000	5	F	X	40	3	4	-	1
9	176000	100	0	4	23	-	-	23	rent 400	17	50000	15	F	X	60	7	4	-	1
10	1692500	100	0	4,5	120	150000	1250	50	40000	700	230000	6	F	X X	100	22	10	-	1
11	594000	100	0	4,5	150	200000	1333	120	100000	833	90000	15	F	X X	60	10	-	-	1
12	550000	100	0	4	80	60000	750	80	40000	500	40000	10	B	X	100	9	4	4	1
13	3430000	100	0	5	5400	6000000	1111	3600	500000	139	1100000	10	G	X	60	19	37	10	3
14	900000	100	0	1,5	1000	1500000	1500	800	600000	750	930000	8	G	X X	30	33	22	6	3
15	3500000	100	0	1,2,5	200	-	rent 100	200	200000	1000	270000	8	F	X	60	20	15	3	1
16	200000	100	0	5	660	540000	820	400	200000	500	270000	10	F	X X	40	10	10	2	3
17	345000	100	0	1,5	1224	750000	613	1100	360000	600	110000	10	F	X X	10	13	10	-	3
18	400000	100	0	4	240	200000	833	240	400000	1670	200000	7	F	X X	100	13	10	-	3
19	-	100	0	1	100	-	-	100	rent 150000	150	90000	10	F	X X	-	9	8	-	1
20	900000	100	0	2,5	50	-	-	50	rent 500	10	30000	16	F	X X	50	9	3	-	1
21	10800000	100	0	5	1700	600000	352	540	300000	555	300000	5	G	X	60	45	42	-	3
22	4450000	100	0	5	1250	500000	400	560	300000	536	175000	5	F	X	70	28	15	10	3

Gujranwala Lahore

S Sialkot

SECTION 2

Market				Law	Investment		Off-Bal-		Total	Financial								
Year	Month	Day	Year		Fixed assets R.	Working capital R.	Fixed assets	Working capital		Turnover total investment	Turnover fixed assets	Turnover working capital	Total investment employees	Fixed assets and equipment employees	Fixed assets working capital	Turnover	Working capital	
19	20	60	29	95	2000000	1000000	0	44	55000	1.7	1.4	3.3	33000	9170	1.25	0.19	44	22
13	9	5	4	94	2700000	710000	0	44	55000	0.3	1.4	1.4	94700	10157	4.0	0.59	60	20
19	9	3	1	45	700000	95000	0	0	93300	2.1	6.3	17.7	44200	5517	7.4	0	79	8
9	6	-	3	75	25000	20000	0	0	70000	14.0	25.2	31.5	5000	2777	1.25	0	70	14
6	2	2	2	50	25000	4000	0	0	31250	6.5	7.7	46.9	4033	4157	0.21	0	50	13
5	4	-	1	57	20000	35000	0	0	90000	3.2	22.5	12.9	11000	4000	0.17	0	77	9
7	4	-	1	50	53000	46000	0	0	35200	1.3	3.4	3.9	19450	10500	1.14	0	57	10
22	13	-	6	70	120000	370000	0	8	75900	1.7	7.4	3.0	45000	10500	0.73	0.55	72	7
10	-	-	2	90	390000	229000	0	11	59400	0.5	1.0	2.5	52000	9000	1.7	0.04	74	11
9	4	4	1	50	140000	10000	0	0	61100	3.7	13.8	55.0	15700	4400	14.0	0	75	11
19	07	15	8	70	8000000	2700000	0	0	145300	0.77	5.3	3.1	104500	25900	3.0	0	70	7
33	22	6	5	95	3000000	270000	0	13	29000	0.29	1.1	3.5	99100	20100	11.1	0.01	40	31
29	15	5	8	90	470000	100000	0	0	125000	6.1	13.0	35.0	20400	9500	4.7	0	70	1
18	10	2	3	89	1107000	112000	0	0	13300	0.16	0.54	1.8	81300	24500	9.9	0	57	12
13	10	-	3	90	1521500	600000	0	0	26500	0.16	3.1	0.6	163200	5000	2.5	0	66	10
19	10	-	3	73	800000	80000	0	0	30800	0.45	2.0	5.0	67700	15300	10.0	0	45	21
9	8	-	1	-	240000	40000	0	0	-	-	-	-	-	10000	-	0	-	-
9	3	-	1	81	85000	30000	35	16	100000	7.8	7.8	30.0	12800	9400	2.3	0.3	5	0
45	42	-	3	80	1200000	1370000	42	0	24000	4.2	36.0	7.9	61200	7100	0.9	0.36	81	0
29	15	10	3	82	975000	180000	0	0	158900	3.0	25.4	24.7	41250	6250	5.4	0	36	4

SECTION 3

No.	Sales	Turnover				Investment				Cost Structure				
		Total investment	Turnover machinery	Turnover equipment	Turnover working capital	Total investment employees	Machinery and equipment % employees	Fixed assets working capital	Turnover total capital	Power	Operating	Capital	Other	Total
42	55000	1.7	1.4	3.8	33000	9174	1.25	0.19	44	22	3	-	20	11
44	57600	0.3	1.4	1.4	94700	19157	4.3	0.09	00	20	0	-	0	10
0	93300	2.1	6.8	17.7	44200	3575	7.4	0	59	9	1	-	1	30
0	70000	14.0	25.2	31.5	5000	2777	1.25	0	70	14	-	-	2	14
0	31250	6.5	7.7	46.9	4833	4157	0.25	0	36	12	1	-	1	30
0	90000	6.2	22.5	12.9	11000	4000	0.5	0	77	9	1	-	1	12
0	35200	1.3	3.4	3.9	19480	10300	1.14	0	57	17	0	-	13	10
0	70900	1.7	7.4	3.0	45000	10500	0.73	0.05	72	7	1	-	1	19
11	59400	0.96	1.0	2.6	62000	9000	1.7	0.04	74	15	2	-	1	0
0	61100	3.7	13.8	56.0	16700	4400	14.0	0	75	15	1	-	2	7
0	145300	0.78	5.6	3.1	184500	25900	3.0	0	78	7	1	-	2	12
13	29000	0.29	1.1	3.3	99100	23100	11.1	0.01	40	31	13	-	0	3
0	125000	6.1	13.0	35.0	20400	9000	4.7	0	70	10	1	-	2	9
0	13300	0.16	0.54	1.8	81300	24500	9.9	0	57	17	15	-	7	4
0	23500	0.16	3.1	0.6	163200	8600	2.5	0	66	15	1	-	4	14
0	30000	0.45	2.0	5.0	67700	15300	10.0	0	45	25	5	-	10	15
0	-	-	-	-	-	10000	-	0	-	-	-	-	-	-
10	100000	7.8	7.8	30.0	12800	9400	2.8	0.3	5	8	1	-	1	10
0	24000	4.2	8.0	7.9	61200	7100	0.9	0.36	81	6	1	-	2	10
0	158900	3.8	25.4	24.7	41250	6200	5.4	0	36	4	1	-	1	8

SECTION 4

Province	District	App. Program	Year of installation	Sales Marketing			Lands			Buildings			M.E.	
				Sales (Rs)	Direct cost	Export %	Channel	Average	Total value (Rs)	Value (Rs)	Cost (Rs)	Total value (Rs)		Value (Rs)
Punjab	G 21	Agr. implements	73	3300000	100	0	3,5	300	-	-	200	rent 950	4.25	30
	F 22	"	61	2755840	100	0	5	1500	500000	333	1000	300000	300	30
	R 23	"	78	2400000	80	20		-	450000	-	-	975000	-	30
	D 24	"	72	660000	100	0	5	400	-	rent 200	200	250000	1250	30
	D 25	"	72	1800000	100	0	1,5	800	600000	750	200	200000	1000	30
	D 26	"	76	630000	100	0	4	840	500000	595	150	100000	670	30
	D 27	"	75	1060000	100	0	4	225	100000	400	120	50000	420	30
	F 28	"	76	1525000	100	0	4,5	900	500000	333	600	300000	500	30
	D 29	"	73	1290000	100	0	4	250	-	-	250	rent 300	1.2	30
	G 30	"	56	600000	100	0	5	375	300000	800	315	225000	714	20
	S 31	Electric motors	73	3600000	100	0	1,5	980	600000	612	460	384000	934	40
	L 32	"	62	4000000	100	0	1	2000	1000000	500	1300	1000000	769	40
	G 33	"	68	2500000	100	0	1,5	3000	1500000	500	1800	1500000	833	40
	G 34	"	61	4000000	100	0	1,5	1200	900000	750	945	675000	715	40
	L 35	"	65	5850000	100	0	1	3500	1900000	540	650	800000	1230	40
	S 36	"	60	1397000	100	0	2,5	980	400000	408	490	400000	916	40
	G 37	"	74	900000	100	0	1	440	-	-	350	rent 200	0.6	40
	S 38	"	76	168000	100	0	2,5	98	-	-	71	rent 500	7	40
	L 39	Diesel motors	20	500000	100	0	4							40
	D 40	"	38	850000	100	0	5	4000	2000000	500	1300	800000	615	40

G Gujranwala
D Daska

F Faisalabad
S Sialkot

R Rawalpindi
L Lahore

SECTION 1

Plantings	Value (Rs.)	Machinery + Equipment	Technology				Capacity utilization (%)	Manpower in numbers				Raw material input (Rs.)	Investment		Utilization of funds		Turnover No. of units/year	Turnover total investment	Turnover machinery	Turnover	Capital
			Average age (years)	TD	UD	AT		UT	Total	Skilled workers	Semi-skilled workers		Staff	Fixed assets (Rs.)	Working capital (Rs.)	Fixed assets (%)						Working capital (%)	Equipment	Working capital
rent 950	4.25	300000	4 F	X	X	70	27	20	2	5	82	300000	450000	6	71	122200	4.4	4.4	7.3		
300000	300	600000	10 F	X	X	30	27	21	-	6	70	1400000	500000	0	4	102100	1.5	4.3	5.0		
975000	-	500000	- G		X	-	18	9	7	2	87	2000000	700000	0	0	133300	0.9	4.3	3.4		
250000	1250	250000	8 F	X		75	16	12	-	4	83	500000	50000	0	0	41250	1.2	2.6	13.2		
200000	1000	180000	6 G	X	X	60	16	15	-	1	80	980000	100000	0	0	112500	1.7	10.0	18.0		
100000	670	60000	6 F	X	X	70	10	9	-	1	92	660000	50000	0	0	63000	0.9	10.5	11.5		
50000	420	50000	10 F	X	X	70	10	7	2	1	80	200000	100000	0	0	106000	3.5	21.2	10.4		
300000	500	70000	5 B	X	X	25	8	7	-	1	80	700000	411000	0	50	191000	1.5	21.3	3.7		
rent 300	1.2	130000	7 B	X		50	8	7	-	1	80	130000	50000	0	0	161250	7.2	9.9	25.8		
225000	714	250000	15 B	X	X	25	8	7	-	1	80	800000	50000	0	0	300000	2.8	8.0	48.0		
384000	834	435000	3 G		X	50	51	25	18	8	90	1594000	370000	3	0	70600	1.8	8.3	9.7		
000000	769	650000	15 G		X	40	43	37	4	2	93	2730000	250000	26	0	93000	1.3	6.2	16.0		
500000	833	422000	10 G		X	70	40	21	15	4	90	3420000	500000	0	80	62500	0.7	5.9	5.0		
675000	715	500000	12 B		X	50	37	25	5	7	88	2075000	300000	0	0	108100	1.7	8.0	13.5		
000000	1230	530000	4 G		X	50	32	25	5	2	89	3380000	200000	0	0	182800	1.6	11.0	29.3		
100000	916	383500	12 F	X	X	50	19	10	5	6	88	1183500	370000	0	0	73500	0.9	3.6	3.0		
rent 200	0.6	100000	6 B	X	X	50	16	8	7	1	80	100000	90000	65	44	56000	4.7	9.0	10.0		
rent 500	7	35000	4 G	X	X	50	3	2	-	1	80	35900	8000	0	0	56000	3.9	4.3	21.0		
							-	34	30	-	4					14700					
000000	615	480000	15 G	X	X	70	23	12	6	5	90	3280000	100000	0	0	36900	0.26	1.8	8.0		

SECTION 2

Year	Working capital	Turnover No. of times/year	Turnover/ total investment	Turnover/machinery + equipment	Turnover/ working capital	Total investment employees	Machinery and equipment employees	Fixed assets/ working capital	Loans total capital (%)	Cost Structure (%)							Profit	Remarks
										Raw material	Manpower	Deprec. interest	Maintenance	Others				
71	122200	4.4	4.4	7.3	26800	10714	6.67	32	67	8	2	-	5	18				
4	102100	1.5	4.6	5.5	70400	22200	2.8	1	69	12	6		4	9				
0	133300	0.9	4.8	3.4	150000	27800	2.9	0	58	19	5	-	4	14				
0	41250	1.2	2.6	3.2	34375	15625	10.0	0	64	24	3	-	-	9				
0	112500	1.7	10.6	18.0	67500	11250	9.8	0	71	9	1	-	6	13				
0	63000	0.9	10.5	11.5	71500	6000	12.0	0	85	11	1	-	1	2				
0	106000	3.5	21.2	10.6	30000	5000	2.0	0	66	8	1	-	2	23				
0	191000	1.5	21.8	3.7	126000	8750	1.7	20	87	3	1	-	1	8				
0	161250	7.2	9.9	25.8	22500	16250	2.6	0	85	6	1	-	1	7				
0	300000	2.8	8.0	48.0	106250	37500	16.0	0	60	4	1	-	2	33				
3	70600	1.8	8.3	9.7	38500	8500	4.3	3	81	7	1	2	2	7				
0	93000	1.3	6.2	16.0	69300	15100	10.9	23	80	11	3	-	2	4				
0	62500	0.7	5.9	5.0	98000	10500	6.8	10	72	16	2	1	1	8				
0	108100	1.7	8.0	13.3	64200	13500	6.9	0	81	9	2	-	1	7				
0	182800	1.6	11.0	29.3	111900	16600	16.9	0	83	6	2	-	2	7				
0	73500	0.9	3.6	3.8	81800	20200	3.2	0	74	6	3	1	7	9				
5	56000	4.7	9.0	10.0	11875	6250	1.1	55	72	18	1	-	2	7				
0	56000	3.9	4.8	21.0	14300	11700	4.4	0	79	12	2	-	1	6				
0	14700																	
0	36900	0.26	1.8	8.5	147000	20900	37.8	0	70	27	6	-	2	5				

SECTION 3

Province	Dist. No.	Year	Sales Marketing				Land			Buildings			Machine Equipm.	
			Sales (Rs)	Disburse	Expens	Clearing	Area (ac)	Total (Rs)	Value (Rs)	Cost (Rs)	Value (Rs)	Value (Rs)	Value (Rs)	
Punjab	L 41		70	574500	100	0	5	675	-	-	600	rent 3000	5.0	100000
	L 42		64	800000	100	0	4	900	500000	555	150	rent 450	3.0	170000
	D 43		74	420000	100	0	5	270	120000	444	150	90000	600	130000
	D 44		48	640000	100	0	4	400	250000	625	220	300000	1363	350000
NWFP	P 45		54	80000	100	0	4	120	100000	833	120	100000	833	85000
	M 46		74	270000	100	0	4	20000	800000	40	900	1000000	1100	400000
	P 47		75	1084000	100	0	4	2100	rent 100	-	600	500000	833	820000
	P 48		44	1680000	100	0	4,5	1100	700000	636	400	300000	750	500000
	P 49			-	-	-	-	-	-	-	-	-	-	110000
	M 50			200000	100	0	4,5	50	25000	500	50	25000	500	20000
	P 51		75	50000			4	60	-	-	60	rent 200	3.3	15000
Baluchistan	Q 52		78	1560200	100	0	3,5	1900	30000	15.8	400	325000	813	122000
	Q 53		59	294600	100	0	5	700	100000	142	400	300000	750	398000
	Q 54		72	165100	100	0	5	300	45000	150	250	95000	380	54500

P Peshawar
L Lahore

D Daska
M Mardan

Q Quetta

SECTION 1

No.	Value (Rs.)	Machinery + Equipment	Average age (years)	Technology					Capacity utilization %	Manpower (in numbers)				Investment (Rs.)		Utilization of		Financial				
				FD	UTD	AT	UTI	Total		Skilled workers	Semi-skilled workers	Staff	Fixed assets	Working capital	Fixed assets	Working capital	Turnover	No. of employees	Turnover total investment	Turnover machinery + equipment	Turnover working capital	Total investment
10	5.0	100000	10	G	X	X	X	50	21	8	10	3	91	100000	132600	20	0	27400	2.5	5.7	4.3	1
20	3.0	170000	10	F	X	X	X	35	16	10	5	1	90	670000	100000	0	0	50000	1.1	4.7	8.0	4
30	6.00	130000	6	G	X	X	X	50	8	7	-	1	80	340000	100000	0	0	52500	0.95	3.2	4.2	1
40	13.63	350000	2	G	X	X	X	30	8	7	-	1	80	900000	100000	0	0	80000	0.64	2.1	6.0	10
50	8.33	85000	10	F	X	X	X	60	8	4	3	1	80	310000	5000	0	0	17500	0.44	1.6	28.0	3
60	11.00	400000	6	G	X	X	X	20	42	25	10	7	80	220000	380000	11	53	6400	0.10	0.7	0.7	0
70	8.33	820000	3	G	X	X	X	30	38	5	24	9	80	140000	1510000	32	100	23500	0.37	1.32	0.7	10
80	7.50	500000	10	G	X	X	X	40	20	15	3	2	93	1500000	250000	0	0	84000	0.96	3.36	6.7	0
90	-	110000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	5.00	20000	25	B X				-	5	5	-	-	80	70000	1000	0	0	14000	2.8	10.2	200.0	10
110	3.3	15000	10	B X X				-	3	3	-	-	80	15000	2500	0	0	16000	2.9	3.3	6.0	5
120	8.13	122000	3	F X X				50	22	-	21	1	100	577000	75000	0	0	70100	2.4	12.8	20.8	20
130	7.50	398000	10	F X X				30	9	4	3	2	80	848000	70000	0	0	32800	0.3	0.74	4.2	10
140	3.80	54500	8	F X X				70	5	4	-	1	80	194500	9000	0	0	33000	0.8	3.1	18.3	5

SECTION 2

No.	Turnover No. of employees	Efficiency ratio					Cost Structure %							Remarks	
		Turnover total investment	Turnover/machinery + equipment	Turnover working capital	Total investment employees	Machinery and equipment ⁸⁾ employees	Fixed assets working capital	Loans total capital (3)	Raw material	Manpower	Deprec. Interest	Maintenance	Others		Profit
1	27400	2.5	5.7	4.3	11100	4800	0.75	8	67	17	1	-	6	9	
2	50000	1.1	4.7	8.0	48000	10625	6.7	0	77	19	5	-	-	-1	
3	52500	0.95	3.2	4.2	55000	16250	3.4	0	72	19	2	-	7	0	
4	80000	0.64	2.1	6.0	125000	43750	9.0	0	77	13	6	-	4	0	
5	17500	0.44	1.6	28.0	39400	10625	62.0	0	43	36	7	-	4	10	
6	6400	0.10	0.7	0.7	61400	9500	5.3	17	129	56	27	-	43	155	
7	28500	0.37	1.32	0.7	76600	21600	0.9	82	48	10	10	-	40	8	
8	84000	0.96	3.36	6.7	87500	25000	6.0	0	79	18	4	-	3	4	
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	14000	2.8	10.0	200.0	14200	4000	-	-	50	30	-	-	10	10	
11	16600	2.9	3.3	6.0	5300	5000	6.0	0	50	16	3	-	10	21	
12	70100	2.4	12.8	20.8	29600	5500	7.7	0	76	11	2	-	1	10	
13	32800	0.3	0.74	4.2	102000	44200	12.1	0	44	26	10	-	5	15	
14	33000	0.8	3.1	18.3	50875	10900	21.5	0	67	20	1	-	5	7	
15															
16															
17															
18															
19															
20															

SECTION 3

10801
(3 of 6)

**STUDY ON SMALL SCALE INDUSTRIES
IN PAKISTAN**

**Volume 3
SUB-SECTOR: SPORT GOODS**

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STUDY ON SMALL-SCALE INDUSTRIES
IN PAKISTAN

SUB-SECTOR STUDY
- SPORTS GOODS -

Volume 3

DP/PAK/79/o14/A/o1/37

submitted to

UNITED NATIONS INDUSTRIAL DEVELOPMENT
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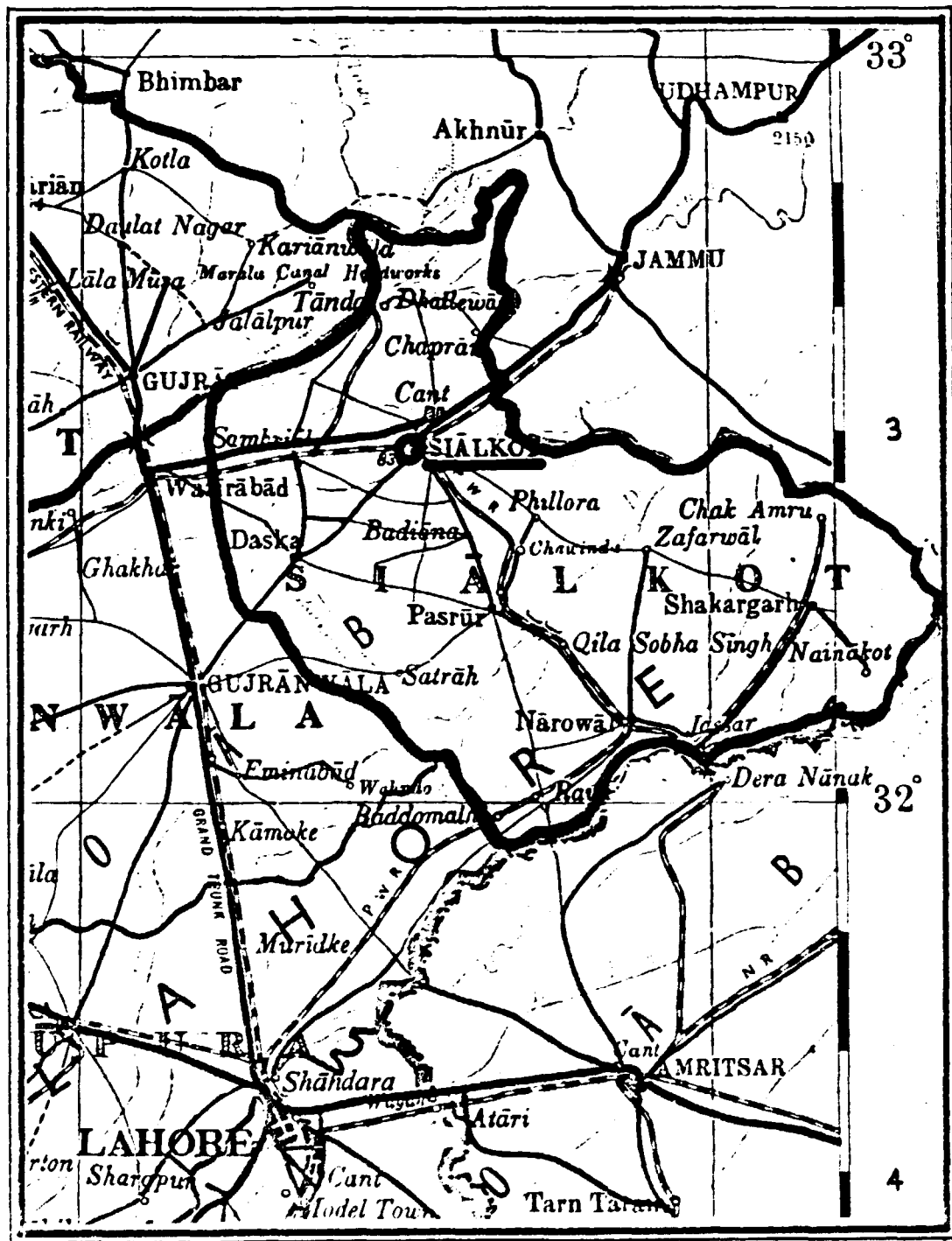
July 1981

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SIALKOT DISTRICT



Scale 1 : 100,000

0 10 20 30 40 50 km

1. Introduction and Method of Approach

1.1 Introduction

The sports goods industry in Pakistan is a traditional industry, established around 1900 and concentrated in and around Sialkot. The city is situated about 120 km north of Lahore in the province of Punjab. The population of the district is approximately 2.7 million with approximately 240,000 concentrated in Sialkot. The production of surgical instruments and cutlery is another source of income in the area. Both of these industries are export oriented. Other significant industries are not established in Sialkot, thus the prosperity of the people is dependent on the export market.

Early in the development of the industry, sports goods of high quality for professional use were produced. The main customer at this time was the British Army on the subcontinent. Soon the industry established an international reputation of quality goods, and the export of sports goods flourished. The maximum production amounting to Rs. 44 million (appr. US \$ 10 million) was reached in 1947. After partition of India in 1948, many units ran into production difficulties due to migration of labour and management.

The basic raw material supplies from Kashmir were cut off due to the partitioning. The export of sports goods fell to Rs. 1 million (US \$ 200,000).

The industry could not recover for several years. Financial and technical assistance to Pakistan Small Industry was extended in 1963 by IDA and in 1967 by German Technical Aid. The sports goods industry benefitted from the aid programme. At Sialkot with the assistance of expatriate experts a S.I. Estate and a Service Center for the sports goods industry were established in 1963. By 1968 approx. 450 factories with 2700 employees were in operation. The exports of sports goods from Pakistan increased from US \$ 2.4 million in 1963 to US \$ 4 million in 1967. Due to continuous growth of the industry and product diversification, export figures reached in 1975 US \$ 20.5 million. After 1975 the export of sports goods declined in volume and stagnated in value.

In order to reactivate small industries, the Government of Pakistan has asked IDA for assistance for S.I. in general and to 5 selected subsectors in particular. One of the subsectors to be assisted is the sports goods industry. World Bank requested UNIDO to execute a study for 5 selected subsectors. Investment Advisory Center of Pakistan (IACP) was assigned by UNIDO in 1978 to carry out the S.I. subsector study phase I.

In August 1980 UNIDO entrusted GOPA with the execution of the S.I. subsector study phase II. for the following 5 selected subsectors:

- Sports goods
- Surgical instruments
- Light engineering
- Leather
- Textile.

1.2 Method of Approach

The field work in Pakistan was carried out by a GOPA survey team from August 29th, 1980 until October 26th, 1980. The GOPA team was assisted in Pakistan by the World Bank Resident Representative, the UNIDO Senior Industrial Development Field Adviser, Investment Advisory Center of Pakistan and the Small Industries Corporations of the respective provinces. Punjab Small Industries Corporation assisted in carrying out the survey of the sports goods industry. The project officer Sports Goods Industries Service Center Sialkot, an expert in the field of sports goods industry was assigned to the task. Together with the GOPA expert 52 sports goods manufacturers were visited and interviewed. Questionnaires were completed.

All factories evaluated are within the target group of small industries (i.e. Rs. 3 million fixed assets without land). The selection was done at random without prejudice to the group or status of owner. Some of the factories were, besides production, engaged in trade. Expenditure and income derived from trade have been excluded from the data given below. The information, received from factory owners and their staffs, which for the most part was subjective and incomplete, has been aggregated, reviewed and completed in accordance to the interviewers' observations. Available data (e.g. Survey Report Sports Goods Industry, PSIC 1979-1980 etc.) were carefully studied and used only in conformity with personal findings or when other sources of information were not available. Out of the 52 questionnaires filled out only 43 could be used. The remaining 9 questionnaires were omitted because either vital information concerning the enterprise under study was missing, or the data given, by design or mistake, was misleading.

Further information about sports goods industries was derived from discussions held in Pakistan with bankers, exporters, government officials, the managing director of the Sports Goods Manufacturers Co-operative Society, the president and secretary of the Sports Goods Manufacturer and Exporter's Association and the president of the Export Promotion Bureau.

In Germany and United Kingdom importers and wholesale dealers of sports goods were interviewed. Test institutions of sports goods were also contacted.

In order to give this report a clear and complete as possible picture of the sports goods industry in Pakistan, all information has been critically reviewed, counterchecked, aggregated and interpreted according to the best knowledge of the author.

2. Structure, Significance and Development of Potential Sub-Sectors

2.1 Size of Sub-Sector

The sub-sector consists of 432 ¹⁾ sports goods manufacturers, concentrated in and around the city of Sialkot. All companies operate independently from one another. With the exception of 3 units, all are belonging to the target group defined by the SI ordinance of Punjab which allows fixed assets without land not exceeding Rs. 3 million. A household unit is defined with a total investment below Rs. 50 000. Within the small industries estate, 15 sports goods manufacturers have established their business. All other companies are scattered throughout the city, the suburbs and the bordering villages. Household factories are included in the total number of 432 units. The three larger companies that exceed the SSI limit, besides production, are mainly engaged into trade and export, some of which goes to their own stores in USA and Europe.

The total production value of the industry in 1979-80 is estimated to be Rs. 246 million (US \$ 24.6 million) out of which Rs. 222 million or 90 % is exported. Export figures are listed by the custom authorities. Exact production figures are not available. The aggregated production figures of the evaluated companies are higher than the listed export figures. However, it has to be taken into consideration that some of the companies are working exclusively for the local market and these figures are only estimated with 10 % from export.

The total fixed assets of the industry are aggregated to be Rs 190.5 million.

The total labour force, dependent on the sports goods industry in Sialkot, is estimated to be approximately 7500 people.

The main sources of income and employment for the people of Sialkot derives from the sports goods- and surgical instrument industries. Thus the performance of these industries in the export markets directly affects the income of the people as well as the economic and social structure of the area.

2.2 Characterization of Units Interviewed

2.2.1 Number of Units and Regional Distribution

52 sports goods manufacturers were interviewed and questionnaires filled out. 43 questionnaires were completed. It is anticipated that these questionnaires give a true picture of the affairs of the industry. The data below is derived from the evaluation of these 43 questionnaires.

The entire sports goods industry in Pakistan is situated in the province of Punjab in Sialkot district. The locational distribution of the units evaluated is as follows:

1) PSIC: Survey Report Sports Goods Industries, 1979-1980,
All prices f.o.b.

Small Industries Estate	=	5 factories	=	12 %
Sialkot City	=	30 factories	=	70 %
Suburbs and bordering villages	=	8 factories	=	18 %
<u>Total</u>		<u>43 factories</u>		<u>= 100 %.</u>

According to size of individual units, the sports goods industry can be divided into 4 major categories:

	<u>No. (appr.)</u>	<u>%</u>	<u>Employees (appr.)</u>
a) Factories above the level of SI	3	0.5	540
b) Factories within the definition of SI with export outlet and partly acting as wholesale dealer	28	6.5	2576
c) Factories within the definition of SI, producing only, no export or trade	280	65.0	3910
d) Household units	121	28.0	605
TOTAL:	432	100.0 %	7641.

All four categories play an important role in the social-economic setting of the Sialkot district.

Group a) is outside the target group. There are only 3 factories ¹⁾ of this size in operation. Although one of these factories has been visited and the owner interviewed, the data is not included in the survey. The data is used only for aggregation of production and employment figures.

Group b) consists of approx. 28 factories, with the major part of the enterprises engaged in production and trade. All are in export business. From group b) 14 units were interviewed and the data included into the study.

Group c) represents the bulk of the sports goods manufacturers. It is estimated that approx. 65 % or 280 factories from the total sector belong to this group. 20 factories have been evaluated.

The household units of group d), according to the definition of the Government of Punjab, represent about 28 % or 121 factories of the sub-sector. 9 factories are included in the survey.

2.2.2 Classification

In the sports goods industry two basic product groups are distinguished:

- I Sports goods manufacturer using wood as basic raw material
- II Sports goods manufacturer using leather as basic raw material.

¹⁾ PSIC: Survey on Sports Goods Industry 1979 - 1980.

Product group I includes manufacturers of items such as:

- Tennis-, Squash- and Badminton Rackets
- Hockey Sticks
- Cricket bats

and similar products.

Wood based sports goods amount to approx. 20 % of total export. 14 companies of the product group were evaluated.

Product group II includes manufacturers of items like:

- All types of leather balls
- Boxing and skiing gloves
- Protective sports ware
- Saddles and reins.

The leather based sports goods amount to 80 % of total export. 26 companies from this group were evaluated.

3 companies with a diversified product range, producing both wood and leather sports goods were also evaluated

Table 1 shows the employment range of the evaluated companies strictly classified in product groups.

Product Group I Wood

The 14 evaluated companies have an employment of 369; the average employment per company is 26. The ratio of workers to staff members is 9 : From the employees 45 % are skilled workers and 44 % semi- or unskilled workers. 66 % of the total factory workers are on a contractual basis.

Product Group II Leather

From the leather working sports goods industry 26 companies with 1199 employees were evaluated. The average employment per company is 45 people. This is higher than in the timber working group. For each 20 workers one staff member is employed. 40 % skilled workers and 54 % semi- or unskilled workers are engaged in production. The participation of contract workers is 78 %, a very high figure.

Product Group III Wood and Leather

From this group only 3 factories with 160 employees were interviewed. On the average 53 people find employment per company. For every 5 workers one staff member is employed.

Table 1: EMPLOYMENT ACCORDING TO PRODUCT GROUP

Employees	No. of Factories						Employment				% Contract Worker on Total Employment	Average No. of Workers per Factory
	Total	3 - 10	11 - 20	21 - 50	51 - 100	> 101	Total No.	% Skilled	% Semi + Unskil.	% Staff		
Product Group I: Wood	14	4	4	4	2	-	369	45	44	11	66	26
Product Group II: Leather	26	6	9	3	5	3	1,199	40	54	5	78	45
Product Group III: Wood + Leather	3	-	-	2	1	-	160	39	42	18	61	53
Evaluated Factories Total	43	10	13	9	8	3	1,728	41	51	8	74	40

Table 2: EMPLOYMENT ACCORDING TO BUSINESS ACTIVITIES OF ENTERPRISES

Employees	No. of Factories												Employment				% Contract Worker on Total Employment	Average No. of Workers per Factory
	Total		3 - 10		11 - 20		21 - 50		51 - 100		> 101		Total No.	% Skilled	% Semi + Unskil.	% Staff		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%						
Group 1: Manufacturers, Wholesale dealers, Exporters	14	100	-	-	-	-	3	21	8	57	3	21	1,291	41	52	7	74	92
Group 2: Manufacturers Wood	12	100	4	33	4	33	4	33	-	-	-	-	217	36	51	13	69	18
Group 3: Manufacturers Leather	17	100	6	35	9	53	2	12	-	-	-	-	220	40	51	9	75	13
Total	43	100	10	23	13	30	9	21	8	18	3	7	1,728	41	51	8	74	40

1) Trade activities are not included in the table.

Within this group 39 % were skilled and 42 % semi- or unskilled workers. 61 % of total labour force in the product group work on contract.

Of the 432 sports goods manufacturers in Sialkot, 28 companies produce 40 - 50 % of the total production. Most of these companies are engaged in trade and all are exporters. In order to give a clearer picture of the sports goods industry, a more realistic classification is made in Table 2. The evaluated companies are classified into 3 groups:

1. Companies with their own export outlet¹⁾, acting sometimes as wholesale dealers;
2. Companies engaged into production only, using mainly wood as a raw material;
3. Companies engaged into production only, using mainly leather as a raw material.

Group 1, Manufacturers, Wholesale Dealers and Exporters

This group represents 5 - 8 % of the total sports goods manufacturers in Sialkot. It is the most important group producing 40 - 50 % of the entire sports goods exported. 14 companies of this group with a total labour force of 1291 were evaluated. 3 companies use wood and 9 companies use leather as basic raw material. 2 sports goods companies use both, wood and leather. No factory has less than 21 employees. 3 companies have a labour force between 21 and 50. 8 companies employ between 51 and 100, and 3 enterprises have more than 101 employees. The average labour force per factory is 92. For every 14 workers one staff member is employed. Of the total labourers 41 % are skilled and 52 % are semi- or unskilled. 75 % of the employees work on contract basis. All companies are within the definition of S.I..

Group 2, Manufacturers using mainly wood as a raw material

This group represents 20 - 25 % of the sports goods factories in Sialkot, producing 10 - 15 % of the total sports goods. From this category 12 factories with a total labour force of 217 were evaluated, out of which 4 factories employ between 3 - 10, 4 between 11 - 20 and 4 between 21 - 50 people.

On the average 18 people are employed per factory. From the total labour force 36 % are skilled and 51 % semi- or unskilled workers. For each 8 labourers one staff member is employed. 69 % of the employees are on contract basis. 3 companies are considered to be household manufacturers.

Group 3, Manufacturers using mainly leather as a raw material

This is the biggest group of sports goods manufacturers in Sialkot. Approx. 65 - 70 % of the total enterprises engaged in sports goods production belong to this category having a market share in production of 45 - 50 %. 17 factories with a labour force of 220 from this group were evaluated. 5 % of these factories are considered household manufacturers. 6 factories have a labour force between 3 - 10 people, 9 between 11 - 20 and 2 between 21 and 50. No factory

¹⁾ Trade activities are not included in the figures

had more than 50 employees. The average employment per factory is 13 people. 40 % of the workers are skilled and 51 % are semi- or unskilled. 75 % of total employed labourers work under contract.

As Table 2 indicates 5 - 8 % of the 432 factories in operation have a market share of 40 to 50 % of the entire sports goods production in Pakistan, and on the average employ 92 people per individual factory. All of these companies are exporters, who have their own marketing organizations and some maintain stores in USA or Europe.

The other two groups representing 92 - 95 % of the operating enterprises participate in 50 - 60 % of the sports goods production. For marketing these companies depend on the enterprises of group 1 or on other exporting companies. In Sialkot 632 ¹⁾ firms are registered for the export of sports goods. How many firms are only license holders and how many are in actual business is not known, however these so called exporters bring tough competition into the group of manufacturers.

Size of Investment

The 43 selected companies represent approx. 10 % of the subsector. The total investment of these companies is Rs. 60.4 million (see Table 3). Group 1, consisting of 14 companies, invests Rs. 48.5 million or 80 % of the total investment, the highest amount invested by any one of the 3 groups. Group 1 is followed by group 2 represented by 12 companies with an investment of Rs. 7.9 million or 13 % and group 3 with 17 companies had an investment of Rs. 3.9 million or 7 %. Keeping in mind that group 1 represents only 3 - 8 % of the factories of the sub-sector and group 3 represents 65 - 70 %, the investment of group 1 seems enormous. Per individual factory, the average investment of group 1 is 5 times more than group 3. The explanation of this is seen when the employment figures are compared with the investment. The investment per employee in group 1 is Rs. 37,600 and in group 2 the investment per employee is 36,000, only slightly lower. However the investment per labour in group 3, the leather working industry is Rs. 18,000 only half the amount of the other two groups.

A comparison of fixed assets indicates that the leather sports goods manufacturers are the weakest group. 59 % of these companies work in rented premises, whereas the factories using wood as basic raw material only 50 % do not own their land and buildings. 85 % of the companies with their own export arrangement (wood and leather combined) are operating on their own property. Group 2 has the highest investment in land and buildings with Rs. 18,300 invested per labourer, followed by group 1 with 13,000 per labourer and group 3 with Rs. 11,000 per labourer. Group 1 has spent Rs. 2,700 per worker for machinery, group 2 Rs. 2,600 and group 3 Rs. 1,700. In total the fixed assets of the selected 43 companies amount to Rs. 27.6 million or 46 % of the total investment. The average fixed assets per factory are:

Group 1	Rs. 1,446,800,-
Group 2	Rs. 378,700,-
Group 3	Rs. 165,600,-

¹⁾ PSIC, Survey Report 79 - 80, Sports Goods Industry

Table 3: SIZE OF INVESTMENT (in '000 Rs)

Group	INVESTMENT OF GROUP					AVERAGE INVESTMENT PER FACTORY					AVERAGE INVESTMENT PER EMPLOYEE				
	Total	Land + Building	Machinery	Fixed Assets	Working Capital	Total	Land + Building	Machinery	Fixed Assets	Working Capital	Total	Land + Building	Machinery	Fixed Assets	Working Capital
1. Exporters: 14 Factories	48,510	16,793	3,464	20,255	28,256	3,465	1,199	247.4	1,446.8	2,018.3	37.6	13.0	2.7	15.7	21.9
2. Wood: 12 Factories	7,945	3,975	569	4,545	3,399	662	331	47.4	378.7	283.3	36.6	18.3	2.6	20.9	15.7
3. Leather: 17 Factories	3,968	2,450	366	2,816	1,153	233	144	21.5	165.6	67.8	18.0	11.1	1.7	12.8	5.2
Total: 43 Factories	60,423	23,218	4,399	27,616	32,808	1,405	539	102.3	642.2	762.9	34.9	14.3	2.5	16.0	19.0

Note:

Group 1 - 14 Factories - 1,291 Employees - 2 companies operating in rented premises = 14 %

Group 2 - 12 Factories - 217 Employees - 6 " " " " " " = 50 %

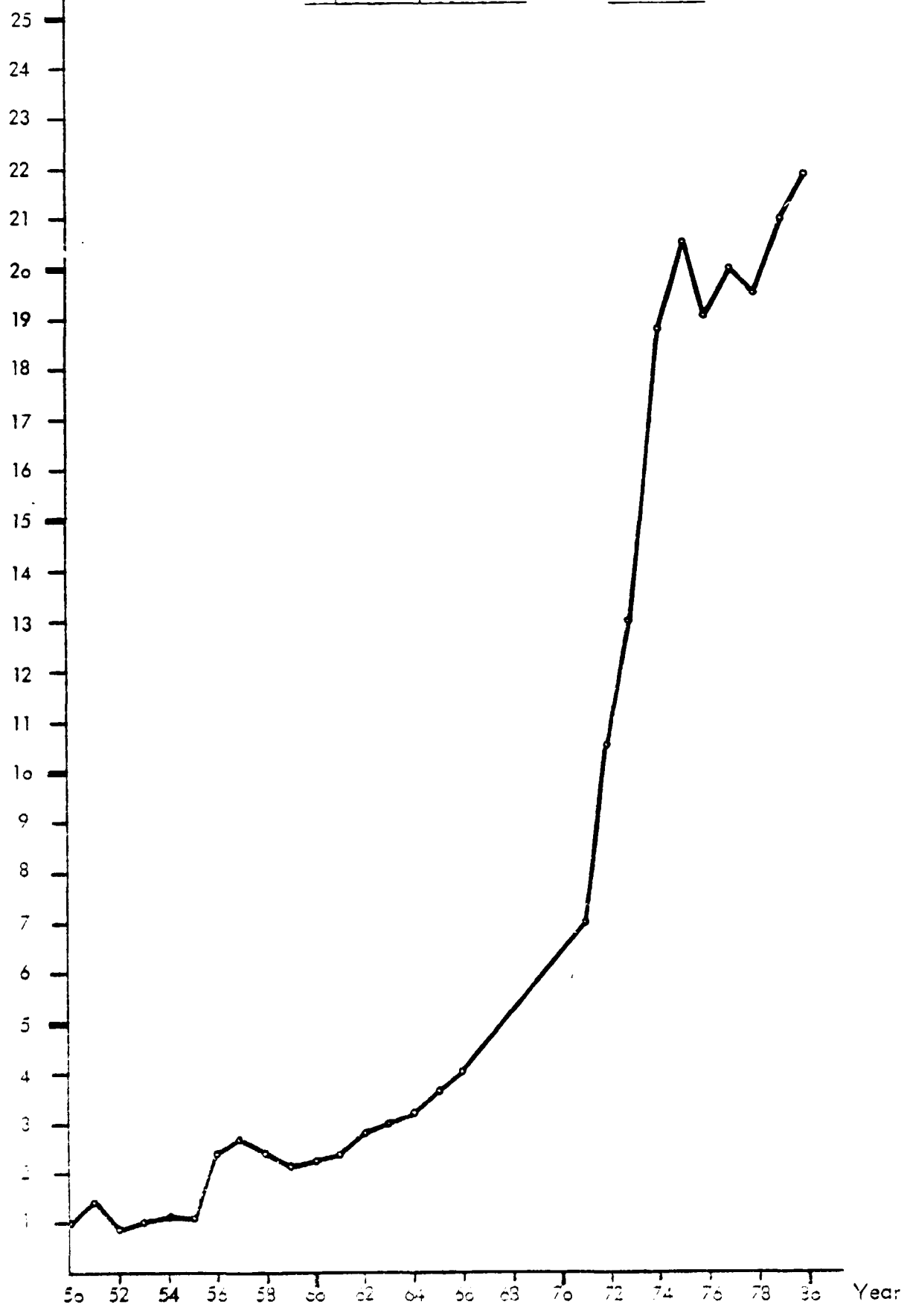
Group 3 - 17 Factories - 220 Employees - 10 " " " " " " = 59 %

Total - 43 Factories - 1,728 Employees - 18 companies operating in rented premises = 42 %

Value
million US \$

2.2.1: Exports of Sports Goods

Table 4



Per employee the fixed assets of group 1 amount to Rs. 15,700, group 2 to Rs. 20,900 and group 3 to Rs. 12,800.

The total working capital of the 43 evaluated factories is Rs. 32.8 million or 54 % of the total investment. In total working capital group 1 leads with Rs. 28.25 million, followed by group 2 with Rs. 3.39 million and group 3 with Rs. 1.15 million.

The average working capital per employee is:

Group 1	Rs. 21,900
Group 2	Rs. 15,700
Group 3	Rs. 5,200.

Due to their active export trade group 1 has the highest demand for working capital. Group 2 must stock timber because it can only be bought seasonally, whereas group 3 buys raw material to fill each order. Cash is received after completion of order or when delivery is made to the wholesale dealer or exporter.

Output

The total sales in 1979 - 1980 of the sports goods industry in Pakistan is estimated below:

Export performance ¹⁾	Rs. 222 million
Local sales approx. 10 %	Rs. 24 million
	<u>Rs. 246 million.</u>

Aggregation of production figures from the 43 evaluated companies classified into groups of activity result in higher total figures than estimated and shown in custom statistics. It is estimated that 90 % of the total sports goods production is exported and 10 % is locally sold. Keeping in mind that some of the factories work seasonally only, the estimated total production will be near the figures shown above. It is further assumed that the export figures of sports goods due to classification problems are 10 to 15 % higher than shown on the custom table. Using both of these assumptions, the aggregated production figures will be in conformity with the figures available and will amount to Rs.270 million.

The sales figures of the 43 evaluated companies are given below on table 5:

2.2.2: 1979 - 1980 SALES OF 43 SELECTED COMPANIES

Table 5:

Group	Total Sales (Rs.)	Sales Products Leather (Rs.)	Sales Products Wood (Rs.)	Average Sale per Company (Total Rs.)
1. Exporters 14 Factories	56,483,211	54,072,370	12,410,821	4,748,800
2. Wood 12 Factories	10,263,083	1,203,116	9,059,967	955,256
3. Leather 17 Factories	7,217,241	7,217,241	-	424,543
TOTAL	83,963,535	62,492,747	21,470,788	-
	100 %	74 %	26 %	

1) Source: Pakistan Sports Goods Manufacturers and Exporters Association

As shown on Table 5 the 14 factories of group 1 sell a total of Rs. 66.4 million, almost 4 times more than the 29 factories of groups 2 and 3 together. The output per individual factory is Rs. 4.7 million, 5.5 times higher than the average factory of group 2 (Rs. 0.85 million) and 11 times higher than the average factory of group 3.

2.2.3 Organizational Aspects

Of the 43 factories evaluated only 9 or 21 % have a legal status as a limited company. The remaining 34 enterprises or 79 % are operated under a sole proprietorship or under a family partnership. All of the 14 companies of group 1 that are engaged in trade in addition to their production line are registered under the Factory Act of Pakistan. Of the 29 companies in groups 2 and 3, all of which are manufacturers only, 2 entrepreneurs have their companies registered under the Factory Act of Pakistan.

There are three Associations in Sialkot in operation:

1. Pakistan Sports Goods Manufacturers and Exporters Association
2. The Sialkot Association of Trade and Industry
3. Pakistan Sports Cooperative Industrial Society Ltd.

Almost all sports goods manufacturers are registered as members in one or more of the associations.

The Pakistan Sports Goods and Exporters Association has more than 400 members. The policy of this association is mainly made by exporters, traders and wholesale dealers. Naturally the interests of these groups are basically represented by this organization.

The Sialkot Association of Trade and Industry has more than 400 members, mostly manufacturers from the sports goods- and surgical instruments industries. However, due to internal problems, the association seemed to be inactive for the time being.

The Pakistan Sports Co-operative Industrial Society also has more than 400 members. The activities of this cooperative are mainly importing and distributing imported raw materials and purchases, processing and distributing local raw materials. The smaller manufacturers greatly benefit from this membership due to the availability of all types of materials in small quantities and at reasonable rates.

3. Technical, Economic and Financial Analyses of Target Units

3.1 Production and Technology

3.1.1 Range of Products, Specifications and Quality

The sports goods industry in Sialkot consists of two major production groups:

A. Factories using mainly timber as basic raw material

From this traditional production group 17 factories have been visited and evaluated. The main items manufactured are as follows:

- Tennis Rackets
- Badminton Rackets
- Squash Rackets
- Table Tennis Rackets
- Hockey Sticks
- Cricket Bats.

The international specifications for size, shape and weight are known to most of the producers. However, only a few companies maintain control of specifications and quality. Generally standardization is not maintained due to low mechanization and the fact that a great amount of the work in the industry is done by hand. As a rule inspection is done only by sight. The balancing of rackets after different production steps is very important, but this is neglected here due to the lack of production control and in order to speed output.

For high quality rackets ash and beech wood is commonly used. Both of which are not available in Pakistan and must be imported. To avoid import costs, willow wood of low quality is used for rackets produced in Pakistan. Of all the evaluated companies only one was using exclusively imported timber for racket production. This company manufactures rackets exclusively for the domestic market. Although made by traditional production methods, the standard of products is very high in this case. The material is carefully selected for each racket, production control strictly enforced, balancing done in the proper way, and each racket is tested before leaving the factory.

The rackets produced in Pakistan for export are of medium to low quality and are mainly for the toy market. This is reflected in the export figures. Due to the low quality of Badminton Rackets, Pakistan has almost completely lost its export market. Tennis- and Squash Rackets are still produced, but export figures of these items have declined proportionally.

The situation with Hockey Sticks is different. The top international players are using almost exclusively Pakistan made Hockey Sticks. For the head, Mulberry wood is used. The finest quality of this species is grown in Pakistan. The leading manufacturer of Hockey Sticks in Pakistan has a joint-venture with an international renowned sports goods manufacturer. In the Sialkot factory specification- and quality control is enforced. Material is selected for each item produced.

Each hockey stick is stamped with the brand name, in accordance to international specifications and quality. Although a certain level of mechanization has been reached, automation has not yet been introduced in this factory. Many of the hockey stick manufacturers in Sialkot try to copy this leading company with different results, however. Some were able to produce hockey sticks of standard specifications but most produced hockey sticks below international standards.

Cricket bats are also produced traditionally in Sialkot. Willow is the basic raw material for cricket bats. The Pakistan willow compared with the English willow is different in grain, structure and specific weight. Therefore a cricket bat produced in Pakistan from local raw material is considered to be substandard. Lately some companies are trying to change size and specifications of cricket bats in accordance to the local timber requirements. It is assumed that if this trial is successful, like hockey sticks, the cricket bats produced in Pakistan will reach international quality standard. Factory organization and production control in cricket bat factories are below requirements, resulting in products that are outside specifications with high tolerances. Export figures are therefore low compared with other sports goods.

B. Factories using mainly leather as basic raw material

From this production group 29 factories have been appraised, out of which 3 factories produced both wood and leather products. The main items manufactured by this production group are:

- Footballs
- Handballs
- Rugbyballs
- Volleyballs
- Basketballs
- Cricketballs
- Boxing gloves
- Skiing-, Cricket gloves
- Protective Leather Sports Wear
- Saddles and Horse Gear.

Like in group A, the international specifications are known to most of the manufacturers. But here also the tolerances of the produced items are kept only by a few companies within accepted limits and most of these are exporting companies. Most of the produced items are below international specifications.

Leather balls with 59 % are the biggest single sports goods item exported from Pakistan. The quality ranges from good to very bad.

For high quality footballs only butt leather properly tanned, stretched and coated with good finish is used. The lining, a mixture of cotton and synthetic is glued with latex or other synthetics on the back of the leather. The panels are cut on a press with dyes. The panels have to be pre-

selected according to thickness, weight and quality. Stitching is done with high quality thread by hand. If the ball is round, within specified tolerances in size and weight, with a good surface finish and properly stamped, a price between 5 to 15 US \$ can be obtained. In spite of better knowledge, balls below acceptable specifications are produced in Sialkot mostly by the smaller units. The reason is price pressure from wholesale dealers and exporters. The smaller companies use belly and neck leather instead of butt. Second hand cotton cloth is used for lining. This unsuitable lining material is stuck with starch on the back of the leather. The panels are not preselected after cutting, and ones of differing thickness and weight are sewn together with unsuitable thread. The ball is then coated with a surface material that has no resistance to the abrasion of normal use. Like the material, the workmanship is generally poor. A ball produced in such a way is below any acceptable standard and should not even be used as a toy. This kind of ball has an export price of US\$ 2 or less. With such a product both producer and consumer are cheated. Price calculations revealed that even with cheap, unsuitable material a ball cannot be produced in Sialkot below US \$ 2. As for the consumer the ball will disintegrate within no time when played with.

The survey revealed that only 3 manufacturers in Sialkot produce balls from plastic material. Their consumers are well known international sports goods companies. All materials, including bladders and thread are delivered from abroad. The panels are delivered cut to size and stamped with the brand name of the buyer.

Only the sewing is done in Pakistan. It is doubtful, if these 3 companies can survive the price pressure from the international companies who get their balls produced under their brand names also, but in other low-cost countries.

Football bladders are produced in Pakistan. These companies have a higher investment and are therefore outside the definition of SI. The quality of these bladders is good and in accordance with international standards. However, on request from certain leather ball manufacturers, very thin bladders of low quality and cheap prices are produced. These bladders are below any acceptable standard. The quantity of bladders produced in Pakistan is not meeting the demand. In order to cover the requirement of the industry, bladders are imported from Europe, India and Australia.

All types of sporting gloves produced in Pakistan could be of good quality. However, in order to undercut international competitors, low quality leather and poor workmanship are used resulting in a further cut of prices by the importer abroad.

Protective leather sports wear, saddles and riding horse gear are produced like all other sports goods exported, with a quality of medium to very poor. Since these articles are only a fraction of the total sport goods produced no detailed survey of these items was done.

The product range of sports goods manufactured and exported from Pakistan is traditional. It has not been changed over the years in item, material and design. The industry was not in the position to change to plastic or metal rackets, fiber glass hockey sticks or plastic covered footballs. Nor could the product range be diversified by other sports items, such as: skis, skateboards, home exercise equipment, gym equipment, surfboards or any other sports goods developed for popular use with recent decades. The industry in Sialkot showed little diversification in its product range.

3.1.2. Level of Technology

In general the methods of production are traditional. The level of technology is low; machines of the latest design are not found in Sialkot. Only in factories of group 1, exporters, and the leather working industry can the first steps of intermediate technology be found. Machines of simple design are in use in these areas, in contrast to the wood products industry where almost no progress has been made in the last few decades. This is shown in their steadily declining export figures.

A description of the methods, technology, and general production processes used in the sports goods industry in Pakistan are shown per item below:

3.1.2.1 All Types of Rackets made from Wood

The method of production and technology in use (in factories visited) is shown in Production Flow Chart No. 1.

The ply for the frame is cut from logs by a band saw in step 2. The resulting surface is uneven and the thickness of the plies varies. To obtain high quality plies, cutting should be done on a circular saw or on a multiple rip saw. This will, however result in a high wastage of material. A more efficient method would be to use a veneer slicing machine. This machine cuts the logs into a veneer of required thickness. These veneer leaves are then trimmed in width to thicknesses of 5 - 6 rackets. Using this method a high quality ply surface is achieved and wastage is reduced. Although veneer slicing machines are not available in Sialkot, several machines are in operation in other districts (Peshawar, Rawalpindi, Jhelum). However, the sports goods manufacturers are not aware of the technology.

Hearts and overlays are also cut on a band saw. Similar to the plies, these surfaces are rough, the forms are not constant and are unsuitable for glueing. The hearts should be cut by a high speed router or after band saw cutting shaped on a spindle moulder.

The bending press in step 3, used exclusively by the racket producers in Sialkot, is outdated in design and construction. The pressure cannot be controlled and is not equally applied to all points of the frame. A pneumatic press designed by the sports goods service center is available. The pressure can be controlled on this press and is equally applied to all points. This press is considered to be better than the bending presses in use despite the fact that it is not tried and must be adapted to production conditions. This technical difficulty together with the higher cost of the machine prevents the sports goods industry in Pakistan from implementing its use. The best bending press in use in the sports goods industry is a hydraulic bending press. This press is in operation in such countries as England, Taiwan and Japan. With this hydraulic bending press it is possible to press 5 to 6 rackets into one piece and then cut and separate them. This press is, unfortunately, not available in the open market. It has to be designed and could be then produced in Pakistan.

Another trouble spot in the technique used by the sports goods industry is in the application of the glue. Before pressing, glue is applied with a brush by hand to the plies. In order to apply the glue equally and to have controlled working conditions, a glue roller coating machine should be used.

Production Flow Chart No. 1

3.1.2.1 Racket Production and Technology Applied



1. Raw Material Stores
- selecting of material

2. Band Saw
- cutting of logs, cutting of boards
into plies, cutting of hearts and overlays

3. Bending Fress
- pressing of frame

4. Thicknessing Machine
- thicknessing and calibration of frame

5. Work Bench
- glueing of overlays, shaping, ballancing
- groove making
- fixing of grip

6. Bobbin Sander
- sanding and shaping

7. Drilling Machine
- drilling of holes

8. Spray Painting Unit
- lacquering
- fixing of transfere labels

9. Inspection
- finishing, stringing
- packaging

After glueing the frame is dried in the sun for about one day. During this time the pressing pattern is fixed to the frame. From the technical aspect, this method is acceptable. However, a great number of pressing patterns are required for a running production because approx. 100 costly aluminium patterns per day are taken out of circulation. In order to streamline production, the frame should be dried in the press or on a conveyer belt after pressing. Total pressing time could be reduced to 1 - 5 minutes. Various drying systems are in operation in the timber industry around the world. The most suitable system for drying the racket frames should be tested and adopted by the sports goods industry in Pakistan.

Thickening of the frame is carried out at step 4. This work is done in conformity with present technology, step 5 is done by traditional hand work. By employment of simple machines like belt sanders, routers, shapers, quality could be improved and working time shortened. The first step in this direction is seen in the use of the bobbin sander in step 6.

The drilling of holes for stringing the racket is done in step 7 on a single spindle drilling machine with the aid of a pattern or by hand after marking. This technology is outdated. Multi spindle drilling machines are available in the international market. The use of such machines is not only time saving but precise boring and high surface quality of the holes is guaranteed. Modern racket production without a multiple drilling machine is unthinkable.

When high quality lacquers are used, spray painting of rackets in step 8 guarantees a high surface quality. However, this also results in high wastage of expensive lacquer. A more efficient method would be to dip the first and all intermediate coats and spray paint or curtain coat only the final layer.

At step 9 the racket is supposed to be inspected and balanced before stringing is done. In Pakistan, stringing is done without the aid of pressure gauges. The tension of gutts or nylon strings is therefore uncontrolled.

In the absence of standard specifications and testing equipment, no physical tests are made on the finished racket.

The main problem areas are:

- thickness tolerance and rough ply surface
- tolerance in form and size of heart
- uncontrolled application of glue
- uneven pressing of frame.

These problem areas aggregated result in a high rejection rate and low product quality.

3.1.2.2 Hockey Sticks

The method and equipment used for making hockey sticks are seen in Production Flow Chart No. 2. After storage the mulberry logs are cut on the Band Saw (step 2) into square candles of approximately 80 mm x 1000 mm in length for the heads.

For handles, cane pieces of about 800 mm length are split on the band saw according to thickness requirements into 2 - 3 pieces. A band saw is suitable for cutting mulberry logs, however the splitting of the cane should be done on a splitting machine, which does not destroy the fiber. Only one factory has such a splitting machine in operation. In step 3 the candles

Production Flow Chart No. 2

3.1.2.2 Hockey Stick Production, Technology Applied



1. Raw Material Stores
- selecting of material

2. Band Saw
- cutting of logs
- cutting of blades after bending
- cutting of cane for handles

3. Seasoning Kiln
- seasoning of blocks
- drying of bent heads

4. Hot Water Tank
- boiling of timber

5. Bending Press
- bending of heads

6. Work Bench
- shaping of heads
- glueing of handles
- fixing of handles onto heads

7. Turning Lathe
- turning of handle
- winding of bandage

8. Spray Painting Unit
- painting and varnishing
- fixing of transere labels

9. Inspection
- finishing
- specifications check

are seasoned in a kiln or stacked in the open for natural seasoning.

Natural seasoning needs approx. 6 month and blocks the working capital. With the exception of a demonstration plant modern kilns are not available in Sialkot. Kilns locally built are uneffective and burn the timber. Case hardening appears and the cells are destroyed. A hockey stick produced from such material is bound to brake at the first strong impact.

After the candles are seasoned to a moisture content of about 12 %, they are put into the water tank at step 4 and boiled in order to soften the wood for bending. A more effective way of softening is steaming, however this method requires expensive equipment and a higher operational cost.

On a spindle bending press at step 5 the candle is bent into the shape of an U. The spindle press used was designed around 1900 to be operated with handwheels. It was modified and equipped with an electric motor about 10 years ago. The press is not working optimally because it compresses fiber of the block at the curve more than at any other point. This may lead to breakage of the hockey stick at a later stage. A hydraulic bending press available in the international market is not used at the individual sports goods factories due to the high cost and low utilization factor.

The moisture is removed from the bent candle in the kiln. The U shaped candle is then cut in half creating 2 L shaped pieces. These pieces are then cut into heads at the band saw (step 2). Depending on the quality of the timber, 4 - 6 hockey heads are made from one candle.

The rough shaping of each individual head is done by cross axe. With chissel file and hand planer the exact form is shaped. According to specifications of the International Hockey Federation, the head of the stick has to pass through a steel ring of 52 mm dia. Smoothing is done on a sanding machine and by hand.

This method is ancient and outdated. The highly qualified labour is used for an operation which could be done more quickly and more precisely by a machine. However, the technical knowledge is not available at the sports goods industry in Sialkot. One factory owns semi-automatic machinery, but due to a series of accidents resulting from unsuitable and dangerous machine tools, the workers refuse to operate these machines. And therefore also do the shaping by hand.

The cane for the handle which was cut into strips at step 2 is glued together with a mulberry inlay at a glueing frame. This intermediate technique is acceptable, however, only 1 hockey stick manufacturer out of 7 use this method. The others wind rope around the handle to be glued, assuming this will produce a proper joint. On a turning lathe, step 7, the glued cane is shaped into a handle. The handle and the head are glued together with a V joint. The cloth tape bandage is glued around the handle on the turning lathe. After balancing and smoothing the hockey stick, spray painting or hand polishing is done in step 8. Transfere labels and the towel cloth grip are also afixed in step 8.

Inspection of the completed hockey stick and touch up should be done at step 9. Rigid inspection check of specifications was done in only one of the 7 evaluated factories. In a second factory only visible inspection was carried out. In all other factories the sticks were packed by the workers and delivered without any further inspection. Minimum quality standards are not fixed. Testing is not done.

3.1.2.3 Cricket Bats

The production method and technology used in making cricket bats is shown in Production Flow Chart No. 3. The willow logs are cut on the band saw in step 2 into blocks and further into the rough V-shape of a cricket bat. The bats are seasoned naturally down to a moisture content of approx. 8 % in step 3. Depending on the season, the time requirement is approx. 6 - 9 months. Artificial seasoning kilns, in which the seasoning time could be reduced to 2 - 3 weeks are not available.

Locally built drying chambers burn the timber which then results in case hardening and minute cracks will appear. The cracks will eventually lead to the destruction of the cricket bat. A pilot seasoning plant installed at the Sports Goods Industry Service Center was used with favorable results, however their services were abandoned due to low capacity and lack of qualified personnel. The cricket bat is shaped into correct size and weight in step 4. There are various techniques and machines available for shaping. A commonly used method in Sialkot is to surface the upper side of the bat on a locally developed jointing machine. The V-shaped back is normally moulded with a hand plane and finished by file and emery papers. The weight of a cricket bat must be strictly controlled. A copying lathe with 3 - 5 spindles, equipped with cup-cutters could be used, in step 4, but it has several disadvantages. The machine is very expensive, the output is comparatively low, the surface of the shaped cricket bat is rough, and control of the weight is difficult.

A few machines of this type are in use in Sialkot but after extensive trials were not used for mass production. The combined use of a cricket bat jointer and a spindle moulder for all shaping operations seemed to be appropriate. However, the technical knowledge for such operation is not yet available in Sialkot. For mass production and standardization of cricket bats a conveyer belt, automatic moulding and shaping machine could be developed. These types of machines are in operation in the production of similar wooden parts in Europe.

After shaping, a V-joint is cut into the bat on a band saw machine. The cane handles are turned at step 5 and a wedge like cut is made at the end for joining into the bat. The final shaping is done at the work bench (6). Weight and size are determined and fine sanding is done. The bat is compressed in step 7. This commonly used roller press is of simple local design and is sufficient in quality. The handle is glued into the bat and bandaged with thread before the rubber grip is fixed on the handle at step 6. Visible inspection classification, checking of weight and size is done at step 8 before the order is packed for shipment. Testing even of a prototype is not done. The quality of the produced item should be in accordance to a sample as accepted by producer and buyer but this is not always done due to the non-availability of standards and the lack of an effective production control.

Production Flow Chart No. 3

3.1.2.3 Cricket Bat Production, Technology Applied



1. Raw Material Stores

2. Band Saw
- cutting of logs into planks

3. Seasoning

4. Shaping Machine
- shaping into correct size

5. Turning Lathe
- handle turning

6. Work Bench
- final shaping
- smoothening
- fixing of handle onto bat

7. Roller Press
- compression

8. Inspection
- check of size and weight
- classification
- stamping

3.1.2.4 Leather Balls

Production Flow Chart No. 4 shows the production methods and technology used in the manufacturing of leather balls. The production of leather balls, with a few exceptions, is very similar for the differing types (footballs, handballs, etc.). Since footballs are the single biggest item of all the sports goods produced and exported from Pakistan, their production steps will be described.

In Pakistan football leather in general is not produced by the big tanneries. As a rule the football manufacturer purchases blue wet hides in the market. In step 2 the hides are prepared and chrome tanned. The quality of tanning depends on the equipment and level of technology available at the individual factory. A tanning drum is the best equipment, however most of the smaller manufacturers only have tanning pits at their disposal. The quality of the leather chrome tanned in pits is not in accordance to the standard requirement of football leather. Tanning drums are available in the common facility services at the PSIC Leather and Footwear Training Institute in Gujranwala for a nominal rate. However, only a few entrepreneurs use the common facility services.

The transport from Sialkot to Gujranwala and back, especially for the smaller manufacturers is troublesome.

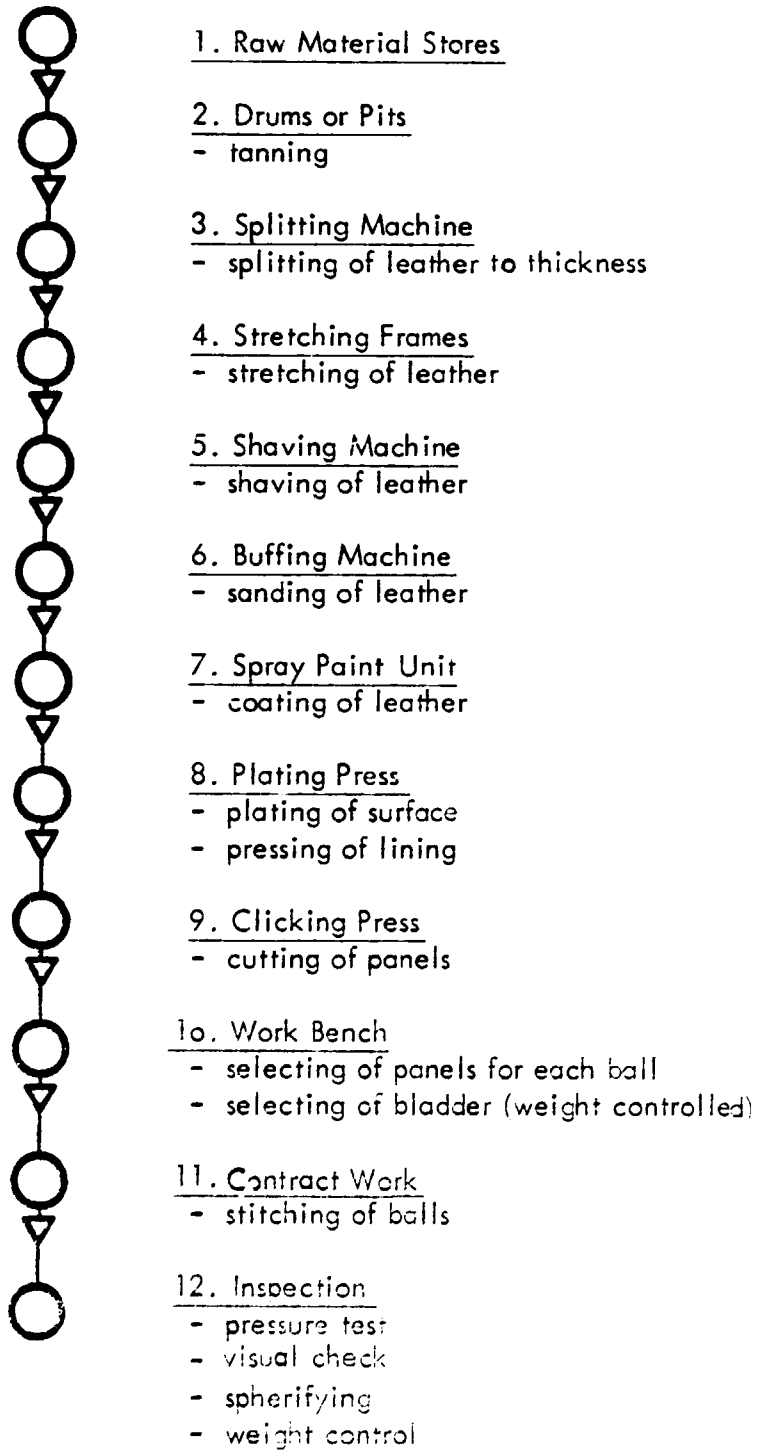
Splitting of the buffalo or cow hide into the required thickness is done at the splitting machine in step 3. This is a costly high-precision machine with a high output. Only bigger companies can afford the operation and maintenance of such a machine. Out of the 23 evaluated football manufacturers only 4 had a splitting machine. However, splitting of leather can be done in the common facility at the PSIC Sports Goods Service Centre in Sialkot and at the Leather and Footwear Institute in Gujranwala. Several tanneries also offer to split the leather for payment. Some of the smaller manufacturers, in order to save money, use the shaving machine at step 5 for splitting and reduce the thickness of the hide by shaving. This method wastes the material normally split and used for other purposes.

In order to remove the tension from the leather, the hides are put on stretching frames at step 4. However, only 5 out of 23 football manufacturers use this equipment. The stretching frames are locally designed and manufactured and the different systems still have room for improvement in design and application. In a commonly used method the wet hide is nailed to a wooden board, and dried in the sun. Thus, a certain stretching effect is achieved. For quality footballs, board stretched leather is not suitable.

After stretching, any unevenness of the hide is removed in step 5 at the shaving machine and in step 6 at the buffing machine. Both machines are locally manufactured and are suitable for this work. At step 7 the spray paint equipment is used to coat the hide. Coating of leather with a hand operated spray paint pistol is acceptable but does not reach international standards of football coating. More sophisticated coating methods, such as curtain coating, automatic brush coating or conveyer belt spray coating are not available in Sialkot. Therefore the high quality 2-component plastic surfaces, which give the ball the right grip according to weather conditions, can not be applied in Sialkot. Spray paint coating was done in 18 of the 23 factories. In 5 companies the coating of the leather was

Production Flow Chart No. 4

3.1.2.4 Leather Ball Production, Technology Applied



done by brush. This system, due to low surface quality, should be abandoned.

The inner lining is glued to the football leather after coating. For gluing, 12 companies used latex or other waterproof plastic material and 13 factories used starch or similar materials. Starch for glueing is unsuitable and produces the lowest possible quality of footballs.

In two companies, the lining is pressed together with the leather, after the application of the latex, by a hydraulic plating press (step 8). This step has a dual effect on the quality of the football. By pressing, the lining will be better bonded to the leather and the surface quality of the leather is also improved. In step 9 the panels for the football are cut. The former knife cutting method has been abandoned for the more modern and efficient method done with dies on a clicking press. In 6 companies imported hydraulic clicking presses were used, the remaining 17 companies used a locally manufactured excenter press. Although the imported presses produce less noise, are safer for the operator, and have a higher output; the quality of the cut panels of both are equally good. Both imported and local machines punch the holes into the leather for stitching in one operation. This relatively new development in the Sialkot sports goods industry improves the quality of the balls and makes the work easier for the stitchers, resulting in a higher output.

In steps 10 and 11, two varying methods of production were found. In 12 of the companies, cut panels were selected according to quality, thickness and weight. The bladder was also selected and placed with the selected panels in step 10 before being given to the worker in step 11 for the stitching of the ball. The remaining 11 companies make no quality selections and merely combine the bladder and panels from the order in which they appear. The quality of the balls produced by this method is left to chance. The balls are stitched mostly at home by contract workers.

In order to supervise and control the quality of work, a few companies have the stitching done in their factory hall. At step 12, the stitched ball undergoes a visible check; it is tested for roundness, weight, and for leakage of air. Brand name, size and quality of ball is printed with a sieve press. Inspection is done by 14 companies only. Sperifying machines, both local and imported, were found in all football factories. A decade ago, only sperified balls were accepted by importers. Lately this requirement has been widely abandoned and only balls of cheap quality must still be sperified.

It can be said, that a certain level of standardization has been reached by the leather ball manufacturers. However, balls are produced in accordance to specifications, only by a few exporting companies. Quality tests other than leakage and weight control are not carried out in Sialkot, because the testing machinery and the technology for such quality tests are not worked out and established. The quality of football leather depends not only on the chemicals used and the available tanning equipment, but to a greater extent on the available technology and tanner craftsmanship.

3.1.2.5 Skiing Gloves

The production of sporting gloves for all different types is very similar, the Production Flow Chart No. 5 shows the production steps for ski gloves.

The leather is produced both by big tanneries and by the ski glove manufacturers. The production of this leather is not as difficult as the production of football leather, the material, however, must be water resistant.

The tanning of skins in step 2 is done both in drums and pits. Drums are always preferred, because they guarantee better tanning. The tanned leather is shaved and buffed in step 2 and 3 before surface coating is applied with a spray paint pistol. Automatic coating equipment is not available in Sialkot, thus prohibiting production of top quality. For the softening of leather locally produced, staking machines (step 6) are used in most of the glove manufacturing companies. The cutting of the leather is done mostly with dies on clicking presses as described for football manufacturing, however, hand cutting with a knife is still commonly done. This prohibits the standardization of products. The cut pieces are sewn together by machines as far as possible because certain seams have to be done by handstitching. Selection of pairs and visible inspection is done in step 9. The pattern have been copied from foreign design. Quality standards are not available and testing is not done.

3.1.2.6 Other Sports Items

Other sports goods items produced in Pakistan are of low quality and their export figures are insignificant. Therefore their commonly applied production processes will not be described.

Normally production steps are not subcontracted in the Pakistan sports goods industry. The stitching of balls is done by individual home workers on contract. These workers are therefore considered to be contract workers and not household firms.

Production Flow Chart No. 5

3.1.2.5 Skiing Glove Production, Technology Applied



1. Raw Material Stores

2. Drums or Pits

- tanning

3. Shaving Machine

- shaving of skins

4. Buffing Machine

- sanding of skins

5. Spray Paint Unit

- coating of leather

6. Staking Machine

- softening of leather

7. Cutting Press

- cutting to sizes

8. Sewing Machine

- sewing of gloves and lining

9. Inspection

- selecting of pairs

- visual inspection

3.1.3 Available Outside Facilities

There are two PSIC Service Centers providing common facility services to the sports goods industry. The Sports Goods Industries Service Centre in Sialkot provides the following common facility services:

- splitting of leather
- shaving of leather
- buffing of leather
- spray painting on both wood and leather products
- cutting of leather ball panels
- punching and embossing of leather grips (Tennis Rackets)
- seasoning of timber (limited capacity)
- planning moulding and shaving of timber products
- turning of cricket bats and handles
- sharpening of machine tools.

The centre was established in 1964 and the services have been widely used by the industry. However, the equipment is outdated and the concept of the project is not valid any more. The industry (especially the exporting companies) has better and more modern equipment installed than the Service Centre. Therefore most of the services, with the exception of splitting of hides, cutting of panels for balls and seasoning of timber, are not needed by the target group any longer.

The Leather and Footwear Training Institute in Gujranwala offers the following common facility services to the sports goods industry:

- tanning of leather
- finishing of leather
- shaving, buffing and plating
- testing of leather.

All services are used by some factories of the target groups. However, the distance of 60 km is a real handicap to the sports goods manufacturers. The transport of goods becomes a problem. More importantly the technology and skills available at the Centre is not sufficient in all areas to solve the problems of the industry. Inflexibility and institutional formalities also add to the problems of the industry.

Some limited services, like splitting of leather, are offered by the private industry. These services are not available to all companies since competition and personal rivalry close the doors for many of the applicants.

3.1.4 Facilities Required

In order to improve the quality of sports goods produced in Pakistan, open up the new markets and make the factories more productive, the following services are needed:

- Extension and advisory services,
- Common facility services, such as
 - . tanning of football leather
 - . automatic plastic coating of leather
 - . development of prototypes of sports goods like glassfiber and metal rackets
 - . development and production of prototypes not yet produced in Sialkot, like surf boards, skis, etc.
 - . testing of all types of sports goods
 - . technical and economic advice by international experts
 - . training facilities.

An existing institution such as the Sports Goods Industry Service Centre may be taken as the central point for assistance, however, priorities must be set and a detailed concept should be worked out.

3.1.5 Plant and Machinery

3.1.5.1 Land and Building

Of the 43 evaluated sports goods factories 24 or 56 % are set up on their own property totalling an area of 35,026 m² at a value of Rs 8,887,500. According to its individual importance the value of the land in Sialkot fluctuates between Rs 100 and Rs. 750 per m², the average m² price being calculated at Rs 253. The 24 companies occupy an average area of 1,495 m² each at a value of Rs 370,312. 19 companies operate on rented plots.

Broken down into groups of activity the 43 companies render a quite different picture.

3.1.5.1 LAND OWNED BY EVALUATED COMPANIES

Table 6

Type of Activity	Companies			Total Area m ²	Area p. Comp. m ²	Total Value Rs	Value p. Company Rs.	Value p. m ² Rs.
	Total No.	Owning land No.	%					
Production, Export Wholesale	14	11	78.5	23,943	2,176	5,847,500	531,590	244
Production, Wood	12	6	50.0	5,915	985	1,520,000	253,333	256
Production, Leather	17	7	41.0	5,168	738	1,520,000	217,142	294
Total	43	24	56.0	35,026	1,495	8,887,500	370,312	253

The table shows that 11 exporting companies (78.5 %) occupy an average area of 2,176 m² each, while 6 timber working companies (50 %) operate on an average property of 985 m² and only 7 (41 %) of the leather working industries on an average of 738 m² each. The table also shows that 11 of the 43 evaluated companies or 25.5 % own 68 % of the land.

The situation with regard to buildings is quite similar. Of the 43 surveyed enterprises 25 or 58 % operate in their own buildings, totalling 18,602 m² at a present value of Rs 14.3 million. According to quality and height of building the building cost in Sialkot ranges from Rs 600 to 1,200 per m²

The average building area per factory amounts to 744 m² at a mean value of Rs 573,240. The average value of the buildings in question comes to Rs 770/m². Broken down into exporting and producing groups, the companies again show a different picture:

3.1.5.1: BUILDINGS OWNED BY EVALUATED COMPANIES

Table 7

Type of Activity	Companies			Total Area m ²	Area p. Comp. m ²	Total Value Rs.	Value p. Company Rs.	Value p. m ² Rs.
	Total No.	Own. Build. No.	%					
Production, Export Wholesale	14	12	85.7	13,750	1,146	10,946,000	912,166	796
Production, Wood	12	6	50.0	3,532	588	2,455,000	409,000	695
Production, Leather	17	7	41.0	1,320	188	930,000	132,857	704
Total	43	25	58.0	18,602	744	14,331,000	537,240	770

The leather working sports goods factories occupy the smallest premises, also in terms of covered area per employee, which amount to an average of 10 m² (rented buildings included). The timber working industries provide 18 m² space per employee, the exporting companies 10.5 m². Maximum space utilization is achieved by the leather companies. Due to voluminous raw material and its long seasoning time the wood working sports goods manufacturer has the highest space requirement.

The classification of companies is clearly visible. 12 exporting companies or 28 % of the surveyed industries occupy 74 % of the buildings.

3.1.5.2 Machinery and Equipment (tables 8 and 9)

A. Size of Plant

There are 251 machines at a present value of Rs. 5,399,000 installed in the 43 evaluated sports goods factories. This means an average of 5.8 machines at a value of Rs. 102,302 per factory. There are 161 machines at approximately Rs 2.94 million in 28¹⁾ units of the leather working sports goods industry, and 90 machines at a value of 1.46 million in 17 units of the wood working industry. The average number of machines installed in the timber working industry (5.3 machines at a value of Rs. 85,882 per unit) is slightly below the total mean value. In table 7 the 43 surveyed companies are broken down by activity.

1) 2 factories are listed with their respective departments under wood and leather working

1)

3.1.5.2: MACHINERY INSTALLED IN LEATHER WORKING INDUSTRY

Table 8

Factory No.	Tanning Drum (local)	Shaving Machines (local)	Buffing Machine (local)	Staking Machine (local)	Plating Press (local)	Hydraulic Clicking Press (imported)	Excenter Cutting Press (local)	Stretching Frames (local)	Compressor + Spray Paint Equipment (loc. + import)	Spherifying Machine (local)	Splitting Machines (imported)	Sewing Machine (local)	Total Machines
2							1		1	-	1		3
3		1	1	2	1	3	1			2			11
4	1	1	1				2	n . x	1	1			8
5							1			2			3
6	4	1	1	1	1	1	-	100	1	3	1		15
7									1	-			1
8							1			2			3
9							1		1	2			4
10							1		1	2			4
11							1						1
12							2		1	2			7
13	1			1			1	n . x	1				21
18	3	1	1	2			-		2	2		11	11
21		1	1		1	4	2	n . x		3			7
23	1						1		1	1			3
28							1			1			2
29							1		1	3			14
31	3	1	1	1	1	1	1	400	1	2			6
32	1						1		1	1			2
34							1			1			2
35							1		1	2			9
35	1	1	1				1	n . x	1	2	1		7
37	2				1		1			2			2
39								n . x				1	3
40							1		1	1			3
41							1		1	1			3
42							1		1	1			3
43	1	1					1		1	1			5
20	18	8	7	7	5	10	26	7	19	38	4	12	161

1) The machines are listed separately according to function on tables 8 and 9 in factories working with wood and leather.

3.1.5.2: MACHINERY INSTALLED IN WOOD ¹⁾ WORKING INDUSTRY

Table 9

Factory No.	Band Saw (local)	Spindel Moulder (loc. + imp.)	Jointer Machine (loc. + imp.)	Thicknessing Machine (loc. + imp.)	Bobbin Sander (local)	Belt Sander (import.)	Drilling Machine (local)	Racket Press (local)	Hockey Bending Press (local)	Cricket Moulding Machine (local)	Compressor + Spray Point Equipment (loc. + imp.)	Drying Kiln (local)	Cricket Roller Press (local)	Turning Lathe (local)	Circular Saw (local)	Total Machines
1	2	1		1	2		3	1			1					11
2	2		1				1	2			1					7
14																-
15					2			1				1				4
16	1				1					1			1	1		5
17													2			2
25	3	2	1	1	3	1	2		1		2	1		3	2	22
22								1								1
24	2				1				1		1			1		6
25					-											-
26					2					1			1			4
27	2				2		1		1					1		7
32	2			1	1	1	1	2								8
33													1			1
44	1				1				1					1		4
45	1		1	1	1		1	3								8
19																-
17	16	3	3	4	16	2	9	10	4	2	5	2	5	7	2	90

1) Note: The machines are listed separately according to function on table 6 and 7 in factories who are working both in wood and leather.

3.1.5.2: NUMBER OF MACHINERY INSTALLED

Table 10

Description	No. of Units	Machinery Installed No.	Present Value Rs.	Average Machines per Unit No.	Average Value per Unit Rs.
Producer, Wholesale Dealer, Exporters (Wood + Leather)	14	150	3,364,000	10.7	247,428
Producers, Wood	12	51	569,000	4.3	47,416
Producers, Leather	17	50	366,000	2.9	21,529
Total	43	251	4,399,000	5.8	102,302

According to the above table the directly exporting factories have 2.5 times more machines per unit than the wood working and 3.6 times more than the leather working industries. The mean value of 23,124 per individual machine is also the highest in industries with their own export outlets. The timber consuming producers selling to local wholesalers report an average value per installed machine of Rs 11,026, leather consuming companies without direct export account for the lowest value, i.e. Rs. 7,423. The most modern and sophisticated machines in Sialkot are thus installed in companies with direct contact to foreign buyers.

B. Country of Origin and Average Age of the Machinery

The machines under review were between 1 month and 30 years old. While the basic equipment like band saws, bending presses, tanning drums, shaving buffing- and staking machines are mostly of older origin, plating presses, cutting presses, compressors with spray paint equipment, spherifying machines and cricket moulding machines were of a more recent date. As shown in tables 8 and 9, most of the machines are Pakistan made. The Pakistan machine manufacturer industry is quite flexible. As soon as demand for a newly imported machine type has been developed, it is copied and locally produced at a lower price. Quality and efficiency of domestically produced machines are satisfactory and meet local requirements although their quality cannot be compared to that of imported machines from countries like UK or Germany. Improvement of both efficiency and quality is possible through technical advisory services. Due to the proximity of the local machine manufacturers, all the machinery viewed was in fair to good condition. Even the machines of 30 years of age were found in good working condition and well kept. As already mentioned, standardization and mass production have not yet been introduced in the Pakistan sports goods industry. A pilot plant should, therefore, be set up and newly designed machines be imported. As it may be assumed that once a pilot plant of a certain production line has been installed and is working successfully, it will be copied by numerous companies of that particular line.

3.1.5.2: TYPE OF MACHINE AND CONNECTED LOAD

Table 11

Description; Leather Industry	No. of Machines	KW p. Machine (Average)	Total connected Load KW
1. Tanning Drum	18	12	216
2. Shaving Machine	8	6	48
3. Buffing Machine	7	6	42
4. Staking Machine	7	4	28
5. Plating Press	5	10	50
6. Hydraulic Press	10	5	50
7. Excenter Press	26	6	156
8. Stretching Frames	7 · N	-	-
9. Compressor	19	4	76
10. Spherifying Machine	38	2	76
11. Splitting Machine	4	10	40
12. Sewing Machines	12	0.3	4
Total	161	4.9	786

3.1.5.2: TYPE OF MACHINE AND CONNECTED LOAD

Table 12

Description; Wood Industry	No. of Machines	KW p. Machine (Average)	Total connected Load KW
1. Band Saw	16	10	160
2. Spindle Moulder	3	4	12
3. Joints Machine	3	5	15
4. Thickening Machine	4	8	32
5. Bobbin Sander	16	2	32
6. Belt Sander	2	10	20
7. Drilling Machine	9	2	18
8. Racket Press	10	-	-
9. Hockey Bending Press	4	10	40
10. Cricket Moulding Mach	2	4	8
11. Compressor	5	4	20
12. Drying Kiln	2	-	-
13. Cricket Rollerpress	5	1	5
14. Turning Lathe	7	2	14
15. Circular Saw	2	4	8
Total	90	4.3	384

C. Capacity Utilization

Due to the present low mechanization of the sports goods industry the capacity of an individual factory is not determined by the machinery but rather by the size of the building as well as the availability of capital and labour, and last but not least by the entrepreneurs' management abilities. The present average capacity utilization is estimated at 78 % in the group of the industries that are also engaged in exports, at 67 % in the timber working-, and at 65 % in the leather working industries.

D. Connected Load

The total connected load (see tables 11 + 12) of the 251 machines installed in the 43 factories is 1170 KW which comes to 27.2 KW per factory or 4.7 KW per machine. In the 28 leather working factories there are 161 machines with a total connected load of 786 KW, i.e. an average of 28 KW per factory or 4.9 KW per machine. In the 17 timber working units there are 90 machines with a total connected load of 384 KW, i.e. 22.5 KW per factory or 4.3 KW per machines.

It is again the 14 factories that are also engaged in exports that consume the most electricity (705 KW connected load). Their connected load per factory amounts to 50.4 KW followed by the 12 timber working sports goods manufacturers with a total of 240 KW or 20 KW per factory and the 17 leather working factories with a total of 235 KW or 13,8 KW connected load per factory.

3.1.5.3 Capital Productivity

Compared to similar countries in Europe, the capital productivity (turnover/fixed assets) of the Pakistan sports goods industry is rather high as a consequence of its highly labour intensive production, the low level of technology, and the industry's under-investment, which are in part a result of a chronic shortage of long term loans, the lack of know-how and general political instability. The system of contract worker adds to the problems.

An attempt has been made to establish a realistic mean value of the industry's capital productivity; however, it so much differs from one company to the other that any figure has to be cautiously interpreted. According to tables 13 and 14 investment is highest in land and buildings. Related to the turnover the timber working industry occupies the first place with a mean turnover/land building ratio of 2.58; it is followed by the leather working industry with a ratio of 2.94. With the highest investment rate per company the exporters achieve a turnover/land and building ratio of 3.95, they have the highest output and thus considerably account for the fact that the mean value of 43 evaluated companies amounts to 3.61.

Investment for machinery and equipment in terms of turnover is on the whole very low. Its range from one company to the other is almost incredible: The turnover/machinery and

equipment ratios vary from 5.7 to 997 in the exporting companies, from 8 to 69 in the timber working industries and in the leather working industries from 8 to 55.4. The mean value of 19.0 is almost the same for 43 companies and may be considered a realistic average for the industry in question. However, the above figures are out of proportion when compared with the investment for land and buildings. While the low investment for machinery and equipment may also be explained by the low labour cost in Pakistan, this cannot be the only reason especially for an industry that has to compete in quality and price in the international market. Another possible explanation might be the loss of confidence in the local currency and a consequent flight into real estate. Reluctance to take entrepreneurial risks and a lack of technical know-how might be further reasons. Only a few companies report comparatively high investments in machinery and equipment (turnover/machinery and equipment ratio, 5.3) and may become leading in the branch; the bulk of companies, however, invest below minimum standards for machinery and equipment.

3.1.5.3 CAPITAL PRODUCTIVITY, VALUE

Table 13

FACTORIES		TURNOVER		INVESTMENT (fixed assets)					
Type of activity	No	Total Rs.	p. Unit Rs.	Land + Building		Machinery + Equipment		Total Rs.	p. Unit Rs.
				Total Rs.	p. Unit Rs.	Total Rs.	p. Unit Rs.		
Production, Export, Whole Sale	14	66,483,211	4,748,800	16,793,500	1,199,535	3,464,000	247,428	20,257,500	1,446,954
Production, Wood	12	10,263,083	855,256	3,975,000	331,250	569,000	47,416	4,564,000	378,666
Production, Leather	17	7,217,241	424,543	2,450,000	144,117	366,000	21,529	2,816,000	165,647
Total	43	83,963,535	1,952,640	23,218,500	539,965	4,399,000	102,302	27,617,500	642,267

3.1.5.3 CAPITAL PRODUCTIVITY, RATIOS

Table 14

FACTORIES		RATIOS								
Type of activity	No	Turnover / fixed assets		Turnover / Land + Building	Turnover / machines		Fixed assets / Employee		Machinery + Equip., Employee	
		From - to	mean	mean	From - to	mean	From - to	mean	From - to	mean
Production, Export, Whole sale	14	0.9 - 100	3.28	3.95	5.7 - 997	19.2	10,384 - 53,977	15,091	46 - 7,311	2,053
Production, Wood	12	1.3 - 168	2.25	2.59	8.0 - 69.0	18.4	166 - 41,722	20,940	166 - 7,500	2,522
Production, Leather	17	0.4 - 38	2.56	2.94	8.0 - 55.4	19.7	200 - 70,000	12,800	200 - 3,333	1,663
Total	43	0.4 - 168	3.04	3.61	5.7 - 997	19.5	200 - 70,000	15,982	46 - 7,500	2,545

The investment per working place accordingly is of a low standard. The mean value throughout the 43 companies is Rs. 15,900 (US \$ 1600) and ranges between Rs 166 and Rs.70,000 per individual enterprise. There is no trend discernible for the different categories of the sports goods industry. In all 3 groups only a few companies invest to a reasonable extent in machinery, though as a rule, less than in real estate. On the whole, purchase of machinery and equipment seems to be neglected. The highest investment for machinery and equipment per employee found in one company amounted to Rs 7000.- (US \$ 700); the average investment for machinery comes to Rs. 2,545, and in this respect there is a trend. The lowest average investment per company is in the leather industry, which is the weakest group with Rs 1,663 (US \$ 166) per employee, followed by the wood industry with Rs. 2,622 (US \$ 260) and the exporting companies with Rs. 2,683 (US \$ 270). Further details can be seen from tables 13 and 14.

3.1.6 Technological Constraints

3.1.6.1 Technical

Technical breakdowns have almost no influence on the efficiency of the sports goods industry in Pakistan. With its low level of mechanization and the general satisfactory maintenance of the mostly locally built machines, breakdowns are seldom. Conveyer belt type machines or transfer streets are not used in Sialkot. If a breakdown occurs or a machine has to be overhauled, the manufacturer of this machine is somewhere near and will carry out the work in a short time and for a reasonable price. Even the few imported machines can be repaired and maintained by local machine manufacturers. Almost all mechanical and electrical parts could be copied and produced in Pakistan. Only highly complicated electronic spare parts have to be imported.

The power supply to Sialkot, however, creates a real problem. Shut down time of one hour per day is normal. In the summer season shut down time of 3 and 4 hours per day must be accepted. The calculated figures of 8 working hours per day and 240 working day p.a. shows the average loss of production time p.a. of 30 working days per factory or 12.5 %. Assuming that the market demand for Pakistan sports goods is available, production loss of Rs. 29.5 million p.a. has to be accepted by power shut downs.

3.1.6.2 Quality and Quantity Control

The Pakistan sports goods are internationally known to be in the medium to low quality range. The rates received are accordingly low. The internationally established specifications of the respective sports goods items are generally known by the manufacturer in Sialkot.

For example:

- size, weight and roundness of footballs
- size of ring through which a hockey stick must pass as well as length and weight of the stick
- weight and size of cricket bat
- size, weight and balance of tennis racket as well as strength of stringing
- etc.

However, quality standards are not established either internationally or nationally. Pakistan's sports goods in the higher price range are in conformity with the international specification. The sports goods produced in Sialkot in the lower price category may come somewhere near international specifications, however, are never of the same quality, it differs from piece to piece.

Before a purchase order is issued, specification, quality, type and price of item are fixed between producer or exporter and customer. Normally 2 sample pieces are produced, accepted and signed by both parties. The production is to be carried out according to the

sample pieces. Some of the producers try to stay true to the sample piece in their production. Most of the companies, however, use cheaper raw material and workmanship not in accordance to the sample piece. With the exception of a few producers who are engaged in export, quality control is not carried out in the Pakistan sports goods industry. About 10 - 15 companies have developed certain standard sports goods items with their own brand name, in these respective companies some kind of quality control is carried out. With this policy one company was able to develop a world renowned hockey stick, which is used at most international games by all the leading teams. A few more companies are trying to follow this example and have started to standardize their products.

Testing facilities for sports goods are not known and not available in the industry nor in the service centre. General standards of sports goods have not been established. The technical know-how for standardization and testing is not available in the sports goods industry in Pakistan.

3.1.7 Working Conditions

The working conditions in the sports goods industry compared with other industries in Pakistan are quite good. The workshops are generally clean and in the newly built factories especially at the Industrial Estate, almost ideal working conditions could be found. There are a few factories inside the city where daylight is not sufficient and artificial light is dim.

Tanning is done with chrome and mostly in drums. Stinking vegetable tanning and working in dirty pits are work conditions of the past for most of the labourers in the sports goods industry. A problem, however, still exists in the spray painting area. The spray painters work with nitro and other health affecting chemicals. In most of the companies, the exhaust equipment is locally produced and does not work very efficiently. In the absence of exhaust fans, spray painting is done in the open, resulting in low surface quality and inhaling of the spray dust by the worker. For improvement in quality and protection of the worker, modern spray paint equipment with efficient exhaust fans should be installed.

The climatic condition in Pakistan can not be changed and must be accepted. For almost six months the temperature in Sialkot reaches 47 ° C. Although fans are installed in most of the factories, none of the workshops are airconditioned. Work under such conditions is hard and cannot be called ideal. Out of financial and technical reasons, the installation of airconditioners seems to be impossible in the work shops, therefore improvement of climatic working conditions cannot be expected.

3.1.8 Main Problem Areas

The main problem areas of the sports goods industry in Pakistan are:

- low level of technology
- low mechanization
- lack of latest technology
- relatively small and traditional product range
- low quality of products
- none availability of standards
- lack of testing facilities
- shortage of power.

The entire range of problems is interrelated. The Pakistan sports goods industry is basically conservative in approach. Due to mostly traditional handwork the mechanization of the industry is kept low, resulting in a low level of technology. New products made out of steel, glass fiber and plastics could neither be developed nor produced due to lack of the latest technical knowledge. The low level of technology restricts the industry to a traditional product range made out of natural raw materials like wood and leather. Standards have not been established and testing facilities are not available for these products, resulting in low quality. The notorious power shortage in Sialkot prohibits the industrialist from installing modern plants with high power consumption. The industry needs technical advisory and common facility services, but these are not yet offered to the industry.

3.2 Materials and Components

In 1979 - 80 the consumed raw material of the 43 evaluated sports goods factories had a value of Rs. 39.8 million or 47.5 % of the total sales. The indigenous material amounted to Rs 31.4 million and the imported to Rs 8.4 millions (incl. taxes). The imports were 10 % of total sales or 21 % of the entire raw material consumption. Table 15 shows the raw material consumption separated according to industry category.

3.2: RAW MATERIAL CONSUMPTION

Table 15

Factories		Raw Material Consumption						
Type of Activity	No.	Total		per Unit	local		imported	
		Rs.	% on sale	Rs.	Rs.	% on total	Rs.	% on total
Production, Export, Wholesale	14	30,116,894	45.3	2,151,207	23,800,994	79	6,315,905	21
Production, Wood	12	5,847,957	57	487,329	4,246,917	72	1,601,040	28
Production, Leather	17	3,825,137	53	225,008	3,356,017	97	469,120	13
Total		39,791,988	47.5	925,394	31,405,923	79	8,386,065	21

The table shows that the companies engaged in export have the lowest raw material consumption with 45.3 %, indicating that with better equipment and better management compared to the smaller companies, the wastage of material can be reduced. The companies using mainly timber as raw material have the highest raw material consumption with 57 %. This is quite normal since timber is purchased in log form and must be cut down to the respective sports items. Wastage of 50 - 80 % is normal in the timber industry. However, careful planning and selective use may reduce the consumption rate considerably. Also the import rate of the timber industry (28 %) is the highest of the 3 categories. This is to be expected, because species like ash, beech and cane are essential for traditional sports goods production but not native to Pakistan. Since the partitioning, the former raw materials source of Kashmir is no longer available. An import duty of up to 150 % must be paid by the entrepreneurs for these materials. Calculated with 50 % wastage the import duty will come to 300 % on finished item.

In the leather working industry the raw material consumption is quite high with 53 %, which may be the result of high material wastage especially in the smaller units. The import rate is low with only 13 %. With the exception of the chemicals for tanning and surface coating almost all of the other raw materials are locally available although not always of the required quality and type.

The raw material situation for each industry (timber and leather) is described below.

3.2.1 Wood Consuming Sports Goods Manufacturers

The main materials and components utilized and processed by this group of industries are as follows:

- wood; ash, beach, willow of superior quality		imported
- wood; mulberry, acacia, cedar, rose wood, walnut, maple, eucalyptus		local
- cane		imported
- leather for handles, grips, etc.		local
- cloth and thread for handles and grips		local
- Urea Formaldehyde and PVA glue		imported
- hide and bone glue		local
- paint and lacquer	top quality	imported
	normal quality	local
- transference labels	top quality	imported
	normal quality	local
- gut for rackets		local
- nylon strings for rackets		local

Ash and beach wood, essential for quality tennis racket production, is not grown in Pakistan and must be imported from UK. Due to the high freight rates and a high import duty the cost free Sialkot ashwood per 1 m³ comes to Rs. 10,000 to Rs. 20,000 (US \$ 1,000 to 2,000) depending on the quality. The cost in England is US \$ 250 - 500 for ashwood per 1 m³. Although import duty is refundable at the export of goods, most of the smaller manufacturers are not aware of the procedure or are not refunded by so called exporting houses, and therefore pay the full amount. In order to be competitive in racket production, the manufacturers in Sialkot use local materials such as mulberry, eucalyptus, rose wood, willow and acacia in place of the top quality material degrading the product to second quality.

For cricket bat production so far only English willow is used, because the specific weight and grain of the willow grown in Pakistan is different. The size, shape and weight of a cricket bat made out of local material is therefore not in conformity with the international specifications. The cost of English willow for one cricket bat is Rs. 300 - 420 (US \$ 30 - 40). Local material costs Rs 17 - 50 (US \$ 1.7 - 5). Some cricket bat manufacturers the assistance of English joint-venture partner are testing Pakistan willow and hope to change the specifications of cricket bats in accordance to Pakistan grown willow.

Mulberry is used in the production of hockey sticks. A few decades ago hockey sticks were exclusively produced from ashwood. The specifications were in accordance to the properties of ashwood. The specification of hockey sticks were successfully changed by Pakistan and India in accordance to the properties of mulberry wood grown in the region.

Pakistan and Indian hockey teams were extremely successful using locally produced hockey sticks made from mulberry wood. Today hockey sticks made out of mulberry wood are preferred by all international teams. One Sialkot hockey stick manufacturer, due to his consistency and good quality, was able to introduce a hockey stick under his own brand name, that is used by most of the top international players.

Depending on the quality, the price of mulberry wood in Pakistan is Rs. 1,400 - 4,250 (US \$ 140 - 425) per m³. The best quality of mulberry comes from the Changa-Manga forest, situated about 100 km south of Lahore. Unfortunately, the resources are limited. According to reliable information, the forest department is replacing cut mulberry trees by willow saplings, which produce a quicker return. The available resources of good quality mulberry will thus be exhausted within the coming 15 - 20 years.

Cane for the handles of cricket bats and hockey sticks is imported from Singapore. Like ashwood, the prices in Pakistan are quite high. The price per bundle of 40 pieces with a diameter of 35 - 40 mm is Rs. 1,500 - 2,500. A bundle of 25 pieces with a diameter of 40 - 45 mm costs Rs. 1,200 - 1,800. The quality, however, is good. Cane with the specified requirements for sports goods is only grown in South-East Asia. Therefore, all sports goods manufacturers around the world have to import the material, so the Pakistan manufacturers are not at a disadvantage. Cheap quality cane with low prices is available from Bangla-Desh but is hardly used in Pakistan for sports goods.

Leather for handles and grips is available at reasonable prices and good quality in Pakistan.

Cloth for handles and grips and thread for bandages is also produced at reasonable quality in Pakistan. Top quality material with outstanding specification has to be imported. Normally Pakistan made material is used.

Urea formaldehyde and PVA glue is imported. The prices in Pakistan are about 6 times the world market rates, therefore, locally made hide and bone glues are commonly used in the Sialkot sports goods industry. The quality of locally made glue is low. This type of glue is not used anywhere else today. For quality reasons only chemical glues are in use in the sports goods industry outside Pakistan.

Paint and lacquers of standard quality are produced by subsidiaries of international chemical manufacturers in Pakistan. The raw material is mostly imported, especially qualities like polyester. Both locally produced and imported materials are 2 to 6 times above world market prices. For low quality sports goods, locally made shellac, linseed oil and rosin varnish is used. These surface materials are below international standards.

Transfere labels are locally available, however, at a high cost and a low quality. Most of the companies therefore import the required transfere labels.

Sheep gut as well as plastic filament for the stringing of rackets is available in Pakistan at reasonable rates and is of good quality.

3.2.2 Leather Consuming Sports Goods Manufacturers

The main materials and components utilized and processed by the leather working sports goods industry in Pakistan are:

- buffalo and cow hides
- sheep and goat skins
- lining material and thread from cotton, artificial fibers and mixtures
- chemicals for tanning and coating
- latex and other chemical bonding agents
- bladders.

Hides and skins are produced in large quantities in Pakistan. Being a major export item, the hides of the best quality are exported, in wet blue condition. Leaving the hides of lesser quality for home consumption and creating an artificial shortage especially of the higher quality hides. The Pakistan shoe industry is another big buyer of hides and skins, consuming the available potential further (see also the study of the leather industries). The hides and skins available for the sports goods industry are relatively expensive. A buffalo butt piece costs Rs. 125 - 160. Usually 3 - 5 footballs can be made from each butt piece, but due to careless skinning of the animal, some of the pieces have knivecuts, resulting in high wastage. The bigger and medium sized tanneries in Pakistan process the hide from a green-dry into a wet blue condition, but football leather is not generally produced by the tanneries. The reason for this is the complicated technology and the relatively small amount of produced leather required by each individual football factory. Moreover each football manufacturer would like to have his own quality and price. For the tanning of good quality, football leather special technology and special equipment (stretching frames) are required. None of the available tanneries are prepared to invest into hard and software without having an order in hand for at least one years production. It is estimated that 700,000 - 900,000 m² p.a. of football leather is required by the sports goods industry in Sialkot, however, no manufacturer is prepared to place an order before having the sale of balls secured.

In addition, because it is not possible to buy the football leather collectively through an association, each football manufacturer processes his own leather. Normally the leather is bought from tanneries or the market in wet blue condition and is further processed into football leather with the more or less available technology and equipment. Some of the bigger manufacturers have some of their processing done at the PSIC Leather Centre in Gujranwala. The finish, however, is done individually at each factory. The results vary since there are no available standards for football leather quality, some of the exporting companies, through trial and error and with the assistance of their buyers, have reached a quality standard that almost equals European quality. Most of the manufacturers from lack of know-how and inadequate equipment are using football leather of very low standards.

In order to reduce production cost, cheap belly and neck leather as well as split leather is commonly used in Sialkot in leather ball production. Footballs manufactured from this low quality material can hardly be used even as toys.

The coating of football leather with a plastic material for high quality balls as practised in Europe and USA is not possible in Pakistan. The plastic surface gives the ball a better grip and makes it water resistant. But, in Pakistan the technology and equipment is not available. The required machinery for such a process is made for mass production. Installations in a medium size individual unit is not feasible due to the low utilization factor, high investment costs and none availability of skilled operators.

Sheep and goat skins are mainly used in the sports goods industry for production of sports gloves (ski gloves, etc.) and handle bandages (rackets, etc.). Skins and hides are exported in a large amount in wet blue condition, therefore the market situation is quite similar. Good quality skins are difficult to acquire. However, standard quality skins are produced by the existing tanneries. The knowledge and skill for this is widely distributed and proper equipment is available. This, however, does not stop small producers with insufficient know-how and inadequate equipment from producing their own leather. The quality, of course, will be lower and ski gloves made from improperly tanned leather will come apart in no time.

The lining and thread for leather balls is produced at a standard quality in Pakistan. The material is available in various types and quality and can be made from cotton, nylon or a mixture of both. Properly applied this material is sufficient for balls of better quality. For top quality balls, lining and thread must be imported and is accordingly higher in price. Depending on the quality, the lining for footballs (0.25 m²) costs Rs. 2.- to 4.-. Some football producers use second hand army uniforms (cotton drill) for the lining. A 40 kilo bundle of this material costs only Rs. 5.-. This material, however, is unsuitable for lining, as it will break at the first kick.

Chemicals for tanning and coating are imported mostly from Germany and UK. The prices of the chemicals, due to the heavy taxes, are 3 to 5 times higher than in the countries of origin. An advisory service about type and application of chemicals is only sparsely available through the agents of the respective chemical concerns. There is confusion in the market, because each company is advertising their own product as the best. Classification of the available products, information for the correct application and type of intended end product would help the buyers in selecting the right chemicals for the right materials.

Processing leather is a long and complicated procedure. Consistent results can only be reached under controlled production condition. These conditions, however, can hardly be reached at the present stage in the sports goods industry. Therefore the leather processing companies are an easy target for the international chemical companies.

Latex and other chemicals bonding agents are used for glueing the lining onto the football leather. Latex is imported from Burma at world market prices. Chemical bonding agents are imported mostly from Germany. The price is almost double the latex price. The chemical bonding agents have slightly better properties than latex, however, both materials are suitable. It was observed that some football manufacturers use locally produced starch as a glueing material in connection with second hand cotton drill as lining. This lining is superfluous. The omission of such a lining would have the same effect on the football.

Football bladders are produced from latex in local rubber factories. Depending on the quality, the cost is Rs. 1.50 - 3.50 per piece. The top quality is good and in conformity with international standards. The installed capacity in Pakistan is not sufficient to supply the demand for bladders. Therefore bladders are imported from Australia, Germany and Switzerland at a much higher rate, Rs. 3.0 to 5.0 per piece.

3.2.3 Terms of Payment

As a rule for all imported materials a letter of credit has to be opened. The respective scheduled bank in Pakistan will debit the account of the importer, the day the letter of credit is opened thus blocking the working capital of the importing company for a long period. There is a time period of 4 to 9 months from the opening date of the letter of credit to the day the ordered goods are received. On the average, 6 months have to be calculated. Customs duty is to be paid the day the goods are cleared at port. Almost all companies of group 1 are importing their own materials. For the smaller companies of group 2 and 3, who have no foreign contacts, import is mostly done through private traders or the cooperative society. Payment is made only at the acquisition of the material, in cash, although at a higher rate covering the expenditure and profit of the importers.

For indigenous materials cash is paid the day of purchase.

In order to mobilize the smaller, normally financially weak companies of group 2 and 3, export houses place an order on the basis of advance payment for raw materials. Loss of interest, risks and additional profits are added to the cost, however, export bonus are not always channelled back to the manufacturers. This allows the export houses an additional profit at the cost of the smaller manufacturing companies.

3.2.4 Stocks

A supply of imported raw material stocks are kept by the exporting companies of group 1 and the cooperative society for approximately one year's production. This is essential for the companies, because it allows for the availability of reserves during a shipping period.

For all local materials, with the exception of timber, stocks are kept in supply for orders of 3 - 6 months' worth.

Timber is purchased in log form at seasonal auctions by the respective Government agencies. Natural seasoning is time consuming, therefore timber stores are kept by the companies, allowing production of one to two years. For the smaller manufacturers the cooperative society is keeping limited stores of cut and seasoned timber. Storage and interest costs have to be born by the buyers of seasoned timber.

3.2.5 Main Problem Area

The main problem area in the sector of materials and component are:

A. Imported Materials

- procurement of materials
- complex and intricate foreign market for the Pakistan buyer
- complicated import procedure and high import duty
- blockage of working capital for long periods.

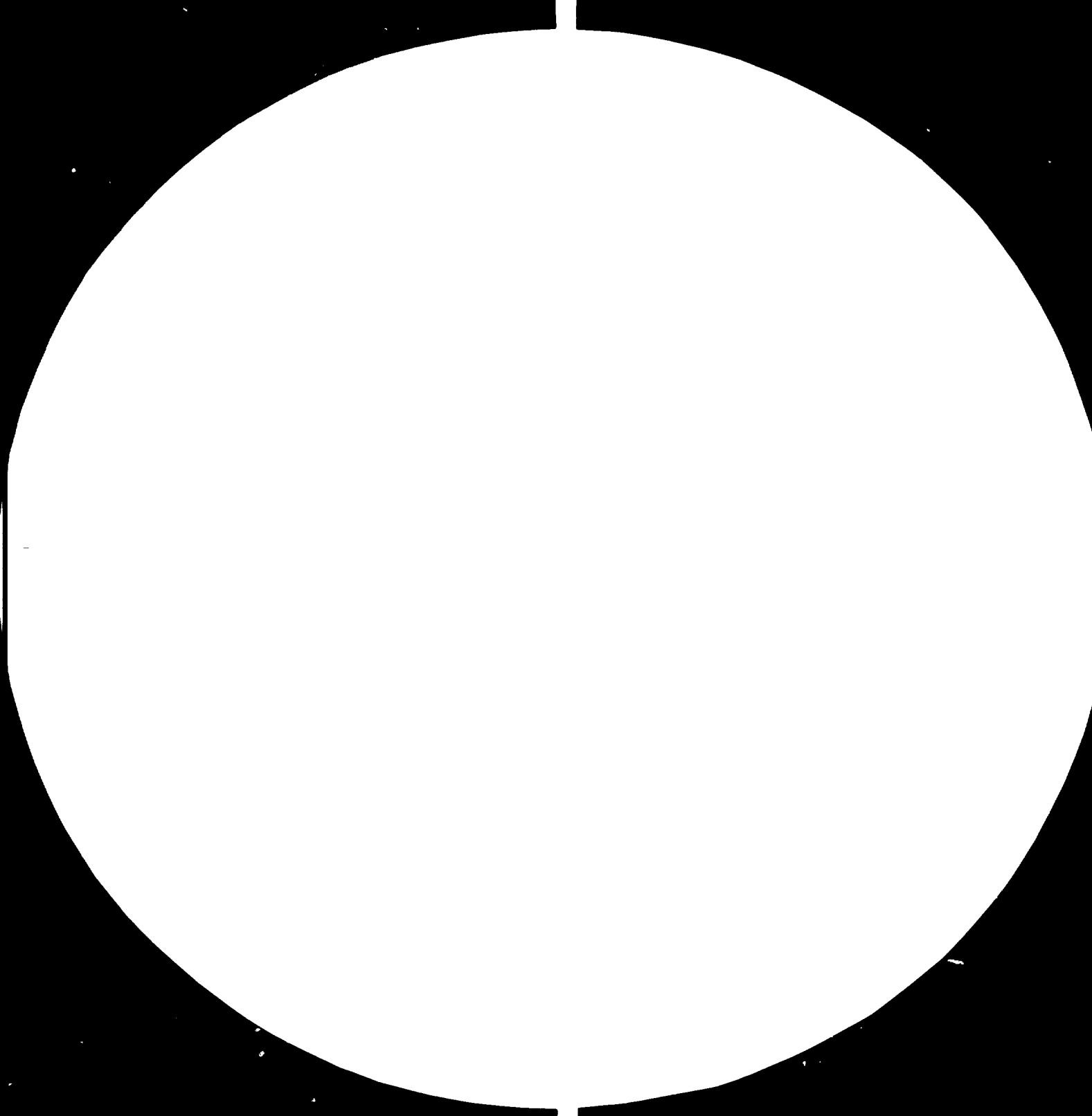
B. Local Materials

- availability at time of requirement
- small range of quality and type
- expected shortage of mulberry timber
- price based on the international market and not on local costs or conditions.

The procurement of material to be imported is difficult for the Pakistan buyer. The market is complex and sources are not always known. Quality and price can not always be compared, due to communication difficulties and unavailability of samples. Suitability of the offered material is difficult to judge. Trade connection with UK have been established for almost a century, therefore when buying in an unknown market, the British products will get a preference. This is not always for the advantage of the buyer. Products of better quality and for less cost may be available elsewhere but the sources are not known. The complicated import procedure, although recently simplified, still creates a problem especially for the smaller companies. Bigger, more flexible and financially strong companies work through the procedure and face no real problems. The result is that the smaller companies pay rather higher rates to big importers and try to avoid direct imports. This puts the bulk of the industry at a disadvantage against a few importing companies. The required material must be purchased, when available, in the market, irrespectively of quality and price. The importers will not sell the required materials to unwanted competitors.

The import duty is high and adds to the CIF price approx. 100 to 150 %. It is refundable to a certain extent on the export of the processed goods. However, most of the smaller companies find the procedure too complicated, or depend on exporters and therefore are not benefitting from the refund. On the other hand, the entire sports goods industry is jeopardized by the financial problem created by the blockage of working capital to be advanced for import duty.

Indigenous materials are not always available at the time of requirement. Due to the limited market, the quality and type of material available may not be in conformity with the requirement. When an export market is available for certain materials, like hides and skins, the best quality is exported and the local market is only served with inferior material at export prices. A shortage of top quality, mulberry timber is expected in about 10 - 15 years. There are only limited sources available. This is already reflected in the steep price increases during the last years. Manufacturers and traders of exportable indigenous materials orient their prices to world market rates and not to production costs, thus making it even more difficult for the local industry to compete for the goods, especially when the available quality is inferior. Generally it can be said that all materials are available although quality and prices may not conform to the requirements. Procurement may also be difficult.





2.8



3.2



4



Measuring Resolution, Part 1: How to
Use the NBS 1963-A Resolution Test Chart

3.3 Manpower, Management and Organization

3.3.1 Manpower

3.3.1.1 Employees by Category

The 43 evaluated companies employ in total 1,728 people. Details are already described under chapter 2.2.2 "Classification of units" and at the tables 1 and 2. An attempt has been made on table 16 to aggregate the results of tables 1 and 2 in order to present information about the total employment figure of the subsector, classified into categories.

The aggregation shows that the total labour force in the sports goods industry consists of 7,641 people of which 3,042 or 40 % are skilled workers, 3,929 or 51 % are unskilled or semiskilled labourer and 670 or 9 % are employed as administrative or technical staff. Thus, one staff member is employed for each 9.6 workers. It is difficult to distinguish between administration and technical staff members. In small industries staff member normally carry out dual functions. Only the bigger companies can afford to employ exclusive non technical administrative staff. The number of apprentices in the industry is also difficult to judge. Trainees are normally not employed by the factory owner but by the skilled worker, who teaches the boy the skill and pays him nominal hand money weekly (Rs. 5.-). After the apprentice has acquired a certain skill, he will be released by his master and will then work independently. Up to this point in time the skilled worker, who is employed on a piece rate, will financially benefit from the work of his trainee. Normally a boy will become an apprentice in a trade after completion of five years of schooling at the age of 10. The training period is on the average 2 years, after which he is accepted as a junior skilled worker.

3.3.1.2 Qualification of Staff

There is no known academic qualification of technical staff in the sports goods industry in Sialkot. About 2 % of the supervisory staff have had vocational training in one of the polytechnics in Pakistan, this, however, is inadequate because it has only been in related crafts and not in their profession. All of the employees are trained by job experience in the sports goods industry. A few skilled labourers (approx. 10) were sent to UK for training. Some stayed in the British sports goods industry and did not return.

3.3.1.3 Employment in Terms of Remuneration Structure

As shown on tables 1, 2 and 16, from the 1,728 employees of the 43 evaluated companies only 458 or 26 % are regularly employed. 1,270 or 74 % are working on a contract basis. When the sports goods industry is separated into activity groups, the picture looks as follows (table 17):

3.3.1.1: ESTIMATION OF TOTAL EMPLOYMENT IN SUB-SECTOR

Table 16

Description of Factories	Employees							Contract Worker		Units Evaluated %
	Eva-luated	Sub- ²⁾ Sector	per Factory	Sub-Sector	Skilled	Semi-skilled	Admin. + Techn. Staff	on Total Employ.	%	
	No.	Est.No.	Total	Total	Total	Total				
1. Factories outside SI definition	-	3	180	540	216	281	43	405	75	-
2. <u>Group 1:</u> Manufacturers and Exporters	14	28	92	2,576	1,056	1,340	180	1,906	74	50
3. <u>Group 2:</u> Manufacturers, Wood	12	56	18	1,008	363	514	131	695	69	21
4. <u>Group 3:</u> Manufacturers, Leather	17	224	13	2,912	1,165	1,485	262	2,184	75	7.6
5. Household Units	(9) ¹⁾	121	5	605	242	309	54	453	75	7.4
Total	43	432	18	7,641	3,042	3,929	670	5,643	74	10
				100%	40%	51%	9%	74%		

1) These companies are included in group 2 and 3 at the other tables.

2) Source: PSIC, Survey Report Sports Goods Industry, 1979-80

3.3.1.3: EMPLOYMENT IN TERMS OF RENUMERATION STRUCTURE

Table 17

Type of Company	Total Employees		Regular Employed			Contract Workers		
	Eva- luated	Aggre- gated	Evaluated		Aggre- gated No.	Evaluated		Aggre- gated No.
			No.	%		No.	%	
1. Factories outside SI definition	-	540	-	25	135	-	75	405
2. Manufacturers, and Exporters	1,291	2,576	336	26	670	955	74	1,906
3. Manufacturers, Wood	217	1,129	67	31	350	150	69	779
4. Manufacturers, Leather	220	3,396	55	25	849	165	75	2,547
Total	1,728	7,641	458	26	2,004	1,270	74	5,637

1) household units included

In the total aggregated subsector, 74 % or 5,637 from a total of 7,641 employees work on a contractual basis whereas only 2,004 or 26 % are regularly employed. Staff members receive their wages weekly or monthly. Regularly employed workers are normally paid on a daily basis. The entire group of regular employees, staff members, as well as workers receive the benefits of social security, leave and sick pay. Contract workers do not receive any benefits other than their pay for their piece work. In the group of manufacturers using mainly wood as a raw material the percentage of contract workers is 69 %, slightly lower than in the leather working industry. This may be explained by the higher skill required in the timber industry, thus forcing the entrepreneurs to give regular employment to skilled workers. In the leather industry, the stitching of balls is mainly done by home work. The home workers are on contract and paid on a piece rate. The homeworkers account only partly for the high amount of contract workers. Payment of a higher rate per piece to the contract workers makes the system more attractive to the workers, but the high percentage of contract workers in the industry benefits the entrepreneurs the most. The practise of termination of contract workers without notice or financial compensation is possible, which reduces the risk of loss for the entrepreneurs. Only when there is an order to be filled workers are employed and paid. With this system, the factory owner is not forced to look for orders or accept unattractive orders.

The disadvantages of the contract worker system in the industry cannot be overlooked. The contract worker will leave his job whenever a higher piece rate is offered elsewhere. The skill acquired in a factory and the knowledge is lost.

On the other hand, piece rate workers bring their own tools and technology. Using other techniques or working on machines, as a rule is not accepted by the workers, thus develop-

ment is hampered and the entrepreneur is prevented from making any investment into machinery. This keeps the technology in the industry low and limits the product range to the traditional items.

The entrepreneur is thus forced to be a trader in raw material, because only the material and workshop facilities are provided by the factory owner, all other jobs are done by the contract worker. Interference by the manager or factory owner in production steps, technology or quality of work is not accepted by the contract worker. This forces the management into inactivity as far as development of technology or diversification of product range is concerned. Improvement of quality is not possible because only visible control of completed items can be carried out. Mistakes made during production are hidden. Some companies have started to force contract workers, even for stitching the footballs, into the factory workshops in order to get better quality control.

Even the contract worker will loose in the long run. If illness or old age prevents him from working, he will receive no compensation. The contract worker is not entitled to leave, pension, or any other social security.

A few of the bigger manufacturers and exporters have recognized the disadvantage of contract workers and are trying to abolish the system, especially in view of mechanization, development of new technology, and improvement of quality. However, they find it difficult to persuade the labourers to accept regular employment.

3.3.1.4 Labour Productivity

The productivity (sales) per employee can be seen in table 18. On the average, 40¹⁾ workers are employed in the 43 evaluated companies. In 1979 - 1980, the value of goods sold per employee was Rs. 48,590. Compared to the sports goods manufacturers in Europe, this figure, equivalent to US \$ 4,860 is low and even below the average salary of skilled labourers. This reflects the situation of the sports goods industry in Pakistan. Due to low level of technology, low education of management and labour, and production of low quality traditional items; the productivity per employee is below acceptance. The highest rate productivity is reached by the groups of companies having an export outlet.

22 % of these companies have a total sale per employee above Rs. 35,000, 64 % above Rs. 45,000, 7 % (one company) above Rs. 55,000 and 7 % (one company) above Rs. 65,000. The average sale p.a. of this group is Rs. 50,822 per employee. In group 2, manufacturers in the timber line, a sale per employee above Rs. 15,000 was reached by 33.5 % of the companies, 8 % reached a sale above Rs. 25,000, 8 % reached a sale above Rs. 35,000, a sale above Rs. 45,000 was reached by 33.5 % of the companies and 17 % reached a sale per employee above Rs. 55,000. The average sale per employee is Rs. 47,295, slightly lower than the group 1, exporters. The group 3, leather working manufacturers, have the lowest productivity with an average sale p.a. of Rs. 32,805 per employee. 35 % of this group reached an average total sale per employee above Rs 15,000, 35 % above Rs. 25,000, 18 % above Rs. 35,000 and 12 % above Rs. 45,000. From these figures it is clearly seen that the year's (79-80) average sale per employee of Rs. 48,590 is high for most of the companies in the subsector.

1) see Tables 1 and 2

3.3.1.4: PRODUCTIVITY PER LABOUR

Table 18

Description of Companies	Com- pany Total No.	Turnover / Employee													
		'000 Rs. 15 - 20		'000 Rs. 26 - 35		'000 Rs. 36 - 45		'000 Rs. 46 - 55		'000 Rs. 56 - 65		'000 Rs. 66 - 75		Average	
		comp. no.	%	comp. no.	%	comp. no.	%	comp. no.	%	comp. no.	%	comp. no.	%	Rs.	%
Group 1 Manufacturer and Exporter	14	-	-	-	-	3	22	9	64	1	7	1	7	50,822	100
Group 2 Manufacturer, Wood	12	4	33.5	1	8	1	8	4	33.5	2	17	-	-	47,295	100
Group 3 Manufacturer, Leather	17	6	35	6	35	3	18	2	12	-	-	-	-	32,805	100
Total	43	10	24	7	16	7	16	15	35	3	7	1	2	48,590	100

3.3.1.5 Availability of Skilled and Unskilled Workers

In the sports goods industry in Sialkot skilled and unskilled labourers are still available. There might be seasonal shortages especially of skilled workers in times of hausse in the industry. Due to the system of contract worker, however, workers are always available at higher piece rate. There is an absolute shortage of trained machine operators, however.

3.3.1.6 Fluctuation

The fluctuation of regular employees (staff members and labourers) is small. Once in a while, when a higher salary or better working condition is offered, a regular employee will change his job. Highly qualified machine operators may change their jobs more frequently due to a real shortage in this field and tempting offers from competing companies (a splitting machine operator was offered a job at Rs 2,500 p.m. plus an interest free loan and fringe benefits).

Contract workers change companies frequently. Normally after completion of a job, a new job is accepted from another company. The rate of fluctuation may be 2 - 3 changes p.a. in this category of workers.

3.3.1.7 Training Requirements and Facilities

Training institutes exclusively for the sports goods industry in Pakistan are not available. The Leather and Footwear Training Institution Gujranwala offers training in leather technology. Basic training in tanning is available, but the processing of football leather is not taught at Gujranwala. The know-how available at the institute is not sufficient enough to teach this subject. The skill of the trainees taught at the Sports Goods Service Centre in Sialkot has only a limited value since the equipment and machinery available at the centre are outdated and not in conformity to today's requirements of the industry.

Training facilities especially for technical staff and machine operators are urgently required.

The possible introduction of an advanced technology in the industry will be hampered by the non availability of trained technicians and machine operators. The training of skilled labour must come from the industry itself. The training of higher skills should come from an institute. The possible re-implementation of the Sports Goods Service Centre Sialkot or the creation of another training institute should be evaluated separately and is outside the subject matter of this report.

3.3.2 Management

The motivation and business intention of the management in the sports goods industry in Pakistan is high. However, the main efforts are streamlined in the direction of trade and a quick return. Long term business relationships are generally not fostered. High profits from one order have priority over production of quality goods and continuous orders with more average returns. This policy generally found in the Pakistan sports goods industry is reflected also in the management of the factories and verified by European importers and business partners. A fair participation of workers in the gained profits is avoided. The system of contract workers in the industry is one of the results of this policy. Investment for machinery and equipment will be made only if high quick returns are expected and not as a long term planning policy.

The improvement of quality or diversification of product range has no priority in the planning policy. Most of the factory owners have administrative experience or economic qualifications, therefore workshop management is left to staff members, whose qualifications leave much to desired.

Of course, there are always exceptions. A few factory owners and managers, especially in the group of exporting companies, have good entrepreneurial experience and try to break out of the vicious circle. They have established good business relationship with foreign companies and the brand names of their products are internationally accepted. The result of their correct long term business policy is already reflected in their export figures. 6.5 % or 28 companies from the sports goods industry export 40 - 50 % of the total sports goods.

3.3.3 Organization

Almost all of the companies evaluated have an accounting and record keeping system. However, for most this does not exceed a single entry cashbook and a diary with the entries of items delivered by contract workers and record, if available, of daily paid workers. The exporting companies of group 1 maintain almost exclusively a proper bookkeeping system with double entry. Balance sheets are prepared by internationally recognized accountants and were made available to the author for evaluation.

Factory organization is weak throughout the sub-sector. A work preparation department was not found in any of the evaluated companies. Some companies have a work preparation system, although the system did not seem to be very effective. Material was not available when required, unnecessary wastage of material was not eliminated, strict labour control could not be enforced and the utilization factor of machinery was low. However, it must be mentioned that the system of contract workers makes factory control almost impossible.

The skilled labourers in the sports goods industry are all specialized in their respective fields and crafts. A hockey stick maker cannot make a tennis racket and a football maker cannot make boxing gloves. Therefore the exchange of skilled labour is not possible. Motivation is given to the labourer only by piece rate payment. However, these labourers do not accept regular working hours. They may work 4, 14, or 0 hours a day and will be paid on delivery of their completed orders.

3.3.4 Main Problem Areas

The main problems of manpower, management and organization are:

- low labour productivity
- non-availability of a trained technical staff
- high amount of contract workers resulting in high fluctuation
- non-availability of a training institution
- short term planning by management
- lack of real incentives for labourers
- poor work preparation
- lack of workshop organization.

The low labour productivity has been described before. The problem is a managerial problem and can only be solved by investment in machinery and equipment according to the requirement of the industry and through introduction of factory organization and execution of strict labour control. Work preparation departments must be established in the factories and each job preplanned before execution. No real change in the situation can be expected until the management carries out industrial long term planning and the priority given to high, quick returns is altered.

The shortage of trained technical staff can only be overcome by the establishment of training institutions. Technology transfer is vital to the sports goods industry. If technological knowledge and skill cannot be transferred to Sialkot, the industry is doomed to die.

The high amount of contract workers is not only a problem for the industry, but a social problem as well. Loyalty to the employer cannot be expected from a contract worker. The development of the industry is not possible when workers insist on using traditional work methods and resist any form of factory organization. As the relatively high income of the contract workers is not invested into the social security system and in old age, the contract worker will be a burden to community.

The problem cannot be solved from outside. A solution must come from within the industry and society.

3.4 Demand and Marketing

3.4.1 Demand

There is a huge demand for sports goods all over the world. In industrialized countries the demand is steadily increasing. Due to a decrease in working hours in these countries there is generally more free time for most of the population to become interested in sports. Sport activities are propagated through mass media for the improvement of health as well as for recreation. For most of the sport activities, sports goods are required. There are two major groups of sports goods items:

- professional sports goods
- non-professional sports goods and toys.

The demand for professional sports goods is limited to competitive players, teams and members of sports clubs as well as the average person. The quality of these items has to be high and the price is accordingly.

Beginners in a game and people not organized in a club who want to play for fun only, normally buy non-professional sports goods which are lower in price and quality. However, even these items have to withstand normal play and should not break easily. Toys are of the lowest quality and mostly used by children. Specifications of these items do not have to be in conformity with international standards (size, weight, etc.), although they should be durable and useable for their intended use.

The difference between the two major groups of sports goods is floating. Beginners sometimes will buy a high quality, expensive, professional item in order to prove their ability and some well-trained sportsmen may purchase items of lower quality in order to save money.

The two basic groups of sports goods items are further classified into various sub-groups according to the usage of sports items. Besides others, the two main sub-groups are:

- sports goods mainly used in the summer for outdoor use
- sports goods mainly used in the winter for outdoor use.

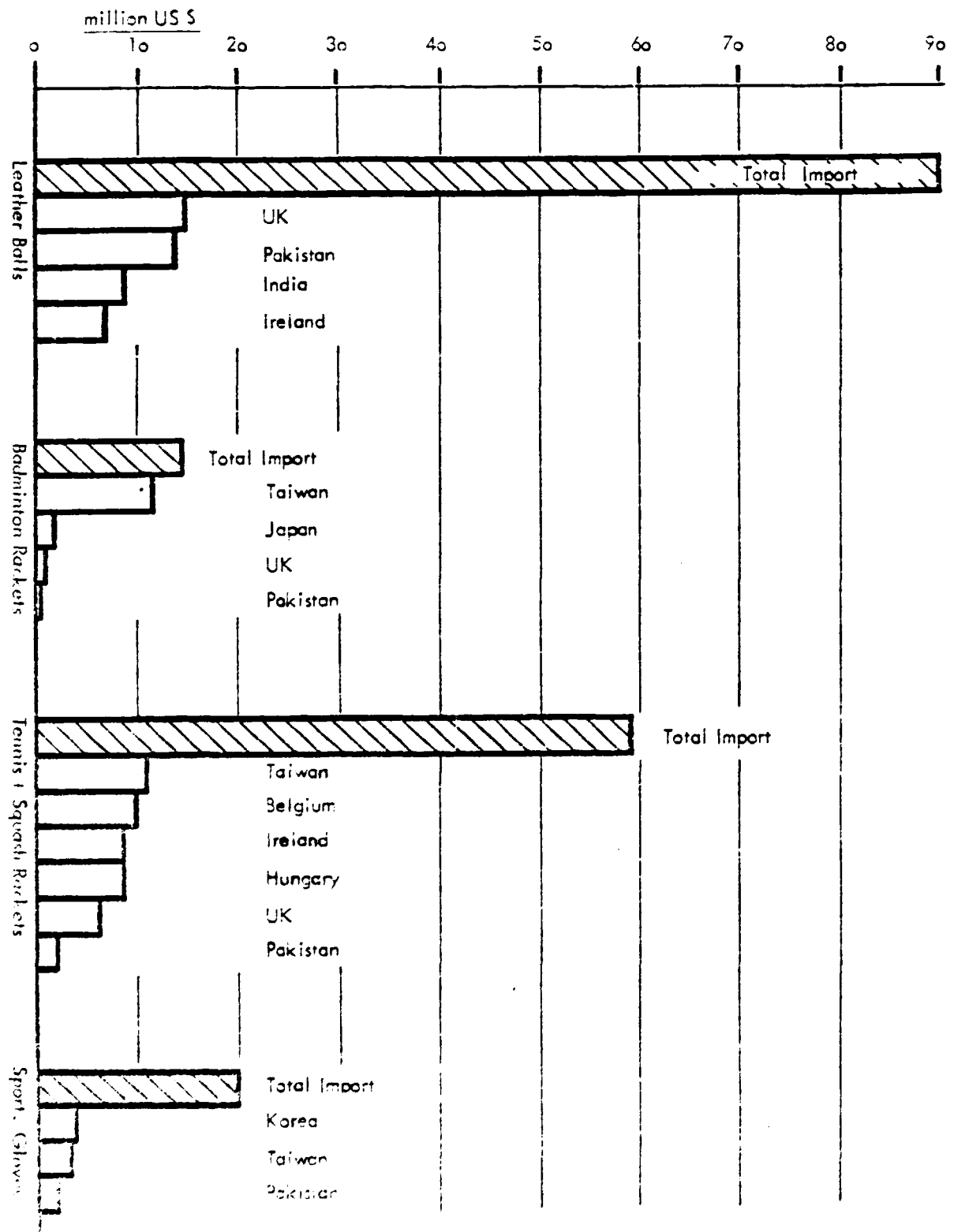
Although there is a big market potential, Pakistan is not producing any outdoor winter sports goods. The market survey is therefore concentrating on outdoor sports items to be mainly used in summer.

The main outdoor sports items produced in Pakistan are:

	<u>Prices achieved fob US \$</u>
- all types of leather balls (main item: footballs)	2.00 - 15.00
- tennis and squash rackets	1.80 - 15.00
- badminton and other rackets	2.00 - 12.00
- hockey sticks	0.30 - 1.00
- cricket bats	3.00 - 12.00
- sporting gloves	1.00 - 6.00

3.4.1: IMPORT OF SELECTED SPORTS GOODS ITEMS INTO EEC COUNTRIES 1979

Table 19



On table 19 the import figures of selected sports goods items into European Economic Community countries are shown.

The imports in 1979 are a multiple of the Pakistan exports (see table 20):

3.3.4: IMPORTS OF SPORTS GOODS INTO EEC COUNTRIES ¹⁾ 1979

Table 20

Items	Total import into the 9 EEC countries ('000 US \$)	Total export of Pakistan into these countries ('000 US \$)	Ratio
			Pakistan Exports into EEC Total EEC Imports
1. All types of leather balls	93,137	14,210	0.152
2. Tennis and squash rackets	58,063	2,567	0.044
3. Badminton and other rackets	19,923	148	0.007
4. Sporting gloves	19,925	2,051	0.102
5. Cricket bats	1,674	356	0.212
Total	192,722	19,332	0.100

Table 20 shows only the import of the 9 EEC countries. Other European countries, the entire Eastern block countries, USA, Latin American countries, Canada, Australia are big markets of sports goods items. The market demand for sports goods is still increasing although not necessarily for these traditional items, but for various more fashionable items like home gym equipment, water sporting articles, body building equipment, etc. which are not yet produced in Pakistan.

The quality of sports goods required by the international market is diversified. There is a requirement for low quality goods to be sold as toys, however, at a very low rate. Even the low priced goods have to sustain certain quality standards. For quality items high prices are obtained, especially for high quality goods, for which there is a market opening. The market for outdoor sports goods is a seasonal market. Since all ordered items must be at the shops by spring time, orders are generally placed a year ahead.

The Pakistan local market is relatively small and has little importance to the sports goods industry in Sialkot.

1) Source: German Statistical Office, Wiesbaden
IMPORTS 1979

3.4.2 Marketing

3.4.2.1 Description of Market

The development of the Pakistan export market for the last 30 years is shown on table 4 in chapter 2.2.2 "Classification of industry". From 1950 to 1956 the export figure remained almost stable at US \$ 1 million and doubled to 2 million in 1959. In the next 11 years a steady increase of sports goods exports can be seen. In 1971 the export figure reached a value of US \$ 7 million. An almost unbelievable hausse of the Pakistan sports goods industry followed in the next 4 years, almost tripling and reaching a value as high as US \$ 20.5 million in 1975. As expected, the Sialkot sports goods industry could not maintain the gain after such a jump. The value of exports fell back to US \$ 19 million in 1976, and is slowly recovering after the slight stagnation reaching a value of US \$ 22.2 million in 1980.

The steep increase of exports value from 1971 to 1974 cannot be easily explained. In 1972 the Pakistan Rupie was devaluated by almost 50 %. The rate of exchange per 1 US \$ was changed from Rs 5.20 to Rs. 10.00. In order to avoid the influence of devaluation, all figures on Table 4 are shown in US \$. The respective Rs. figures are given on table 21. The picture remains almost unchanged. One of the explanations might be, that due to relaxation of import restrictions after devaluation, urgently needed raw materials could be imported and the industry was in a position to utilize the existing potential to a higher extent. It is also possible that a steep increase in demand of sports items occurred in the international market simultaneously with the devaluation of Pakistan currency. This, however, is an assumption and can not be confirmed.

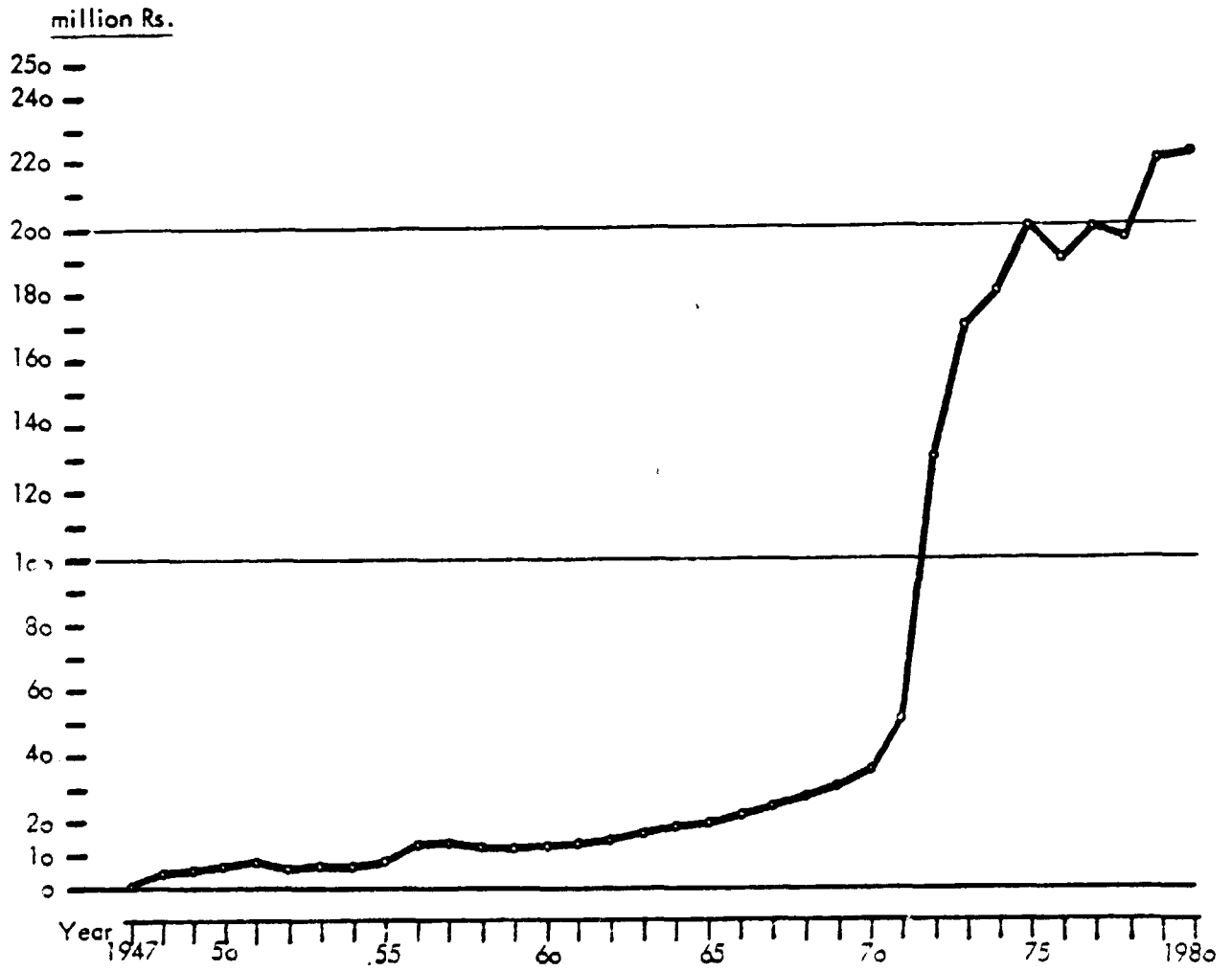
Although the figures look very impressive showing a strong potential for the sports goods industry in Sialkot, table 22 changes the picture completely. The development of exports, for the major sports items from 1973 to 1980 are given on this table. Only one export item, leather balls, progresses during this period. All other export items are either stagnant or record a strong decline. The export value of leather balls increased from US \$ 5.5 million in 1973 to US \$ 13.2 million in 1980. Tennis and squash rackets declined in export value from US \$ 5.3 million in 1975 to US \$ 2.3 million in 1980, similar to the squash rackets that declined from US \$ 1.4 million in 1975 to 0.25 million in 1980.

In general the decline in racket export does not come as surprise. Substituting well tested timber like ash and beach wood with untried materials like willow and maple wood did not impress the foreign importers nor the buyers. The traditional workmanship of racket making in Sialkot could not be improved over the years. Still using traditional methods, the Pakistan racket producers were helpless when the industry in Taiwan, Belgium, Ireland and Hungary installed mass production plants for racket production, offering the buyer rackets in conformity with international specifications of consistent quality and at lower price. The market is lost and it will be difficult for the sports goods industry in Pakistan in spite of the high demand in the market, to regain their position.

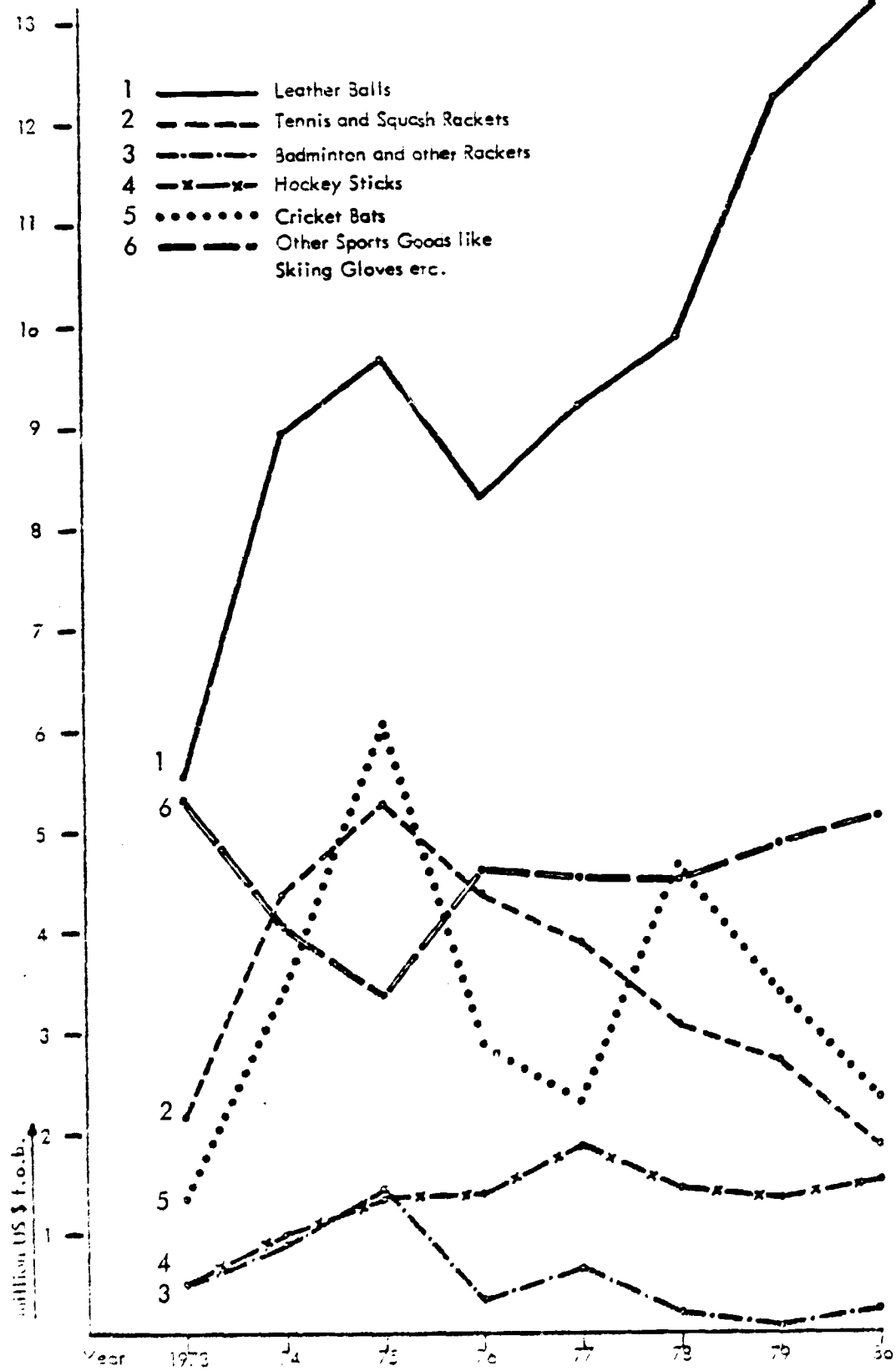
Hockey sticks could maintain their market position. Although many small units went out of business due to low quality, some of the exporting companies could make up the difference at least in value by increasing production of high quality hockey sticks.

3.4.2.1 EXPORT OF SPORTS GOODS FROM PAKISTAN 1947 - 1980

Table 21



3.4.2.1: EXPORT of SPORTS GOODS ACCORDING to ITEMS Table 22



The export number of particularly low quality hockey sticks decreased. The export value of cricket bats went up and down. At present a down trend is visible. Due to present trial operation using Pakistan grown willow in some companies, it is hoped that the down trend can be stopped and a future increase will be seen. Export of sports gloves and unspecified items records a small increase in value, thus showing that the exports in volume have been stagnating since 1976. In order to increase quality and maintain present prices, the mechanization of the industry is a must.

It is feared that the optimistic curve of leather ball exports will go into a decline as well. The generally low quality of balls will prevent many foreign buyers in the long run from using Pakistan's products. Only the low price (approximately US \$ 2) is keeping the leather ball exports alive. However, to maintain this low price is not feasible for the producers and an increase is essential. Without an increase in quality a higher price will not be acceptable to the foreign buyer. In the future he will order his balls from Taiwan or another country offering with the higher price a better quality.

3.4.2.2 Marketing Mechanisms

About 28 companies of group 1 have an export outlet mostly to importers abroad. From these, approx. 10 companies maintain stores abroad or have an arrangement to use the stores of foreign wholesale dealers. All other, approx. 400, sports goods manufacturers depend on one or more of the 615¹⁾ registered exporters in Sialkot for sale of their products. Although most of these exporters are inactive, there are enough companies to create cut throat competition between exporters and producers. One of the market praxis of the bigger export houses is to hold back on orders from the manufacturers for a long time period. Samples are requested from a variety of the smaller companies who are in urgent need of work and depend on orders to keep their company going.

After quite a few factories are without jobs in Sialkot and entrepreneurs have to release even their regular employees, then prices are negotiated. Each factory owner asking for work will be told by the exporter that another company can produce the items even cheaper. After quite a number of manufacturers are almost ruined by the lack of work and prices are sufficiently low, huge orders are thrown into the market, creating a shortage of labour and an increase of labour cost. The already financially weak manufacturers have to be mobilized, so the export house will advance raw material. In order to cover interest, risk, and additional profit, the prices will be above market rates. The export bonus increases the profit of the exporter leaving the manufacturer with a very small margin or working at a loss. The manufacturers in return are using even cheaper raw material as specified and try to save on labour cost.

Some of the producers tried to break out of this vicious circle by obtaining direct export orders but were discouraged from doing so by exporters who were exerting pressure on them in raw materials and who were undercutting the orders already obtained from foreign buyers.

The Association of Sialkot Sports Manufacturers and Exporters is controlled by the exporters and does not help the manufacturer.

Normally exporters obtain their orders by exhibiting at international fairs with the financial and technical assistance of the "Export Promotion Bureau". Sample pieces of good quality are generally exhibited. Prices are negotiated and the orders received from importers, wholesale dealers and distributors. Over a period of time some companies have established market contacts with foreign companies. These exporters will not visit the international fairs but will receive regular orders from their respective buyers, provided quality, price and time of delivery are kept in accordance to contract.

3.4.2.3 Prices

Prices are normally set in accordance to the market conditions and not according to quality or cost price. This market praxis results in low prices and even lower quality. Whenever cost prices are met and the quality is delivered accordingly, both buyer and seller benefit and orders will be repeated. A few companies have started to work according to this principle and found a big demand in the market for quality goods at reasonable prices. Producing countries like United Kingdom, Germany and Belgium are going out of the market due to high labour cost creating a market opening for high quality goods, which has not been filled yet.

1) Source: PSIC, Survey on Sports Goods 1979 - 80

3.4.2.4 Competition

There is strong competition between the manufacturers of sports goods in Sialkot. The installed capacity cannot be totally utilized by the available orders since every manufacturer wants to have his market share, undercutting of prices is commonly done resulting in a steady decrease of quality. This unhealthy competition is promoted and developed by some of the exporting houses for their own benefit. Any extent of unity between manufacturers is destroyed in the beginning by excluding these companies from further orders. Association of manufacturers is brought under control by the exporters. Since most of the manufacturing companies depend on the exporting houses for work and are also under their financial control, breaking out of the system by the company will almost certainly be followed by bankruptcy. In conclusion it should be said, that there are too many small companies with insufficient financial means operating in Sialkot, it is foreseen that some of them will be absorbed by the larger companies.

The companies with direct export outlets compete against one another in the export market but normally cooperate at home. In times when orders are above capacity, jobs are given to competing companies. Between proprietors business problems are discussed, imported materials exchanged and sometimes even technical know-how obtained abroad is passed on to competitors.

The domestic market is completely separated from the export market. There are companies specialized only in the local market, which requires high quality products for professional use only. The prices for these goods are accordingly high. Due to the limited number of companies and high specialization, there is no high market pressure between companies competing in the domestic market.

In the export market, Sialkot exporters face tough competition. Pakistan made sports goods have generally developed a name of low quality, and are mainly used in the toy market. Prices offered for these products are at the lowest level. Due to the enormous number of registered exporting firms in Pakistan, potential buyers get confused and would rather pay higher prices for better quality to more reliable companies from other countries. Only a few bigger Sialkot sports manufacturers have developed sports goods of good quality and specifications under a brand name. Other manufacturers change brand names with each consignment, not bothering about quality or specification. In case of quality complaints by the consumer the so called "table exporters" disappear and re-open under a new name, leaving the cheated customer no chance for compensation. All these practices have brought the name of Pakistan Sports Goods down in the international market. On the other hand, with the exclusion of hockey sticks, sports goods of top quality cannot be produced in Sialkot. The technical equipment, know-how and financial means are not yet available in Sialkot, thus restricting the industry to producing goods of medium to lower quality.

The main competing countries of sports goods are:

- Taiwan,
- Hong Kong,
- India,
- Japan,
- South Korea,
- Hungary,
- United Kingdom,
- Germany,
- Belgium.

Since certain production steps in sports goods production are still done by hand, manufacturers in Germany, UK, Belgium and Japan, who are known for their high quality products, are facing out of the market due to the high labour cost. The market opening has to be filled. Taiwan, Hong Kong, South Korea and Hungary are relatively new in the sports goods business but have already established a name of reliability, consistency and products of reasonable cost.

Most of the former Pakistan consumers were lost to these countries, despite the higher prices. Sports goods made in India are not much better than Pakistan products. The prices however are even lower than Pakistan's, especially of the leather goods.

3.4.2.5 Market Potential and Development Prospects

A market potential for both, top quality and medium to low quality, sports goods is available. This is shown on tables 19 and 20 imports into EEC of selected items. The total Pakistan sports goods production is only 10 % of the imports into 9 EEC countries, revealing a wide area for development.

Pakistan has the traditional skills and most of the raw materials needed for sports goods production. The present condition of the Sialkot industry could be improved through marketing and financial assistance, the transfer of technology, and the investment into the latest requirements of the industry. The potential of the Pakistan sports goods industry is high and could be developed provided the correct measures are applied.

It is anticipated that sales of sports goods will increase by 80 % within the next 5 years. Pakistan could again be one of the world leading sports goods producers.

3.4.3 Main Problem Areas

The main problem areas of Pakistan's sports goods industry are:

- too many exporters, confusing the market,
- limited, traditional range of products,
- low quality of products, resulting in low prices,
- non-availability of standards or brandnames,
- uneven quality between items of the same batch
- delivery of goods that are not in conformity with the sample and not within the specified time period,
- bad packaging,
- non-availability of telex or telephone.

There are too many exporters without the required qualifications operating in the market. These people promise a potential buyer everything from quality to exact time of delivery, which is sometimes unrealistic and cannot be kept by the producer. When complaints are later established, some exporters will disappear and re-open their business under different name, thus giving a bad name to the Pakistan sports goods industry.

A diversified range of products would provide a wider market. Some of the traditional items are not gaining in popularity, whereas other newly developed sports items (surfing boards) are.

Pakistan is known for its production of medium to low sports goods quality. By mechanization of the industry and by a better selection and processing of materials better quality could be produced. The know-how for such mechanization is not available right in Pakistan but could be imported. Also Pakistan sports goods are generally not introduced in the market under certain brand names. Producers should be forced to use brand names in order to become known and establish a name in the market. The sports manufacturers together with the leading exporters, the Export Promotion Bureau, PSIC and other government agencies, should establish quality standards for sports goods in order to guarantee a standard quality. Testing of sports goods is another measure to guarantee quality. The practice of providing first class samples and then delivery of goods not in conformity to the samples has to be stopped either by self-control or by pre-shipment inspection by a government agency.

The packaging of sports goods from Pakistan is not very attractive and should be improved. As a rule, there are always delays by shipping agents, custom authorities and others, resulting in late delivery and loss of sale by the importers. Establishment of stores abroad might be an answer.

Sialkot has no international connection means. Telex connections are not available to the exporters and the telephone system is so overloaded that even a trunk call is not manageable. Telegrams arrive days late.

3.5 Investment and Financing

3.5.1 Estimated Total Investment of Subsectors

The total investment of the 43 evaluated companies amounts to Rs. 60.4 million. Details can be seen on table 3. Table 23 below estimates the total investment of the subsectors.

3.5.1 ESTIMATED TOTAL INVESTMENT OF SUB-SECTORS ('000 Rs.)

Table 23

Group of Factories	No.	Evaluated		Total Estimates in Subsector	
		Total Investment Rs.	Investment per company Rs.	No. ¹⁾	Total Investment Rs.
1. Manufacturers and Exporters	14	48,510	3,465	28	97,020
2. Manufacturers, Wood	12	7,945	662	56	37,072
3. Manufacturers, Leather	17	3,968	233	224	52,192
4. Household Units	(9) ²⁾	-	35	121	4,235
TOTAL	43	60,423	4,440	429	190,519

1) 3 companies outside SI are not considered.

2) Included in groups 2 + 3

Classified into types of investment, the picture appears as follows:

3.5.1: CLASSIFICATION OF TYPES OF INVESTMENT

Table 24

Group of Factories	No.	Total Investment of Subsector (ooo' Rs.)						Total Investment	Ratio Fixed Assets/ Working Capital
		Land + Building		Machinery		Working Capital			
		Rs.	%	Rs.	%	Rs.	%		
1. Manufacturers and Exporters	28	33,957	35	6,791	7	56,272	58	97,020	0.7
2. Manufacturers, Wood	56	18,536	50	2,595	7	15,941	43	37,072	1.3
3. Manufacturers, Leather	224	32,359	62	4,698	9	15,135	29	52,192	2.4
4. Household Units	121	2,752	65	508	12	975	23	4,235	3.3
TOTAL	429	87,604	46	14,592	8	88,323	46	190,519	1.1

According to tables 23 and 24, Rs. 190.5 million are invested in the subsector. From the total estimated number of 429 factories, 28 have a share of 51 % (Rs. 97 million) of the investment in the subsector.

Classified according to type of investment, on the average the subsector has invested 46 % into Land and Buildings, 46 % into Working Capital and only 8 % into machinery. With such low investment the poor state of technology is clearly visible.

3.5.2 Capital Structure

3.5.2.1 Ratio Fixed Assets / Working Capital

The ratio fixed assets / working capital has been worked out on table 25 for the 43 evaluated companies. 17 companies (40 %) have a ratio between 0.1 and 0.4. 7 companies (16 %) have a ratio between 0.5 and 0.9 and 19 companies (44 %) have a ratio above 1. The average ratio of the 43 companies is 0.8.

For the entire subsector, the aggregated value fixed assets/working capital comes to a ratio of 1.1.

The classification of factories into groups of activity reveals the complete picture. Whereas group 1, manufacturers and exporters, has an average ratio fixed assets/working capital of 0.7, the manufacturers using mainly wood as raw material come to an average ratio of 1.3 and the ratio of leather goods manufacturers is on the average 2.4. Due to the generally weak financial position of these groups, all experience a shortage of funds.

Table 3.5.2.1: RATIO: FIXED ASSETS / WORKING CAPITAL

Table 25

Group of Factories	No.	Ratio Fixed Assets / Working Capital							Average Ratio
		0.1 - 0.4	0.5 - 0.9	1.0 - 1.9	2.0 - 2.9	3.0 - 3.9	4.0 - 5.9	6 >	
1. Manufacturers and Exporters	14	5	2	3	2	-	-	2	0.7
2. Manufacturers, Wood	12	4	3	3	1	-	-	1	1.3
3. Manufacturers, Leather	17	8	2	-	2	3	1	1	2.4
TOTAL	43	17	7	6	5	3	1	4	0.8
	100 %	40 %	16 %	14 %	12 %	7 %	2 %	9 %	-

Therefore spot purchases of material even at a higher price is done as a rule. After the order is complete, the exporter normally pays for the goods in cash. Out of these reasons, the working capital can be kept low, when compared with other groups.

3.5.2.2 Debt/Equity Ratio

The debt/equity ratio for the 43 evaluated companies has been worked out on table 26. 10 companies (24 %) have no loan at all. 5 companies (12 %) have a debt/equity ratio of 1.1 - 2. Six companies (14 %) have a ratio between 1.0 - 1.9 and 22 companies (50 %) have a ratio below 0.5. The average debt/equity ratio of all 43 evaluated companies comes to 0.29.

Classified into groups of companies shows again a different picture. The manufacturer and exporter have an average debt/equity ratio of 0.33. All companies of this group are financing their activities partly with loans. The group of manufacturers working with timber have a mean debt/equity ratio of 0.27. Five companies (42 %) of this group have no loan at all. Group 3, leather working sports goods manufacturers although being the weakest group throughout have a mean ratio of 0.14. The figures prove the difficulty of small manufacturers in obtaining loans, however show that the sports goods industry is generally financially sound.

3.5.3 Sources of Funds

In the sports goods industry various sources for short term capital are available. The most commonly tapped source is a combination of two systems, "Bill Purchase" by the scheduled banks and an "Export Refinancing Scheme" by the State Bank of Pakistan. After the export of goods, the shipping documents are turned over to the respective house bank. The bank will finance the whole export expense at an approx. interest rate of 13 %. In order to make exports more attractive, the State Bank of Pakistan will refinance the bank for the total value without interest for 90 days. This is then made available to the original exporter at a service charge of 3 %, however the money must be repaid within 90 days. In case the money is not re-paid within the specified period, the house bank will take over the financing and charge the normal interest rate. No other collateral besides the shipping documents is normally required.

This loan, however, is only available to direct exporters. Manufacturers delivering their goods to export houses are not benefitted by the Export Re-financing Scheme. Most of the export houses therefore mobilize small companies after issue of orders. Raw material is provided, and interest free cash for the day to day expenditure is given to the entrepreneur. This, however, makes the smaller companies directly dependent on the export houses.

The scheduled banks finance working capital at an interest rate between 13 and 18 %. The collateral required is 2 to 3 times than the loan, land and buildings only are accepted for mortgage. This again excludes many of the small scale industrialists.

Another possibility to obtain loans is to mortgage materials in a bank go-down. The bank will release the material only for cash payment. This is normally not possible for small industries.

Table 3.5.2.2: DEBT / EQUITY RATIO

Table 26

Group of Factories	No.	Debt / Equity Ratio								Average Ratio
		no. Loans	0.5 - 0.9	1.0 - 1.9	2.0 - 2.9	3.0 - 3.9	4.0 - 5.9	6.0 - 9.9	10 >	
1. Manufacturers and Exporters	14	-	2	4	1	1	1	2	3	0.35
2. Manufacturers, Wood	12	5	-	1	1	-	2	1	2	0.27
3. Manufacturers, Leather	17	5	3	1	1	2	2	-	3	0.14
TOTAL	43	10	5	6	3	3	5	2	8	0.29
	100 %	24 %	12 %	14 %	7 %	7 %	12 %	5 %	19 %	-

From the evaluated 43 companies 33 or 76 % had a short term loan. All of the 14 companies of group 1, exporters, were making use of the Export Refinancing Scheme.

From the remaining 29 companies, 10 (34 %) had no loan at all and the other companies had either advances from export houses for jobs pending or had short term loans from relatives. Hardly any had a bank loan.

Long term capital is not used by any of the evaluated companies. Even land and buildings are financed with short term capital. Companies established at the small industries estate benefit from their hire-purchase system for the required plot. The acquired land is paid in monthly installments at a low interest rate to PSIC.

3.5.3.1 Lending Institutions

The commonly used lending institutions are the 5 scheduled banks in Pakistan. The credit schemes used have been described above. Long term loans do not seem to be available from these banks for small enterprises. The Industrial Development Bank of Pakistan, "IDBP", responsible for the SI sector, finances long term investments both in local and foreign currency. The foreign currency risk, to date, is the responsibility of the borrower. Due to the 1972 devaluations of local currency, a number of small industrialists from other subsectors lost their entire property. The institutional inflexibility of IDBP is generally known. On the average from the first contact, a prospective borrower needs two years before funds become available. Small investments loans are also provided by PSIC in cooperation with the scheduled banks. The scheme is relatively new, so data on how these loans work are not available.

3.5.4 Availability of Loans

In conclusion, loans to small industries are difficult to obtain. The procedure is complicated, lengthy and requires collateral two to three times higher than loan. In general a small scale industrialist with his education and experience will not be in the position to follow the procedure or provide the collateral.

3.5.5 Cost-to-Sale-Structure

The cost-to-sale-structure of the subsector classified into production groups is shown in table 29.

The mean value per group is given below:

COST STRUCTURE

Table 27

Description	Group 1 %	Group 2 %	Group 3 %
Raw material	46	57	53
Manpower	18	18	25
Depreciation/Maintenance	5	3	2
Other Expenditure	17	11	11
Profit	14	11	9
TOTAL	100	100	100

The value added onto raw material is highest in group 1 with 54 %, followed by group 3 with 47 %. Group 2 is the lowest with 43 %. It has to be taken into consideration, that group 2 has the highest range of imported material and therefore import taxes are included in the 57 % cost of raw material.

From the total estimated sales of Rs. 246 million, achieved by the subsector, it is assumed that group 1 participated with 45 %, group 2 with 11 % and group 3 with 44 %. Accordingly the value added on raw material, achieved by the sports goods industry will be as follows:

VALUE ADDED

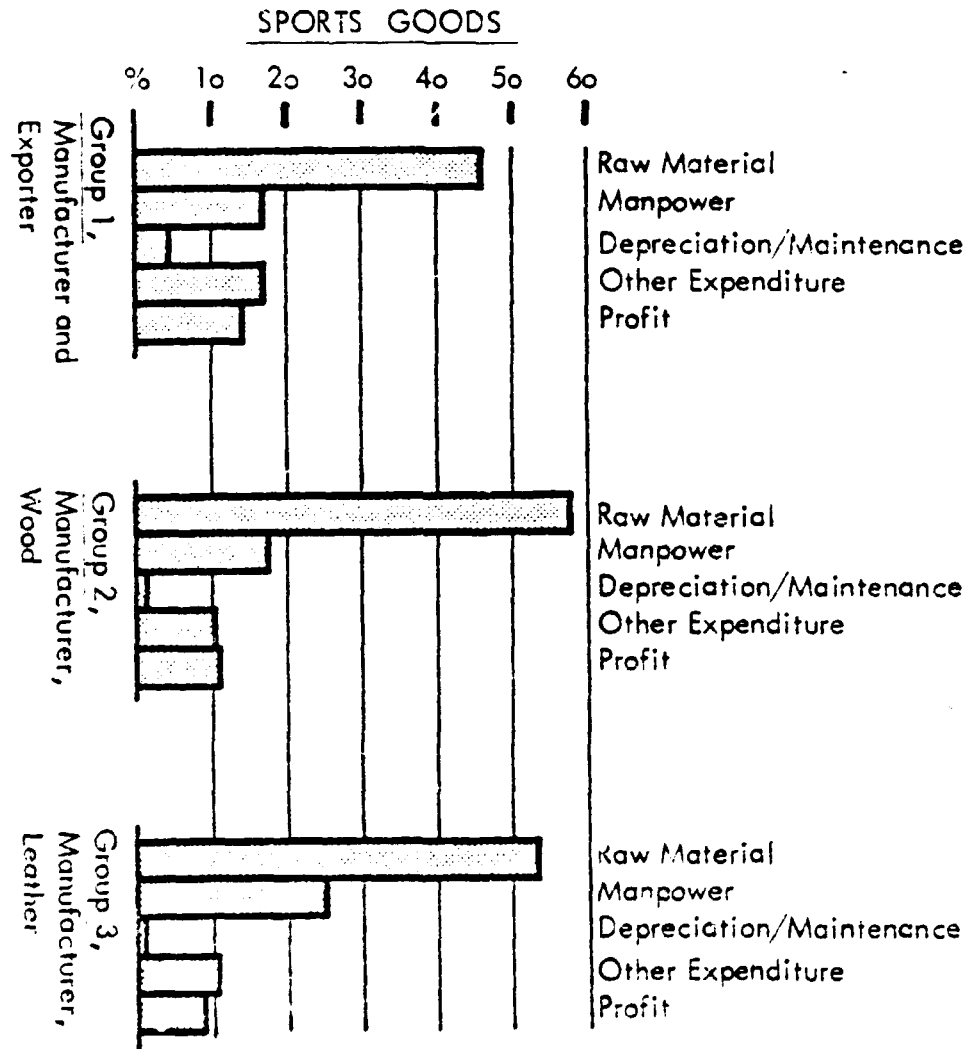
Table 28

Type of Industry	Sales		Value Added	
	%	million Rs.	%	million Rs.
Group 1	45	110.7	54	59.8
Group 2	11	27.1	43	11.7
Group 3	44	108.2	47	50.9
TOTAL	100	246.0	49	122.4

Thus the sports goods industry contributed in the budget year 1979-80 Rs. 122.4 million total estimated value added.

3.5.5 COST-TO-SALES-STRUCTURE

Table 29



3.5.6 Profitability

Profits (before taxes) from total investment are quite homogenous for the 14 companies of group 1, manufacturers and exporters. The mean value is 18 %. 12 companies achieved a profitability between 15 and 25 %. Only one company showed profits of 8 % and one company of 66 % (see also Annex 1, Basic Data).

The profits for the 12 companies of group 2, manufacturers whose raw material is mainly wood, are not homogenous, although the mean value of profit from total investment is 17 %, very near group one. Only 5 companies reached a profitability between 15 and 25 %, 2 companies are below 8 %, 4 companies are between 35 and 71 %, and one company is completely out of the range with a profitability of over 1,000 %.

The 17 companies of group 3, leather working factories, are the most inconsistent of these groups. The mean value of profits from investment is 15 % and therefore lowest from all 3 groups. Only 2 companies reached a profitability between 15 and 25 %, 6 companies reached a value between 4 and 14 %, 5 companies between 33 and 63 %, one had a profitability of 83 %, and 3 were out of the range with a profit from investment above 100 %.

The total mean value of profits on investment from all 43 evaluated companies is 17 %.

The spread between companies is even higher when the profitability on equity is calculated. The mean value of the evaluated companies comes to 24 %.

3.5.7 Overall Entrepreneurial Attitude Towards Financial Management

The sub-sector is divided into 2 groups of attitude towards financial management. The first group consists of those companies whose managers have developed and maintained good international contacts and relationships with buyers. These managers are characteristically enterprising and have good (entrepreneurial) leadership qualities. Their decisions are influenced by their social responsibility to their employees and by the social and economic conditions of their environment. These managers are not looking for short term quick gains, but have a broader outlook and seek long term relationships with their customers and suppliers. Their planning is more long range with reasonable but secure returns over a longer time period. The managers also have a positive attitude towards financial management, all have a bank account and work with one or more bankers regularly. These men show great responsibility to their banks; loans provided to their companies are paid in full according to contract. The characteristics of these managers are above average. Most of their factories are in the group 1 category of the sports goods industry, manufacturers and exporters.

The other group's attitude towards financial management is somewhat different from the first's. This second group consists of the average Sialkot managers. They are more short sighted and influenced by day to day problems in their decisions. Their planning is not long range but rather short term focusing on quick returns.

Approximately 50 % of these managers, who own factories from groups 2 and 3, have a bank account but do not use it regularly in their business. Their responsibility to their employees

is limited by their concerns for their own benefits. Their financial actions are directed towards their personal gains. However, there is potential for improvement in these managers. The development to their present attitude was mainly shaped by outside influence. Properly schooled and guided, these managers have the potential to be the future leading sports goods manufacturers in Sialkot.

3.5.8 Main Problem Areas

In conclusion of the above statements, the main problems of investment and financing are:

- low investment of subsector into machinery and equipment
- difficult access to funds
- unavailability of long term loans
- difficulty to obtain short term loans
- foreign currency risk to be borne by borrower
- collateral too high
- import duties too high.

The investment in machinery and equipment is too low in all of the companies in the sub-sector. The reasons are manifold, but are partly due to unavailable know-how and technology. The main obstacle, however, is the shortage of funds. Institutional inflexibility and rigid rules make it very difficult for the small entrepreneur to obtain a loan. Long term loans are not easily available. Short term loans are available but except for the "Export Re-Financing Scheme", the procedure is long and complex and the collateral is 2 to 3 times higher than the credit value. Foreign loans bear the foreign currency risk to the borrower. Most of the small entrepreneurs have limited financial responsibility, therefore banks will not advance any money to this group. It is ironic, because it is the small entrepreneurs who urgently need financial help.

The custom duties on imported material are too high and unbearable for all companies. On export of goods a certain amount of custom duty is refunded, however the entrepreneur must unnecessarily finance the custom duty for an average period of 6 - 9 months. This is a burden to the entire sports goods industry. In order to develop the Sialkot sports goods industry, funds must be made available, collateral reduced and the foreign currency risk taken over by the State Bank of Pakistan.

4. Evaluation of Main Problem Areas, Analysis of Interdependencies and Overall Development Prospects

4.1 Ranking and Structure of Problem Areas

Of the main problem areas: supplies, production, manpower, marketing and finance, those which were found to be most problematic over the average of all firms were mainly finance (investment of machinery), supplies and marketing. The ranking and structure of problem areas are illustrated in table 3o.

4.2 Potential Growth

The world wide demand for sports goods is still increasing. The present requirement of only the EEC countries for traditional sports items produced in Sialkot is 1o times higher than the entire Pakistan production. The European producers of sports goods will sooner or later face out of the market due to the labour intensive production of sports goods. The Asian competing countries like Taiwan, South Korea and Japan are relatively new in the market, they have installed mechanized production lines and are more reliable in quality and marketing. Their product range, like Pakistan's, is in the medium to low quality range. However, their prices are higher on the average. If Pakistan is in the position to utilize its available potential by increasing the quality of products, diversifying present product range, introduce higher technology in production and become more reliable in marketing, the potential for an increase of sales in foreign markets is available.

4.3 Specific Constraints and Requirements

4.3.1 Technology

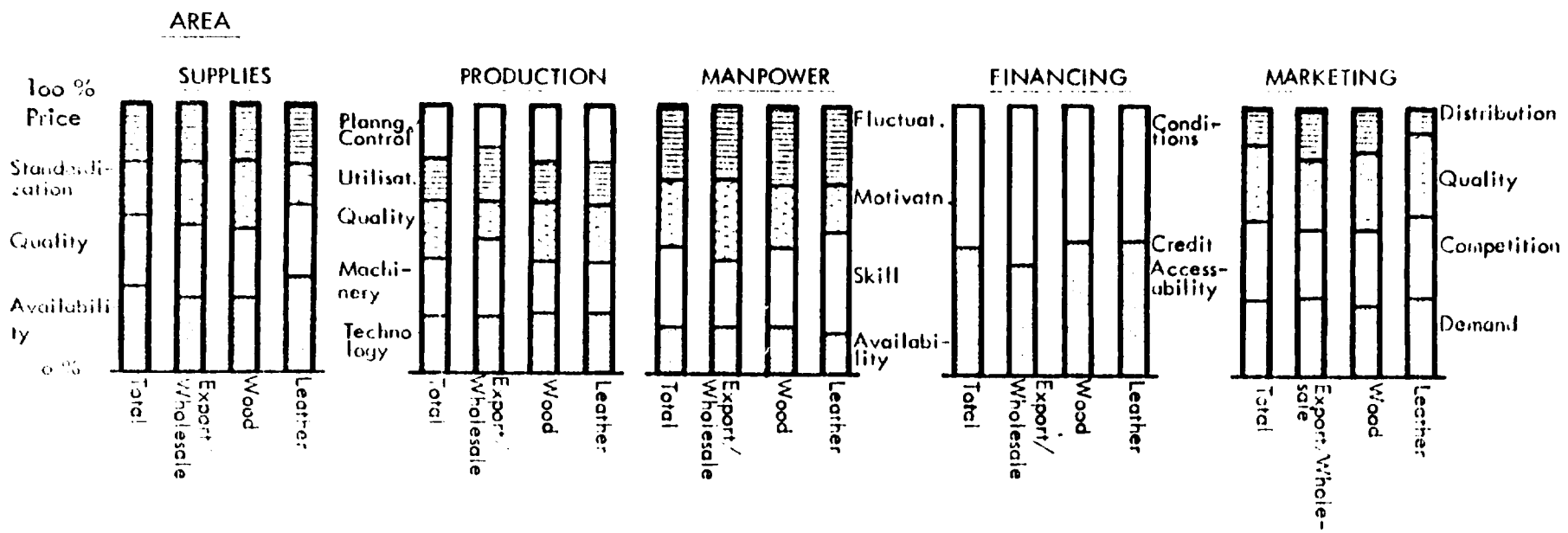
The technological problems of the sports goods industry are described in detail in chapter 3.1.4 and 3.1.8. In conclusion the main problem area is summarized.

The level of technology commonly applied in the sports goods industry in Sialkot compared to competing countries is low. This is because the latest technical know-how is not made available to the Sialkot industry. Product standards are not established, testing equipment is also unavailable, research and development work is not done at all. The product range in Sialkot is traditional and has not developed in the past few decades. Quality control is highly unsatisfactory, and the quality of products is accordingly in the medium to lower range. Even in the lower range, consistency in quality cannot be maintained.

Although the subsector is divided into the leather working and timber working factories, only a few factories have specialized into the production of only one item. Adequate tools and equipment were hardly found in any of the evaluated companies. The notorious power shortage in Sialkot prevents potential investors from introducing the latest technology.

Table 3o: SPORTS GOODS/PAKISTAN

RANGE OF CONSTRAINTS



4.3.2 Plant, Machinery, and Production

The machinery and equipment installed in the sports goods industries are - with a few exceptions - outdated, have low efficiency, and are inadequate for modern production methods. This results in low productivity and low quality of product. Products like badminton rackets, shuttle cocks, etc. need mass production methods when manufactured. Not a single fully mechanized plant for production of such items is installed in Sialkot. The results can be seen on table 22, Export of Sports Goods. Production of badminton rackets, once a major export item, has declined to unimportance. Even intermediate technology, i. e. single machines hand operated, with one operation step at a time but of multiple use, cannot be found in most of the sports goods factories. Such machines are made and are available in Pakistan, however the tools have to be imported and all the possibilities of utilization of such machines are not known to most of the manufacturers. Specialized plants for production in the sports industry are not freely available in the international machinery market and are normally not exhibited at the international machine fairs. Sports Goods companies in Europe mainly design their own machinery and equipment. However, quite similar machines and fully or semi-automatic plants are available for the timber, leather or plastic industries. With a few alterations or tailor made these machines could be ordered from their respective manufacturers in Europe or USA. This, however, means a heavy investment into machinery and equipment and entrepreneurial risk. Funds for such investments did not seem to be available in Sialkot. It is anticipated that once a fully automatic pilot plant is successfully installed by someone in the sports goods industry in Sialkot, many others will follow, providing long term foreign loans with reasonable conditions are available. The know-how and technology transfer must also come from outside.

4.3.3 Raw Materials and Components

The main problems of raw materials and components have been described in detail in chapter 3.2.5. In conclusion the situation is as follows: The custom duty on foreign materials is too high. Although custom duties are partly refunded on the export of goods, the producer must finance this high amount over a long period, which limits his available capital and thus hinders free business transaction and the development of the sports goods industry in general. The foreign raw material market is not transparent to the Pakistan buyer. Therefore quite often, inadequate materials at exorbitant prices are purchased. The shortage of imported material at times results in an increase of prices by merchants to the disadvantage of the producing companies. Faulty imported material cannot be easily returned due to lengthy and complicated procedures.

The problems with local materials are different. Football leather is not at all available, but must be processed by each football manufacturer with differing success. The quality of blue tanned leather available is not always in accordance to the quality required. A shortage in this area is experienced due to the high exports. Prices are orientated to export prices and not to cost price, resulting in a high cost for raw material to be borne by the sports goods producers. Prices of local timber are higher than world market rates. This is the result of a shortage of local timber and high custom duties on imports. Taxes often aggregate up to 300%. Processed imported items may be cheaper in Pakistan than the raw materials. A shortage of mulberry and willow timber of good quality is expected in a few years. Although all required materials are available, the quality and price leaves much to be desired. Shortage of goods is experienced in times of high demand. The development of the sports goods industry is hindered by these facts.

4.3.4 Labour and Management

There are two main problem areas, the contract worker system and low labour productivity. Both problems are interdependent. Contract workers have their own rules of law which do not fit into an industrial society. Normal work hours are not accepted by contract workers and any industrial development is resisted. Although they are highly skilled in traditional hand-work, the contract workers will accept no changes of technology or application of machine-work. As long as the contract worker concept is in existence in the sports goods industries, labour productivity can hardly be increased. Factory organization can not be introduced and the installation of modern plants is hindered. Contract workers are generally not loyal to their employer, resulting in a high rate of labour fluctuation. Introduction of work preparation and production flow is only useful if the workers in the line adopt the technology provided by the management.

Although labourers are basically available in the sports goods industry, there is a shortage of trained technical staff. Machine operators are generally trained at workshops, gaining a certain amount of practical skill, however the theoretical knowledge is missing which hinders quality and progress in the industry. Higher technical staff is not available at all, due to the absence of any training facilities. The management of the sports goods industries lacks the far-sightedness of modern industrial society and is engaged mostly in day-to-day problems. Most of the industrialists, due to the absence of technical education, are not aware of modern management, production planning or the latest technology.

4.3.5 Financing

The financial problems have been explained in chapter 3.5.8. It is concluded that most of the problems faced by the sports goods industry as described before derive from an inadequate financial policy and a shortage of funds. The credit moral especially of the smaller manufacturers is generally low. This is, however, also the result of the shortage of funds and credit restriction for many decades. The inflexibility of banks and development institutions results in low confidence of the entrepreneurs in banking. Loans are almost inaccessible to small industrialists. The collateral is high and in general only real estate is accepted for mortgage, but real estate is generally not available at the value required by bankers. Appraisal charges for loans are high and sometimes at the edge of legality. Long term loans hardly seemed to be available. Therefore industrialists use short term loans for long term investments resulting in a blockage of working capital. The foreign currency risk of foreign loans also has to be borne by the borrower. The fear of bankruptcy in case of devaluation prohibits the average industrialist to accept foreign loans. Religious laws also restrict the small scale entrepreneur in accepting available loans. The development of the industry is only possible with a free and liberal financial policy of the government and financing institutions.

5. Recommendations

5.1 Specific

5.1.1 Production

5.1.1.1 Product Range

The range of products offered by the Pakistan sports goods industry is limited. Generally traditional items can be made from natural raw materials like wood and leather. With the exceptions of leather balls and ski gloves, the sale of all other items is on the decline. It is therefore recommended that:

The product range is widened to non-traditional items made out of modern materials like plastic, glass fibre, etc.

New market demands are created world-wide by the fashionable popular sports movement of the working people.

Items like

- surfing boards
- small boats
- gymnastic equipment
- home exercise equipment and others

could easily be produced in Pakistan. Production of these items would diversify the range and open up additional markets. Diversification of product range would also secure the sports goods industry against market slumps of certain traditional items. One of the leading international chemical manufacturers is opening a polyester factory in Lahore. Raw material for the proposed additional sports items and processing technology is therefore locally available. The know-how for production of non-traditional sports items has to be imported. It is therefore recommended that:

Expatriate experts in cooperation with local counterparts carry out applied research and development work for new sports items. Prototypes should be handed over to interested private parties for production.

5.1.1.2 Production Techniques and Level of Technology

The level of technology is low and production techniques are inadequate. In the leather working industries the coating of football leather is below international standards. It is therefore recommended that:

A common facility service centre for plastic coating of football leather be established in Sialkot.

The sponsor of such a common facility service centre may be a co-operative society, a semi-governmental institution like PSIC, or a cooperation from both parties. The latter seems to be the most promising institution. The former Sports Goods Industries Service Centre may be used as a nucleus. Detailed investigation into market, materials, quality and cost has to be carried out by the sponsor before implementation.

In the timber working sports goods industry the situation is even more complex. If the lost market, especially in the field of tennis, squash and badminton rackets, should be recovered, the technology and production techniques have to be changed completely. It is therefore recommended that:

A pre-investment study with complete design of a pilot plant for racket production be established.

Mass production possibilities have to be worked out. Price, quality, and design of products should be compared with international standards and any investment decision taken accordingly. The same method has to be applied for other traditional sports items like hockey sticks, cricket bats, etc.. It is further recommended that:

Alterations of design and materials used in traditional sports goods items should be investigated

in order to change production methods in accordance to market requirements and produce in conformity with the market demand.

At the present market situation, the Sialkot sports goods industries are forced to invest into plants and machinery in order to reduce production costs and to increase the quality of products. The individual factories therefore have to specialize into one production programme.

5.1.1.3 Size of Units

The optimal size of a unit has to be determined by the level of technology applied, the capacity of machinery installed, and the value of investment. Market demand will be an indicator, however, capacity utilization below the break-even point will lead to financial losses. At present the size of a unit is determined by the orders in hand, the flexibility of the entrepreneur and the financial means. In a specialized factory with a high level of technology and heavy investment, orders have to be available in accordance to plant capacity. An example of a typical factory size is given in Annex II, Profile of Ideal Units.

The smaller units below 10 employees may not be in the position to mechanize fully and specialize into one production line. These factories will have to work as sub-contractors to bigger factories or may even vanish from the market. The proprietors will find employment in other factories.

5.1.1.4 Technical Assistance

A transfer of the Pakistan sports goods industry from the traditional to the modern sector with all the technological, organizational, and financial problems will be impossible without technical assistance from outside. Available resources of the industry may be utilized, however guidance and support has to come from outside. The Sports Goods Industries Service Centre was effective in developing the industry in the sixties, however has been outgrown by the target group and became ineffective for the last five years. It is therefore recommended that:

Technical assistance and common facility services are extended to the Pakistan sports goods industry, by a promotional institution.

The PSIC Sports Goods Industrial Service Centre should be redesigned in hardware and software. The Common Facility Section has to be equipped according to the need of the industry. Qualified staff must be employed in conformity to the proposed promotional functions. Ex-patriate expertise should be made available. The main objectives and functions of the re-designed Service Centre should be:

- Technical Extension Service
- Common Facility Service
- Testing of produced sports goods
- Establishment of standards
- Training
- Financing.

Proposed functions and required equipment are specified on page 91.

The Small Industrial Estate at Sialkot with its promotional factor has assisted the Sialkot small industry in the past. On 40 hectares 110 companies are facilitated, out of which 15 sports goods manufacturers established their workshops at the estate, but colonization is completed. Plots are not available anymore. It is therefore recommended that:

The Small Industrial Estate at Sialkot should be extended. Plots for approx. 30 sports goods factories should be made available at the first stage.

This should be done in order to create the precondition and give incentives for development of the sports goods industry in Sialkot.

5.1.2 Materials

At present only 2 basic raw materials, wood and leather, are utilized by the sports goods industry. Leather for footballs is not available and is processed in small quantities by individual ball producers with varying success. In order to make a standard football leather available to small producers, it is recommended that:

A specialized football leather tannery be established in the private or public sector.

This would be the only solution in order to guarantee an equal leather quality for ball production. High investment and technical assistance is required for such a project. It is therefore proposed that both the Government of Pakistan and the sports goods industry participate financially in the project. At present production, 350,000 - 450,000 hides are required p. a. as raw material. Assuming that only 40 - 50 % of the football manufacturers will buy their leather from this proposed tannery, a daily output of 500 - 700 hides would be required, thus producing 150,000 hides p. a.

Mulberry wood grown at Changa-Manga is required for hockey stick production. Approx. 2,000 m³ are consumed p. a. at Sialkot. The sources are limited. In order to guarantee a regular supply and to keep prices within limits, it is recommended that:

New plantations of mulberry timber are created at Changa-Manga or any other suitable place by the Forest Department of Pakistan.

According to the information received, mulberry trees are presently being replaced by other species. This praxis should be discontinued and additional plantations developed.

Willow trees of good quality are also short in supply. Since willow is a quick growing tree and matures within 20 years, it is recommended that:

Research is carried out with different species for plantation by the Forest Department in co-operation with the sports goods industry.

The problem with export duties and taxes on imported materials has been described earlier. The sports goods industry is not in the financial position to advance this high amount. In order to help the sports goods industry and strengthen its financial position, it is recommended that:

The Government of Pakistan review the import policy in regard to exporting industries.

It cannot be in the interest of the government to make imported materials more expensive than imported items produced from them (timber - plywood). One possibility is that an exporting industry will not have to pay any import duty (free import of materials according to last year's export figures).

The possibility for establishing a free-zone in Sialkot for the export industries may be surveyed by the custom authorities as well.

The intricate foreign material market will be easier to penetrate for the producer a liberal and free import policy.

5.1.3 Manpower, Management and Organization

5.1.3.1 Manpower

The high amount (74 %) of contract workers in the sports goods industry hinders development of industries and prohibits progress in technology. The relationship labourer/ entrepreneur is also disturbed. This is an internal social-economic problem of Pakistan. It is difficult to propose adequate methods for solving the problem. It is, however, proposed that:

The labour and welfare department with the assistance of international labour organizations evaluate the problem and propose adequate methods.

Combined seminars for labour/entrepreneurs may help to improve the situation.

Shortage of technical qualified staff in both labour and middle management levels is experienced by the sports goods industry. Training institutions are not available. Because of the complexity of the sports goods industry, it is difficult to establish a training institution on the national level. It is therefore proposed that:

Training facilities are made available at the proposed Sports Goods Service Centre.

Training should be offered to apprentices and advanced courses to skilled and semi-skilled labourers. Due to the limited capacity of the proposed institutional training, in general the training of apprentices has to be done in the traditional manner on-the-job at the factories. This practical training, however, could be accompanied by theoretical training at the institution.

5.1.3.2 Management and Organization

Managerial skills and organizational set-up leaves much to desire at the sports goods industries in Sialkot. It is therefore recommended that:

Managerial Seminars be held in Sialkot by national or international organizations.

These seminars would not only improve the entrepreneurial skills of the managers but would also widen their view and enable the participants to discuss day-to-day problems between themselves. Simple organizational patterns could be worked out, discussed, and charts distributed between the members of the seminars. Case studies should also be worked out. The basic organization of these seminars could be arranged by the Sports Goods Service Centre. Due to the different educational and managerial level of the potential participants, seminars should be held in Punjabi language on a lower level and in English on a slightly higher level.

The best participants of such seminar should be awarded with a study tour abroad in order to be exposed to similar industries in industrialized countries and may establish market relations abroad.

5.1.4 Marketing

In Pakistan's sports goods industry 90 % of production is exported. The domestic market is therefore of less importance. Only a few companies have their own export outlet. Most of the manufacturers must depend on export houses. The market procedure is not satisfactory to the producers. Continuous production is not possible due to the seasonal orders from the exporting houses. In order to enable the manufacturers to produce continuously through the year and make the foreign market accessible to them, it is recommended that:

A manufacturers association with export activities is founded with the assistance of PSIC and Export Promotion Bureau. The membership should be restricted to sports goods manufacturers only.

The main activities of this association should be to market the products of manufacturers who don't have access to foreign markets. In order to make the products known to the consumer a standard production of the members has to be worked out and sold under a common brand name. Quality control must be carried out by the association or sports goods service centre. Another possibility for opening the foreign markets could be the establishment of small associations. Up to 10 entrepreneurs could develop a common production programme with brand names. Marketing of this items should be done in a common effort and with the assistance of Export Promotion Bureau and other institutions.

A further sales promotion could be achieved by the establishment of store houses abroad. This would enable the manufacturers to produce continuously and ship monthly to the store houses. The distributor abroad has the benefit to order the goods when required and not have to plan and pay a year ahead. Complaints, if any, could be taken directly to the store house and settlement made on the spot. This would increase the confidence of buyers of Pakistan-made goods.

The sale of all sports goods produced in Pakistan is declining with the exception of leather balls and ski gloves. Since there is a high market demand for all items, it is assumed that the traditional sports goods produced in Pakistan are not in conformity with the market demand. Market prices and quality do not match Sialkot products. Therefore, it is recommended that:

A detailed market study, especially of the markets in Europe and USA as the main customers for sports goods, is carried out by international marketing experts.

The product range of Pakistan sports goods has to be adjusted in accordance to the market requirement. Diversification of product range will open up additional markets.

5.1.5 Financial Management

The present investment of the subsector into machinery and equipment is an estimate of Rs. 14.5 million (US \$ 1.5 million). In order to reach higher productivity in the sports goods industries and to make the industry competitive in the international markets, the immediate investment requirement for machinery is estimated at thus tripling the present investment in machinery. Most of the financially sound companies and therefore the potential investors already have their land and buildings, however, additional investment for expansion may amount to another

US \$ 3.0 million,

US \$ 2.0 million.

Working capital for establishment of store houses abroad and stock production is estimated at 30 % from the present working capital requirement, valuing at

US \$ 2.6 million.

The immediate investment requirement of the subsector will thus amount to approximately a value of

US \$ 7.6 million.

(Rs. 76.0 million).

When the recommended measures for development of sports goods industry are implemented and Pakistan is in the position to recapture the lost markets, the additional investment requirement for the next 5 years is estimated to be

US \$ 10.0 million
(Rs. 100.0 million)

Not included into the investment figures are the financial requirements for the proposed promotional measures. Only rough estimate can be made at this point. The results of the proposed market survey have to be available before detailed planning of the proposed technical assistance can be made. For hardware the required investment is estimated to be and for software the same amount is estimated:

US \$ 1.0 million,
US \$ 1.0 million;

which comes to a total of out of which 30 % or Rs. 6.0 million may be born by the sponsoring agency. (see page 91)

US \$ 2.0 million,
(Rs. 20.0 million),

The proposed football leather tannery in fixed assets requires an estimated investment of

US \$ 1.4 million.

This estimated investment for the private industry is highly dependent on the promotional measures proposed and the availability of long term loans at acceptable conditions. The financial security and the foreign currency risk cannot be carried by the industry only. If promotion of sports goods industry is envisaged by the government, the majority of the investment risk should be carried by governmental agencies. Personal loans should be given according to ability and financial morality of the borrowers. Collateral for long term loans should be the invested items and not the entire capital of the entrepreneur and his family. If the financial institution place more confidence in the industry, the industry will regain confidence in the government and the lending institutions.

Much has been said before and by other competent authors about the inflexibility and institutional inertia of the lending institutions. The problems have been known to the Pakistan Government for many years, but could not be solved. Recommendations in this respect will therefore not be made.

5.2 General

The existing associations of the sports goods industry with the exception of the Cooperative Society are more or less in the hand of the exporters. In order to cover the interests of the manufacturers it is strongly recommended that:

An association restricted to manufacturers only be established (see 5.1.4).

Punjab Small Industries Corporation, Export Promotion Bureau and other respective government agencies may sponsor and assist this association. The recommended Sports Goods Service Centre should use the association as an intermediate for the transfere of technology and know-how. On the other hand, the chairman of the association should sit on the board of the Sports Goods Service Centre in order to streamline activities in conformity with industrial requirement. Standards for sports goods should be worked out by the association with the guidance of respective agencies. Pre-shipment inspection could be another activity of the organization. The main activities, however, should be the marketing of sports goods.

Sports goods manufacturers in Europe and USA will sooner or later be phased out of the market due to the high labour cost. In order to acquire the latest technical knowledge, it would be advantageous to the Pakistan Industry as well as the European and American sports goods manufacturers to create joint companies in Pakistan, where the labour cost is low and a certain skill is already available. In the case that an individual company does not have the required funds, shareholding companies with governmental participation could be established. The sale would be arranged by the original foreign company. Therefore, it is recommended that:

A project for industrial promotion and development of joint-venture schemes be sponsored by one of the aid giving agencies or an international organization.

Such a project may not be restricted to the sports goods industry but may also include the surgical instruments industry where the conditions are quite similar and both industries are established at Sialkot. At present, there are two joint-venture companies, one in the sports goods industry, and one in the surgical instruments industry. Both are operating in Sialkot with great success.

The Sialkot infrastructure has to be improved if the development of sports goods industry is to be a reality. The power supply is absolutely inadequate, telephones are difficult to operate and application for telex connection have not been honored by the postal department for many years. Fees are also quite often not in accordance to use. Therefore, it is recommended that:

Wapda and Telephone Department may look into the situation and make a realistic development plan.

These plans should be made available to the industry and industrial departments in order to plan and develop the industry in accordance to the available infrastructure.

In conclusion, the sports goods industry in Pakistan has the potential to develop, provided investment especially into plants and machinery is made, financial funds become available and recommendations are implemented.

5.3 Recommendation for Re-activation of Sports Goods Industries Service Centre

Proposed Functions	Common Deficiencies in the Sports Goods Industry	Promotional Activities	Facilities Required
<u>Extension Service</u>	Layout of plant; Type of machinery and equipment; Factory organization; Work preparation; Range of products; Technology.	Advice; Demonstration; Designing of layouts; Designing and development of machinery; Assistance; Provision of organization chart.	Expatriate and local experts; Workshop and production facilities.
<u>Common Facility</u>	Non-availability of high technology, mass production and machinery; Lack of specialized machinery; Maintenance.	Pilot production; Provision of machinery and equipment for certain production steps (leather coating, seasoning of timber, etc.); Tool sharpening and maintenance.	Production Machinery; (leather coating equipment, seasoning kiln, etc.); Tool sharpening equipment.
<u>Development of new Products</u>	Traditional product range.	Designing and prototype production.	Designing equipment; Machinery and equipment for production; (Polyester spray machines)
<u>Testing and Preshipment Inspection</u>	Non-availability of standards; Lack of testing facilities; Limited quality control.	Establishing of standards for sports goods; Testing of produced items; Quality control; Pre-shipment inspection.	Testing equipment for sports goods.
<u>Training</u>	Shortage of technically qualified personnel; Entrepreneurial skills.	Training of apprentices; Seminars for managers and skilled labourers.	Training shops; Tools, equipment; Teaching aids; Courses.
<u>Administration</u>	Management techniques; Cost accounting; Marketing.	Demonstration; Training; Advice; Provision of administrative pattern.	Administrative section; Courses.
<u>Financing</u>	Shortage of funds.	Financial assistance.	Credit programme.

Detailed planning of the proposed sports goods service centre has to be done after results of the proposed market survey become available. The cost of fixed assets required, excluding land and buildings, is roughly estimated with US \$ 1.2 million.

SUB-SECTOR PROFILES

6. Sub-Sector Profiles

As part of the results of the study, typical sub-sector profiles have been prepared in order to facilitate institutional, financial and technical support. The profiles contain the following criteria:

- production programme
- technology and production facilities
- raw materials
- manpower and management
- investment
- cost structure
- financial ratios.

The actual situation of each product line or type of industry (labour intensive, mechanized, export oriented) has been drawn up. It reflects the target group units' specific pattern with respect to structure and ranges of the above criteria.

Based on the experience and know-how of the sector, a profile for a typical new company has been elaborated. This profile contains the estimated structural data and ratios for a model unit, with sub-sector specific

- technology and machinery
- personnel outfit
- investment and cost-structure.

The financial ratios represent estimates and may fluctuate in both directions.

A detailed proposal for such a "pilot unit" will require a thorough analysis within the framework of a comprehensive feasibility study.

SUBSECTOR:

CATEGORY:

ACTUAL SITUATION

Sports Goods

Manufacturer / Exporter

1	PRODUCTION PROGRAMME:																			
	Type of Products: Hockey Sticks	Annual Average Output:		on % Capacity																
	Major Products:	Units:	Rs.:																	
	Hockey Sticks	75,000	4,500,000	80																
2	TECHNOLOGY AND PRODUCTION FACILITIES:																			
	Process commonly applied:	Major Machinery/Equipment:		Imported local																
	<ul style="list-style-type: none"> - Cutting of timber and cane - Seasoning of blocks - Boiling and bending of timber candles - Drying of bent candles - Glueing of handles - Turning of handles and fixing into head - Final turning and winding of bandage - Finishing, spray-painting fixing of transfer labels - Fixing of grip, finishing 	<table border="1"> <tr> <td></td> <td>No.</td> </tr> <tr> <td>1. Band saw</td> <td>2</td> </tr> <tr> <td>2. Hot water tank</td> <td>1</td> </tr> <tr> <td>3. Bending Press</td> <td>1</td> </tr> <tr> <td>4. Turning lathe</td> <td>2</td> </tr> <tr> <td>5. Spray paint equipment</td> <td>1</td> </tr> <tr> <td>6. Work benches</td> <td>15</td> </tr> <tr> <td>7. Tools and fixtures</td> <td>-</td> </tr> </table>			No.	1. Band saw	2	2. Hot water tank	1	3. Bending Press	1	4. Turning lathe	2	5. Spray paint equipment	1	6. Work benches	15	7. Tools and fixtures	-	
	No.																			
1. Band saw	2																			
2. Hot water tank	1																			
3. Bending Press	1																			
4. Turning lathe	2																			
5. Spray paint equipment	1																			
6. Work benches	15																			
7. Tools and fixtures	-																			
Land and Buildings:		Building Area/ Employee																		
Buildings: Value / sam. Rs. min.: 500 max.: 1000 average: 800		min.: 12 max.: 30 average: 20																		
Land: Value / sam. Rs. min.: 100 max.: 600 average: 250																				
3	RAW MATERIALS:																			
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties: Quality:															
	Mulberry wood	m ³	3,000	x x	- medium															
	Cane	bundle	1,800	x x	120% good															
	Glue	kg	2	x	low															
	Bandage	-	-	x	medium															
	Lacquer + paint	ltr.	65	x	medium															
	Transfer labels	piece	1	x	good															
4	MANPOWER AND MANAGEMENT:				Entrepreneurial Background of Sponsor/Owner: Experience in Sports Goods Production External Technical Cooperation necessary? Yes															
		min.:	max.:	average:																
	Management:	2	4	3																
	Staff:	3	8	6																
	Skill'd Workers:	36	42	38																
	Semi- and unskilled Workers:	34	41	37																
	Total:	75	95	85																
	Contract Workers:	56	71	63																
5	MARKET DEMAND AND MARKETING:																			
	Market Potential and Development Prospects:		Marketing Channels (ranking):																	
	Domestic: Rs.	Export: Rs.	Domestic:	Export:																
	present sale Rs. 1.5 million	present sale Rs. 15 million	direct to shops or consumers	to importers abroad																
6	INVESTMENT:																			
	Fixed Assets: Rs.	min.:	max.:	average:																
	Land:	100,000	1,000,000	350,000																
	Buildings:	200,000	1,500,000	780,000																
	Machinery/Equipment:	50,000	250,000	200,000																
	Miscellaneous:	3,000	70,000	40,000																
	TOTAL:	353,000	2,820,000	1,370,000																
	Working Capital (Rs.)	min.:	max.:	average:																
		900,000	4,400,000	2,300,000																
7	COST STRUCTURE:																			
		min. %	max. %	average %																
	Raw Materials:	53	65	55																
	Manpower:	10	15	14																
	Depreciation / Interest:	2	3	3																
	Others:	4	15	11																
	Profit:	10	18	15																
8	FINANCIAL RATIOS: Rs.																			
		min.:	max.:	average:																
	Turnover / Employee	42,000	73,000	53,000																
	Turnover / Machinery and Equipment	11	23	22																
	Machinery and Equipment / Employee	500	2,500	2,000																
	Total Investment / Employee																			
	a. Building owned	10,000	95,000	40,000																
	b. Building rented	10,000	30,000	20,000																
	Fixed Assets / Working Capital	0.1	3.1	0.7																
	Profit / Investment	0.00	0.0	0.2																
	Loans / Total Capital	0.0	0.5	0.3																

Sports Goods

Manufacturer / Exporter

PRODUCTION PROGRAMME:			
Type of Products:	Annual Average Output:	as % Capacity	
Major Products:	Units:	Rs.:	
Hockey Sticks Grade "A"	75,000	5,600,000	80

TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:	Major Machinery/Equipment:	No.	Imported	acc:
- Cutting of timber and cane	1. Band saw	1		x
- Seasoning	2. Splitting machine	1		x
- Boiling and bending	3. Hot water tank	1		x
- Drying	4. Hydraulic bending press	1	x	
- Cutting and shaping	5. Automatic shaper	1	x	
- Turning and fixing of handles into head	6. Turning lathe	2		x
- Final turning and fixing of bandage	7. Dipping and spray-painting	1	x	
- Dipping and spray-painting	8. Tools + fixtures	-		x
- Finishing	9. Work benches	10		x
- Inspection				

Land and Buildings:			Building Area/ Employee
Buildings: Value / sam.	Rs average:	300	
Land: Value / sam.	Rs average:	250	average: 14

RAW MATERIALS:					
Type:	Quantity:	Price/Unit:	Imported/Local:	Import Duties:	Quality:
Mul berry wood	m ³	3,500	x		good
Cane	bundle	1,800	x		good
Glue	kg	6	x	120%	good
Bandage	-	-			good
Lacquer/paint	ltr.	100	x		good
Transfer labels	piece		x		good

MANPOWER AND MANAGEMENT:		Entrepreneurial background of Sponsors/Owner:
Management:	average: 3	Technical and management training, experience in modern management
Staff:	4	
Skilled Workers:	30	
Semi- and unskilled Workers:	13	External Technical Cooperation necessary?
Total:	50	yes
Contract Workers:	-	

MARKET DEMAND AND MARKETING:			
Market Potential and Development Prospects:		Marketing Channels (Ranking):	
Domestic:	Exports:	Domestic:	Exports:
present sale Rs. 1.4 mill.	present sale Rs 15 million		Direct export to importer

INVESTMENT:		Working Capital: Rs
Fixed Assets: (Rs)	average:	
Land:	300,000	
Buildings:	360,000	
Machinery/Equipment:	640,000	average: 2,500,000
Miscellaneous:	50,000	
TOTAL:	1,550,000	

COST STRUCTURE:		Remarks:
Raw Materials:	average: 45	
Manpower:	7	
Depreciation / Interest:	7	
Others:	0	
Profit:	20	

FINANCIAL RATIOS: Rs		Remarks:
Turnover / Employee	average: 112,000	
Turnover / Machinery and Equipment	3.1	
Machinery and Equipment / Employee	13,000	
Total Investment / Employee		
a) Building owned	31,000	
b) Building rented	34,000	
Fixed Assets / Working Capital	0.5	
Profit / Investment	0.2	
Loans / Total Capital	0.5	

SUBSECTOR:

CATEGORY:

ACTUAL SITUATION

Sports Goods

Producer, Wood

1	PRODUCTION PROGRAMME:						
	Type of Products: Rackets	Annual Average Output:		on % Capacity			
	Major Products:	Units:	Rs.:				
	Tennis Rackets	15,500	625,000	60			
2	TECHNOLOGY AND PRODUCTION FACILITIES:						
	Process commonly applied:	Major Machinery/Equipment:		Imported Local			
	<ul style="list-style-type: none"> - Cutting of logs into plies - Cutting of heart and overlays - Pressing of frame - Calibration of frame - Fixing of overlays and balancing - Sanding and shaping - Drilling of holes - Lacquering and varnishing - Fixing of transfer labels - Finishing, stringing, fixing of grip 	<ol style="list-style-type: none"> 1. Band saw 2. Bending press 3. Thickening machine 4. Bobbin sander 5. One spindle drilling machine 6. Spray paint unit 7. Work benches, equipment 		<ul style="list-style-type: none"> x x x x x x x 			
Land and Buildings:		Building Area/ Employee					
Buildings: Value / sam. min.: <input type="text" value="250"/> max.: <input type="text" value="1,200"/> average: <input type="text" value="690"/>		min.: <input type="text" value="6"/> max.: <input type="text" value="22"/> average: <input type="text" value="15"/>					
Lands: Value / sam. min.: <input type="text" value="100"/> max.: <input type="text" value="750"/> average: <input type="text" value="250"/>							
3	RAW MATERIALS:						
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:	Quality:	
China-, Mulberry-, willow-wood	m ³	1,500,--	Rs x		150 %	low	
Ash and beach	m ³	15,000,--	x		150 %	medium	
UF glue	kg	33,--	x			"	
Lacquer	litre	65,--		x		"	
Grips	pieces	2,--		x		"	
Transfer labels / Filament	pieces / m	1,--		x		"	
4	MANPOWER AND MANAGEMENT:				Entrepreneurial Background of Sponsor/Owner:		
		min.:	max.:	average:	Skilled Worker		
Management:	1	1	1	External Technical Cooperation necessary?			
Staff:	-	3	1	Yes			
Skilled Workers:	6	9	7				
Semi- & unskilled Workers:	9	12	19				
Total:	16	25	18				
Contract Workers:	12	19	12				
5	MARKET DEMAND AND MARKETING:						
	Market Potential and Development Prospects:		Marketing Channels (ranked):				
Domestic:		Exports:		Domestic:		Exports:	
present sale Rs. 303,000		present sale Rs. 2,000,000		to shops and consumers		to whole sale dealers / Exporters	
6	INVESTMENT:				Working Capital (Rs.):		
	Fixed Assets (Rs.):	min.:	max.:	average:	min.: <input type="text" value="2,500"/>		
Land:	100,000	200,000	125,000	max.: <input type="text" value="850,000"/>			
Buildings:	20,000	1,000,000	205,000	average: <input type="text" value="230,000"/>			
Machinery/Equipment:	1,000	72,500	40,000				
Miscellaneous:	300	5,000	5,000				
TOTAL:	181,200	1,277,500	375,000				
7	COST STRUCTURE:				Remarks:		
		min. %	max. %	average %			
Raw Materials:	49	68	57				
Manpower:	14	29	19				
Depreciation/Interest:	-	5	3				
Others:	3	15	11				
Profit:	7	17	11				
8	FINANCIAL RATIOS (Rs.):				Remarks:		
		min.:	max.:	average:			
Turnover/Employee	18,000	35,000	24,400				
Turnover/Machinery and Equipment	3	100	18				
Machinery and Equipment/Employee	52	4,350	2,100				
Total Investment/Employee							
a) Building owned	12,000	70,000	26,400				
a) Building rented	700	13,000	12,500				
Fixed Assets/Working Capital	0.2	0.5	1.0				
Profit/Investment	0.07	1.0	0.11				
Loans/Total Capital	-	0.44	0.19				

1	PRODUCTION PROGRAMME:					
	Type of Products: Rackets	Annual Average Output:		on % Capacity		
	Major Products:	Units:	Rs.:			
	Tennis Rackets	40,000	1,600,000	80		
2	TECHNOLOGY AND PRODUCTION FACILITIES:					
	Process commonly applied:	Major Machinery/Equipment:		Imported local		
	<ul style="list-style-type: none"> - Cutting of heart and overlay - Cutting of veneer into stripes of 5-6 rackets - Pressing of 6 frames in one go - Separating of frames and calibration - Sanding and shaping - Drilling of holes - Coating of rackets - Fixing of transfer labels - Finishing, stringing, fixing of grip 	<ul style="list-style-type: none"> 1. Band saw 2. Veneer-cutting machine 3. Hydraulic press with RF dryer 4. Glue coating machine 5. Spindle moulder 6. Planner 7. Bobbin sander 8. Belt sander 9. Multiple spindle drill press 10. Dipping and spray-paint equipment 11. Stringing machine 	<ul style="list-style-type: none"> x x x x x 	<ul style="list-style-type: none"> x x x x 		
Land and Buildings:	Buildings: Value / sam. Rs average: 690		Building Area/ Employee average: 15			
	Land: Value / sam. Rs average: 350					
3	RAW MATERIALS:					
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:	Quality:
	China, mulberry willow	m ²	2,000	x		medium
	Ash and beach veneer	m ²	30	x	80 %	good
	UF glue	kg	33	x	150 %	good
	Lacquer	ltr.	85			good
	Grips	pieces	2			medium
	Transfer labels / Filament	pieces / m	1/-	x / x	-	good good
4	MANPOWER AND MANAGEMENT:					
		average:	Entrepreneurial Background of Sponsor/Owner:			
	Management:	1				
	Staff:	2				
	Skilled Workers:	9				
	Semi- + unskilled Workers:	6	External Technical Cooperation necessary?			
	Total:	18				
	Contract Workers:	-				
5	MARKET DEMAND AND MARKETING:					
	Market Potential and Development Prospects:			Marketing Channels (Ranking):		
	Domestic:	Export:	Domestic:	Export:		
	--	Present import into EEC countries US \$ 58 million Rs 380 million		Direct through association		
6	INVESTMENT:					
	Fixed Assets: 241	average:		Working Capital: Rs)		
	Land:	125,000				
	Buildings:	205,000				
	Machinery/Equipment:	950,000		average: 400,000		
	Miscellaneous:	50,000				
	TOTAL:	1,230,000				
7	COST STRUCTURE:					
		average:	Remarks:			
	Raw Material:	45				
	Manpower:	10				
	Depreciation / Interest:	14				
	Others:	12				
	Profit:	19				
8	FINANCIAL RATIOS: Rs)					
		average:	Remarks:			
	Turnover / Emp. avee	59,000				
	Turnover / Machinery and Equipment	1.5				
	Machinery and Equipment / Emp. avee	59,000				
	Total Investment / Employee					
	a) Building owned	93,800				
	b) Building rented	77,700				
	Fixed Assets / Working Capital					
	Profit / Investment	0.12				
	Loans / Total Capital	0.4				

SUBSECTOR:

CATEGORY:

ACTUAL SITUATION

Sports Goods

Producer, Leather

1	PRODUCTION PROGRAMME:						
Type of Products: Leather Balls		Annual Average Output:		an % Capacity			
Major Products:		Units:	Rs.:				
Footballs		15,000	425,000	65			
2	TECHNOLOGY AND PRODUCTION FACILITIES:						
Process commonly adopted:		Major Machinery Equipment:		Imported	Cap.		
<ul style="list-style-type: none"> - Tanning - Splitting (common facility) - Stretching - Shaving, buffing - Spray-painting - Lining - Cutting of panels - Stitching of ball - Pressure test - Specifying - Inspection 		<ul style="list-style-type: none"> 1. Tanning drum 2. Stretching frames (boards) 3. Shaving machine 4. Excenter clicking press 5. Spray-paint equipment 6. Work benches and tools 			<ul style="list-style-type: none"> x x x x x x 		
Land and Buildings:							
Buildings: Value / sam.		min.: 500	max.: 1,000	average: 700	Building Area/ Employee		
Land: Value / sam.		min.: 240	max.: 370	average: 290			
		min.: 4.2	max.: 19	average: 11			
3	RAW MATERIALS:						
Type:	Quantity:	Price/Unit/RS	Imported/local:	Import Duties:	Quality:		
Buff leather	piece	135	x		good		
Lining	m ²	12	x		medium		
Chemicals	kg	-	x	90%	medium		
Paint	ltr.	65	x		medium		
Bladders	piece	3	x		medium		
Thread	rolls	-	x		medium		
4	MANPOWER AND MANAGEMENT:						
	min.:	max.:	average:	Entrepreneurial Background of Sponsor/Owner Skilled worker			
Management:	1	1	1				
Staff:	-	1	-				
Skilled Workers:	5	9	5				
Semi + unskilled Workers:	4	7	7				
Total:	10	18	13	External Technical Cooperation necessary? yes			
Home Workers:	7	15	10				
5	MARKET DEMAND AND MARKETING:						
Market Potential and Development Prospects:			Marketing Channels (trading):				
Domestic:		Export:		Domestic:		Export:	
present demand: Rs 14,500,000		present demand: Rs 130,000,000					
6	INVESTMENT:						
Fixed Assets: (Rs)	min.:	max.:	average:	Working Capital: (Rs)			
Land:	40,000	300,000	90,000	min.:	4,000		
Buildings:	40,000	250,000	84,000	max.:	100,000		
Machinery/Equipment:	2,000	60,000	21,000	average:	65,000		
Miscellaneous:	1,000	5,000	2,000				
TOTAL:	83,000	325,000	167,000				
7	COST STRUCTURE:						
	min. %	max. %	average %	Remarks:			
Raw Materials:	41	62	55				
Manpower:	13	33	25				
Depreciation/Interest:	1	1	1				
Others:	3	5	4				
Profit:	4	5	5				
8	FINANCIAL RATIOS: (Rs)						
	min.:	max.:	average:	Remarks:			
Turnover/Employee	15,000	40,000	32,000				
Turnover/Machinery and Equipment	6	14	10				
Machinery and Equipment/Employee	100	60,000	1,000				
Total Investment/Employee							
a) Building owned	3,200	30,000	17,000				
a) Building rented	330	10,000	6,000				
Fixed Assets/Working Capital	1.5	1.5	1.5				
Profit/Investment	0.20	0.2	0.20				
Loans/Total Capital	-	0.4	0.4				

SUBSECTOR:

CATEGORY:

NEW COMPANY

Sports Goods

Producer, Leather

1	PRODUCTION PROGRAMME:				
Type of Product: Leather Balls		Annual Average Output:			
Major Products:		Units:	Rs.:		
Football		15,000	900,000		
			80		
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:			
<ul style="list-style-type: none"> - Purchase of ready football leather - Lining - Cutting into panels - Stitching of balls - Pressure test - Inspection 		<ol style="list-style-type: none"> 1. Hydraulic clicking press 2. Spray paint equipment 3. Compressor 4. Plating press 			
		Imported	Local		
		x	x		
			x		
			x		
Land and Buildings:		Building Area/ Employee			
Buildings: Value / sam. average: 700					
Land: Value / sam. average: 290		average: 12			
3	RAW MATERIALS:				
Type:	Quantity:	Price/Units/Rs.	Imported/local:	Import Duties:	Quality:
Butt leather finished	piece	200	x		good
Lining	m ²	20	x		good
Sticking agent	kg	60	x	60%	good
Bladder	piece	3.50	x		good
Thread	rolls	-	x		good
4	MANPOWER AND MANAGEMENT:				
	average:				
Management:	1	Entrepreneurial Background of Sponsor/Owner:			
Staff:	1	Skilled worker with experience in management			
Skilled Workers:	5	External Technical Cooperation necessary?			
Semi- + unskilled Workers:	6	yes			
Total:	13				
Home Workers:	10				
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (ranking):		
Domestic:		Export:		Domestic:	
--		Present Import into EEC countries: US \$ 94 million (Rs 940 million)		Export: Direct through association	
6	INVESTMENT:				
Fixed Assets: (Rs)	average:				Working Capital: (Rs)
Land:	150,000				
Buildings:	100,000				
Machinery/Equipment:	350,000				
Miscellaneous:	30,000				
TOTAL:	630,000				average: 300,000
7	COST STRUCTURE:				
	average:				Remarks:
Raw Materials:	30				
Manpower:	15				
Depreciation / Interest:	3				
Others:	12				
Profit:	34				
8	FINANCIAL RATIOS: (%)				
	average:				Remarks:
Turnover / Employee	22,200				
Turnover / Machinery and Equipment	2.3				
Machinery and Equipment / Employee	29,200				
Total Investment / Employee	71,510				
a. Building owned	52,307				
b. Building rented	19,203				
Fixed Assets / Working Capital	2.1				
Profit / Investment	5.23				
Loans / Total Capital	5.3				

BASIC DATA AND RATIOS
of
UNITS INTERVIEWED

LEGEND FOR BASIC DATA AND RATIOS

- 1) Sales figures 1979
(estimates of yearly sales volume)
- 2) 1 = Wholesaler
2 = Commission agent
3 = Retailers
4 = Job order
5 = direct sales to end user
6 = Exporters
- 3) g = good
f = fair
b = bad
- 4) TTD = Traditional Technology Developing Countries
UTD = Upgraded Technology Developing Countries
ATI = Adapted Technology Industrialized Countries
UTI = Unchanged Technology Industrialized Countries
- 5) Staff = administrative and management personnel
- 6) % of total raw material (in terms of value)
- 7) Turnover/value of machinery and equipment
- 8) Value of machinery and equipment/employees
- 9) Cost-to-sales ratio (%)

Sl. No.	Description of Enterprises				Sales (Rs. Lakhs)				Land		
	Type of Enterprises	Wood or Leather	Production Enterprise	No. of years in operation	Total Sales	Domestic	Export	Channels ²	Area (sq. ft.)	Value (Rs. Lakhs)	Acres
2	Production	W+L	Cricketbats, Tennis Rackets, Footballs	70	2406233	-	100	6	200	150000	750
1	Production	W	Tennis + Squash Rackets, Hockey St.	6	2044850	-	100	6	2100	500000	238
27	Production	W	Hockey Sticks	26	1840000	2.0	98.0	6	1500	300000	200
25	Production	W	Hockey Sticks	36	1035000	3.0	97.0	6	275	150000	545
45	Production	W	Tennis + Squash Rackets	51	855000	2.0	98.0	6	-	-	-
26	Production	W	Cricket Bats	8	852600	3.0	97.0	6	1000	100000	100
33	Production	W	Cricket Bats	30	625000	2.0	98.0	6	-	-	-
22	Production	W	Tennis Rackets	73	200000	100	-	3+5	-	-	-
16	Production	W	Cricket Bats	10	189000	-	100	6	900	320000	355
15	Production	W	Badminton, Racket	6	91800	10.0	90.0	3+6	-	-	-
14	Production	W	Hockey Sticks	4	84000	-	100	6	-	-	-
19	Production	W	Badminton Racket	6	39600	-	100	6	-	-	-

No.	Land			Buildings				Machinery & Equipment				Tools		
	Area	Value	Average per acre	Count	Value	Average per sq. ft.	Number	Value	No. of machines	Average age years	Condition	USD	URD	ATI
200	150 000	750	900	300 000	1 500	22.5	300 000	10	2-40	F	X	X		
2100	500 000	238	1 200	1 000 000	833	31.0	85 000	11	1- 6	G		X		
1 500	300 000	200	600	600 000	1 000	15.0	45 000	7	3-20	F	X			
275	150 000	545	225	225 000	1 000	11.2	15 000	-	10-20	F	X			
-	-	-	80	350	rent	14.5	30 000	8	10-30	F	X			
1 000	100 000	100	300	250 000	833	20.0	21 000	4	1- 6	G	X			
-	-	-	80	300	rent	6.6	24 000	1	1- 4	G	X			
-	-	-	80	700	rent	6.6	20 000	1	10-40	F	X			
900	320 000	355	300	80 000	266	37.0	18 900	5	2- 6	F	X			
-	-	-	38	200	rent	9.5	10 000	4	2- 6	G	X			
-	-	-	40	200	rent	13.0	500	-	3	G	X			
-	-	-	40	400	rent	20.0	500	-	3	G	X			

SECTION 2

Location	Total			UTI	Capacity utilization	Manpower					Value added			
	UTD	UTD	ATI			Total	Skilled workers	Semi- and unskilled workers	Staff	Contract workers	Constant price	Current price	Constant price	Current price
F	X	X			80	40	12	22	6	28	750 000	857 355	1 607 355	600 000
G		X			70	38	12	19	7	26	1 058 000	1 050 000	2 635 500	1 080 000
F	X				75	39	15	20	4	30	945 000	550 000	1 495 000	645 000
F	X				50	20	10	7	3	15	390 000	330 000	720 000	240 000
F	X				50	24	6	17	1	18	30 000	250 000	280 000	30 000
G	X				75	15	6	7	2	10	371 000	160 000	531 000	270 000
G	X				80	12	5	6	1	7	24 000	89 000	113 000	24 000
F	X				50	12	6	4	2	4	20 000	50 000	70 000	20 000
F	X				50	8	3	4	1	6	418 900	45 000	463 900	90 000
C	X				50	4	1	2	1	3	10 000	15 000	25 000	10 000
C	X				90	3	1	2	-	2	500	700	1 200	500
C	X				60	2	1	1	-	1	500	2700	3200	500

SECTION 3

1960			1961				1962				
Revenue	Operating Expenses	Operating Profit	Revenue	Operating Profit	Fixed Assets	Capital Employed	Revenue	Total Investment	Turnover	Capital Employed	Total Investment
857 355	1 607 355	600 000	80 000	5.0	-	10.0	60 155	1.5	8.0	2.8	40 18
1 050 000	2 635 500	1 085 500	400 000	15.0	-	38.0	53 811	0.7	23.9	1.9	69 35
550 000	1 495 000	645 000	-	-	-	-	47 179	1.2	41.0	3.3	38 33
330 000	720 000	240 000	-	-	-	-	51 750	1.4	69.0	3.1	36 00
250 000	280 000	30 000	125 300	44.0	-	50.0	35 625	3.0	28.0	3.4	11 60
160 000	531 000	271 000	90 000	17.0	-	33.0	56 840	1.6	40.0	5.3	35 40
89 000	113 000	24 000	-	-	-	-	52 083	5.5	26.0	7.0	9 40
50 000	70 000	20 000	10 000	14.0	-	50.0	16 666	2.8	10.0	4.0	5 80
45 000	463 900	98 900	30 000	7.0	7.0	-	23 625	0.4	10.0	4.2	52 36
15 000	25 000	15 000	-	-	-	-	22 950	3.6	9.2	6.1	6 25
700	1 200	700	-	-	-	-	28 000	70.0	168.0	120.0	40
2700	3200	500	1 000	31.0	-	37.0	19 800	12.3	79.0	12.3	10

SECTION 4

Ratio	Ratio				Costs								
	Turnover Working Capital	Total investment Employees	Machinery and equipment & employees	Fixed assets working capital	Raw material	Manpower	Depreciation Interest	Maintenance	Others	Profit on sales	Capital pay ratio per 1000	Raw material in cost	Profit
2.8	40183	7500	0.8	47.0	13.0	3.0	1.0	27.0	9.0	7.1	15.0	-	
1.9	69355	2250	1.5	58.0	10.0	5.0	2.0	16.0	9.0	14.2	31.0	1.5	
3.3	38333	1153	1.7	62.0	16.0	3.0	-	6.0	12.0	6.6	21.0	13.0	
3.1	36000	750	1.2	59.0	15.0	-	-	10.0	13.0	5.5	20.0	13.0	
3.4	11666	1250	0.1	51.0	22.0	2.0	-	15.0	9.0	3.7	20.0	10.0	
5.3	35400	1400	2.3	66.0	14.0	4.0	-	6.0	10.0	4.3	10.0	-	
7.0	9416	2000	0.3	68.0	15.0	-	-	4.0	12.0	1.5	20.0	-	
4.0	5833	1666	0.4	62.0	22.0	-	-	4.0	12.0	2.8	15.0	-	
4.2	52362	2362	9.3	49.0	24.0	3.0	-	7.0	17.0	12.5	5.0	-	
6.1	6250	2500	0.4	51.0	29.0	-	-	10.0	10.0	2.7	5.0	-	
120.0	400	166	0.7	75.0	9.0	-	-	4.0	13.0	0.1	10.0	-	
12.3	1600	250	0.2	57.0	22.0	-	-	15.0	6.0	1.4	-	-	

SECTION 5

GROUP 2: MANUFACTURER, WOOD

Plant No.	Machine tools equipment employees	Fixed assets working capital	Raw material	Laborpower	Depreciation interest	Maintenance	Others	Profit on sales	Capital pay-back period years	Raw material inventory on 12/31	Inventory turning	Plant No.
	7500	0.8	47.0	13.0	3.0	1.0	27.0	9.0	7.1	15.0	-	
	2250	1.5	58.0	10.0	5.0	2.0	16.0	9.0	14.2	31.0	1.5	
	1153	1.7	62.0	16.0	3.0	-	6.0	12.0	6.6	21.0	13.0	
	750	1.2	59.0	15.0	-	-	10.0	13.0	5.5	20.0	13.0	
	1250	0.1	51.0	22.0	2.0	-	15.0	9.0	3.7	20.0	10.0	
	1400	2.3	66.0	14.0	4.0	-	6.0	10.0	4.3	10.0	-	
	2000	0.3	68.0	15.0	-	-	4.0	12.0	1.5	20.0	-	
	1666	0.4	62.0	22.0	-	-	4.0	12.0	2.8	15.0	-	
	2362	9.3	49.0	24.0	3.0	-	7.0	17.0	12.5	5.0	-	
	2500	0.6	51.0	29.0	-	-	10.0	10.0	2.7	5.0	-	
	166	0.7	75.0	9.0	-	-	4.0	13.0	0.1	10.0	-	
	250	0.2	57.0	22.0	-	-	15.0	6.0	1.4	-	-	

Unit No.	Type of Enterprises	Description of Production			Sales Channels				Export	
		Wood or Leather	Other	No. of years in operation	Sales %	Domestic	Export	Channels ²	Value	Quantity
9	Production	L	Foot - + Handballs	1	1 325 000	-	100	6	108	40 000
39	Production	L	Ski Gloves protect. Sports Ware	10	900 000	2.0	98.0	6	-	-
13	Production	L	Foot - + Handballs	3	717 000	-	100	6	800	300 000
28	Production	L	Foot - + Handballs	18	690 000	-	100	6	2500	600 000
43	Production	L	Foot - + Handballs	5	626 000	2.0	98.0	6	800	350 000
40	Production	L	Footballs	16	526 000	2.0	98.0	6	-	-
41	Production	L	Footballs	18	526 000	-	100	6	-	-
5	Production	L	Foot - + Handballs	9	328 075	1.0	99.0	6	-	-
8	Production	L	Foot - + Handballs	20	306 000	-	100	6	-	-
42	Production	L	Footballs	10	262 000	2.0	98.0	6	-	-
35	Production	L	Foot- + other Balls	11	209 000	-	100	6	240	60 000
34	Production	L	Foot- + other Balls	12	200 000	-	100	6	300	70 000
17	Production	L	Cricket + Hockey Balls	10	166 666	3.0	97.0	6	-	-
10	Production	L	Foot- + other Balls	12	129 000	-	100	6	-	-
11	Production	L	Foot- + other Balls	16	115 000	-	100	6	-	-
12	Production	L	Foot- + other Balls	20	111 000	-	100	6	-	-
29	Production	L	Foot- + other Balls	16	80 500	-	100	6	420	100 000

SECTION 1

Lot	Lot		A				Machinery + Equipment				Techno	
	Value in Rs	Area in Rs	Total	Value in Rs	Area in Rs	m ² per water	Value in Rs	No. of machines	Average age in years	Condition	TTD	UTD
08	40 000	370	80	40 000	500	3.5	23 000	4	1	G	X	
	-	-	80	100	rent	4.0	6 000	2	2-6	F	X	
00	300 000	375	400	250 000	625	19.0	58 500	7	1-3	G	X	
00	600 000	240	200	200 000	1 000	11.0	40 000	3	2-6	F	X	
00	350 000	437	400	250 000	625	20.0	60 000	5	1-5	F	X	
	-	-	60	80	rent	4.2	18 500	3	2-6	G	X	
	-	-	65	80	rent	5.0	19 500	3	1-7	G	X	
	-	-	300	400	rent	30.0	15 000	3	3-6	F	X	
	-	-	120	300	rent	10.0	8 000	3	4-15	F	X	
	-	-	50	50	rent	4.9	18 500	3	2-8	F	X	
20	60 000	250	80	50 000	625	6.1	30 000	2	1-6	F	X	
00	70 000	233	60	40 000	666	5.0	35 000	2	2-8	F	X	
	-	-	50	125	rent	10.0	2 000	2	4-6	F	X	
	-	-	100	350	rent	12.5	13 000	4	1-8	F	X	
	-	-	40	150	rent	5.0	7 000	1	8	F	X	
	-	-	70	300	rent	7.0	2 000	1	6	F	X	
00	100 000	240	100	100 000	1 000	33.0	10 000	2	4-6	F	X	

SECTION 2

Duration Years	Condition	Techno		Capacity utilization (%)	Manpower in number					Contract worker			
		TTD	UTD		Total	Skilled workers	Semi- and un- skilled workers	Stat.	Contract worker				
1	G	X		80	23	7	15	1	15	103 000	35 000	138 000	
2-6	F	X		70	20	7	12	1	14	6 000	130 000	136 000	
1-3	G	X		60	21	7	12	2	14	608 000	170 000	778 000	
2-6	F	X		50	18	7	8	3	10	840 000	224 000	1 064 000	
1-5	F	X		70	20	8	10	2	17	660 000	125 000	785 000	
2-6	G	X		70	14	8	5	1	13	18 500	95 000	113 500	
1-7	G	X		70	13	5	7	1	12	19 500	85 000	104 500	
3-6	F	X		50	10	5	4	1	9	15 000	30 000	45 000	
4-15	F	X		50	12	7	4	1	8	8 000	20 000	28 000	
2-8	F	X		70	12	5	6	1	10	18 500	45 000	63 500	
1-6	F	X		90	13	4	8	1	10	140 000	53 000	193 000	
2-8	F	X		80	12	5	6	1	10	145 000	45 000	190 000	
4-6	F	X		90	5	2	3	-	4	2 000	4 000	6 000	
1-8	F	X		80	8	3	4	1	4	13 000	35 000	48 000	
8	F	X		50	6	3	2	1	4	7 000	20 000	27 000	
6	F	X		70	10	4	5	1	9	2 000	22 000	24 000	
4-6	F	X		40	3	1	2	-	2	210 000	15 000	225 000	

SECTION 3

Investment			Capital Employed				Financial Ratios				
Investment (Rs)	Fixed Assets (Rs)	Current Assets (Rs)	Total Capital Employed (Rs)	Current Ratio	Fixed Assets	Equity	Average number of employees	Turnover of fixed investment	Turnover of machinery & equipment	Turnover of total capital	Total Investment
35 000	138 000	63 000	30 000	22.0	-	85.0	57 608	9.6	57.0	37.8	60
130 000	136 000	6 000	-	-	-	-	45 000	6.6	150.0	6.9	60
170 000	778 000	308 000	50 000	6.5	-	25.0	34 166	2.3	12.3	4.2	37
224 000	1 064 000	240 000	250 000	23.0	-	104.0	38 033	0.6	17.0	3.0	59
125 000	785 000	310 000	25 000	3.0	-	20.0	31 300	0.8	10.4	5.0	39
95 000	1135 000	185 000	-	-	-	-	37 575	4.6	28.4	5.5	8
85 000	1 045 000	195 000	6 000	6.0	-	7.0	40 461	5.0	26.9	6.1	8
30 000	45 000	15 000	35 000	66.0	-	116.0	32 807	7.3	21.8	10.9	43
20 000	28 000	8 000	5 000	18.0	-	25.0	25 500	10.9	38.2	15.3	23
45 000	635 000	185 000	8 000	12.0	-	17.0	21 833	4.1	14.1	5.8	5
53 000	193 000	80 000	-	-	-	-	16 076	1.1	6.9	3.9	14
45 000	190 000	75 000	-	-	-	-	16 666	1.0	5.7	4.4	16
4 000	6 000	2 000	1 000	16.0	-	25.0	33 333	27.0	83.0	41.0	1
35 000	48 000	13 000	31 000	60.0	-	88.0	16 187	2.6	9.9	3.7	4
20 000	27 000	7 000	20 000	74.0	-	100	19 166	4.3	16.4	5.7	4
22 000	24 000	2 000	10 000	41.0	-	45.0	11 000	4.6	55.4	5.0	2
15 000	225 000	110 000	-	-	-	-	26 833	0.4	8.0	5.0	20

SECTION 4

Firm No.	Ratio							Percentage						
	Fixed investment	moveable machinery & equipment	moveable capital	Total investment Employees	Machinery and equipment & employees	Fixed assets Total Capital	Employees	Fixed investment	moveable machinery & equipment	moveable capital	Employees	Fixed investment	moveable machinery & equipment	Total investment Employees
7608	9.6	57.0	37.8	6000	1000	2.9	62.0	18.0	1.0	-	8.0	11.0	0.9	
15000	0.6	150.0	6.9	6800	300	0.1	49.0	16.0	-	-	21.0	13.0	1.2	
4166	2.3	12.3	4.2	37071	2785	3.6	58.0	25.0	5.0	1.0	7.0	4.0	27.0	
3733	0.6	17.0	3.0	59111	2222	3.7	41.0	21.0	9.0	-	9.0	18.0	8.0	
31000	0.8	10.4	5.0	39250	3000	5.3	46.0	22.0	-	-	21.0	9.0	14.0	
7575	4.6	28.4	5.5	8071	1321	0.2	55.0	13.0	-	-	15.0	12.0	1.0	
10461	5.0	26.9	6.1	8000	1500	0.2	57.0	15.0	-	-	13.0	12.0	1.0	
32807	7.3	21.8	10.9	4500	1500	0.5	59.0	26.0	2.0	-	9.0	5.0	3.0	
5500	10.9	38.2	15.3	2333	666	0.4	59.0	27.0	-	-	8.0	6.0	1.0	
21833	4.1	14.1	5.8	5291	1541	0.4	53.0	20.0	-	-	9.0	10.0	2.4	
6076	1.1	6.9	3.9	14846	2307	2.6	47.0	30.0	-	-	16.0	7.0	14.0	
6666	1.0	5.7	4.4	16250	2916	3.2	40.0	30.0	-	-	9.0	10.0	10.0	
3333	27.0	83.0	41.0	1200	400	0.5	39.0	40.0	-	-	5.0	8.0	0.0	
16187	2.6	9.9	3.7	4750	1625	0.4	66.0	17.0	4.0	-	5.0	5.0	0.0	
19166	4.3	16.4	5.7	4500	1166	0.4	60.0	27.0	-	-	7.0	6.0	4.0	
11000	4.6	55.4	5.0	2400	200	0.1	6.0	30.0	1.0	-	9.0	4.0	5.0	
26833	0.4	8.0	5.0	75000	3333	14.0	37.0	29.0	7.0	-	10.0	15.0	20.0	

GROUP 3: MANUFACTURER LEATHER

Factory and equipment miles/year	Leases per habitat	as material	Costs				Profit on sales	Capital pay-back period years	New material investment per habitat	Leases per habitat	Return
			Expense	Lease/Leasing Interest	Maintenance	Others					
1000	2.9	62.0	18.0	1.0	-	8.0	11.0	0.9	8.0	-	
300	0.1	49.0	16.0	-	-	21.0	13.0	1.2	4.0	-	
2785	3.6	58.0	25.0	5.0	1.0	7.0	4.0	27.0	3.0	-	
2222	3.7	41.0	20.0	9.0	-	9.0	18.0	8.3	10.0	13.0	
3000	5.3	48.0	22.0	-	-	21.0	9.0	14.2	9.0	3.0	
1321	0.2	55.0	18.0	-	-	15.0	12.0	1.8	6.0	-	
1500	0.2	57.0	18.0	-	-	13.0	12.0	1.7	7.0	-	
1500	0.5	59.0	26.0	2.0	-	9.0	5.0	3.1	-	-	
666	0.4	59.0	27.0	-	-	8.0	6.0	1.6	5.0	-	
1541	0.4	53.0	28.0	-	-	9.0	10.0	2.4	7.0	-	
2307	2.6	47.0	30.0	-	-	16.0	7.0	14.3	5.0	-	
2916	3.2	40.0	30.0	-	-	9.0	10.0	10.0	8.0	-	
400	0.5	39.0	48.0	-	-	5.0	8.0	0.5	8.0	-	
1625	0.4	66.0	19.0	4.0	-	5.0	5.0	0.9	5.0	-	
1166	0.4	60.0	27.0	-	-	7.0	6.0	4.0	-	-	
200	0.1	6.0	80.0	1.0	-	9.0	4.0	5.5	-	-	
3333	14.0	37.0	29.0	7.0	-	10.0	15.0	20.0	10.0	13.0	

27	Production, Wholesale, Export	L	Foot - Handballs	21	10,000,000	-	-	-	100	40,000
21	Production, Export	L	Foot - Handballs	23	8,171,718	100	99.0	7	100	20,000
20	Production, Export	W	Hockey Sticks	10	5,295,562	100	99.0	7	100	100,000
31	Production, Wholesale, Export	L	Foot - Handballs	14	3,200,000	100	100.0	7	100	1,100
	Production, Wholesale, Export	L	Foot - Handballs	14	4,769,000	100	100.0	7	100	10,000
23	Production, Wholesale, Export	L	Foot - Handballs	31	4,100,000	-	100	7	-	-
24	Production, Export	W	Hockey Sticks	44	4,355,110	100	98.0	7	100	100,000
	Production, Wholesale, Export	L	Foot - Handballs	9	3,290,000	-	100	7	100	10,000
6	Production, Wholesale, Export	W-L	Rackets Foot - Handballs	13	3,740,110	-	100	7	100	100,000
4	Production, Export	L	Foot - Handballs	21	3,671,000	-	100	7	100	10,000
36	Production, Wholesale, Export	L	Foot - Handballs	16	3,200,000	-	100	7	100	10,000
32	Production, Wholesale, Export	W+L	Rackets Foot - Handballs	42	2,070,000	-	100	7	100	10,000
12	Production, Wholesale, Export	L	Sport Gloves Foot - Handballs	7	1,700,000	-	100	7	-	-
44	Production, Wholesale, Export	W	Hockey Sticks	35	1,650,000	-	100	7	100	100,000

SECTION 1

00	40 000	000	2 500	500 000	1 000	4.0	290 000	7	1-10	C			
00	100 000	SIE 100	1 000	1 000 000	1 000	7.4	435 000	11	1-14	C		X	
00	100 000	SIE 150	1 000	420 000	150	19.0	264 000	22	4-15	C			
00	1 000	rent	700	600 000	150	5.3	370 000	14	1-10	C			
00	100 000	150	1 400	1 000 000	1 000	16.3	493 000	11	1-5	C		X	
00		-	1 000	1 000 000	rent	7.1	190 000	7	3-12	F	X		
00	100 000	00	400	400 000	1 000	4.5	65 000	4	10-30	F			
00	100 000	165	1 000	1 000 000	1 000	19.1	14 000	1	1-4	C			
00	500 000	SIE 150	1 800	1 800 000	1 000	24.0	500 000	15	1-13	C		X	
00	10 000	294	300	350 000	1050	11.9	250 000	8	1-10	C	X	X	
00	130 000	187	1 000	500 000	500	12.6	233 000	7	4-14	F	X		
00	100 000	666	900	900 000	1 000	20.0	329 000	14	3-20	F	X		
00	-	-	300	700	rent	8.0	153 000	21	3-7	F	X	X	
00	500 000	500	400	400 000	1 000	18.0	40 000	4	6-30	F			

SECTION 2

	90	134	100	136	5	249	1 030 000	770 000	6 700 000	700 000	00	
	90	136	50	82	4	100	1 595 000	4 051 617	5 646 617	1 435 000	2 202 200	
	90	79	34	38	7	28	800 070	1 409 040	5 209 049	700 000	1 500 040	
	80	130	30	92	8	113	875 000	2 672 285	2 947 285	2 672 285	1 368 055	
	100	89	40	43	6	64	3 493 000	450 000	3 943 000	2 493 000	100 000	
	80	89	35	48	6	80	190 000	2 555 000	2 745 000	190 000	1 100 000	
	90	91	52	35	4	81	945 000	1 010 000	1 955 000	465 000	940 000	
	80	87	40	43	4	40	1 904 000	300 000	2 204 000	1 304 000	400 000	
	75	75	30	27	18	30	2 900 000	1 672 880	4 572 880	2 300 000	1 000 000	
	70	67	30	28	9	40	1 863 000	640 000	2 470 000	1 100 000	240 000	
	60	79	30	46		70	1 163 000	900 000	2 063 000	733 000	400 000	
	70	45	20	20	5	40	2 429 000	730 000	4 359 000	1 229 000	560 000	
	70	38	10	24	4	18	153 000	240 000	393 000	153 000	220 000	
	60	22	9	9	4	12	942 020	325 000	1 267 000	442 020	600 000	

SECTION 3

75000	790000	2200000	25.0	-	29.0	52272	1.5	47.0	1.7	33068	1099
646617	1435000	2202259	39.0	-	54.0	60086	1.4	18.7	2.0	41519	3190
69049	700000	1503649	28.0	-	34.0	73791	1.1	28.0	1.3	65949	2590
47285	2072285	1568066	53.0		75.0	42461	1.8	20.0	2.6	22648	2110
43000	2493000	100000	2.5		27.0	53584	1.2	9.6	10.5	44003	3059
45000	190000	1150000	42.0		45.0	51685	1.6	24.2	1.8	30842	2134
55000	465000	940000	48.0		93.0	47973	2.7	67.0	4.0	21483	314
64000	1504000	40000	2.0		13.0	43862	1.0	997.0	13.3	25333	40
72090	2300000	231000	5.0		14.0	49909	0.9	7.5	2.2	60971	1000
70000	1100000	240000	9.6		37.0	54791	1.5	5.7	3.7	36955	3731
63000	733000	400000	19.0		44.0	40506	1.5	13.7	3.5	26113	2949
57000	1229000	560000	13.0		29.0	46000	0.5	6.0	1.0	96866	7310
23000	153000	225000	57.0		93.0	44736	4.3	11.1	7.1	10342	4020
67000	442020	600000	48.0		185.0	47863	0.5	25.0	3.2	50455	2100

SECTION 4

Product	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
2272	1.5	47.0	1.7	33068	1098	0.1	40.0	13.0	2.0	0.5	27.0	13.0	4.0
00086	1.4	18.7	2.0	41519	3198	0.1	20.0	1.5	0.5	35.0	11.0	4.0	4.0
03791	1.1	28.0	1.3	65949	2592	0.1	35.0	10.0	2.0	1.3	16.0	15.0	5.0
42461	1.8	20.0	2.6	22648	2115	0.1	36.0	20.0	2.0	2.0	2.5	14.0	4.0
53584	1.2	9.6	10.5	44303	5559	7.7	43.0	1.0	3.5	1.0	20.0	13.0	4.0
1685	1.6	24.2	1.8	30842	2134	0.1	37.0	10.0	3.5	0.2	26.0	13.0	4.0
7973	2.2	67.0	4.3	21483	714	0.1	65.0	13.0	4.4	-	4.0	10.0	3.7
03862	1.0	997.0	1.3	25333	46	0.1	53.0	21.0	0.5	-	15.0	10.0	5.0
9909	0.8	7.5	2.2	60971	6660	1.7	44.0	13.0	3.0	1.0	10.0	23.0	5.0
34791	1.5	5.7	5.7	36955	3731	2.9	50.0	10.0	3.0	1.0	14.0	13.0	5.0
40506	1.5	13.7	3.5	26113	2949	1.3	43.0	20.0	7.0	1.0	16.0	14.0	5.0
16000	0.5	6.0	1.0	96866	7311	1.2	37.0	17.0	8.0	-	17.0	17.0	10.0
14736	4.3	11.1	7.1	10342	4026	0.6	4.0	20.0	1.4	4.2	11.0	15.0	1.0
17853	0.8	25.0	0.2	56455	2100	2.9	50.0	10.0	12.0	-	5.0	14.0	7.0

SECTION 5

GROUP 1 MANUFACTURER AND EXPORTER

Plant No.	Production	Value	...	...	...	...	...	...	...	...	...	...
33068	1098	0.1	40.0	18.0	2.0	0.5	27.0	13.0	4.3	10.0	16.0	
41519	3198	0.1	31.0	21.0	1.5	0.5	35.0	11.0	6.3	12.0	4.0	
55949	2592	0.1	55.0	10.0	2.0	1.3	16.0	15.0	5.8	20.0	2.0	
22648	2115	0.1	38.0	20.0	2.0	2.0	2.5	14.0	4.0	20.0	13.0	
44303	5559	7.7	43.0	10.0	3.5	1.0	20.0	13.0	6.3	13.0	-	
30842	2134	0.1	39.0	18.0	3.5	0.2	26.0	13.0	4.8	8.0	13.0	
21483	714	0.9	65.0	13.0	4.4	-	4.0	12.0	3.7	22.0	13.0	
25333	46	0.9	53.0	21.0	0.5	-	15.0	10.0	5.5	27.0	1.0	
50971	6566	1.7	44.0	19.0	3.0	1.0	10.0	23.0	5.3	16.0	13.0	
36955	3731	2.9	50.0	18.0	3.0	1.0	14.0	13.0	5.0	10.0	13.0	
26113	2949	1.3	43.0	20.0	7.0	1.0	16.0	14.0	5.0	8.0	-	
26866	7311	1.2	37.0	17.0	8.0	-	17.0	17.0	12.5	26.0	13.0	
0342	4026	0.6	40.0	20.0	1.4	4.2	11.0	15.0	1.5	10.0	-	
55455	2100	2.9	58.0	16.0	12.0	-	5.0	14.0	7.7	20.0	3.0	

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Volume 4
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 - Dr. Karl-Heinz Zinnecker (Project-Coordinator)
- following their mission to Pakistan in September/October 1980

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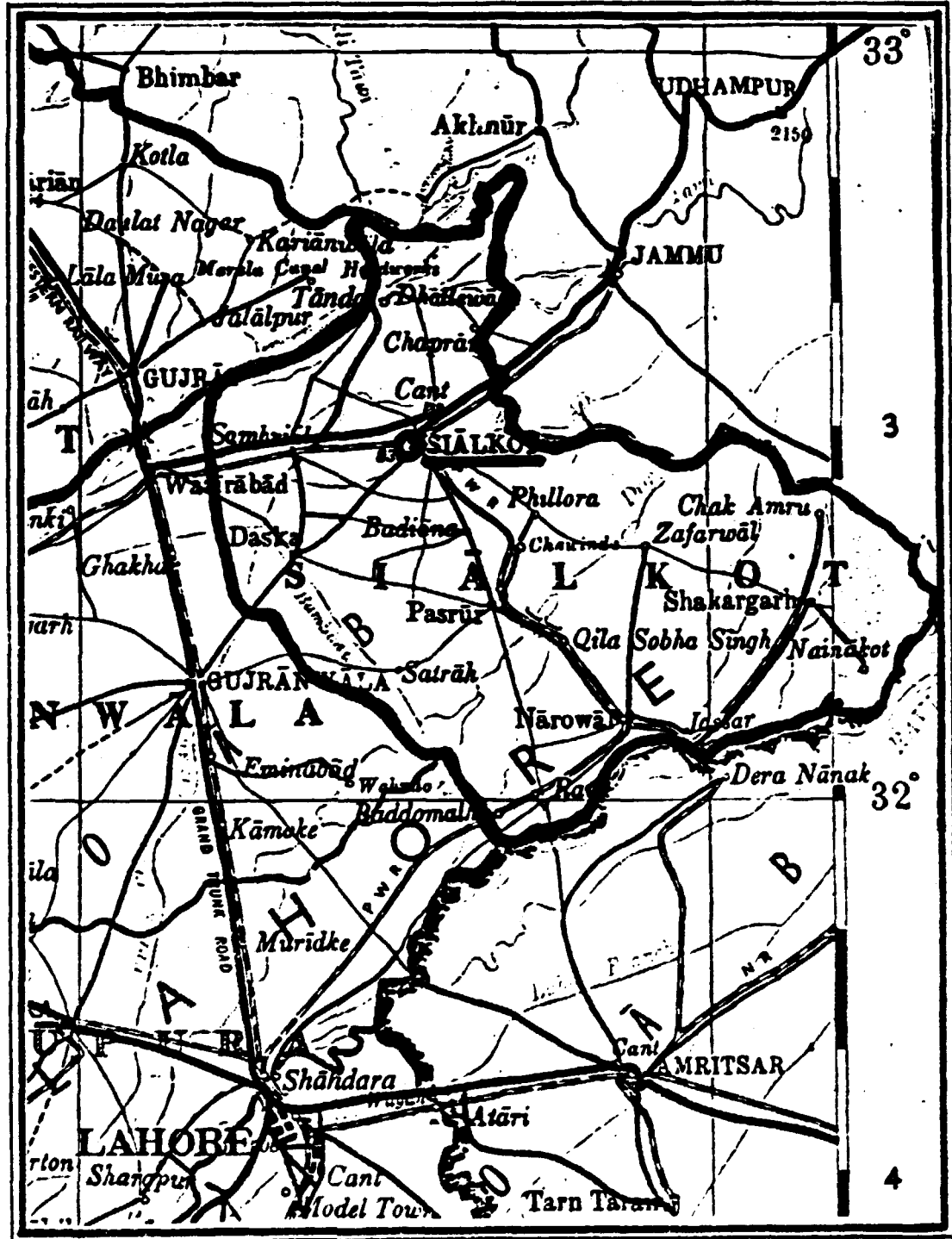
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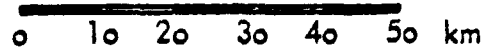
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SIALKOT DISTRICT



Scale 1 : 100,000



1. Introduction and Method of Approach

1.1 Introduction

1.1.1 Surgical Instruments

The surgical instruments industry started in Pakistan as early as 1905 when an English surgeon working at a Sialkot hospital gave some instruments to a local blacksmith for repair. The surgeon was so impressed by the quality that thereafter instead of importing, he got his instruments made by the blacksmith. By this, the foundation for this sub-sector was established and very soon more craftsmen followed, because the demand rapidly increased as more and more hospitals switched over to the less expensive locally made instruments.

In 1930 the first export of surgical instruments was made to the United Kingdom. From that day export figures of surgical instruments have increased remarkably. The export has been expanded to more than 98 countries and the range of different items is now about 2000.

1.1.2 Cutlery

The tradition of the cutlery industry is a very old one. It has been developed out of the industry for weapons like daggers, swords, and knives. With the passage of time the needs and cultural habits of the people have changed and new items have been added. The Second World War prompted the industry to meet the demand for cutlery and small tools of the troops. Pakistan also started to export cutlery and utensils, reaching peak export figures in the year 1974/75.

1.2 Method of Approach

The main objective of this survey is to define the potential of the selected industries i. e.

- surgical instruments,
- cutlery,

and to identify principle problem areas in order to show the possibilities for improved policy measures as well as technical assistance.

Accordingly, a detailed sector analysis is given in the following chapters, where all the main structural elements, such as technology, raw material supply, manpower and management, demand, and the like, are assessed and evaluated.

Based on this analytical part, in chapters 4 and 5, an evaluation and assessment of the main problem areas are given as well as recommendations to solve the individual sector problems. As statistical data are only scarcely available and in any case of questionable reliability, it was necessary to collect the required data by extensive field research.

The field work took place from September 1st, to October 15th, 1980.

Detailed interviews were held with 45 entrepreneurs chosen with due regard to their relative importance both with respect to production size (production/employees) and to other qualitative parameters, such as organization, marketing, etc.

Both sub-sectors have common characteristics and problems. Both use basically the same raw materials from the same sources and are located in almost the same region. Therefore most of the findings and recommendations apply for both sub-sectors. Many units of the cutlery industries have closed down recently or intend to close down in the near future, therefore a statistical survey was not attempted, as the figures would be incorrect or unreliable. Due to this reason, the survey concentrated on the surgical instruments industries, which have a bigger potential.

2. Structure, Significance and Development Potential of Sub-Sector.

2.1 Size of Sub-Sector

2.1.1 Surgical Instruments

Traditionally the surgical instruments industry has been established exclusively in the city of Sialkot in the province of Punjab.

In 1980 there were approximately 450 manufacturers and exporters producing surgical instruments out of which 6 can be considered as large scale and some 25 as medium scale businesses. The remainder are small scale manufacturers and cottage industries which are selling their goods through exporters, or are working as sub-contractors for the bigger producers.

The surgical industry employs some 15,000 persons, with the typical feature that in nearly all firms the permanent staff is kept small and most of the production steps which do not require so sophisticated machinery, are done on a contract basis (cottage industries and home work).

2.1.2 Cutlery Industries

Besides a few small units in Karachi, Hyderabad and Lahore, the cutlery industries are located in four towns, namely Wazirabad, Nizamabad, Gujranwala and Sialkot, which are close together and all within the province of Punjab.

While table cutlery and pocket/hunting knives are mainly produced in Sialkot, Nizamabad and Wazirabad, the centre for kitchen and hollow ware is Gujranwala.

In 1980 there were approximately 250 manufacturers, out of which 9 are medium scale industries. The remainder are small scale manufacturers and cottage industries, which are selling their goods to local retailshops or are working as sub-contractors for the bigger producers. The cutlery industries employ approximately 4000 persons.

2.2 Characterization of Units Interviewed

2.2.1 Number of Units and Regional Distribution

Referring to the surgical instruments industry, the survey is based on detailed interviews with

entrepreneurs of 42 production units, which were selected according to their representativeness in respect to the entire sector. All these 42 units are located in Sialkot which is the exclusive centre for surgical instruments production in Pakistan.

The basic data and main financial ratios of these companies are compiled in Annex 1. Within the group of manufacturers of cutlery 3 units were visited also located in Sialkot.

2.2.2 Classification of Units

2.2.2.1 Surgical Instruments

Surgical instruments comprise the following main product groups:

- bow instruments and artery forceps
- dressing forceps, needle holders etc.
- household scissors
- diagnostic instruments/incl. gynaecological and obstetrics
- orthopaedic instruments
- spring forceps
- dental instruments
- ophthalmic instruments.

The total number of employees working and/or on a contract basis for the 42 units surveyed amounts to 7224.

Table 2.1 shows the distribution of permanent staff as well as workers employed on contract basis. The table indicates that approximately 75 % of the total labour force is employed on a contract basis.

Table 2.1 Distribution of Employees per Category

Permanent						on Contract						Total	
Supervisors Office staff		Labour		Subtotal		Supervisors (estimated)		Labour		Subtotal		No.	%
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
359	5	1,264	17.5	1,623	22.5	200	3.5	5,401	74	5,601	77.5	7,224	100

Table 2.2 shows the size of the 42 production units by number of employees:

Table 2.2 Size Structure of Sample Production Units by Number of Employees

No. of Employees	No. of Production Units	% Structure
1 - 49	14	33.3
50 - 99	12	28.6
100 - 199	8	19.0
200 - 499	5	11.9
above 500	3	7.1
	42	100.0

It can be seen that more than 60 % of the units have less than 100 employees, whereas only three firms (7.1 %) have more than 500 employees each. The number of employees range in between 10 to 125 for the smaller units and 123 to 320 for the larger units.

Table 2.3 shows the absolute and relative size of the 10 biggest units of the sample:

Table 2.3 Rank of the 10 Biggest Sample Units by Employees

Unit No.	Aggregate % of Total Sample	Employees (absolute)	Employees (aggregate)	% of Total Sample	Aggregate % of Total Sample
1	2.4	1,856	1,856	25.7	25.7
2	4.8	889	2,745	12.3	38.0
3	7.1	569	3,314	7.9	45.9
4	9.5	322	3,636	4.5	50.3
5	11.9	307	3,943	4.2	54.6
6	14.3	302	4,245	4.2	58.8
7	17.7	282	4,524	3.9	62.6
8	19.0	217	4,741	3.0	65.6
9	21.4	195	4,936	2.7	68.3
10	23.8	159	5,095	2.2	70.5
(42 = 100)		(Total = 7,224)		-	100

The before mentioned table indicates, that 25 % of the production units (based on the sample) employ some 70 % of the total labour force, and only 10 % of all units employ 50 % of the total employees of the sample.

Table 2.4 below shows the size structure of the 42 production units included into the sample by size of investment:

Table 2.4 Size Structure of Sample Production Units by Investment (fixed assets without land)

Fixed Assets without Land (1,000 Rs.)	Number of Production Units	% Structure
less 499	24	57.1
500 - 1,999	10	23.8
2,000 + and above	8	19.0
	42	100.0

Based on the number of units visited the average total investment per unit and per employee can be estimated as following:

	<u>per unit (Rs.)</u>	<u>per employee (Rs.)</u>
- small units (labour-intensive production	350,000	23,000
- medium / large units (mechanized production)	2,500,000	46,000

It can be seen that significantly more than 50 % of the enterprises have fixed assets of less than 500,000 Rs., whereas only 8 units (19 %) exceed fixed assets of 2 million Rs. Table 2.5 shows the absolute and relative size of the 10 biggest firms, ranked by size of investment (without land):

Table 2.5 Rank of the 10 Biggest Sample Units, by Size of Investment

Unit No.	Aggregate % of Total Sample	Fixed Assets without Land (1000 RS.)	Fixed Assets, Aggregate	Fixed Assets as % of Total	Aggregate Fixed Assets as % of Total
1	2.4	26,674	26,674	36.9	36.9
2	4.8	8,133	34,807	11.2	48.2
3	7.1	6,500	41,307	9.0	57.3
4	9.5	4,988	46,295	6.9	64.2
5	11.9	3,005	49,300	4.2	68.3
6	14.3	2,591	51,891	3.5	72.0
7	16.7	2,508	54,399	3.4	75.4
8	19.0	2,353	56,752	3.3	78.7
9	21.4	1,756	58,508	2.4	81.1
10	23.8	1,010	60,118	2.2	83.4
(42 = 100)		(Total = 72,101)		(Total = 100.0)	

The above table shows, that more than 80 % of fixed assets is held by less than 25 % of the units, and 60 % of the fixed assets by less than 10 % of all units visited.

Table 2.6 Size Structure of Sample Production Units by Turnover

Turnover (1000 Rs.)	Number of Production Units	% Structure
up to 999	12	28.6
1,000 - 1,999	19	35.7
2,000 - 4,999	10	23.8
5,000 and above	5	11.9
	42	100.0

According to table 2.6 more than 60 % of the firms realize an annual turnover of less than 2 million Rs., and only some 12 % (5 units) exceed sales of 5 million Rs. Table 2.7 below shows the absolute and relative size of the ten biggest firms, ranked by their annual turnover:

Table 2.7 Rank of 10 biggest Sample Units by annual Turnover

Unit No.	Aggregate % of total sample	Annual turnover, 1,000 Rs.	Annual turnover, aggregate	Annual turnover as % of total	Aggregate annual turnover as % of total
1	2.4	26,129	26,129	21.0	21.0
2	4.8	11,700	37,829	9.4	30.4
3	7.1	8,578	46,407	6.9	37.3
4	9.5	8,000	54,407	6.5	43.8
5	11.9	6,598	61,005	5.3	49.1
6	14.3	4,800	65,805	3.9	53.0
7	16.7	4,632	70,437	3.7	56.7
8	19.0	4,370	74,807	3.5	60.2
9	21.4	4,132	78,939	3.3	63.5
10	23.8	3,074	82,013	2.5	66.0
(42 = 100)		(total = 123,940)		(total = 100)	

It can be seen that the four biggest units (9.5 %) realize some 43 %, and that the ten biggest (23.8 %) realize 66 % of total annual turnover.

The average sales per unit and per employee can be estimated as follows:

	<u>per unit (Rs.)</u>	<u>per employee (Rs.)</u>
- small units (labour intensive production)	1,250,000	20,000
- large units (mechanized production)	4,700,000	17,800

2.2.2.2 Cutlery

Classification by product groups:

As already mentioned above there are three main product categories, namely

- table cutlery (spoons, forks, knives, etc.)
- pocket knives and hunting knives
- kitchenware and hollow ware.

Classification by number of employees, size of investment and turnover:

Due to the restricted sample size it is not possible to draw detailed comparisons as done for the surgical instruments industry. Table 2.8 shows the main figures for three cutlery production units of the sample.

Table 2.8 Employees, Investment and Turnover of Cutlery Industry

Firms	Employees	Investment ¹⁾ (-Mio Rs. -)	Turnover ²⁾ (-Mio Rs. -)
Firm 1	26	5.03	2.62
Firm 2	25	2.83	1.55
Firm 3	12	2.47	0.72
Total	63	10.33	4.89
Average	21	3.44	1.63

1) Fixed and current assets (present values)

2) Total sales and miscellaneous revenues

In this context it should be pointed out, that during the last few years the cutlery industry has significantly reduced its labour force and consequently its output: As a result equipment and machinery is highly underutilized and over time the capital / output ratio fell due to declining investment.

2.2.3 Organizational Aspects

Legal Status

With respect to the legal status, most of the units visited were partnerships between family members or friends, followed by limited companies (compare table 2.9 below). These two organizational forms are existing in the large as well as medium and small scale industries. The third form - sole proprietorship - was mainly found in the small scale industry.

Table 2.9 Distribution of Organizational Forms

Production line	Sole Proprietor		Partnership		United Company		Total	
	No.	%	No.	%	No.	%	No.	%
Surgical instruments	4	9.5	28	66.7	10	23.8	42	100
Cutlery	-	-	1	33	2	66	3	100

Registration

Companies up to 10 employees should be registered under the labour act, whereas companies with more than 10 employees should be registered under the factory act. Out of the interviewed companies almost 70 % of the units were registered (see table 2.10 below). Some of the larger unregistered companies had applied for registration. The majority of the unregistered firms are belonging to the small scale industry.

Table 2.10 Distribution of Registration Status

Product line	Labour Act		Factory Act		Not registered		Total	
	No.	%	No.	%	No.	%	No.	%
Surgical instruments	10	28.8	19	45.2	13	31.0	42	100
Cutlery	1	33	2	66	-	-	3	100

Membership

There are two associations existing in Sialkot, the very well known Manufacturing Association and the trade association. Most of the units interviewed were a member of one of these two associations. Amongst the large and medium scale only one unit was without membership. In the small scale industries almost 60 % are member of an association (see table 2.11).

Table 2.11 Distribution of Membership

Production line	Manufacturers' Association		Trade Association		without Membership		Total	
	No.	%	No.	%	No.	%	No.	%
Surgical instruments	35	83.3	2	4.8	5	11.9	42	100
Cutlery	2	66	-	-	1	33	3	100

Location

There is a strong tendency to establish the units within the Small Industries Estates. So far, 11 units (26.2 %) interviewed are established within the Small Industries Estate of Sialkot. Out of the remaining 31 units, 3 have started the construction work and will shift to the estate in the near future (compare table 2.12 below).

Table 2.12 Location

Production line	Within the Estate (actually or in the next future)		Outside Estate		Total	
	No.	%	No.	%	No.	%
Surgical instruments	14	33	28	66	42	100
Cutlery	2	66	1	33	3	100

3. Technical, Economic and Financial Analysis of Target Units

3.1 Production and Technology

3.1.1 Range of Products

Annual production of surgical instruments is estimated to be about 20 million units, covering a range of approx. 2,000 different items which belong to the following eight main categories:

- bow instruments - haemostats (artery forceps, dressing forceps, needleholders, etc.)
- surgical scissors
- domestic scissors
- diagnostic instruments (gynaecological and obstetrics)

- orthopaedic instruments
- spring forceps
- dental instruments
- ophthalmic instruments.

Most of the products are made of stainless steel, only some kinds of instruments are made of carbon steel and non-ferrous metal. The cutlery production of Pakistan consists of the three already mentioned main product lines, table cutlery, pocket and hunting knives, and kitchen and hollow ware, and covers all current items in various types, models, qualities, and sizes.

3.1.2 Quality and Standardization

The production of surgical instruments is normally done on the basis of specified orders, i.e. the client orders instruments according to accurately defined standards. The Pakistan manufacturers are capable of producing instruments in accordance with the British, German or American classifications; several instruments have also been standardized by the Pakistan Standard Institute. The quality of Pakistan surgical instruments varies from company to company and suffers frequently from irregularities in shape and finish, due to the low level of mechanization. As instruments from Pakistan are mainly for ward use (see list in 3.1.1), they are, in spite of the quality deficiencies, of reasonable standard. The level of quality is a direct obstacle for entering the market for surgical instruments in the narrower sense, i.e. precision instruments for use under sterile conditions.

The quality of the Pakistan cutlery varies with the different product lines: table cutlery and kitchen and hollow ware are of low quality and bad finish and cannot meet international standards, whereas hunting and pocket knives are of satisfactory quality and competitive in all export markets.

3.1.3 Classification by Markets (Domestic, Export)

At present more than 90 % of the surgical instruments produced in Pakistan are exported. The main markets are the United States of America, Great Britain, and West Germany, which together stand for about 70 % of total Pakistan exports (see table 3.1).

Table 3.1 Exports of Surgical Instruments

US \$ million	1976/77	1977/78	1978/79
USA	4,071	5,969	8,054
UK	1,272	2,229	2,494
FRG	1,339	1,605	2,165
Others	4,493	5,111	5,875
Total	11,175	14,914	18,585

As already mentioned, the Pakistan surgical instruments production is mainly for ward use and, additionally, used by students for training purposes. Only a small proportion is submitted to further improvement by third parties and then sold as "upper line" instruments to be used by surgeons. These instruments normally have a different country or origin label.

Referring to cutlery production, more than 90 % of total exports are knives, which are exported to the USA and West Germany. The rest of the exports, comprised mainly of stainless steel utensils, is directed to the Middle East countries.

3.1.4 Level of Technology

3.1.4.1 Surgical Instruments

The schematic production flow of surgical instruments in a typical mechanized unit can be characterized as below:



1. Selection of Raw Material

According to shape, size, and material specification. For most of the items stainless steel bars are in use.

2. Cutting

In mechanized units the cutting of blanks is done on eccentric presses. It is common to cut two blanks with one stroke.

3. Bending

Some items require bending to pre-shape the blanks for forging. This is done on an eccentric press. About six blanks can be bended with one stroke.

4. Forging

It is common in Pakistan to forge in two steps, pre-forging and final forging. The ideal situation is to operate with two hammers, a separate hammer for each step.

5. Annealing

The forging process causes hardness in the material which has to be released before trimming through annealing.

6. Trimming

The trimming is done on eccentric presses normally in two steps: trimming of the blank, and trimming of the ring. Trimming means clipping off the waste material.



7. Cold Stamping

The trimming can cause deformation of the piece. To straighten the piece again, a stamp in cold condition is done either on the forging hammer or on a friction spindle press.

8. Machining

Serrations, rackets, and the joints are now done by milling machines with special milling cutters. Sometimes also a slotting machine is used for the joints.

9. Filing

The next step is the filing to shape and size, which is done manually.

10. Setting

Setting means to fix the two parts of an instrument together. Besides the drilling of the hole of the rivets, the setting is done manually.

11. Hardening

Almost all the surgical instruments require a certain hardness. The process applied is, to heat up the items and cool them down abruptly. Temperature and cooling medium depend on the specification of the material.

12. Tempering

Tempering means to release some stress from the material in order to increase the toughness. This is done with all instruments that require a spring effect.

13. Riveting

The two parts of an instrument are finally fixed together in Pakistan commonly by a rivet.

14. Grinding, Polishing

The finishing of the surface is commonly done by dressed wheels, only few units are using abrasive belts. Abrasive belts are more expensive but the result is much better due to the flexibility.

15. Cleaning

Cleaning is done in kerosene or special chemicals by brushing and rinsing. The more advanced method is the use of an ultrasonic plant.



16. Inspection

Inspection is done by specially trained personnel. The main objectives are shape and size, serration, surface, and function.

17. Packing

Before packing in carton boxes, the items get a plastic cover to avoid damage. This method has been commonly used for the past few years.

Subsequently, the main characteristics of the Pakistan surgical instruments production with respect to these individual production steps are described.

Forging:

Though some of the bigger companies already have machine-forging equipment, the majority of the instruments (some 90 %) is still produced by hand-forging¹⁾. Main disadvantages of hand-forging are:

- labour intensity: one forging hammer has the capacity of about 30 hand-forgers
- hand-forgings cannot be machined accurately
- hand-forgings require extensive filing to shape
- hand-forged instruments are not uniform.

The only advantage of hand-forging is its lower waste of material: hand-forging 5 % as compared to up to 60 % of machine-forging, depending on the shape of the respective instrument.

Trimming:

This production step which is essential for machine-forging is performed on eccentric presses.

Machining:

Machining is required for the processing of:

- male and female joints (box and leaf)
- serrations
- racks (catches).

This process is normally performed on universal milling machines. Each machine is individually manned and all table feeds are manually operated.

Filing and setting:

The methods of filing and setting of instruments applied in Pakistan are quite similar to the European ones. The only major difference is the significantly lower level of output in Pakistan due to the extensive filing work necessary to pair up mis-matched hand-forged items.

¹⁾ As comparison: in Europe about 80 % of surgical instruments are machine-forged.

Heat treatment:

Correct heat treatment determines the wear life and corrosion resistance of the instruments and is, therefore, a very important operation point. Firstly the annealing of the forgings plays an important part in the life of the milling cutters and press tools. Most of the smaller units anneal their forgings in an oven made from cow dung in which the temperature is uncontrollable and results in a very short lifetime of milling cutters and other tools. Secondly, the hardening and tempering determines the quality of the instruments. The equipment available in Sialkot is out of date, with the existing furnaces (most of the heat treatment is handled in the Metal Industries Development Centre) no equal heat distribution can be achieved, and the result depends entirely on the skill and experience of the furnace operator.

Polishing, finishing, glazing:

In Pakistan glazing and polishing are done on dry running grinding wheels and dressed wheels which inevitably are overheating the small instruments, softens them and lowers the corrosion resistance. There are only two grades of glazing emery available, namely

- rough abrasive (approx. 80 - 120 grit)
- finishing emery (approx. 800 grit).

Intermediate grade of emery (approx. 400 grit) is not available in Pakistan.

The cutting power of the fine emery is not sufficient to completely remove the glazing marks left by the rough emery. Consequently the finish gives a poor impression. More use should be made of abrasive belts which, because of their flexibility, can follow the shape and contours of the instruments much better than a wheel.

Marking:

Many manufacturers are still using a hand punch to mark the trade mark into the shank which results in poor quality and, sometimes, distortions of the shank. The Metal Industries Development Centre in Sialkot provides electro-etching facilities which give better results, but is not completely satisfying. Some bigger units have started to mark their instruments with electro-chemical etching which can be regarded as the most adequate technological level.

Cleaning:

Most of the smaller production units are cleaning their instruments with kerosene or TRY. This method does not guarantee complete cleaning, especially of box chart instruments, from grease or emery residuals which can cause corrosion. Only some bigger production units work with ultrasonic bath which is regarded as the best and latest method of degreasing and cleaning.

Inspection and quality control:

Though the manufacturers and exporters normally have their own final quality control department, they usually lack profound knowledge about formal quality standards. As a consequence, minor faults are frequently passing the quality control procedure unnoticed and will be recognized only later by the customer. Quality control of the bigger firms is, on the average,

better than in the small and medium scale units, which is partly due to more frequent contracts with the foreign customers and, consequently, their better knowledge of quality requirements in the export markets.

Packing:

The quality of packing and product specification is, on the average, very low and tends to stress the low quality of the product. Only the larger firms are taking into account the importance of adequate product presentation.

Subcontracting:

As already mentioned, the production of surgical instruments involves, besides the mechanized process, a number of manual operations. A lot of this very labour-intensive manual work is frequently given to sub-contractors who are specialized mainly in hand-forging, filing, setting and polishing. It is not uncommon that one item is processed by three different sub-contractors, each of them specialized in one particular step of processing.

Facilities generally available from outside:

The Metal Industries Development Centre provides heat treatment, machine forging, electro-etching and machining as common facilities which can be used by small and medium scale industries on a contract basis. The provision of these facilities is very essential for the small business sector as it normally does not have the production volume to run the respective equipment. Apart from the Metal Industries Development Centre, three private enterprises offer heat treatment facilities.

Facilities required:

Very important facilities which are not yet available are:

- laboratory for metal analysis. In many cases the specification of raw material is questionable and unsatisfactory, in particular when raw material is purchased from local retailers.
- tool and die-making shop to meet the increasing demand for tool fixtures, etc.
- additional machine-forging facilities to give more of the small and medium scale production units the chance to increase their product quality.

3.1.4.2 Cutlery Industry

The technology commonly applied for the production of cutlery in Pakistan is similar to the one of the manufacturing of surgical instruments. The production process is generally more simple, as cutlery like forks, knives, spoons, etc. and hunting knives consists only of one part and do not require any joint. Though the generally simple shape of cutlery enables the mechanization of a large range of production steps, the level of mechanization in Pakistan is still very low. Only a very few of the existing medium size production units are partly mechanized and use presses, rolling machines and shearing machines. The majority of the

cutlery sector, however, belongs to the cottage industry which is working mainly on a manual basis and usually acts as a contractor for medium size firms for production steps such as hand-forging, polishing, and glazing.

Facilities available from the outside for the cutlery industry as well as facilities which would be required by this sector are the same as those for the surgical industry.

3.1.5 Plant and Machinery

3.1.5.1 Size of Plant

The typical size of the plant (sqm) by product line is shown in table 3.2.

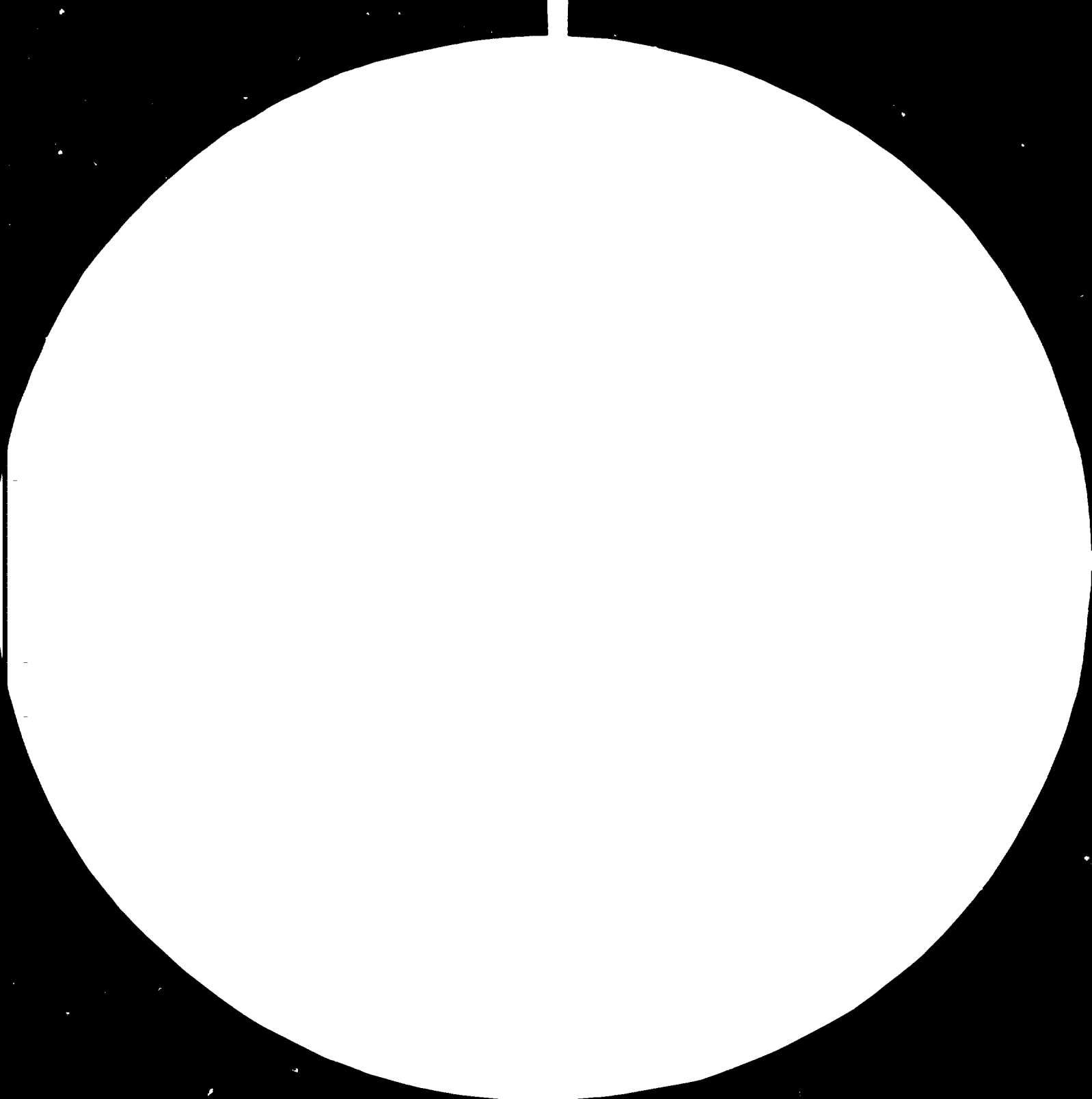
Table 3.2 : Size of Plants by Product Line and Number of Companies

Product Line	Size of Plant (sqm) (buildings)									
	Less than 250		251 - 500		501 - 1000		1001 - 3000		More than 3001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Surgical Instruments	13	31	12	28.6	10	23.8	5	11.9	2	4.7
Cutlery					3	100.0				

The space per worker (table 3.3) is from minimum to large for surgical instruments. The majority of companies occupy about 10 to 25 sqm per worker. In cutlery the two units visited are in the bracket 26 to 50 sqm per working place.

Table 3.3 Space per Worker by Number of Companies

Production Line	Space per Worker (sqm)									
	Less than 5 sqm		6 - 10		11 - 25		26 - 50		More than 51	
	No.	%	No.	%	No.	%	No.	%	No.	%
Surgical Instruments	4	9.5	10	23.8	15	35.7	8	19	5	12
Cutlery							2	66	1	34





2.8

2.5

3.2



3.6



4.0



When the resolution of the image is less than the resolution of the target, the image will be blurred. When the resolution of the image is greater than the resolution of the target, the image will be sharp.

3.1.5.2 Type of Machinery and Equipment

Type of machinery generally used in this sub-sector and the corresponding average age is completed in table 3.4 . It can be seen from this table that some units are fairly well equipped with adequate machinery. Most essential for all companies in this branch are polishing addas. This traditional type of technology for polishing the instruments is available in most companies in sufficient number. Machinery needed for improvement of quality standard are machine-hammers, presses, milling machines and ultrasonic degreasers.

3.1.5.3 Country of Origin

Most of the more sophisticated machinery applied in this sub-sector is not manufactured in Pakistan and has to be imported, e.g.:

- forging hammers (drop forging hammer)
- copy milling machines
- die sinking machines
- hardness testing machines
- ultrasonic degreasing plants
- electro chemical etching machines
- conveyer belt heat treatment plant
- pneumatic hand tools.

The machines which are manufactured in Pakistan have a comparatively low level of sophistication; their quality with respect to accuracy and precision is sufficient for normal production, but the average lifecycle is relatively short. Among these machines are:

- eccentric presses
- friction spindle presses
- universal milling machines
- lathes
- sharing machines
- polishing addas.

Apart from these machines some other accessories are produced in Pakistan, e.g. milling cutters, forging dies, fixtures, etc., but generally the quality level of these products is far below the international standards. As major faults of Pakistan produced forging dies, e.g. were observed:

- incorrect steel and subsequent heat treatment resulting in dies which were too hard or too soft,
- mismatching of top- and bottom-die are producing forgings which are out of center and cannot be clipped out properly,
- varying depth of impression in top- and bottom-die,
- poor surface finish of impression and flesh clearance.

Table 3.4: Composition and Age of Machinery

	Total No. of Employees		Type of machinery	
	1	2	3	4
1	1806	889	5	3
2	569	322	7	4
3	307	282	4	3
4	302	217	1	3
5	282	195	3	2
6	217	159	2	1
7	195	156	1	1
8	159	125	1	1
9	156	122	1	1
10	125	116	1	1
11	122	106	1	1
12	116	101	1	1
13	106	98	1	1
14	101	85	1	1
15	98	85	1	1
16	85	84	1	1
17	85	78	1	1
18	84	76	1	1
19	78	74	1	1
20	76	69	1	1
21	74	69	1	1
22	69	63	1	1
23	69	51	1	1
24	63	47	1	1
25	51	45	1	1
26	47	45	1	1
27	45	43	1	1
28	45	42	1	1
29	43	42	1	1
30	42	39	1	1
31	42	37	1	1
32	39	35	1	1
33	37	35	1	1
34	35	31	1	1
35	35	31	1	1
36	31	20	1	1
37	31	20	1	1
38	20	14	1	1
39	20	12	1	1
40	14	12	1	1
41	12	12	1	1
42	12	12	1	1
	21	35	14	74
	3	41	1	49
	11	14	3	700
	50	6	54	7
	2	7	6	13
	2	7	6	7
	2	6	6	7
	2	13	6	7
	2	7	7	7
	2	2	2	2
	4	4	4	4
	2	2	2	2
	46	46	46	46
	3	3	3	3
	1	1	1	1
	2	2	2	2
	4	4	4	4
	8	9	11	11
	9	10	10	10
	11	11	11	11
	12	12	12	12
	13	13	13	13
	14	14	14	14
	15	15	15	15
	16	16	16	16
	17	17	17	17
	18	18	18	18
	19	19	19	19
	20	20	20	20
	21	21	21	21
	22	22	22	22
	23	23	23	23
	24	24	24	24
	25	25	25	25
	26	26	26	26
	27	27	27	27
	28	28	28	28
	29	29	29	29
	30	30	30	30
	31	31	31	31
	32	32	32	32
	33	33	33	33
	34	34	34	34
	35	35	35	35
	36	36	36	36
	37	37	37	37
	38	38	38	38
	39	39	39	39
	40	40	40	40
	41	41	41	41
	42	42	42	42

3.1.5.4 Average Age and Condition of Machinery

Details on the average age of machinery will be found in the following table 3.5.

Table 3.5 : Average Age and Condition of Machinery

Production Line	Less than 3 years		3 - 5		6 - 10		11 - 15		More than 16	
	No.	%	No.	%	No.	%	No.	%	No.	%
Surgical Instruments	4		12		17		7			
Cutlery					3	100				

Most of the machinery seen in the surveyed units was in good or at least fair condition. Polishing addas are very simple machines and the accuracy is not very affected by age. The same applies for forging hammers, being very long lasting machines, provided regular maintenance is observed. More sophisticated machinery, however, like ultrasonic plants, milling machines, electro etching machines, etc. are relatively new and their ages are hardly exceeding five years.

3.1.5.5 Capacity Utilization

The degree of utilization of machinery and equipment varies from company to company and also depends on the type of equipment within the individual production unit. Within the sample the lowest degree of capacity utilization was 20 % and the highest 80% with an average capacity utilization of 59.4 %. (see table below).

Table 3.6 Capacity Utilization according to Product Line and Number of Units

Product Line	Less than 25 %	25 - 50 %	50 - 75 %	More than 75%
Surgical Instruments	2	5	24	11
Cutlery	-	2	1	-

One important observation was that capacity utilization of more sophisticated, specialized machines such as forging hammers, friction and eccentric presses, etc. was lower than capacity utilization of the simpler, more universal machines such as polishing addas, drilling machines, etc. This was mainly due to the following reasons:

- the capacity of new sophisticated machines is much bigger than that of the other production equipment, which means that the capacity of the various production steps is often not properly balanced.
- firms with new and sophisticated machines often suffer frequently from shortcomings of skilled machine operators as well as suitable tools and dies.

Table 3.7 Capacity Utilization and Size of Investment for Machinery

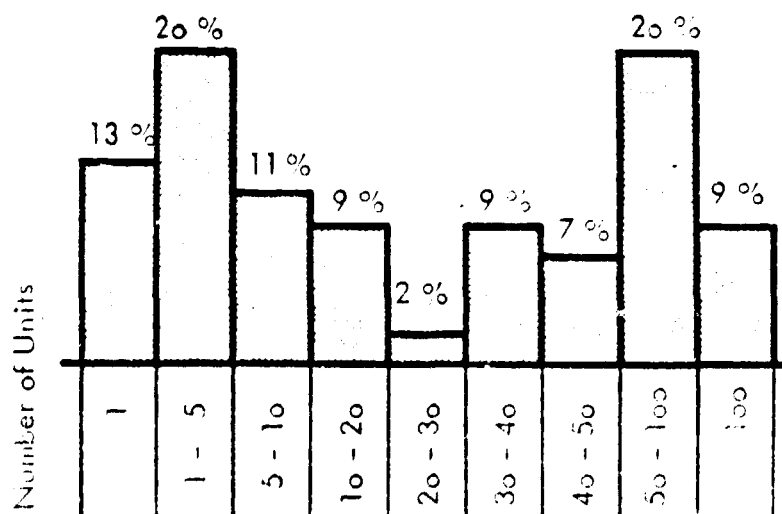
Product Line	More than 1,000,000		Between 500,000-1,000,000		Between 100,000 - 500,000		Between 10,000 - 100,000		Less than 10,000	
	No. Units	% Utiliz.	No. Units	% Utiliz.	No. Units	% Utiliz.	No. Units	% Utiliz.	No. Units	% Utiliz.
Surgical Instru-	8	53	-	-	11	65	17 m	57.9	6	61.6
Cutlery	2	47.5	1	25	-	-	-	-	-	-

The highest capacity utilization in surgical instruments is with the units having investments up to 500,000 Rs.; in cutlery with units with investments above 1 million Rs.

3.1.5.6 Ratio Turnover / Investment

Figure 3.1 shows the capital productivity as defined by the ratio turnover/investment (machinery and equipment).

Figure 3.1: Ratio: Turnover / Machinery and Equipment



The figure indicates a broad range of capital productivity (related to the investments in machinery and equipment only), varying in between 2 and 75 respectively a low capital / output ratio from 0.01 to 0.5 depending on the degree of mechanization. For the majority of the units the capital / output ratio is in between 0.4 and 0.7.

3.1.6 Technological Constraints

3.1.6.1 Technical Aspects

Power breakdowns are, especially in the dry season in between June and August frequent (4 to 5 hours per week on the average) due to irregularities and shortages of water. Machine breakdowns are within the normal limits and mainly due to the wearing out of bearings, which, however, are easily available in the local retail shops. Spare parts can be manufactured usually either in Bazar shops or in the Metal Industries Development Centre.

The maintenance cost, on the average, do not exceed 1 % of total turnover.

3.1.6.2 Quality and Quality Control

Every production unit has normally its own quality control section; however, usually only the final product is subject to quality control, which is an important deficiency. Quality control executed after the individual production steps, which would be most essential, is widely unknown. Most of the personnel employed in quality control lacks knowledge and experience, so that many minor defects are passing without being detected.

3.1.7 Working Conditions

Working conditions in the production units visited were generally below those of industrialized countries, which refers mainly to the following deficiencies:

- industrial safety standards are largely unknown. Though no official statistics on working accidents are available, the accident rate seems, according to an unofficial source, to be very high
- unsatisfactory light conditions
- complete lack of any kind of protection measures to reduce or eliminate noise, heat and dust, etc.
- Although intermediate storage and transportation facilities for material and semifinished goods were common, material and goods were found to be scattered all over the floor.

3.2 Materials and Components

3.2.1 Source

Pakistan is making efforts to replace gradually the expensive imported raw material by recycling of scrap.

In various cities remelting and rerolling plants are existing, but most of the plants are not yet able to produce quality steel due to the lack of know how and testing facilities. Commonly all kinds of scrap are mixed up, with the result, that the produced material is from indifferent composition and low quality. However there are steel mills in Karachi which might be in the position to produce material according to specifications. First steps have been taken to coordinate the production range with the demand of manufacturers of surgical instruments and cutlery. A service centre for foundry industries has been set up by UNIDO. It should be investigated how far the services of this centre can be utilised for the surgical and cutlery industries.

3.2.2 Type and Quantity

About 80 % of instruments and cutlery are made of stainless steel, there are few items, however, which are made of brass or carbon steel. Along with the trend towards mechanization there is an increasing demand for die and tool steels.

The approximate annual raw material consumption of an average company for the surgical instruments and cutlery sub-group is compiled below in table 3.8.

Table 3.8: Raw Materials and Components

Specification	Source	Approximate Price/ Unit (Rs)	Quantity Surgical Instruments	Quantity Cutlery
Stainless steel	all			
- bars	imported	26 Rs/kg	30,000 kg	5,000 kg
- sheets		18 Rs/kg	5,000 kg	25,000 kg
Carbon steel		12 Rs/kg	-	5,000 kg
Polishing bars		25 Rs/bar	3,500 bars	4,000 bars

Apart from the items listed above, other materials are used, though less important in terms of quantity, like tools and die steel, sterling silver, brass and other non-ferrous materials, rivets, furnace oil, kerosene, quenching oil, etc.

3.2.3 Quality and Standard

As far as the quality of raw materials is concerned, the following statements can be made:

- Quality of imported materials and components is generally sufficient and the specifications required are normally met by the materials supplied.

However, the American specification which is commonly used in Pakistan sometimes creates problems due to the wide range of tolerance.

Two relevant examples will illustrate the point: Surgical instrument makers normally use stainless steel with the specification AISI 410 which quotes a carbon range of 0.01 % - 0.15 % and chromium range of 11.5 % - 13.5 %. This means that any steel containing 0.01 % - 0.15 % carbon with the requisite chromium could be supplied, but steel with a carbon content below 0.05 % is not hardenable by heat treatment.

The second example concerns stainless steel with the specification AISI 420, which is normally used in surgical and cutlery items with cutting effect such as knives and scalpels. AISI 420 ranges from 0.16 % - 0.60 % carbon and 12.0 % - 14.0 % chromium. For a given heat treatment the result would range between a relatively soft knife blade to a stainless razor blade steel.

These two examples show that a closer tolerance range is essential. It is advisable to use the British or German specifications, or the surgical and cutlery trades should provide their own tolerance specifications.

- Raw materials purchased from retail shops are not always reliable because specifications are sometimes missing or not matching with the respective materials.
- Components are generally available in a sufficient quality, however, glazing and polishing material is lacking in quality and variety.
- Testing facilities are lacking within most of the units and outside testing facilities are commonly not applied. Furthermore, the general knowledge about the materials is poor. This may result in the use of unsuitable material and inadequate processing. Changes in the composition of material contribute to variations in quality and durability of the products.

Cost of Materials and Terms of Payment

Prices of raw materials and components are considered to be rather high, particularly if only small quantities are purchased. Prices fluctuate considerably. Normally materials are only sold on a cash basis. Custom duties and sales taxes amount up to 100 % in total of the purchase price.

3.2.4 Stocks

Since raw materials are only available against cash payment, units with insufficient working capital are not in a position to keep stocks of materials. This applies to almost all small units.

Another reason for small units not keeping large material stocks is lack of regular orders for specific items. Material requirements vary from one job to another.

Larger units regularly order in bulk for the whole year, therefore they are able to schedule material requirements in advance. The temporal disposition of raw materials is shown in table 3.9.

Table 3.9: Temporal Disposition of Raw Materials - Surgical Industry

	Raw material disposition time period of production					Total
	1 week	1 month	between 1 and 6 months	6 months	12 months	
No. of firms	5	5	10	12	7	40
in %	12.5	15.0	25.0	30.0	17.5	100

The average material stock position of the three cutlery firms was 2 months.

3.2.5 Main Problem Areas

The main problems in the area of materials can be summarized as follows:

- High costs of materials, in particular of imported, lead to high product cost for both surgical instruments and cutlery, thus being less competitive on the world market as compared to other producers from India and Taiwan.
- Lack of working capital does not allow most of the small units to maintain a sufficient stock of raw materials, resulting in a disruption of production and varying quality standards.
- Delays in recovery payments (rebate) for converted finished goods
- Wide range of tolerance in AISI specification which is commonly used in Pakistan
- Lack of variety of certain items such as glazing and polishing components and tool and die steel.

In the small units the owners are mostly integrated in the production process and have the function of a manager and foreman at the same time. A large portion of the labourers are considered to be unskilled or semi-skilled.

Child-employment is not unusual and may amount up to 10 % of the total labour force. Children are normally working in groups, guided by an "instructor" and doing simple jobs, like filing, setting and polishing work. Female participation in this branch is not known.

3.3.1.2 Qualification of Technical Staff

The know-how and skill for manufacturing surgical instruments has been transmitted from one generation to the other. Therefore, the industry has developed traditional technologies which have been upgraded gradually. However, most of these basic technologies for certain production steps (e. g. filing, glazing, polishing) have not changed significantly over time. On the other hand, some of the production steps, which had traditionally been performed by hand, such as forging, manufacturing of joints, ratchets and rucks, are now partly or entirely mechanized. There is an urgent need in this field for employees who are able to carry out the task at a higher technological level. Though most of the machine operators have been trained on-the-job, they still lack thorough knowledge, e. g., on optimal cutting speed, proper use of lubricants, sharpening and selection of tools. Thus the available machinery and equipment are not used to their maximum capacity.

There are no known academic qualifications for the technical staff, nor any officially sanctioned apprenticeship scheme. Only a few graduates from vocational schools find their way to the private sector; the skilled and unskilled labourers employed by the companies visited are reported to have gained their experience on-the-job.

3.3.1.3 Employment by Term and Remuneration Structure

In regard to the terms of employment already mentioned above, in manufacturing of surgical instruments, out of the total labour force, almost 75 % of the labourers work on a contractual basis. Staff members receive their wages on a weekly or monthly basis, whereas employed workers are normally paid daily. The regularly employed staff members and workers also receive the benefits of social security, leave, and sick pay.

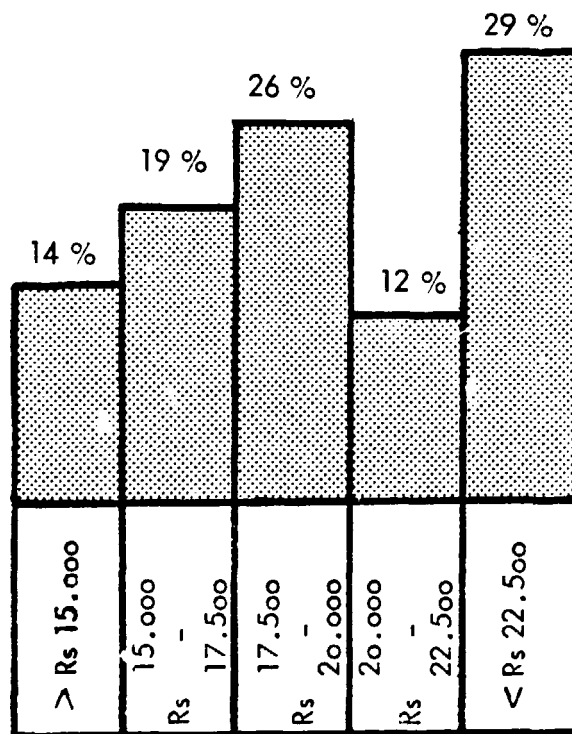
The contract worker system is advantageous for the entrepreneur, in that he can minimize his risk (termination of work), avoid social benefit payments, and the establishment of a labour union in his company. Many of the contract workers even bring along their own tools. On the other hand, the contract worker will leave his job whenever a higher piece rate is offered by another company.

Daily wages range from Rs 30 to 50/day for skilled workers and from Rs 15 to Rs 25/day for unskilled workers. Monthly wages paid to skilled labourers and staff range from Rs 600 to Rs 1,000 and in exceptional cases up to Rs 1,500 for supervisors and other administrative and managerial jobs.

3.3.1.4 Labour Productivity

Labour productivity, defined as the ratio between turnover (annual sales) and input of employment, is illustrated in figure

Figure 3.2: Labour Productivity (Annual Turnover / Total Labour Force)



40 % of all units visited achieved an annual turnover of more than Rs 20,000, some up to Rs 30,000 per employee. The lowest labour productivity was Rs 12,000 per employee. These figures, however, when compared with other subsectors, are relatively low and reflect the typical situation in this branch; low level of technology and skill, as well as lack of managerial capabilities. The main reason for the low average in labour productivity is the large number of contract workers, who have also been included in the sample basis.

3.3.1.5 Availability of Workers

Unskilled labour is available in sufficient number, however, skilled workers are scarce. Out of 42 units about 65 % reported having difficulties in finding skilled workers, particularly in the following trades:

- hand-forgers
- machine-forgers (hammer men)
- machine operators (milling and lathe machines)
- tool and die makers.

3.3.1.6 Labour Fluctuation

Most of the entrepreneurs interviewed complained about labour fluctuation, in particular that of skilled labour. Supervisory and administrative personnel are not very affected by this problem. The rates given in the following table 3.11 are estimates by the entrepreneurs and include only the permanently employed labour. It is assumed, however, that the rates for the contract workers are somehow similar.

Table 3.11: Fluctuation Rate by Product Line

Production Line	No. Turnover		Annual Turnover of										Total	
			1 - 10 %		11 - 20 %		21 - 30 %		31 - 40 %		41 - 50 %			
	No. units	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Surgical instruments	15	36	1	2.3	10	23.8	7	16.6	3	7.1	6	14.2	42	100
Cutlery	1	33	1	33	-	-	-	-	1	33	-	-	3	100

The table indicates in the product line of surgical instruments a concentration of companies (40 %) with an annual labour turnover in the bracket between 10 and 30 %, whereas 36 % of all units in this line did not suffer from any labour fluctuation. In the field of cutlery the data basis was not sufficient to calculate a respective ratio that could be representative for the total branch.

Besides seasonal fluctuation, in particular during harvesting, there is a drain of labour due to the low remuneration. Also large numbers of skilled workers move to the Middle East countries, where the wages are by far more attractive.

3.3.1.7 Training Facilities and Requirements

Considering the trend towards mechanization, an increasing demand for skilled labour is expected. Besides the increasing demand, the migration of skilled staff has to be balanced.

For the technical staff, training facilities are essential in the following areas:

- machine forgers
- machine operators for milling, turning, shaping, etc.
- draftsmen
- mechanics for machine maintenance and repair.

The only existing training facility in Sialkot for technical staff is the Metal Industries Development Centre. The centre admits 10 trainees every year for a two years' training course. The capacity, however, cannot meet even the current demand, neither in quality nor in quantity. The centre is facing two main problems:

- lack of financial sources for material, equipment, tools, etc. for training purposes
- lack of qualified training supervisors.

The existing training facilities should be a base for further development.

The following steps for improvement are necessary:

- Extension of training period to a minimum of 3 years. The training should be provided in three steps: basic training during the first year. In this period the training should provide knowledge in all manual works, such as filing, forging, riveting, etc., and use and handling of hand tools and measuring instruments. The second year should provide knowledge and experience in machine operating, milling, turning, shaping, welding, etc., partly in the training workshop and partly in different sections of the centre. The last year should be reserved to gain practical experience under production conditions, which means that the trainees are involved in the production process under the supervision of training personnel. 80 % of the training period should be for practical training, 20 % for theoretical training.

- Annual admittance of 30 trainees
- Creation of a separate trainees' workshop with benches and standard machinery
- Provision of sufficient funds for training material
- Provision for at least four qualified foremen / skilled workers.

Apart from the training of skilled labourers, training facilities for managerial staff are essential. The main objectives of the training should be:

- workshop management
- bookkeeping
- marketing.

Training courses should be held in the evening by a qualified staff on local and international levels.

3.3.2 Management

In small units the entrepreneurs' managerial efficiency lies more on the technical and sales side than on the administrative side. Managerial functions are generally concentrated in this type of enterprise on one or two persons. Except for the production operations, the owner normally carries out all other functions, such as marketing, finance, and general administration. Only in bigger units a repartitioning of management functions has been observed.

3.3.3 Organization

The small units visited had only rudimentary forms of organization. It is mentioned above that administrative work is mainly done by the owner/manager and/or the accountant. The accountant is often not regularly employed by the company but only hired part-time.

A large number of the companies maintained a double entry bookkeeping system. Medium sized units usually maintain a more detailed accounting system. Such records are kept primarily to comply with the demands of income tax regulations and not to serve as a basis for cost calculations or business strategy.

3.3.4 Main Problem Areas

From the previous statements, the main problem areas in the field of manpower and management can be summarized as follows:

- The most serious problem is the shortage of skilled labour. This problem is mainly caused by the lack of sufficient training facilities and the migration of skilled workers to the Middle East countries. Labourers normally do not have formal training, but gained their experience on-the-job.
- The high employment rate of unskilled labour and high labour fluctuation impairs the achievement of higher quality standards and productivity.
- The majority of the labour force is employed on a contractual basis; thus most of the production steps are performed out of the plant by contractors. This makes continuous production control almost impossible.
- Particularly in smaller units, the administrative side of the business is less developed than the technical field. The low standard of accounting generally does not allow the management to perform a proper cost calculation based on actual figures.
- Due to the adherence to traditional patterns and the lack of innovative abilities, more advanced product development and diversification is neglected.

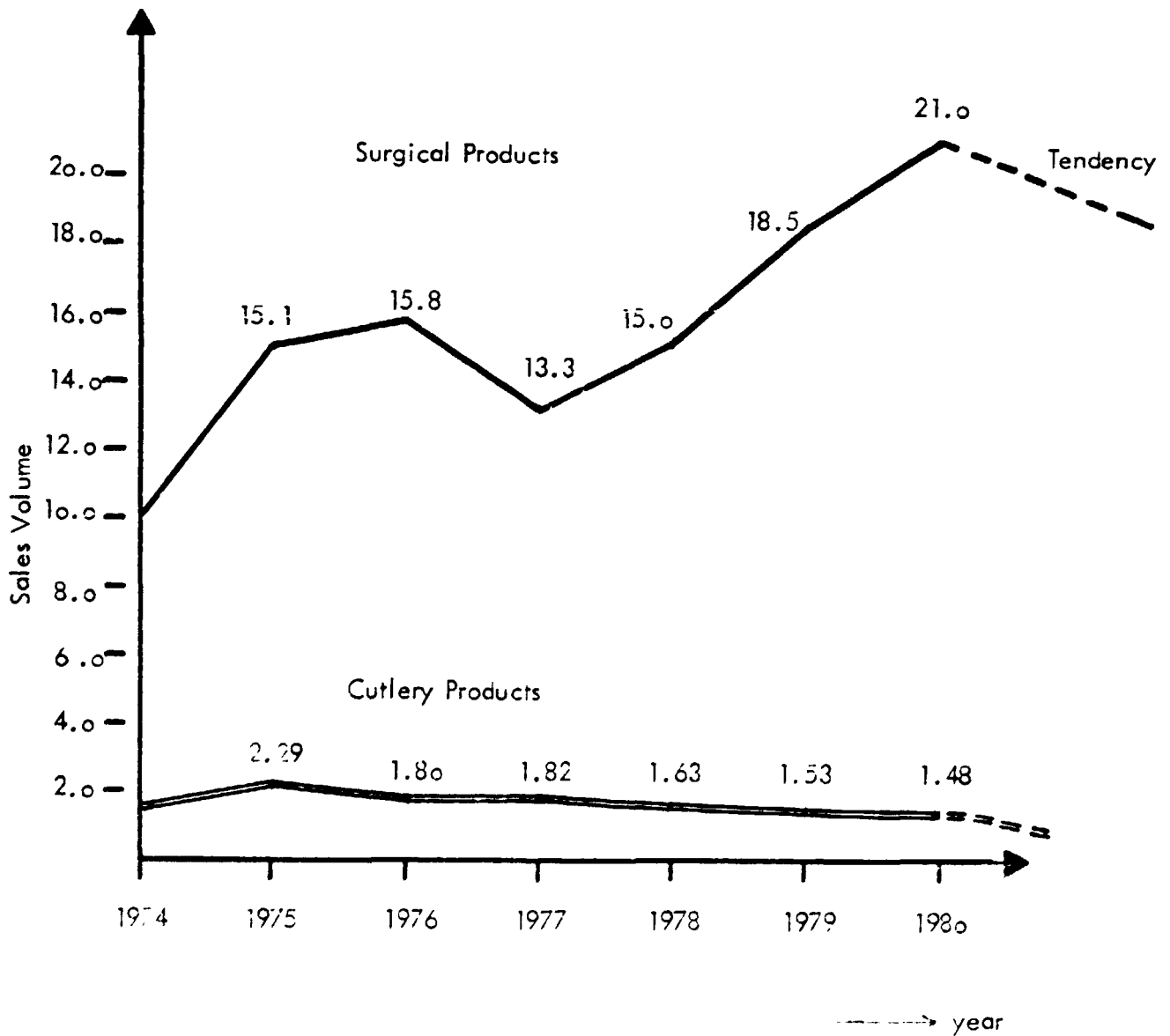
3.4 Demand and Marketing

3.4.1 Demand

Surgical Instruments

The export figures of surgical instruments, as indicated in figure 3.3 , show a very good growth rate during the last 6 years. On the average, the sales volume in exports has more than doubled. The local market demand, however, has been limited during the same period, and did not exceed 10 % of total sales. The development of exports can be seen form the figure below.

Figure 3.3: Exports 1974 - 1980 (Mio US \$)



However, since the beginning of 1980, a drawback of incoming orders was reported, largely from units with a relatively low quality standard. The main reasons for this drawback are changes in market and demand pattern, e. g.

- increased competition, particularly from India and China
- increased quality demand on the side of the consumers which cannot be met by the applied traditional technologies
- reduced budgets of the end-users.

Cutlery

Figure 3.3. also shows that the exports in cutlery reached a peak in 1974-75 with an export volume of 2.29 million US \$. For the last five years, however, there has been a continuous decline in exports, due to the fact that

- the product mix is largely dictated by the demand of foreign customers. Aggressive marketing policy is more or less unknown in Pakistan. Except for a few bigger units, the business is based on repeat-orders.
- the prices of cutlery and utensils being applied by market leaders like Taiwan, South Korea and Japan, are even lower than the respective Pakistani production costs. This significant disadvantage in competition is further strengthened by the fact that the average quality of Pakistani cutlery does not even meet the international standards. This applies mainly to stainless steel products, which account for almost 50 - 75 % of the total value of material used.
- the international market for table cutlery and utensils is highly sensitive to changes in design and quality. Unless design and finishing are not improved and coupled with price reductions, it will be extremely difficult for the Pakistani industry to penetrate the international market on a larger scale. This also applies to a certain extent to knives and hunting knives.

3.4.2 Marketing

3.4.2.1 Description of Market

Surgical instruments are mainly produced for export. The main importing countries are USA, UK, and Germany, counting for about 70 % of the total exports.

The market for surgical instruments can be divided into three different market segments, depending on the quality required:

- upper line: to be used in operating rooms
- central line: to be used in medical colleges
- floor line: to be used in hospital wards.

Prices of these three types of instruments vary considerably with the quality.

Almost all industrialized countries are self-sufficient in the production of surgical instruments as required by the first group (operating rooms). However, the demand of other groups like medical assistants, nurses, and medical schools, whose quality specifications are not so strict, is generally satisfied by imports.

In Pakistan, the general attitude is to maintain average international standards. Therefore, most of the Pakistan exports consist of floor line or central line products. Due to the fact that the exporters are totally dependent upon international distributors, the price level for Pakistan surgical instruments is kept relatively low.

With respect to cutlery, typical export items are knives and hunting knives, mainly exported to USA and West Germany. Table cutlery and stainless steel utensils are largely produced for the domestic market, only few items are exported, mainly to the Middle East countries.

3.4.2.2 Marketing Mechanisms

Pakistan exporters of surgical instruments and cutlery do not have their own marketing and sales network. Most of them work for repeat-orders. Since many of the small entrepreneurs are illiterate, correspondence with foreign buyers is done by accountant-cum-clerks. Efforts to explore new markets for their products can hardly be made. Instead of active marketing, the entrepreneurs still stick to their traditional customers, they are thus subject to irregular job orders and lack knowledge of the international market pattern. The typical distribution channels for both product lines are shown in figure 3.4 and 3.5.

3.4.2.3 Prices

For leading items, minimum prices have been set by the Export Promotion Bureau. The price limitation was implemented to avoid price cutting by a few big buyers.

Figure 3. 4:

Distribution Channels of Surgical Instruments

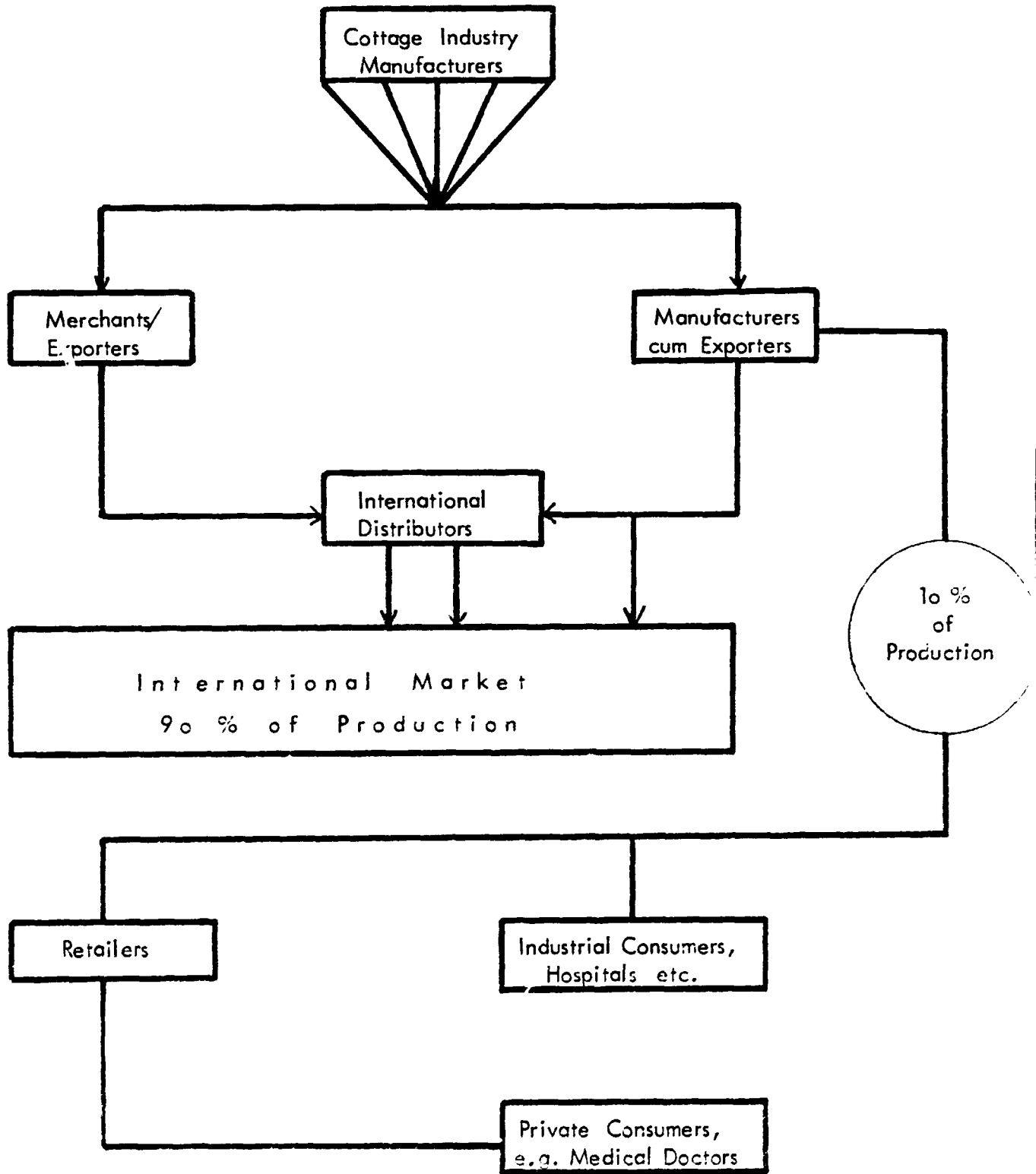
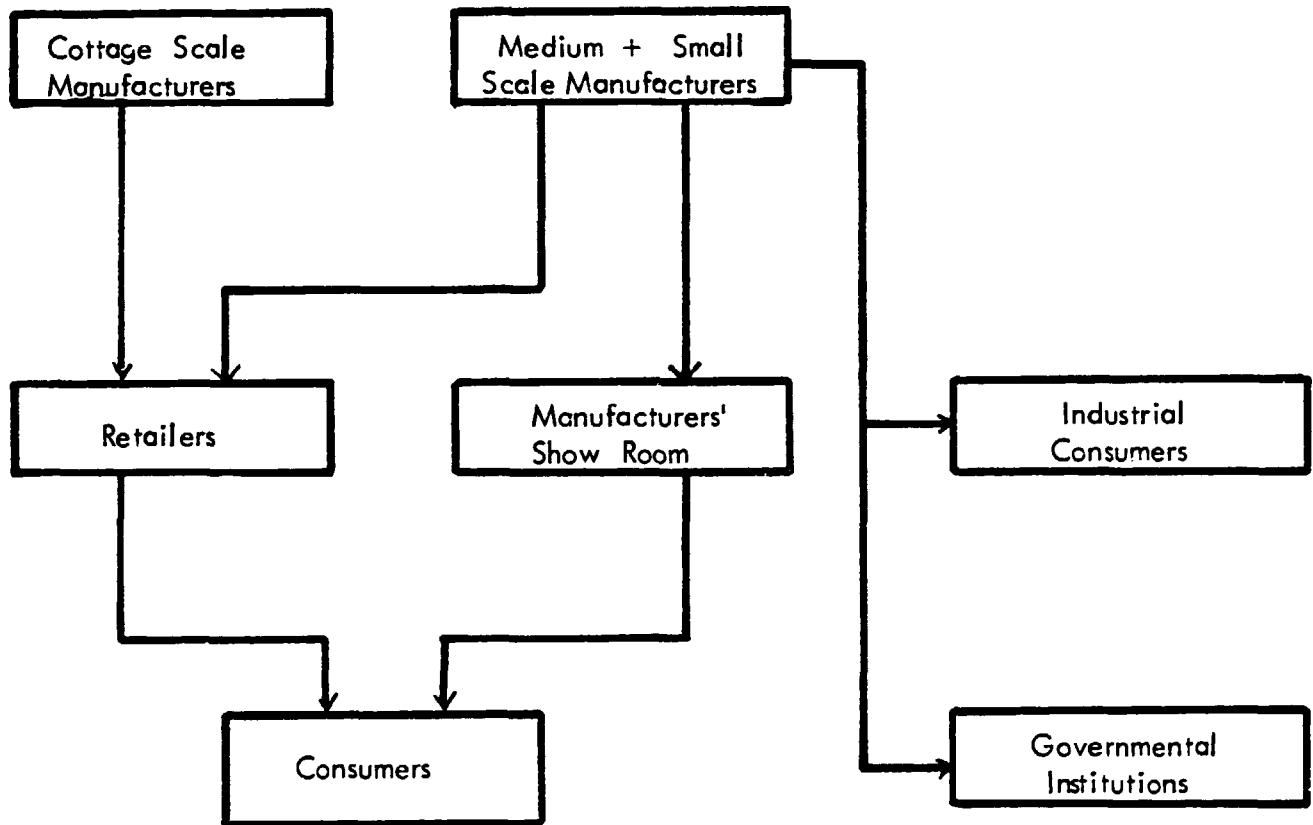


Figure 3.5 : Domestic Distribution Channels of Table Cutlery and Utensils



These very low export prices are, however, changed from time to time, in order to compensate the increase in raw material and labour costs.

It was generally observed that Pakistani products sell at low prices on the international market, mainly for two reasons:

- dependence on international distributors
- lacking knowledge of international market situation.

3.4.2.4 Competition

All product lines are facing growing competition with foreign goods or local substitutes. In the past, Pakistan surgical instruments were among the cheapest in the world. Recently, however, India and China have been offering instruments of comparable quality but up to 30 % lower in price. This has a strong negative impact on the sub-sector's export potential.

Cutlery utensils, like teapots, water mugs, sugar pots, etc. are facing competition from the local ceramic industries. It was reported that due to the price increase of stainless steel utensils, many buyers switch over to ceramic products.

3.4.2.5 Market Potential and Development Prospects

Surgical Instruments

In spite of increasing competition on the world market, this sub-sector's market potential and development prospects are still favourable. Based on an average annual growth rate of 10 %, the total production in 1982/83 is estimated to amount to some 250 million Rs., because

- developed countries will phase out their labour intensive production of surgical instruments due to the increasing labour cost. Pakistan with its potential of skill and experience will be attractive as a joint venture partner or as an economic substitute for their own domestic production.
- developing countries expanding the provision of their health services will have an increasing demand for all kinds of hospital equipment and surgical instruments. This market might also offer another attraction, i.e. that production can remain in the less sophisticated end of the market, the central and floor level.

Cutlery

Table cutlery and utensils from stainless steel do not have a very bright prospect. Other manufacturing countries of these items are more advanced in their applied technology. Heavy investment would be necessary to obtain the latest technological level and still it is to be doubtful if Pakistan could penetrate the international market. The raw material would still be ex-

pensive and there would be no advantage of cheap labour with automatic or semi-automatic production plants. The domestic market will continue to remain a limited sales outlet, although some items will be replaced by ceramic products.

The expectations for future exports of knives are slightly better. The design has little variation and the shape is simple. Therefore, the investment required for machinery will be reasonable.

Based on these limitations, the prospects for the future market potential are not very promising. It is estimated that the total production will decrease from 148 million Rs (1980) to 128 million Rs in 1982/83. The share of export, however, will increase and may reach up to 40 million Rs in 1982/83.

3.5 Investment and Financing

3.5.1 Capital Structure

3.5.1.1 General Remarks

All investment figures are based on present values and have been assessed jointly by the entrepreneurs and experts. They can only be considered as estimates, since the fixed assets of the individual units have differing initial investment times. The value of land and buildings may be over-estimated by this method, because their prices have risen faster than other fixed assets, due to the scarcity of land.

3.5.1.2 Estimated Total Investment

The total investments in the surgical instruments and cutlery industry amount to approx. 1,590 million Rs (1980), or to an average of 2.1 million Rs per unit. This estimate is based on a sample of 42 companies; these were broken down into three size categories and their respective average investment costs were extrapolated (see table 3.13).

Table 3.12: Total Investment in Surgical Instruments and Cutlery Sub-Sectors

Product Line	Sample Units			Total Estimated Sub-Sector	
	No. of Units	Total Investment (Rs)	Investment/Company	No. of Units	Total Investment (Rs)
Surgical Industries	39	127,234,593	3,262,425	450	990,000,000
Cutlery	3	9,948,000	3,316,000	300	600,000,000
Total	42	137,182,593	3,266,252	250	1,590,000,000

The allocation of total investment in land and buildings, machinery/equipment and working capital as well as the ratio fixed assets / working capital is given in table 3.13.

Table 3.13: Allocation of Total Investment (1,000 Rs)

Group of Factories	No. of Units	Land + Buildings		Machinery + Equipment		Working Capital		Total Investment		Ratio Fixed Assets/Working Capital
		Rs	%	Rs	%	Rs	%	Rs	%	
Surgical Industries	450	356,000	36	337,000	34	297,000	30	990,000	100	2.4
Cutlery	300	216,000	36	168,000	28	216,000	36	600,000	100	1.8
Total	750	572,000	36	505,000	32	513,000	32	1,590,000	100	2.1

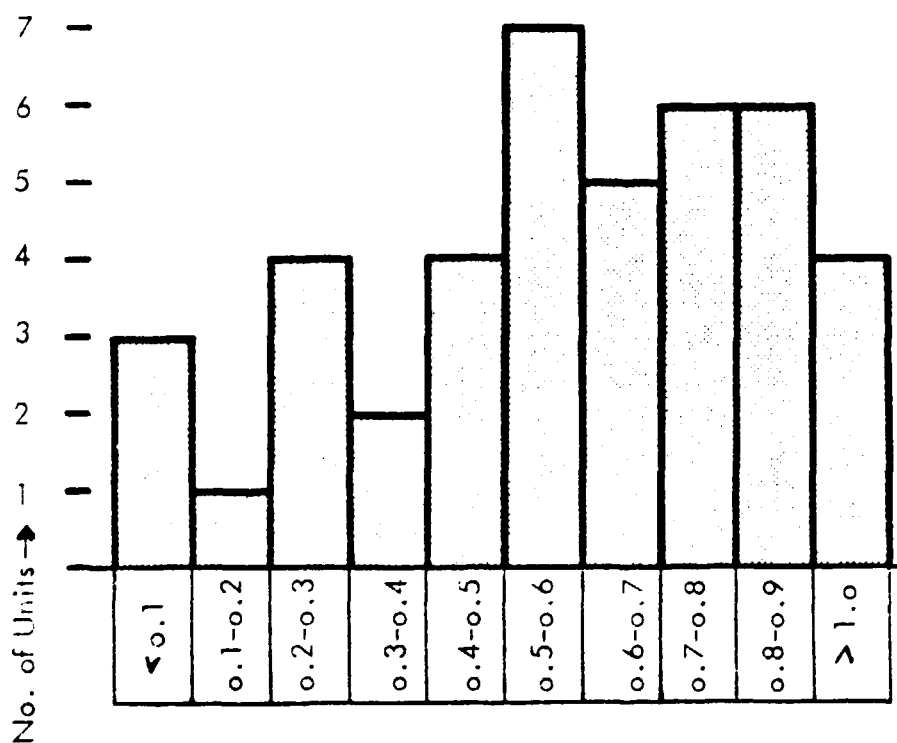
The structure of investment shows as an average for all product lines a rather homogenous pattern; roughly one third of total investments falls to each of the three components: land and buildings, machinery and equipment, and working capital.

3.5.1.3 Fixed Assets / Total Investment Ratio

Only two thirds of the units interviewed own their land and buildings, the remaining companies lease their premises. Thus the ratio of fixed assets to total investment depends primarily on whether the land and buildings are owned or rented. Furthermore, when estimating current assets, it has to be considered if they are enlarged by stocks and/or accounts receivable.

The ratio of fixed assets to total investments is shown in figure 3.6.

Figure 3.6: Fixed Assets / Total Investment Ratio

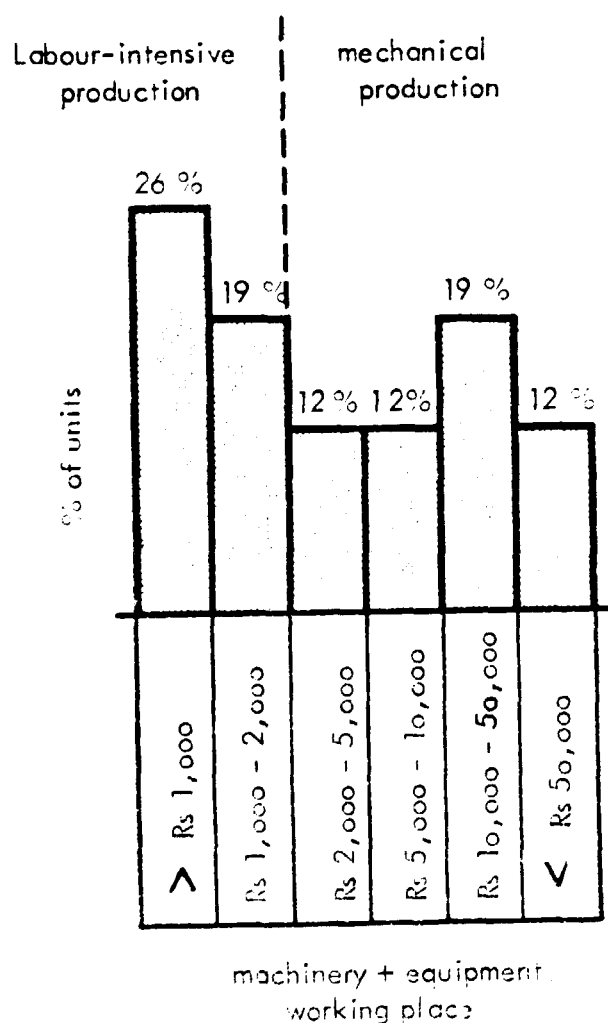


The figure indicates that there is a concentration of units with a fixed asset/total investment ratio of 0.5 - 0.9, which means that in most of the companies the major part of the investment is in fixed assets; this is particularly true for the larger units.

3.5.1.4 Investment Per Working Place (Capital Intensity)

The average investment per working place (including contract workers) is Rs 19,400 for companies owning the land and buildings, and Rs 6,700 for those companies renting the plant. Thus, to avoid the influence of varying values of land and buildings, in figure 3.7 the ratios have been evaluated on the basis of investment in machinery and equipment per working place (excluding contract workers).

Figure 3.7: Investment in Machinery and Equipment / Working Place



According to figure 3.7, 45 % of the units visited have invested in machinery and equipment less than Rs 2,000 per working place, their production can be considered as basically labour intensive. Only 31 % have investments exceeding Rs 10,000 per working place.

High capital intensity does not necessarily imply high labour productivity, as has been found in this sub-sector. This deficiency lies mainly in:

- inadequate allocation of investments and low capacity utilization (obsolete and inadequate machinery, shortage of spare parts)
- the inability to reduce labour employment by improved investment allocation
- poor labour relations.

3.5.2 Loan Structure

3.5.2.1 Long and Short-term Loans

Out of the 42 companies visited more than 50 % received loans, primarily short-term loans from commercial banks. The majority of these loans, amounting to some 20 million Rs in total were used for working capital, in particular for purchasing raw materials and components. Only 12 % (rs 2.5 million) has been spent for fixed assets.

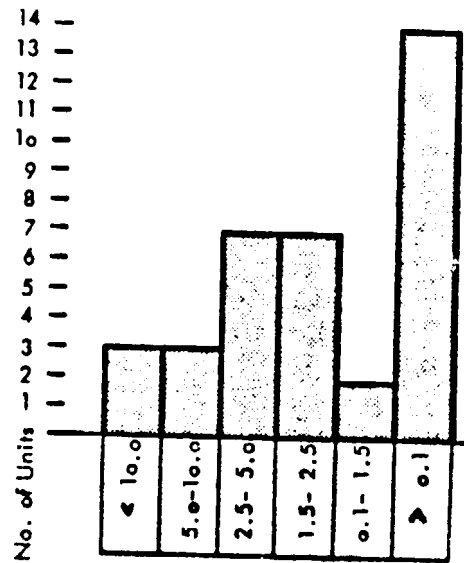
The relatively low use of long-term loans is due to the difficult and time-consuming procedure in obtaining loans and by the unfavourable credit conditions. The collateral requirements greatly exceed the requested amount of loan. Generally, long-term loans are only granted against mortgage on the company's assets (land and buildings).

Short-term loans, in particular loans within the export refinancing scheme, are more attractive to the entrepreneurs. Loans within this scheme are available against the shipping papers of the products to be exported. For a duration of 90 days the banks charge a 3 % handling fee. This period can be extended for another 30 days under the same conditions if justified.

3.5.2.2 Equity/Debt Ratio

Self-financing is a serious problem, in particular for the smaller units. Figure 3.8 illustrates that only 59 % of the units interviewed have an equity/debt ratio of above 1.5, which means that, more than two thirds of total investments, were financed by the owners' resources and on third borrowed from financial institutions, principally commercial banks. Out of the 42 companies only 14 are financing their investment predominant by credits.

Figure 3.8: Equity / Debt Ratio



3.5.2.3 Institutional Lending and Overall Entrepreneurial Attitude Towards Financial Management

All of the entrepreneurs interviewed maintain a bank account with one of the commercial banks, and almost 60 % receive credit in one form or another. However, most of the entrepreneurs claimed to face difficulties with the institutional lending procedures and conditions, e. g.:

- Interest rates, being 13 - 14 %, are considered to be too high. In particular since additional credit costs, such as insurance for mortgaged property, have to be added, this amounting to almost 20 %.
- The collateral requirements usually exceed the loan amount.
- The lending procedures often exceed the small entrepreneur's administrative knowledge and are considered to be too time-consuming and complicated (88 %).
- The credit limits are too low and do not allow for financing of steady production and investment expansion (82 %).
- Small entrepreneurs have specific difficulties providing credit guarantees (securities) (59 %). Because of their smallness, they are seen as uncreditworthy by the financial institutions.
- Some firms (about 6 - 12 %) complained about the frequent changes in lending policies (6 %), repayment schedules (12 %), lack of confidence in lending institutions (9 %), and loan rejection (6 %).

The major difficulties faced with lending institutions are compiled in table 3.14.

Table 3.14: Difficulties faced with Lending Institutions - Surgical Industries

	Number of units	in % per units
Complicated lending procedure	30	88
Submission of documents	26	26
Interest too high	29	85
Repayment schedule	5	12
Frequent change of lending policies	2	6
Credit limits too low	28	82
Non-availability of securities	20	59
Lack of confidence in lending institutions	3	9
Loan rejection	2	6

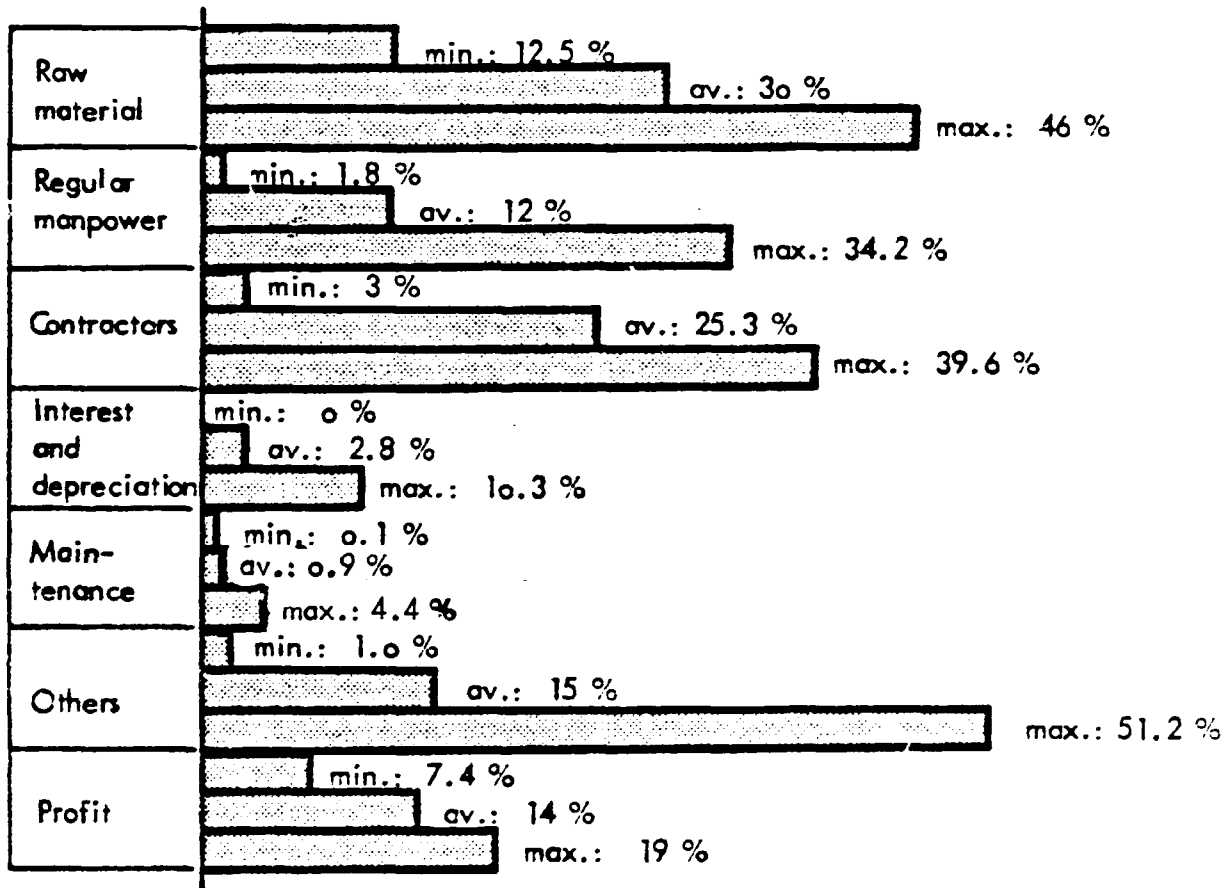
3.5.3 Cost-to-Sales Structure

Most of the companies interviewed do not maintain proper profit and loss statements. The following cost break-down therefore must be restricted to main cost categories:

- raw materials
- manpower (regular and contractor)
- interest and depreciation
- maintenance
- other costs
- profit.

The cost structure, as illustrated in figure 3.9, shows that the sub-sector, surgical instruments, is labour-intensive (37 %) and has a high intensity of material consumption (30 %). The relatively low cost for depreciation and interest (up to 10 %) indicates that a large portion of the machinery and equipment installed is already depreciated. The profit margin, which averages to 14 %, can be considered for most of the companies as rather favourable.

Figure 3.9: Cost Component / Sales



3.5.4 Main Problem Areas

The main problem areas in investment and financing may be summarized as follows:

- Most of the companies interviewed are in need of upgrading their equipment, but cannot do so for lack of funds.
- Any further industrial investment implies the assistance from lending institutions. This applies for both, financing of fixed assets and working capital.
- Financing of fixed assets is hampered by complicated lending procedures, high interest rates, and additional handling charges.
- Due to the high material intensity of the sub-sector, the small units are in need of working capital, most of them are even unable to raise enough funds for their day-to-day transactions.

4. Evaluation of Main Problem Areas, Analysis of Interdependencies and Overall Development Prospects

4.1 Ranking and Structure of Problem Areas

Of the main problem areas: supplies, production, manpower, marketing and finance, those which were found to be most problematic over the average of all firms were mainly finance, marketing and manpower (figure 4.1), whereby considerable differences were found to exist in between the investigated product lines.

4.2 Potential for Growth

Since the surgical instruments industry is highly labour-intensive, industrialized countries are farming out this product line more and more to the developing countries. However, the manufacturing of instruments is complicated and requires a high level of skill. Pakistan already has a great deal of experience in this line and therefore a sufficient potential to attract joint ventures.

Another good prospect for growth is the tendency in developing countries to increase health service to the public, which would create additional demand for all types of medical instruments and equipment, in particular in the floor and central line.

Considering these aspects, the future prospects for this sub-sector, especially for exports, thus seem to be good.

4.3 Specific Constraints and Requirements

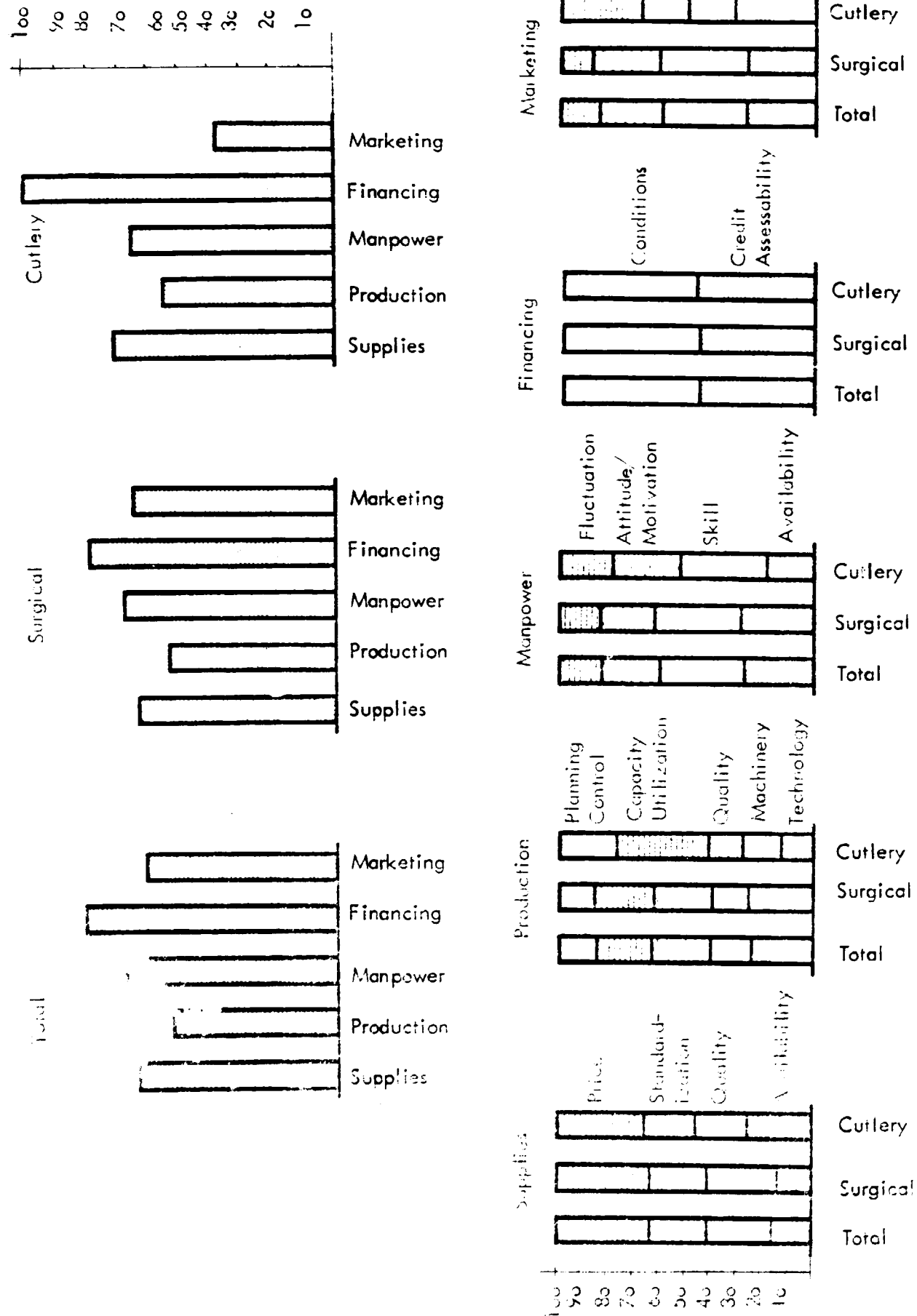
4.3.1 Technology

As to the technology, it is necessary to differentiate the working process into two main groups:

- work steps which could be mechanized, and
- work steps which are necessary to be carried out manually.

All processes related to the finishing of the product will still remain manual work. In this range the technology in Pakistan is not very different to the technology in industrialized countries, and does not need much improvement. The situation is different in the range of forging, machining and heat treatment. Here the industry should leave the traditional work methods such as: hand forging, filing of serrations, racks and joints, as well as heat treatment, and adopt the methods of industrialized countries which means these steps have to become mechanized.

Fig. 4.1: Ranking and Structure of Main Problem Areas



4.3.2 Plant, Machinery, Production

Of major importance is the installation of an adequate number of drop-forging hammers. Despite the fact that almost all large and some medium scale units already have their own hammers or are in the process to install them in the near future, there still remains a demand of at least 50 - 70 hammers. Since smaller units will not be in a position to buy their own hammers, it is proposed to provide a hammer unit by the public sector, e. g. MIDC.

Along with the hammers there should be a sufficient number of spindle friction presses for cold stamping and excenter presses for trimming and punching.

Milling machines are required for the processing of joints, serrations, and jacks. Most of the existing milling machines are too small for this operation step and are lacking automatic feed. It would be advisable to replace the milling machines by bigger units with automatic feed.

A basic need for the operation of those machines is the availability of quality tools and fixtures. So far, quality tools and dies are not manufactured in Pakistan due to lack of equipment and skill. Larger units normally produce tools and dies entirely for their own production. Due to the lack of skill in tool and die making these tools are quite poor in quality. Imported tools are far better, but very costly.

Another characteristic and most important technological constraint is the lack of sophisticated heat treatment processes and equipment. The largest plant is installed in the Metal Industries Development Centre covering almost 70 % of the total production in this area. The equipment is out dated, the existing furnaces bear a lot of disadvantages, mainly:

- equal heat distribution can not be achieved because charging and discharging has to be done through the same opening, which means instruments which have been charged first will be discharged last.
- the result depends entirely on the skill of the furnace operator because due to the above mention reasons the different soaking time has to be balanced by the volume of the instruments.
- throughout the whole period of charging and discharging, air can penetrate into the furnace resulting in heavy scaling which requires additional polishing work.¹⁾

A conveyor belt type heat treatment plant could achieve better results through uniform heat distribution and reduced scaling. The soaking period is fixed by the speed of the belt. To avoid duplication of equipment and due to high investment cost, such a plant should be installed in the public sector as well.

¹⁾ The most advanced method would be to heat-treat the instruments in a properly controlled shield gas atmosphere, but since shield gas is not locally available and the service is quite complicated, this type is not applicable under local conditions.

Finally, the cleaning of instruments requires attention. The most efficient method for degreasing and cleaning is the ultrasonic.

Due to the non-availability of a sophisticated heat treatment plant in common facilities, the target group faces great difficulty to reach the required quality standard in the international market. Therefore it is essential that the existing Service Centre will be equipped with adequate heat treatment facilities.

4.3.3 Raw Materials and Components

As already mentioned, the surgical instruments industry is almost exclusively based on imported raw materials, which are stainless steel bars and sheets, brass sheets, carbon steel, and tool steel. Insofar the units have their own import licence, and the local retailers have sufficient stocks, availability of materials is no problem.

A more serious problem is the fluctuation of prices in proportion of stainless steel and brass, depending on world market prices for the respective commodities. However, relief would only be possible by holding larger stocks in the units or in a material depot in the public sector.

For quality testing of material, a test institute for material analysis is highly needed, particularly for material from units buying it from local retailers.

Components like polishing and cleaning chemicals are available in the retail shops but are lacking variety. This especially applies to glazing and polishing compounds. Bearings and other spare parts are sufficiently available on the local market.

4.3.4 Labour and Management

The scarcity of skilled labour together with the high fluctuation have a bad influence on the sub-sector. Many skilled workers are leaving the country (sometimes up to 300 applications/day in Sialkot only), at the same time the trend towards mechanization induces an increasing demand for skilled labour, e. g. machine operators, tool and die makers. The facilities for technical training and education are very poor. In the Sialkot area the Metal Industries Development Centre (MIDC) is the only institute offering training facilities, which, however, cannot meet the demands of the industry in quantity nor in quality. The shortage of skilled labour will become even more serious in the near future.

Other problems are the labour laws which do not give the right to the entrepreneurs to hire and fire, which affects the attitude of the labourers and has a negative influence on their efficiency.

Except for the large units and some medium type units, managerial abilities are quite limited. In most of the small units the owners are former foremen or skilled workers and purely technically oriented. Adequate knowledge of administration and accounting is largely lacking.

The managerial abilities are not abundant. The entrepreneurs are often only technically oriented and neglect the administrative side of the business. Accounts are kept to fulfil the formalities of the taxation department. Cost calculation, pre-planning, and active marketing is uncommon in the small units.

4.3.5 Financing

The lack of funds is the most serious problem, especially in the smaller units. Even if enough funds are available to keep the installations running, the lack of working capital is a serious constraint.

Administrative deficiencies, lack of securities and a widespread dislike towards loan financing have so far prevented fruitful cooperation between the small scale industry and the banking sector.

5. Recommendations

5.1 General Recommendations

5.1.1 Technology

Upgraded technologies are one of the main prerequisites for the promotion of the small-scale industry. In this context, recommendations are as follows:

- Institutional facilities for the introduction and demonstration of advanced technologies and modern production methods have to be established or expanded. In particular tool and die making as well as heat treatment processes are in need of improvement. The technology applied in machine forging is adequate, though this sector's capacity utilization, on account of lacking know-how, is unsatisfactory and is still to be improved. For this purpose, the existing forging facilities must be extended. It is strongly recommended to intensify and broaden the services of the Sialkot Metal Industries Development Centre (MIDC) which should be a nucleus for formal training.
- Training courses (basic and upgrading) should be provided for all metal working lines, like milling, turning, fitting, welding, etc. In this context more use should be made of the respective facilities adequately provided by the Metal Industries Development Centre.
- Special attention should be given to the set up of a technically advanced tool and die shop, since the use of appropriate tools and dies is an absolute prerequisite for the sub-sector's proposed mechanization. As small units cannot afford individual tool and die shops and also lack the specialized manpower, it should be considered to set up a centralized shop within the Service Centre.
- Of major importance are the improvement of quality control and the introduction of standards. As the product image of Pakistani made products can only be improved by quality exports, quality control should be compulsory for export goods.
- The specification of locally purchased material not being reliable, a central metallurgical service centre should be set up with adequate equipment and chemicals for material analysis.
- Advisory services, as offered by MIDC, should be intensified in order to assist the entrepreneurs in all technical matters. Besides consultancy within the centre, e.g. on tool and die design, manufacturing, heat treatment etc., the advisory centre should also offer extension services to attend to the companies' internal problems. Such comprehensive services will encourage the entrepreneurs to introduce new technologies.
- Besides the inspection of finished goods, quality control should be made after each production step, since every step is subject to potential defects.

- Both material flow and intermediate storage call for improvement. It is recommended to store materials and semi-finished products in standard containers which can be stacked. This will avoid product damage and reduce the danger of accidents.
- Provision should be made to avoid accidents from free running belts and gears, and to reduce or eliminate dust and noise.
- Illumination of the working places has to be improved, particularly where precision work is made. Adequate lighting will protect the workers' eyesight and contribute to quality work.
- It is recommended to expand the Small Industries Estate for about 30 additional units by encouraging more sub-sector units to settle the estate. With a growing number of units, the subcontractors' transportation costs will be reduced and common facilities services be made better use of. Beside these effects, the shifting of industries to the estate will relieve the city from pollution and noise disturbance.

The promotional effects of a service centre in Sialkot are compiled in table 5.1.

Table 5.1: Promotional Effects of a Service Centre

Proposed Functions	Common Deficiencies in Surgical and Cutlery Industries	Promotional Activities	Facilities Required
Advisory Service and Extension Service technical Information Centre	<ul style="list-style-type: none"> - Selection of material - Selection of machinery - Processing methods - Installation of new equipment - Maintenance - Safety measurements - Progress planning - Workshop layouts - Workshop organization - Quality inspection - New products - Rationalization - Utilization of loans - Technology - Design of tools and fixtures 	<ul style="list-style-type: none"> - Technical assistance - Technical advice - Demonstrations - Design of <ul style="list-style-type: none"> -- layouts -- tools/fixtures -- organization charts - Up-to-date information about market trends, machine lists and prices, advanced methods 	<ul style="list-style-type: none"> - Expatriate and local experts - Workshop and production facilities - Adequate library folders price list
Common Facilities	<ul style="list-style-type: none"> - Machine forging - Heat treatment - Tool and die making - Machine shop - Laboratory - Quality inspection 	<ul style="list-style-type: none"> - Training - Demonstrations - Production of spare parts - Material analysis - Quality test - Implementation of standards 	<ul style="list-style-type: none"> - Adequate advanced equipment - Qualified staff
Development and Research Department	<ul style="list-style-type: none"> - Limited product range - Limited tools and fixtures 	<ul style="list-style-type: none"> - Development of new tools and fixtures - Design and manufacturing of prototypes of new products - Testing of new materials 	<ul style="list-style-type: none"> - Designer - Qualified technical staff - Adequate machinery
Training	<ul style="list-style-type: none"> - Lack of qualified technical staff - Lack of managerial staff - Lack of qualified accounting staff 	<ul style="list-style-type: none"> - Regular apprentice training - Advanced training courses - Workshop management - Administration - Marketing - Accounting 	<ul style="list-style-type: none"> - Apprentices' workshop - Qualified technical staff - Lecture room - Qualified lecturers in different fields
Credit Department	<ul style="list-style-type: none"> - Lack of financial sources 	<ul style="list-style-type: none"> - Financial advice - Adequate utilization of funds 	<ul style="list-style-type: none"> - Finance expert - Cooperation with the technical advisory service

For the proposed expansion of the Metal Industries Development Centre (MIDC) the following additional equipment would be required (table 5.2).

Table 5.2: Additional Machinery and Equipment for the Metal Industries Development Centre

Type of Machinery	Nos.	Origin	Rough Estimate of Costs (US \$)
Drop forging hammer	10	foreign	400,000
Excenter presses	6	local	20,000
Friction spindle presses	2	local	10,000
Die sinking machine	1	foreign	60,000
Surface grinding machine	1	foreign	25,000
Pneumatic tools + compressor	1	foreign	20,000
Electro-chemical marker	1	foreign	5,000
Conveyor belt furnace	1	foreign	250,000
Laboratory equipment		foreign	20,000
Equipment for training including benches and machinery		foreign/local	45,000
Total			855,000 US \$

5.1.2 Materials

In regard to raw materials, the following recommendations refer first to the technical aspect and then to the cost factor.

- Training courses in basic metalurgy are needed, especially in the metalurgical analysis of tool and die steel, as well as metal treatment procedures.
- Testing equipment for raw materials and components is urgently required. For complex material analyses, adequate equipment should be centrally provided, either by a separate test institute or by an already existing service centre, e.g. the MIDC.
- A broader variety of sub-sector specific raw materials and components should be made available.
- The time consuming and complicated import licensing procedure should be simplified. In this context purchasing cooperatives may be set up to handle imports. Thereby larger quantities could be ordered with more favourable conditions. In view of this sub-sector's great number of units, the establishment of such cooperatives should not pose any problem.
- The heavy burden of import duties on raw material should be revised and, wherever possible, be reduced or abolished.

5.1.3 Manpower, Management and Organization

Within the planned small-scale units' development, manpower, labour and management are the most urgent in need of improvement. Particular efforts should be made to improve the quality of manpower.

- On-the-job training, providing but limited skills and know-how, should be replaced by regular apprenticeship programmes so as to train workers in the main technical trades, i.e. tool and die makers, machine operators for milling and lathe machines, maintenance personnel. The apprentices should be trained in all theoretical and technical fields for at least three years and then have to pass a final examination. Such training would produce qualified foremen, supervisors and technical staff.
- The workers should be encouraged in performance and work attitude by adequate incentives. A properly designed social welfare and pension scheme could reduce fluctuation and absenteeism and, moreover, would improve the relationship between labour and management.
- The managerial staff in the small-scale industry needs proper training as well. The level of management training should comply with small-scale industry requirements and not aspire to the latest management methods of industrialized countries. Managers and owners should be convinced of the advantages of workshop management, simple and efficient administrative procedures and marketing. For this purpose, the institution concerned should set up an appropriate curriculum. The potential target group could be selected by the Manufacturer Association.
- In cooperation with the centre the Manufacturer's Association could give seminars in book keeping and cost calculation on national and international level. The small units do not need advanced accounting methods; basic knowledge will enable them to improve their profitability.
- A central information service centre, especially for smaller entrepreneurs who are normally reluctant to come in touch with official institutions like banks, customs etc. and do not have any sources to get informations from abroad. The task of the information centre will be to remain in permanent touch with all sources relevant for the trade in Pakistan and abroad in order to collect informations. This will enable the centre to give answers to the following questions:
 - What are the latest market-trends abroad?
 - From where to buy suitable machinery?
 - What will be the price?
 - From where to buy second-hand machinery?
 - How to get a credit?
 - What are the conditions for a credit?
 - How to get an import licence?
 - What are the custom-procedures?

5.1.4 Marketing

The surgical industries produce almost exclusively for the export market, whereas the cutlery industry export figures are declining. Nevertheless, they show similar characteristics with respect to production, so that the following recommendations may be applied to both production areas:

- The prevailing attitude of waiting for customers and complying with repeat-orders should be replaced by an aggressive marketing approach.
- Exporting units should form a joint export market group and establish an overseas sales network. This group should concentrate on the analysis of foreign markets to pin-point the kind of goods required and try to adapt its individual production capacities accordingly. This may include the diversification or modification of the present products or product mix of different production methods, or even switching to a different product that can be made with the existing equipment.
- Contrary to an individual company, such a joint export market group would be in a position to finance experienced international marketing experts and other personnel, familiar with the technical aspects of international business, such as overseas market research and export packaging. A qualified expert would be of indirect use to all members of the target group.
- The information feedback from the export market group to the manufacturers will contribute to gradually upgrade industrial skills and technical know-how.
- Prior to any export promotion, the product quality standard should be improved; severe quality inspection should be carried out by an independent body and efficient after-sales-service be introduced.

5.1.5 Financing

Nearly all recommendations involve capital investments. This applies in particular to the replacement of traditional production methods by suitably mechanized techniques. The development of Pakistani small-scale industry will thus be highly dependent on financing facilities.

- Special credit schemes should be developed for financing both fixed assets and working capital. The lending procedure should be simplified and adapted to small scale industries' needs.
- Credit should be reserved to applicants who promise to be successful and cooperative. The loans should cover the production and the application of adequate technologies.

- Units applying for a loan should be thoroughly analysed as to their creditworthiness. Then, experts should discuss with them proposals for general improvement, selection of machinery and equipment, etc. Since lending institutes are normally in want of technical experts, they should seek the cooperation of an advisory service. Once the loans have been granted, their proper utilization should be ensured by further technical assistance from the technical extension service.
- Loan conditions should be as soft as possible, not only regarding fees and interest rates, but also with respect to required securities. Good contacts with the entrepreneurs and their confidence in rendered technical advice rather than requested mortgages will warrant pursuance of promotional aims.
- Small entrepreneurs should be helped to overcome their hesitance in applying for loans by streamlined lending procedures as well as more transparent and less stringent credit conditions.

5.2 Recommendations by Product Line

Surgical instruments and cutlery industries have similar characteristics and problems. They are located in almost the same region, require the same basic raw materials and apply similar manufacturing processes and technologies. However, the cutlery sector is faced with stronger competition, due to the larger number of cutlery manufacturing countries. Also is cutlery more affected by changes in market trends, customer tastes, etc.

Besides the forgoing recommendations it is suggested that

- the cutlery industries remain in permanent touch with the buying countries, so as to react as promptly as possible to varied market trends, and changes in preferred designs, qualities, etc. As this may be very difficult for the individual unit, the mentioned joint export marketing group should come into play.
- Literature and folders of the latest designs should be made available from all importing countries

6. SUB-SECTOR PROFILES

6. Sub-Sector Profiles

As part of the results of the study, typical sub-sector profiles have been prepared in order to facilitate institutional, financial and technical support. The profiles contain the following criteria:

- production programme
- technology and production facilities
- raw materials
- manpower and management
- investment
- cost structure
- financial ratios.

The actual situation of each product line or type of industry (labour intensive, mechanized, export oriented) has been drawn up. It reflects the target group units' specific pattern with respect to structure and ranges of the above criteria.

Based on the experience and know-how of the sector, a profile for a typical new company has been elaborated. This profile contains the estimated structural data and ratios for a model unit, with sub-sector specific

- technology and machinery
- personnel outfit
- investment and cost-structure.

The financial ratios represent estimates and may fluctuate in both directions.

A detailed proposal for such a "pilot unit" will require a thorough analysis within the framework of a comprehensive feasibility study.

SUBSECTOR:

CATEGORY:

ACTUAL SITUATION

Surgical Instruments

small scale - traditional technology

1	PRODUCTION PROGRAMME:					
	Type of Products:		Annual Average Output:		on % Capacity	
	Major Products:		Units:	Rs.:		
	Forceps					
	Scissors	115,322	1,291,387	60%		
	General					
2	TECHNOLOGY AND PRODUCTION FACILITIES:					
	Process commonly applied:		Major Machinery/Equipment:		Imported	Loca
	hand forging		milling machines		30%	70%
	filing		presses		10%	90%
	machining, filing of joints - racks		lathes		10%	90%
	setting		drilling machines		5%	95%
	heat treatment (outside)		shaper		10%	90%
	polishing		polishing discs		-	100%
	inspection		grinding attachment		30%	70%
	packing					
Land and Buildings:						
Buildings: Value / sqm.		min.: 418	max.: 1,252	average: 943	Building Area/ Employee	
Land: Value / sqm.		min.: 100	max.: 660	average: 356	min.: 2	max.: 660 average: 37
3	RAW MATERIALS:					
	Type:	Quantity:	Price/Unit:	Imported/Local:	Import Duties:	Quality:
	Stainless steel bars	8,735	26 Rs/kg	direct/indirect	about 100%	medium
	sheets	1,720	18 Rs/kg	imported	repairs on finished exports: 25%	to high
	polishing bars	935	25 Rs/bur			
	others					
4	MANPOWER AND MANAGEMENT:					
		min.:	max.:	average:	Entrepreneurial Background of Sponsors, Owner:	
	Management:	1	10	3	by experience	
	Staff:	1	7	4	External Technical Cooperation necessary?	
	Skilled Workers:	7	76	36	most essential	
	Semi-skilled Workers:	2	31	14		
Unskilled Workers:	1	18	8			
TOTAL:	12	122	65			
5	MARKET DEMAND AND MARKETING:					
	Market Potential and Development Prospects:			Marketing Channels (ranking):		
	Domestic:		Exports:	Domestic:		Exports:
	16%		34%	top orders		foreign wholesalers
6	INVESTMENT:					
	Fixed Assets (Rs. '000)	min.:	max.:	average:	Working Capital (Rs. '000)	
	Land:	rent	1,000	131	min.:	
	Buildings:	rent	6,000	700	max.:	
	Machinery/Equipment:	2	3,000	406	average:	
	Miscellaneous:	-	150	55	727	
TOTAL:	2	10,150	1,293			
7	COST STRUCTURE:					
		min. %	max. %	average %	Remarks:	
	Raw Materials:	31.5	40.5	36.0	total cost = 100%	
	Manpower (internal total)	21.0	34.2	27.6		
	Depreciation - interest:	6.00	10.0	8.00		
	Energy:	1.0	2.4	1.70		
Profit:	35.5	12.9	18.7			
8	FINANCIAL RATIOS (Rs. '000)					
		min.:	max.:	average:	Remarks:	
	Turnover (Sales/Inv)	32	370	75	ratios are based on internal investments.	
	Turnover (Machinery and Equipment)	5.0	17	10		
	Machinery/Equipment / Inv (ave)	3.0	16	14.2		
	Total Investment / Employee					
	a. Building owned	3.2	749.0	100.4		
	b. Building rented	1.5	10.0	5.9		
	Fixed Assets / Working Capital	3.2	12.7	5.0		
	Fixed Investment	3.0	7.0	4.4		
Lease / Total Capital	-	1.1	-			

SUBSECTOR:

Surgical instruments

CATEGORY:

Small scale - traditional technology

NEW COMPANY

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:		on % Capacity	
	Major Products:	Units:	Rs.:		
	Forceps Scissors Cutlery	150,000	2,000,000	80%	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:		Imported/acc.	
	machine forging (from outside) filing milling setting heat treatment (from outside) finishing final inspection packing	milling machines drilling machines polishing wheels lathes abrasive belts		x x x x x	
<u>Land and Buildings:</u>		Building Area/Employee			
Buildings: Value / sqm. average: 1,200		average: 15			
Land: Value / sam. average: 200		average: 1.5			
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/acc.:	Import Duties:
	Stainless steel: - bars - sheets carbon steel polishing bars	10,000 2,500 1,000 1,000	26 Rs/kg 18 Rs/kg 12 Rs/kg 25 Rs/bar	imported	currently 100% should be reduced	high
4	MANPOWER AND MANAGEMENT:				
		average:	Entrepreneurial Background of Sponsor/Owner:		
	Management: Staff: Skilled Workers: Semi-Skilled Workers: Unskilled Workers: TOTAL:	3 4 38 25 5 75	job experience with additional managerial training External Technical Cooperation necessary? most essential:		
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels ranking:		
	Domestic: 10%	Export: 90%	Domestic: Job orders	Export: joint export marketing group	
6	INVESTMENT:				
	Fixed Assets: Rs. '000	average:	Working Capital: Rs. '000		
	Land: Buildings: Machinery/equipment: Miscellaneous: TOTAL:	200 1,200 800 50 2,250	average: 400		
7	COST STRUCTURE:				
		average:	Remarks:		
	Raw Materials: Manpower: Depreciation/Interest: Others: Profit:	30% 35% 5% 15% 15%	* contrary to the actual situation all working processes are done by permanent employees within factory premises		
8	FINANCIAL RATIOS: Rs. '000				
		average:	Remarks:		
	Turnover/Employee: Turnover/Machinery and Equipment: Machinery and Equipment/Employee: Total Investment/Employee: a) Building owned b) Building rented Fixed Assets/Working Capital: Profit/Investment: Loans/Total Capital:	70.0 1.0 1.0 15.0 15.0 1.0 1.0			

SUBSECTOR:

CATEGORY:

NEW COMPANY

Surgical Instruments

medium scale - mechanized modern

1	PRODUCTION PROGRAMME:					
	Type of Products:	Annual Average Output:		on % Capacity		
	Major Products:	Units:	Rs.:			
	Forceps, scissors General	1,000,000	15,000,000	30%		
2	TECHNOLOGY AND PRODUCTION FACILITIES:					
	Process commonly adopted:	Major Machinery/Equipment:		imported	loc	
	machine forging trimming filing milling setting heat treatment finishing final inspection packing	drop forging hammer excenter spindle presses die sinking machine milling - lathe - shaping - drilling machine heat treatment plant polishing wheels abrasive belts hardness testing machine		x	x	
Land and Buildings: Buildings: Value / sam. _____ Land: Value / sam. _____		average: <input type="text" value="1,200"/>	Building Area/ Employee average: <input type="text" value="3"/>			
3	RAW MATERIALS:					
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:	Quality:
	Stainless steel: - bars - sheets - polishing bars	98,000 kg 22,000 kg 7,000 bars	26 Rs./kg 18 Rs./kg 25 Rs./bar	imported	currently 100% should be reduced	high
4	MANPOWER AND MANAGEMENT:					
		average:	Entrepreneurial Background of Sponsors/Owners: [no experience, additional managerial training]			
	Management:	3	External Technical Cooperation necessary? most essential			
	Staff:	15				
	Skilled Workers:	230				
	Semi-Skilled Workers:	32				
	Unskilled Workers:	15				
	TOTAL:	300				
5	MARKET DEMAND AND MARKETING:					
	Market Potential and Development Prospects:		Marketing Channels (marketing):			
	Domestic:	Export:	Domestic:	Export:		
	10%	90%	100% order	joint export marketing group		
6	INVESTMENT:					
	Fixed Assets: (Rs. 1000)	average:	Working Capital: (Rs. 1000)			
	Land:	5,000	average: <input type="text" value="2,000"/>			
	Buildings:	5,000				
	Machinery/Equipment:	5,000				
	Miscellaneous:	300				
	TOTAL:	15,300				
7	COST STRUCTURE:					
		average:	Remarks:			
	Raw Materials:	30%	* contrary to actual situation all working processes are done by permanent employees within factory premises			
	Manpower:	35%				
	Depreciation/Interest:	10%				
	Others:	10%				
	Profit:	15%				
8	FINANCIAL RATIOS: (Rs. 1000)					
		average:	Remarks:			
	Turnover: (Employee)	100%				
	Turnover: (Machinery and Equipment)	100%				
	Turnover: (Machinery and Equipment) (Employee)	100%				
	Total Investment: (Employee)	100%				
	a. Building owned	52.5%				
	b. Building rented					
	Fixed Assets: (Rs. 1000) (Employee)	100%				
	Fixed Assets: (Rs. 1000)	100%				
	Land: (Rs. 1000)	100%				

BASIC DATA AND RATIOS

of

UNITS INTERVIEWED

LEGEND FOR BASIC DATA AND RATIOS

- 1) Sales figures 1979
(estimates of yearly sales volume)
- 2) 1 = Wholesaler
2 = Commission agent
3 = Retailers
4 = Job order
5 = direct sales to end user
6 = Exporters
- 3) g = good
f = fair
b = bad
- 4) TTD = Traditional Technology Developing Countries
UTD = Upgraded Technology Developing Countries
ATI = Adapted Technology Industrialized Countries
UTI = Unchanged Technology Industrialized Countries
- 5) Staff = administrative and management personnel
- 6) % of total raw material (in terms of value)
- 7) Turnover/value of machinery and equipment
- 8) Value of machinery and equipment/employees
- 9) Cost-to-sales ratio (%)

Province	No. of Hospitals	Surgical Instruments	No. of Instruments	Sales Merchandise			Land			Buildings			M.E.	
				Value (R)	Debt (R)	Equity (R)	Area (m ²)	Total Value (R)	Value per m ² (R)	Covered area (m ²)	Total Value (R)	Value per m ² (R)		Value (R)
P	1	Surgical Instruments	63	26 128 792	0,2	99,9	1	10 000	2 160 000	200	8 100	6 940 062	807,19	
P	2	Surgical Instruments	72	11 700 000	-	100	1	735	240 000	326	590	00 000	847,10	
P	3	Surgical Instruments	40	8 578 200	-	100	1	12 240	3 500 000	286	1 024	000 000	658,10	
P	4	Surgical Instruments	69	8 000 000	-	100	1	1 713	550 000	321	735	800 000	1 089,10	
P		Surgical Instruments	71	48 000 000	-	100	1	900	050 000	388	810	650 000	803,10	
P	5	Surgical Instruments	78	4 317 796	-	100	1	2 477	1 000 000	403	1 025	1 200 000	1 170,10	
P	7	Surgical Instruments	61	4 370 000	-	100	1,2	1 632	750 000	460	216	050 000	1 065,10	
P	8	Surgical Instruments	52	4 132 368	-	100	1,2	3 000	1 500 000	500	1 650	1 628 000	986,40	
P	9	Surgical Instruments	76	6 598 000	-	100	1,2	1 800	250 000	138	1 000	1 000 000	1 000,10	
P	10	Surgical Instruments	58	3 074 000	33	67	1	318	170 000	534	310	290 000	911,10	
P	11	Surgical Instruments	76	2 500 000	-	100	1	623	-	-	430	rent 1 200 m	-	
P	12	Surgical Instruments	23	2 347 000	-	100	1	7200	1 600 000	222	4 680	6 000 000	1 282,80	
P	13	Surgical Instruments	59	1 698 300	-	100	1	270	150 000	535	216	250 000	1 107,10	
P	14	Surgical Instruments	52	2 728 000	-	100	1,2	1 904	-	-	600	rent 1 500 m	-	
P	15	Surgical Instruments	64	1 470 000	-	100	1	500	200 000	400	720	331 200	920,10	
P	16	Surgical Instruments	40	0 000 000	-	100	1,2	15	-	-	60	rent 100 m	-	
P	17	Surgical Instruments	74	1 800 000	50	50	1	3 830	300 000	78	771	600 000	778,10	
P	18	Surgical Instruments	36	1 900 000	-	100	1	304	160 000	526	256	220 000	459,10	
P	19	Surgical Instruments	72	1 135 380	37	63	1,2	108	-	-	21	rent 920 m	-	
P	20	Surgical Instruments	70	2 031 657	-	100	1	490	-	-	390	rent 600 m	-	

Sl. No.	Buildings				Machinery + Equipment		Technology				Manpower					Investment	Liabilities		Total			
	Value (Rs.)	Covered area (sq. m)	Total area (rent) (Rs.)	Value (Rs.)	Average age (Years)	Computer	IT	AI	BI	Category	IT	Technical	Operational	Skilled	Raw material in port		Fixed Assets	Working Capital				
200	8100	6940	562	657	19115682	8	F	X	X	X	80	1056	144	1400	206	100	28933645	7456526	3.8	96.2	1407	
201	326	590	000000	847	1403000	4	G		X	X	60	889	0	830		100	2593000	2187000	4.0	96.0	1305	
202	286	1224	000000	653	150000	15	F	X	X	X	75	509	16	550		100	4694000	3624306	-	100	1500	
203	321	735	800000	1088	1486000	12	F		X	X	45	122	12	300	10	100	3037067	2420000	-	100	1494	
204	388	810	650000	802	345000	4	G	X	X	X	77	307	100	200	7	100	545000	1800000	-	-	1560	
205	403	1025	1200000	1170	1220000	2	G	X	X	X	45	302	67	210	5	100	4005045	2419140	20.0	60.0	1500	
206	460	116	550000	1065	350000	7	G	F	X	X	X	60	282	20	250	12	100	1600000	1400000	-	100	1540
207	500	1650	1628000	986	4757500	10	F	X	X	X	40	217	36	145	16	100	8205900	1700000	20.0	70.0	1900	
208	138	1000	1000000	1000	83000	1	G		X		80	195	33	150	10	100	1390000	1500000	-	100	1380	
209	534	318	290000	911	356000	3	F		X	X	50	159	6	150	3	100	900000	60000	-	-	1930	
-	-	430	rent 1200/m	-	35000	5	G	X	X		65	156	50	100	6	100	105000	150000	-	-	1600	
210	222	4680	6000000	1282	8000000	7	G	X	X	X	64	125	6	112	6	100	9733000	1164043	-	100	1800	
211	555	216	250000	1157	5000	10	F	X	X		50	122	8	110	4	100	550000	515000	-	100	1390	
-	-	600	rent 1500/m	-	19000	10	F	X	X		20	116	11	20	4	100	40000	1207000	-	100	1300	
212	400	920	331200	920	70000	10	F	X	X		60	106	24	74	3	100	611000	1,500,000	100	-	1380	
-	-	60	rent 100/m	-	50000	10	F		X		50	101	4	20	7	100	130000	1700000	-	100	1900	
213	78	771	600000	778	1056000	10	G	F		X	30	98	12	70	8	100	2056000	535000	18.0	72.0	1800	
214	526	156	220000	859	122000	8	G	F	X	X	75	35	18	39		100	607000	460000	-	100	1200	
-	-	41	rent 920/m	-	33000	1	F	X	X		60	25	45	35		100	83000	308000	-	-	1300	
-	-	390	rent 600/m	-	42000	5	G		X		30	94	18	60	4	100	167000	1610000	-	100	2400	

SECTION 2

Type of assets	Financial Ratios					Cost Structure (%)						Remarks		
	Turnover total No. of Employees	Turnover total investment	Turnover/machinery + equipment	Turnover/working capital	Total investment internal employees	Machinery and equipment internal employees	Fixed assets/working capital	Loans total capital (%)	Raw material	Manpower internal external	Deprec. Interest		Maintenance	Others	Profit
896.2	14078	1.3	1.3	3.5	63231	41920	3.7	15.0	21.0	15.5	3.3	0.8	13.5	12.9
096.0	13160	2.4	8.3	5.3	43949	23779	1.2	39.7	17.8	3.2	2.9	0.7	9.6	10.1
100	15075	1.0	57.0	2.3	247052	7894	1.3	27.6	22.1	1.8	1.5	0.6	5.8	13.9
100	24844	1.5	5.3	3.3	138986	67545	1.3	38.3	42.5	1.9	2.3	0.3	6.5	16.2
-	15635	2.0	13.9	2.6	5093	3224	0.3	-	20.6	13.9	0.8	0.7	7.8	17.9
50.0	15337	0.7	3.0	1.9	43533	16576	1.7	25.6	24.4	14.3	8.2	0.2	5.5	12.3
100	15496	1.4	3.4	3.1	51562	10937	1.1	19.6	12.5	19.0	2.4	0.2	11.7	17.0
75.0	19043	0.4	0.86	2.4	115080	66076	4.8	16.0	34.0	21.1	4.9	1.3	13.2	11.6
100	33835	2.3	79.4	4.3	30844	1844	0.9	10.3	17.0	5.6	1.7	0.2	25.3	11.3
-	19333	3.0	8.6	51.2	107333	39555	16.1	-	33.5	2.0	1.0	0.5	9.7	13.4
-	16025	8.7	71.4	16.6	2410	625	0.9	-	20.8	17.4	0.14	0.1	13.6	14.2
100	18776	0.2	0.3	2.0	748692	615384	8.3	1.5	21.7	4.1	8.1	2.3	8.5	12.7
100	13920	1.6	39.0	3.2	45833	416	1.0	21.5	18.1	7.1	1.0	0.9	12.1	14.1
100	23517	2.1	90.0	2.2	1052	789	0.03	12.0	25.6	7.7	1.2	0.6	19.2	11.7
100	13867	0.8	21.0	1.2	19100	2187	0.5	11.3	28.1	14.9	2.7	0.6	3.1	14.2
100	29702	1.6	60.0	1.8	11818	4545	0.07	16.3	33.2	2.2	-	-	23.4	16.0
3072.0	18367	0.7	1.7	3.3	102800	52800	3.8	36.8	27.7	5.3	6.7	0.7	4.1	16.1
100	22352	1.8	15.5	4.1	23153	4692	1.3	30.6	34.7	10.1	2.4	1.3	7.8	12.6
-	13357	2.9	34.4	3.6	1660	660	0.3	-	17.7	24.6	0.3	0.3	12.9	15.9
100	24424	1.2	48.8	1.2	7590	1909	0.1	25.0	23.9	7.3	0.8	0.3	31.6	13.2

SECTION 3

Province	Unit No.	Product Name	Year of establishment	Sales Marketing				Land			Buildings			Machinery & Equipment	
				Sales (Rs.)	Domestic	Export	Channel	Area (m ²)	Total value (Rs.)	Value per m ² (Rs.)	Covered area (m ²)	Total value (Rs.)	Value per m ² (Rs.)	Value (Rs.)	Year of purchase
P	21	Surgical Instruments	57	1 720 000	-	100	1	625	300 000	480	300	250 000	833	41 600	4
P	22	Surgical Instruments	30	1 875 000	-	100	1	400	170 000	386	171	150 000	877	50 000	15
P	23	Surgical Instruments	68	1 341 382	-	100	1	20	-	-	450	rent 1 000	-	142 000	8
P	24	Surgical Instruments	65	1 350 000	-	100	1,2	7500	800 000	106	3 000	2400 000	800	41 000	12
P	25	Surgical Instruments	63	1 447 500	100	90.0	1	600	-	300	-	rent 200/m	-	55700	15
P	26	Surgical Instruments	59	775 000	-	100	1,2	500	100 000	200	480	200 000	418	229 000	15
P	27	Surgical Instruments	80	792 000	100	-	4	945	-	-	346	rent 1 200/m	-	69 500	17
P	28	Surgical Instruments	69	1 090 800	99.5	0.5	1	108	-	-	48	rent 750/m	-	2 000	10
P	29	Surgical Instruments	73	1 074 000	-	100	1	150	-	-	120	rent 800/m	-	10 000	7
P	30	Surgical Instruments	58	1 105 000	-	100	1	606	400 000	660	300	350 000	1166	20 900	8
P	31	Surgical Instruments	64	813 000	74.0	26.0	1	220	60 000	272	146	130 000	890	70 500	8
P	32	Surgical Instruments	67	1 034 000	-	100	1	980	500 000	510	652	700 000	1 073	370 000	7
P	33	Surgical Instruments	54	800 000	-	100	1	1 490	400 000	268	850	600 000	705	13 000	10
P	34	Surgical Instruments	71	990 000	-	100	1	315	100 000	317	315	350 000	1111	6 500	7
P	35	Surgical Instruments	73	870 000	100	-	1	195	60 000	307	78	60 000	769	17 500	10
P	36	Surgical Instruments	66	784 300	100	-	5	3 000	800 000	266	2 000	2 500 000	1 250	2 625 000	10
P	37	Surgical Instruments	72	417 500	55.0	45.0	1	350	180 000	514	350	380 000	1 085	415 000	7
P	38	Surgical Instruments	78	535 500	100	-	1	108	-	-	54	720/m	-	6 000	7
P	39	Surgical Instruments	66	400 000	96.0	4.0	1	450	-	-	380	rent 250/m	-	131 000	10
P	40	Surgical Instruments	76	324 000	100	-	1	185	-	-	100	rent 200/m	-	4 000	7

Sl. No.	Value (Rs)	Machinery + Equipment		Technology				Capacity utilization (%)	Manpower in numbers				Raw material in port (kg)	Investment		Utilization of		Fixed Assets				
		Value (Rs)	Average age (Years)	UID	UID	ATI	UTI		Total	Internal workers	External workers	Staffs		Fixed assets (Rs)	Working capital (Rs)	Fixed assets (%)	Working capital (%)	Turnover total	Turnover total investment	Turnover machinery + equipment	Turnover working capital	Total investment
000	833	41 600	4	G	X	X	X	30	78	20	45	13	100	603 600	366 385	-	100	22 651	1.7	41.3	4.6	18 25
000	877	50 000	15	F	X			70	76	20	50	6	100	420 000	775 000		100	24 611	1.6	37.5	2.4	16 13
00	-	242 000	3	G	X	X		80	74	22	46	6	100	342 000	430 000	-	-	18 125	1.7	5.5	3.1	12 11
000	800	41 000	12	F	X	X		20	69	25	39	5	100	3 391 000	190 000	-	-	19 565	0.4	32.9	7.1	113
0 m	-	557 000	15	F	X	X		60	69	56	7	6	100	757 000	170 000	-	100	20 978	5.8	25.9	8.5	1
000	418	229 000	10	F	X	X		80	63	28	30	5	100	551 000	70 000	13.0	67.0	12 001	1.2	3.3	11.0	16
0 m	-	69 500	12	G		X		70	51	4	42	5	100	99 500	4 000	-	-	15 529	5.6	11.3	19.8	11
0 m	-	2 000	10	F	X			60	47	6	40	1	100	4 000	12 000	-	-	23 208	68.0	545.0	91.0	
0 m	-	10 000	5	G	X			60	46	8	35	3	100	60 000	290 000	-	-	23 347	3.0	107.0	3.7	5
000	1 166	20 900	8	F	X	X		75	45	12	30	3	100	920 900	290 000	37.0	63.0	24 555	0.9	52.8	3.8	61 0
000	890	70 500	8	F	X	X		40	43	24	15	4	100	275 000	60 000	-	100	18 906	2.4	11.5	0.8	9 0
000	1 073	370 000	2	G	X	X		50	42	11	24	7	100	1 040 000	550 000	-	-	24 619	0.5	2.7	1.9	91 0
000	705	13 000	10	F	X			60	42	10	30	2	100	1 113 000	125 000	-	100	19 047	0.6	61.5	6.4	92 0
000	1 111	6 500	2	G	X			70	39	15	20	4	100	481 500	260 000	-	-	25 384	1.3	152.0	3.8	15 0
000	769	17 500	15	F	X			75	37	10	25	2	100	137 500	7 117	-	-	23 513	4.2	49.7	12.2	11 0
000	1 250	2 625 000	12	F	X	X	X	20	35	11	20	4	100	5 788 600	521 430	100	-	22 408	0.1	0.31	1.5	385 0
000	1 085	415 000	5	G	X			70	35	17	15	3	100	1 055 000	140 000	-	-	17 628	0.5	1.5	4.4	50 0
0/m	-	6 000	1	G	X	X		60	31	9	20	2	100	7 000	14 600	-	-	17 306	24.8	89.4	36.7	
0/m	-	131 000	10	F	X	X		70	20	8	10	2	100	130 000	35 000	-	-	20 000	2.3	3.0	11.4	13 0
0/m	-	4 000	4	F	X			80	20	7	11	2	100	10 000	14 000	-	-	16 200	13.5	51.0	23.1	

SECTION 2

Year	Financial Ratios								Cost Structure ⁹⁾					Remarks
	Working capital	Turnover total No. of employees	Turnover total investment	Turnover/machinery + equipment	Turnover working capital	Total investment Internal employees	Machinery and equipment, internal employees	Fixed assets working capital	Loans total capital (%)	Raw material	Manpower internal external	Deprec. Interest	Maintenance		Others	Profit
100	22051	1.7	41.3	4.6	18290	1260	1.6	11.7	27.9	13.6 20.4	0.9	1.0	13.9	15.1
100	24611	1.6	37.5	2.4	16153	1923	0.54	25.1	34.4	8.3 24.0	1.6	0.16	15.5	16.0
-	18125	1.7	5.5	3.1	12214	8643	7.7	-	46.0	11.4 20.8	2.0	3.1	0.8	13.1
-	19565	0.4	32.9	7.1	113033	1366	17.8	-	23.4	18.0 17.6	-	2.5	23.4	10.9
100	20978	5.8	25.9	8.5	1220	898	0.4	29.3	44.9	31.1 3.0	1.1	0.4	2.4	15.8
107.0	12501	1.2	3.3	11.0	16696	6939	7.8	18.5	15.7	34.2 23.9	6.3	2.0	2.1	11.6
-	15529	5.6	11.3	19.8	11055	7722	2.4	-	15.6	6.0 -	3.4	0.5	17.3	11.6
-	23208	68.0	545.0	91.0	571	286	0.3	-	43.0	4.0 30.4	-	0.1	7.0	15.4
-	23347	3.0	107.0	3.7	5454	909	0.2	-	27.7	6.9 29.0	0.1	0.2	18.3	17.6
0.63.0	24555	0.9	52.8	3.8	61393	1093	3.1	33.0	39.7	10.9 16.5	2.7	1.3	11.1	15.3
100	18906	2.4	11.5	0.8	9839	2518	4.5	7.1	24.1	20.6 15.3	1.4	1.2	22.2	14.7
-	24619	0.5	2.7	1.9	91111	20555	3.0	-	24.1	9.6 18.8	10.3	1.9	16.0	19.0
100	19047	0.6	51.5	6.4	92750	1083	8.9	8.0	19.3	9.8 33.7	1.6	0.3	23.5	11.8
-	25384	1.3	152.0	3.8	25342	342	1.8	-	26.0	11.9 15.8	0.06	0.4	26.8	8.8
-	23513	4.2	49.7	12.2	11458	1458	1.9	-	16.5	8.5 25.8	-	0.2	51.2	11.2
-	22408	0.1	0.31	1.5	385906	165400	11.0	7.9	29.5	11.7 15.3	6.3	4.4	4.4	10.4
-	17628	0.5	1.5	4.4	52750	20750	7.5	-	32.3	20.0 23.1	2.3	0.5	3.8	17.8
-	17306	24.8	89.4	36.7	636	545	0.5	-	43.6	13.4 29.8	0.1	0.1	1.6	11.2
-	20000	2.3	3.0	11.4	13600	13100	3.9	-	16.2	21.0 23.0	2.5	0.7	21.5	15.0
-	16200	13.5	21.1	23.1	1111	444	0.7	-	31.1	15.9 29.1	0.1	0.2	8.5	14.8

SECTION 3

Province	Unit No.	Production Program	Year of establishment	Sales/Marketing				Land			Buildings			Machinery Equipment
				Sales ¹ (Rs)	Domestic (%)	Export (%)	Channel ²	Area (m ²)	Total value (Rs)	Value per m ² (Rs)	Covered area (m ²)	Total value rent p.m. (Rs)	Va- g m. Rs	Value (Rs)
P	41	Surgical Instruments	76	268 739	-	100	1	150	-	-	98	rent 150/m	-	-
P	42	Surgical Instruments	55	1 291 000	-	100	1,2	510	200 000	392	250	250 000	1 000	188 600
P	1a	Cutlery	66	2 618 700	100	-	1	1 620	520 000	320	980	1 176 000	1 200	2 266 000
P	2a	Cutlery	47	1 548 000	77.0	23.0	1	1 300	250 000	192	700	500 000	714	1 750 000
P	3a	Cutlery	66	720 000	100	-	1	990	316 000	319	850	800 000	940	900 000

SECTION 1

Sl. No.	Machinery + Equipment		Technology				Capacity utilization (%)				Manpower in numbers				Raw material import (%)	Investment		Utilization of loans (%)		Turnover No. of employees	Financial ratios			
	Value (Rs)	Average age (years)	TTD	UTD	ATI	UTI	Total	Internal workers	External workers	Staffs	Fixed assets (Rs)	Working capital (Rs)	Fixed assets	Working capital		Turnover total investment	Turnover/machinery	Turnover/equipment	Turnover/working capital		Total investment	Turnover/employees		
1	-	-	X				50	14	1	12	1	100	20000	10000	-	-	19195	8.9	-	26.8	10000			
2	1000	188600	4	G	X	X	-	-	50	72	17	50	100	638600	285000	-	100	17930	1.3	6.8	4.5	29027		
3	1200	2266000	8	F		X			10	26	19	-	7	100	4137000	890000	80	20.0	100719	0.6	1.1	2.9	159100	
4	714	1750000	9	F		X			25	25	18	-	7	100	2500000	330000	100	-	61920	0.6	0.9	4.6	100000	
5	940	900000	10	F	X	X			25	12	11	-	1	100	2216000	250000	-	-	60000	0.3	0.8	2.9	184600	

SECTION 2

		Financial ratios				Cost Structure (%)						Remarks		
		No. of employees												
		Turnover/total investment												
		Turnover/machinery + equipment												
		Turnover/working capital												
		Total investment Internal employees												
		Machinery and equipment ⁸ internal employees												
		Fixed assets/working capital												
		Loans/total capital (%)												
		Raw material												
		Manpower internal external												
		Deprec. Interest												
		Maintenance												
		Others												
		Profit												
195	8.9	-	26.8	10000	-	2.0	-	34.4	5.3	-	0.2	14.6	7.4	
196	1.3	6.8	4.5	29027	8572	3.2	32.5	29.9	12.6	3.8	1.4	9.8	18.0	
197														
198														
199	0.6	1.1	2.9	159115	87153	4.6	9.9	51.5	10.3	8.7	0.5	16.8	12.0	
200	0.6	0.9	4.6	100000	70000	7.5	7.0	50.3	13.8	6.1	0.6	16.0	13.0	
201	0.3	0.8	2.9	184666	75000	8.8	-	58.3	13.6	0.9	1.6	14.4	11.0	

10801
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**STUDY ON SMALL SCALE INDUSTRIES
IN PAKISTAN**

**Volume 5
SUB-SECTOR: LEATHER**

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STUDY ON SMALL-SCALE INDUSTRIES
IN PAKISTAN

SUB-SECTOR STUDY

- LEATHER -

Volume 5

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submitted to

UNITED NATIONS INDUSTRIAL DEVELOPMENT
ORGANIZATION (UNIDO)

July 1981

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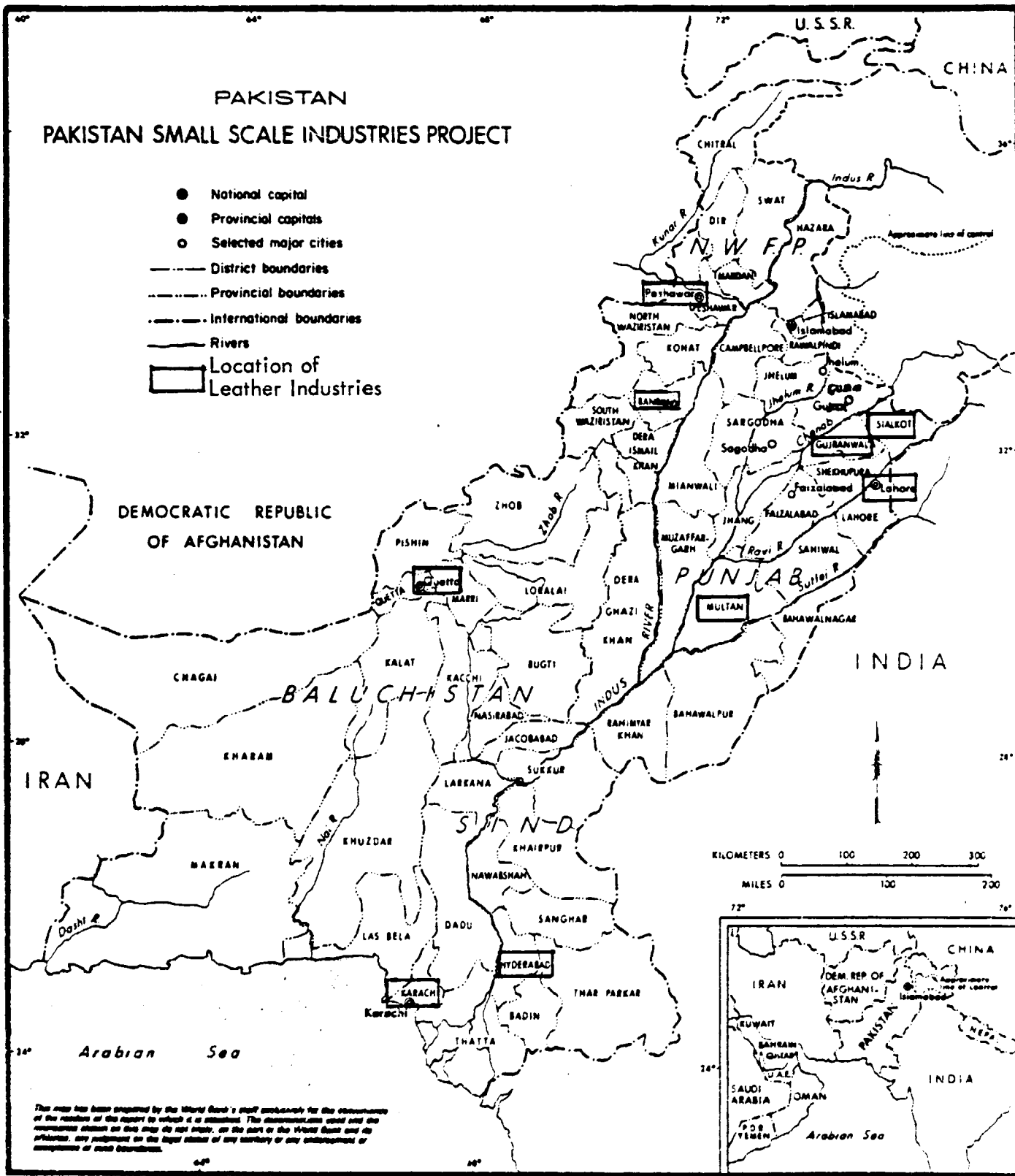
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Annex I: Basic Data and Financial Ratios

List of Abbreviations

a	year
Ass.	Association
ATD	adapted technology developing countries
ATI	adapted technology industrialized countries
CCI	Chamber of Commerce
c.o.d.	cash on delivery
F	Footwear
Gd	Leather goods
GOP	Government of Pakistan
Gt	Leather garments
IMS	injection moulded shoe
LC	Letter of Credit
mill.	million
m ²	square meter
n.m.	not meaningful
Rs	Rupees
sq ft	square feet
T	tannery
TTD	traditional technology developing countries
UTI	unchanged technology industrialized countries



1. INTRODUCTION AND METHOD OF APPROACH

In the following chapters an attempt has been made to provide as precise and complete a picture as possible on the situation of the Pakistan SSI leather sub-sector, covering

- tanneries
- footwear industries
- leather garments industries
- leather goods industries.

The exposition is based on the findings of the survey carried out from September 11 to October 15, 1980, in the course of which 47 units of the above product lines have been visited all over Pakistan. However, it should be mentioned that the scope of the findings was limited by the following constraints:

- Secondary statistical material was scarce and of differing reliability. Available information was frequently incomplete and consisted primarily of investigations undertaken in the Punjab or Sind province. Finally, due to a high number of structural changes within the sub-sector and the existing units, statistical data quickly turned obsolete and had to be updated.
- The industrial survey previously undertaken (UNIDO Study, Phase I) which was to form the basis of this study included no analysis of tanneries in Pakistan and was found to contain many inconsistencies and deviations from the consultant's findings. It could, therefore, only in part be integrated into the report.
- In view of the mentioned background the qualitative analysis is mainly based on the evaluation of information received through plant-visits by the experts to a large number of units within the SSI-sector. However, it should be mentioned that the majority of the visited entrepreneurs were not prone to reveal certain details of their enterprises. The plant visits were supplemented by many interviews with the manufacturers' associations and other relevant institutions were possible within the limited survey period.

It was found that, due to the comparatively small number of units interviewed, certain breakdowns, especially by provinces, may not always be meaningful. This relates in particular to Baluchistan, where no leather industries were visited.

The following study emphasizes the analysis of small scale industries other than cottage industries, which especially in the footwear sector, though more numerous, are less important as target group than regular small and medium scale industries because of their comparably low stage of technical development. They are also not easily accessible to extension services or consultants. For this reason, figures for the cottage industries were averaged and compiled so as to make it one representative unit in the statistical evaluation.

Furthermore, it has to be mentioned that the totals given in the tables do not always correspond to those of all units visited. This is because certain data were not available for every unit to not considered applicable.

2. STRUCTURE, SIGNIFICANCE AND OVERALL POTENTIAL OF THE SUB-SECTOR

2.1 Size of the Sub-Sector

The overall size of the sub-sector industries under review is reflected by table 2.1.

Table 2.1: Distribution of Leather Industries ¹⁾

Item	Province		Sind		NWFP		Baluchistan		Total	
	No.	%	No.	%	No.	%	No.	%	(100 %)	%
Tanneries	118	58	70	34	15	7	1	1	204	(estimated 300)
Areas of Concentration	Lahore Gujranwala Multan Kazur		Karachi Hyderabad		Peshawar Nowshera		Quetta			
Footwear (fully mechanized and semi mechanized, non cottage industries)	28	36	46	60	2	3	1	1	77	(estimated 2000 incl. cottage industries)
	Multan Lahore		Hyderabad		Bannu		Quetta			
Leather Garments (incl. gloves)	5	14	30	86	-	-	-	-	35	
	Sialcot		Karachi							
Leather Goods (except gloves)			Karachi Hyderabad							(estimated 1000 units no statistics available)

¹⁾ Official information from the National Leather Development Board

Exact data were not available, in particular for the footwear and leather goods sector, due to a large number of unidentified cottage industries, mainly in Bannu (NWFP) and Hyderabad (Sind), producing cheap country shoes (Jutti type) and other leather products. These cottage industries are characterized by the absence of all kinds of machinery (except a few sewing machines) and the employment of commonly less than 5 workers.

Many of these units were visited. As a target group, they do not particularly qualify for industrial promotion due to

- high fluctuation in the business
- owners' low rate of literacy
- low motivation for business expansion
- high competition.

In particular for the leather goods sector, there were no official overall industrial surveys and figures had to be estimated.

2.2 Present Output and Export Performance

Present production figures and exports of the leather industry by sub-sectors are shown in table 2.2. Due to the high number of unregistered shoe factories and the varying value of footwear products as well as the difficulty in determining the number and value of leather goods and garments produced, certain figures could not be calculated. However, it can be seen from this table, that about 44 % of the tanned leather production is designed for export which accounts in terms of value for about 46 % of the total output. This is due to the fact that only good quality hides and skins are selected for export purposes. Sales of tanned hides and skins is the major item of the Leather industry's exports, accounting for 63 % of its total.

Although the domestic footwear production is particularly competitive on the international market (as explained later) it accounts with 25 % for the second largest share in exports for non-leather shoes only. Leather garments and goods are the third largest export segment. Although no official figures for the total output are available, it can be assumed that 80 - 90 % of its total value is exported, mainly in the form of leather gloves.

2.3 Characterization of Units Interviewed

2.3.1 Number of Units and Regional Distribution

The basic data and financial ratios of the 47 units visited are compiled in Annex I. The regional distribution and breakdown by product line of these companies are shown in figure 2.1.

Figure 2.1: Structural Pattern of Units Visited

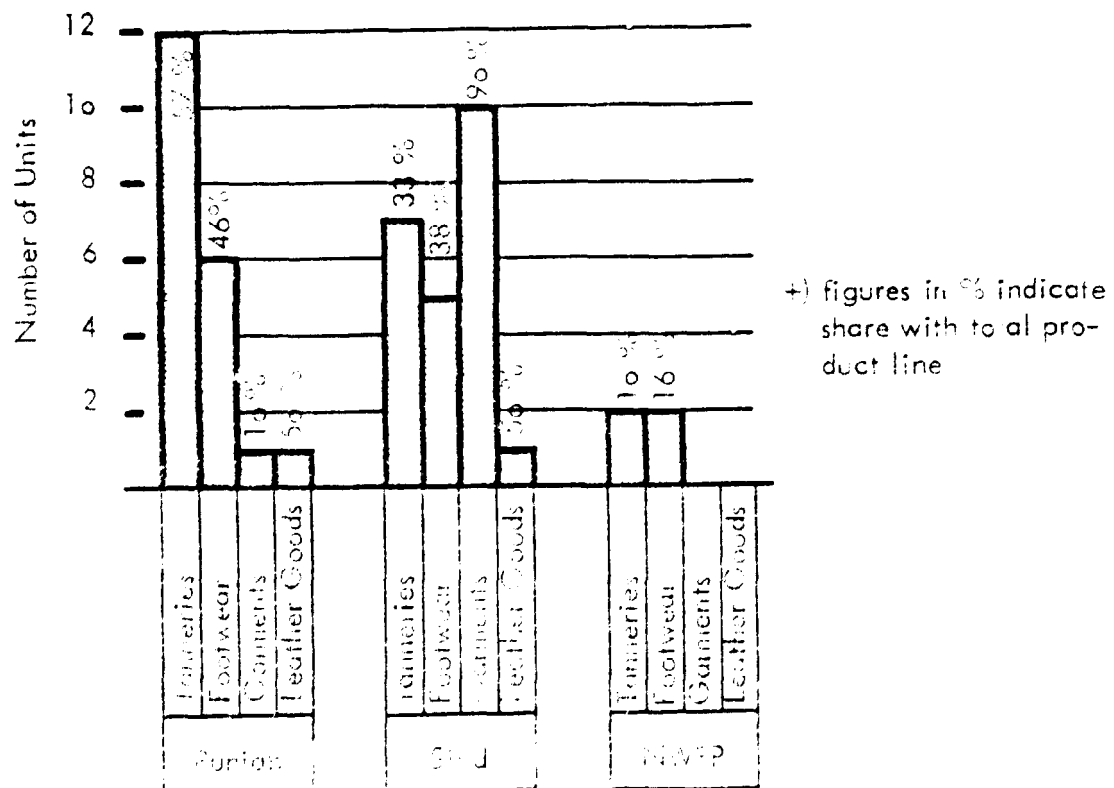


Table 2.2: Output and Export Performance of Sub-Sector

	Quantity	Value	Domestic Sales		Export Sales		% of Total Export Value
	(1000 m ²)	(1000 Rs)	(1000 m ²)	(1000 Rs)	(1000 m ²)	Value (1000 Rs)	
<u>Estimated Leather Production 1979-1980</u>							
Leather cow calf	2,500 (10 %)				392	45,800	2.3
Leather buffalo calf	3,750 (15 %)				959	95,000	4.7
Leather cow hide	2,500 (10 %)				580	62,900	3.1
Leather buffalo hide	3,750 (15 %)				1,314	113,000	5.7
Leather sheep skin	5,000 (20 %)				1,935	253,400	12.6
Leather goat skin	6,500 (26 %)				4,215	621,800	31
Others	1,000 (4 %)				1,490	73,000	3.6
Total	25,000 (100 %)	2,750,000	14,113	1,552,000	1,0867	1264,900	63
<u>Estimated Footwear Production 1979 - 1980</u>							
Leather footwear Cottage industries	12,500				330	19,570	0.8
non mechanized production	25,000						
Country made shoes non mechanized production	25,000						
Canvas footwear and other non-leather	70,000				17500	484,000	24.2
Total	132,500	6,125,000			17,830	503,070	25.0
<u>Estimated Leather Garments and Goods Production 1979-1980</u>							
Leather garments		28,000				25,490	1.3
Leather goods						1,610	-
Football /Volley balls						198,320	9.9
Leather gloves						11,610	0.6
Leather products						237,030	11.6
Total						237,030	11.6
Overall Total		8,903,000				2,004,100	100

As the above figure indicates, the majority of units visited are located in Punjab and Sind. On account of the large number of cottage industries in the NWFP and Baluchistan footwear sector, only part of them could be covered. They all show similar characteristics, and their analysis will focus mainly on qualitative aspects. Analogous conditions apply to the leather goods industry, which is also only represented to a low degree in the statistical evaluations. However, in order to show the overall characteristics, the analysis pays special attention to the assessment of the most important problems and prospects within the product lines and provinces.

In the distribution of units visited it was tried to reflect the overall distribution pattern of enterprises; in the case of footwear and leather goods, this was not possible on account of the large number of unregistered industries. These producers are found in villages and towns. Some of these are known for their manufacturers' expertise in shoemaking, e.g. chappals in Bannu/NWFP are all hand-made by individual shoemakers in their little shops. In a single street one can count up to 100 shops with an average of 4 shoemakers per unit.

2.3.2 Classification of Units

The regional distribution and breakdown by number of employees of the units visited is shown in table 2.3.

Table 2.3: Distribution of Units by Number of Employees

Product Line	Size of Unit	Provinces			Total
		Punjab	Sind	NWFP	
Tanneries	a	-	-	-	-
	b	9	3	-	12
	c	3	4	2	9
Footwear	a	1	3	1	5
	b	4	-	1	5
	c	1	2	-	3
Leather Garments	a	-	3	-	3
	b	1	4	-	5
	c	-	3	-	3
Leather Goods	a	-	-	-	-
	b	-	1	-	1
	c	1	-	-	1
Total		20	23	4	47

a = 1 - 14 employees

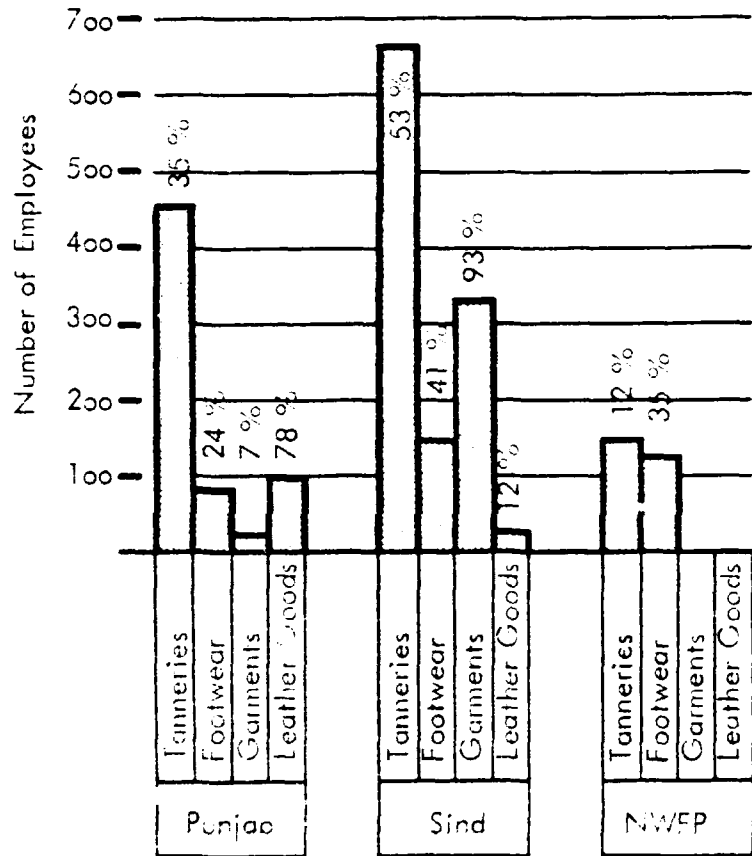
b = 15 - 49 employees

c = 50 and more employees

47 % of the companies which, as stated above, are mainly located in Punjab and Sind, employ in between 15 and 49 workers, another 34 % more than 50, and only 19 % have less than 14 employees.

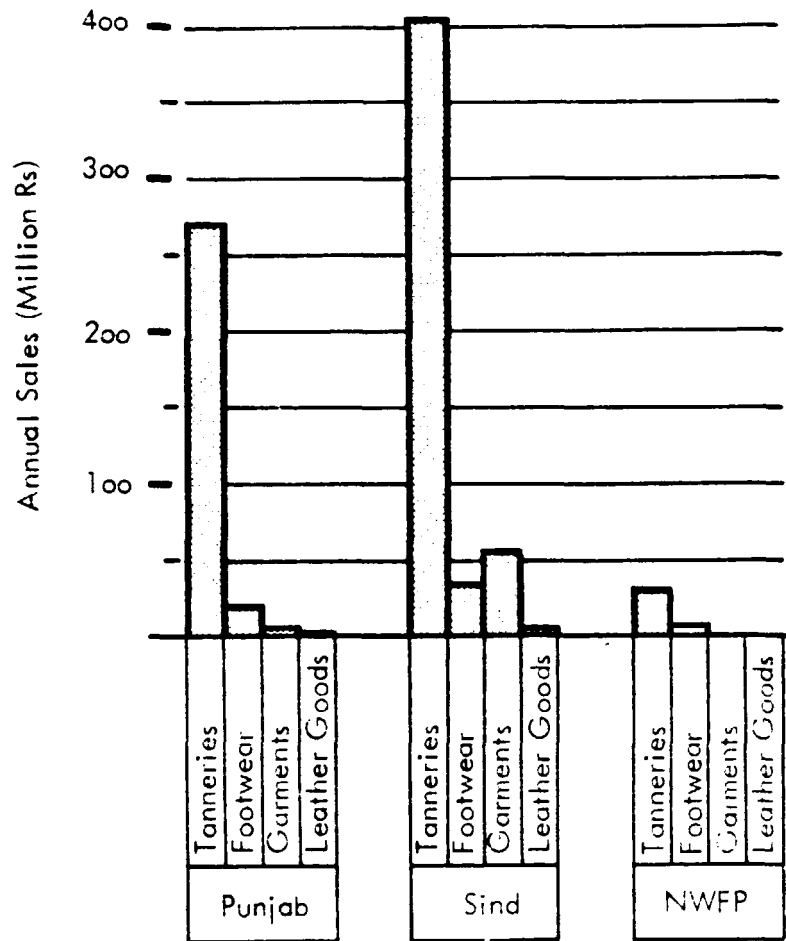
According to figure 2.2, showing the aggregated distribution of manpower employed in the 47 units, manpower for all product lines is also highly concentrated in Punjab and Sind.

Figure 2.2: Distribution of Employees



However, the data, particularly those for the leather goods industry, are not very representative, as only 2 units could be visited. The total annual sales by product line and province are shown in figure 2.3.

Figure 2.3: Distribution of Annual Sales (1000 Rs)



Out of the product lines analysed, tanneries are the most important industries in terms of aggregated output value. This becomes particularly clear from figure 2.4 showing the average sales/unit.

These figures may be further explained by figure 2.5, showing average sales per employee in order to make the units' labour productivity more comparable.

Figure 2.4: Average Sales Unit (1000 Rs)

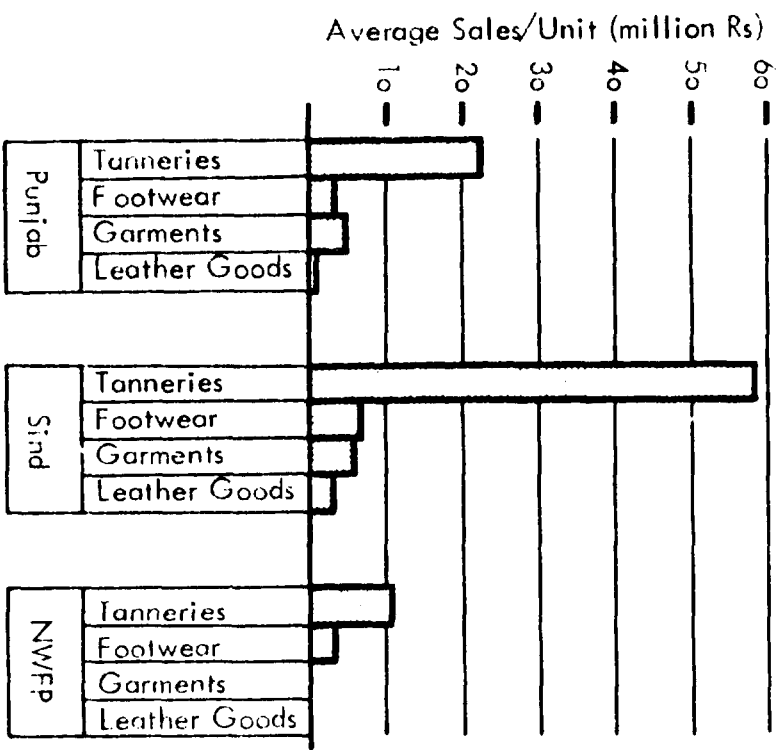
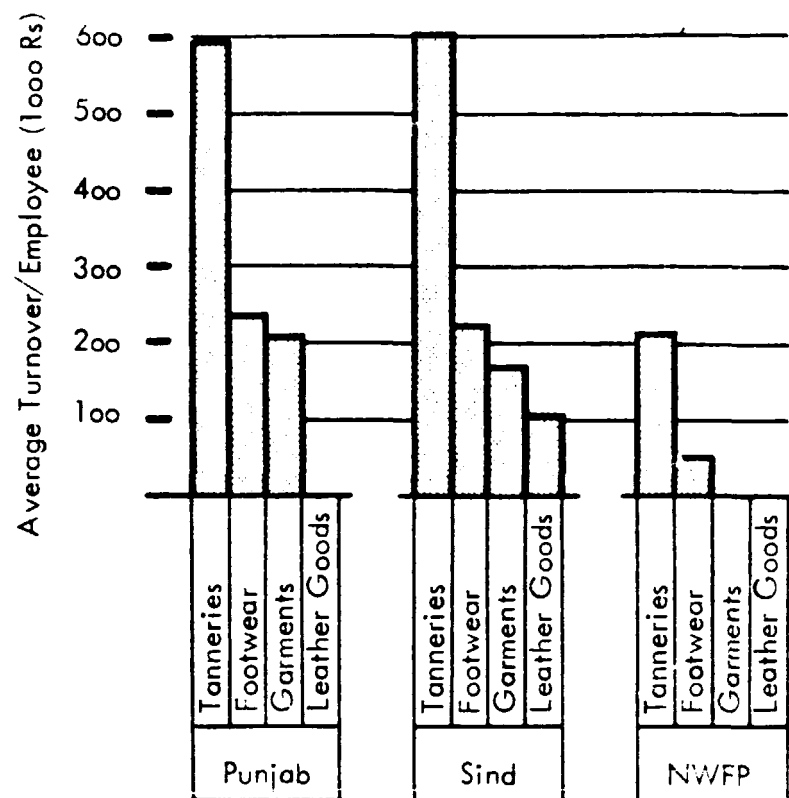


Figure 2.5: Average Turnover/Employee (1000 Rs)



Based on the sample units, the average annual sales per employee of the four product groups are within the following ranges:

- tanneries : 200,000 - 600,000 Rs / average 300,000 Rs
- footwear : 45,000 - 190,000 Rs / average 80,000 Rs
- garments : 50,000 - 250,000 Rs / average 100,000 Rs
- leather goods : (only 2 interviews) average 20,000 Rs

As can be seen from figures 2.4 and 2.5; average sales per tannery in Sind are about twice those in Punjab, although sales quotas per employee are similar.

The data quoted for NWFP are only in part representative, one of the few tanneries visited was under reconstruction. In the footwear industry sales per employee and absolute sales are considerably lower. They are almost equal for Sind and Punjab, but lower for NWFP. This is due to the predominance of cottage industries, which, though also prevailing in Sind, accounted for a larger proportion in the NWFP sample.

The structure and distribution of investment in machinery and equipment by number of employees are shown in table 2.4. It must be emphasized that on account of the significant local differences and fluctuations of land values, instead of total investments, only the present value of investments in machinery has been taken as a criterion for identifying the capital intensity.

Table 2.4: Average in Machinery-Investment / Employee by Size of Units (Rs)

Product Line	Size of Unit	Punjab	Sind
Tanneries	a ²⁾	-	-
	b	15,433	8,414
	c	37,588	26,900
Footwear	a	45,000 ¹⁾	21,460
	b	8,013	-
	c	9,000	~ 28,900
Leather Garments	a	-	1,000
	b	-	3,350
	c	-	2,422
Leather Goods	a	-	-
	b	-	3,000
	c	-	-

1) Only based on one sample with IMS machine

- 2) a = 1 - 14 employees
 b = 15 - 49 employees
 c = 50 and above employees

Based on the units visited, the average range of the investment in machinery and equipment can be estimated as follows:

- tanneries : 4,500 - 43,000 Rs / average 16,000 Rs
- shoe factories : 3,500 - 45,000 Rs / average 12,000 Rs
- garments : 1,000 - 4,000 Rs / average 1,500 Rs
- leather goods : 500 - 3,000 Rs / average 2,000 Rs

The table above indicates that investment per employee is on the average much higher in Punjab than in Sind tanneries. This is explained by the fact that capital investment requirements depend on the kinds of leather produced (table 2.5).

Table 2.5: Kinds of Leather Produced by Number of Units

Province	Shoe Upper Leather	Wetblue and Crust	Garment and Glove Leather	Sole Leather
Punjab	6 (mainly cow)	2	3	3
Sind	3 (mainly goat)	6	6	-
NWFP	2	-	-	-

The degree of mechanization in the tanneries visited is shown in table 2.6.

Table 2.6: Degree of Mechanization¹⁾ of Tanneries Visited

	Punjab	Sind	NWFP
Mechanized	9	4	2
Semi-mechanized	3	3	-
Non-mechanized	-	-	-

1) Definition of different degrees of mechanization is given in 3.1 and 3.1.5.3.

Distribution of degree of mechanization in the footwear units visited is revealed in table 2.7.

Table 2.7: Distribution of Degree of Mechanization in the Footwear Units Visited

	Punjab	Sind	NWFP
Mechanized	2	3	1
Semi-mechanized	3	-	-
Non-mechanized	1	2	1

2.3.3 Organizational Aspects

Forms of ownership of the different units and their registration with chambers of commerce, associations and other institutions are indicated in table 2.8.

Table 2.8: Forms of Ownership and Registration with Chambers of Commerce and Associations

Product Line	Forms of Ownership						Registration				Total	
	Sole Proprietorship		Partnership		Limited Company		Registered with Local Chamber of Commerce		Registered with Manufacturers' Association			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Tanneries	5	23	9	41	6	27	12	55	13	59	22	100
Footwear	5	38	4	31	3	23	6	46	3	23	13	100
Leather Garments	8	72	3	27	-	-	6	55	3	27	11	100
Leather Goods	1	50	1	50	-	-	-	-	-	-	2	100

With growing capital investment requirements increases the number of partnerships and, in this context, different forms of limited companies, as a rule with family participation, the latter prevailing in the tanneries. The percentage of tanneries registered with the local CCIs is considered an overall average and in reality probably even higher. Memberships in manufacturers' associations are rather frequent. Main associations are:

- Leather Association
- Hide Market Association
- Glove Manufacturers' Association
- Tanners' Association
- Sport Association.

The smaller companies in the footwear industry are mainly founded by a single owner. As in the case of tanneries, larger enterprises are partnership financed and/or in the form of limited companies. Memberships in manufacturers' organizations, e.g. in the Shoe Manufacturers Association, are fairly rare.

As leather garment companies are mainly medium sized and require comparatively low capital investment, they are predominantly sole proprietor enterprises. Registration with the local CCIs is frequent which may be attributed to the branch's high dependence on exports. The Glove Manufacturers' Association was the only manufacturers' association identified during field work in this branch.

3. TECHNICAL, ECONOMIC AND FINANCIAL ANALYSIS. PRODUCTION AND TECHNOLOGY

3.1 Production and Technology

3.1.1 Range of Products

Tanneries

Sole-leather and upper-leather are the basic raw material for the local shoe- and leather goods manufacturers. The tanning industry produces the following different types of leather:

- Wetblue skins for export
- Vegetable tanned sole leather for shoes and sandals
- Chrome tanned garment leather and linings
- Chrome tanned upper leather for shoes
- Combined chrome/synthetic tanned hides for football leather
- Vegetable and chrome tanned linings
- Vegetable tanned harness leather.

The different kinds of leather are confined to a few colours and types. They are distinguished by their quality, size and weight.

Footwear

The footwear industry produces boots and shoes from different materials: Police and army boots, slippers, sandals, chappals, sportshoes, Jutti (different country shoes), and a variety of women and children shoes. Among exports, canvas footwear occupies a leading position.

Leather Garments

Leather garments are mostly designed for exports. They comprise to a major part

- short jackets
- safari jackets
- long coats
- trousers
- skirts
- gloves (fancy and workers gloves),

and are produced in large variety according to prevailing fashion and style.

Leather Goods

Leather goods comprise a large span of consumer goods as well as industrial products. The most important are as follows:

- footballs
- leather bags
- wallets
- belts
- suitcases
- saddlery etc.

The individual provinces produce different goods. Tanneries are concentrated in Sind and Punjab, but rare in NWFP. Punjab is also a centre of the leather glove production, while wearing apparel is mostly produced in Sind; both provinces cover most of the local travel goods' and handbag production. Footwear is produced all over Pakistan, but their types vary from one province to the other. Sind and Punjab units produce a considerable share of sophisticated boots and shoes.

3.1.2 Quality and Standardization

Tanneries

The quality of tannery products depends on size, quality, condition and age of the raw material as well as on the tanning process and is judged by their finish and general appearance. Raw hides and skins (see chapter 3.2) vary considerably in quality although prevailing cattle breeding conditions should basically provide for satisfactory raw material.

Wetblue and crust being generally well tanned, their quality can be considered as good. Physical data, however, could not be checked. As far as the export of these items is concerned, the foreign customers usually prescribe applicable tanning processes to ensure that their quality requirements are satisfied. The quality of finished cow leather is low to medium. Extensive impregnation gives the leather too stiff a character. Coating, too, is done with too high an amount of binders and resins. Such finish is desired by Pakistanis but not by European customers. Sheepskin leather is sometimes too heavily pigment and binder treated, while goatskin leather is mainly aniline-finished and of satisfactory overall quality. Pakistani sole leather (mostly buffalo), only being through-tanned, shows a low wear resistance and high water absorption. It does not qualify for exports to Western countries.

Due to the absence of quality controls in the tanneries, there are no standards with respect to chemical and physical data. On the whole, leather is processed within a small range of different kinds. The reasons are lacking knowledge of applicable technologies, non-availability of chemicals and the rather unrefined taste of Pakistan customers.

Footwear

The quality and saleability of shoes depend on their raw material, finish and style. Premium leather is exported or used for garment sewing, thus not being available to footwear producers. Furthermore, the finish of the available leather characterized by corrected grain, heavy impregnation and pigment and binder treatment with an altogether glossy appearance does not qualify for exports to Europe, though it satisfies the present domestic demand.

By European standards, the styling quality is poor and lacks originality, being mostly copied from cheap European shoes. The finish varies considerably depending on the craftsmen's skills. It is generally low due to irregular sewing, cutting, scratched surfaces, occasional inaccurate injection moulding and unsatisfactory make of toes and counters. However, there are highly skilled craftsmen especially in small cottage units, whose performance meets fully their clients' quality requirements.

As far as rubber and canvas shoes are concerned, which account for the majority of footwear exports, medium quality prevails. Styles are mostly copied from Western designers and the look meets export requirements. Footwear packaging leaves much to be desired. This refers in particular to case and box design but also to packaging materials which should be of a more attractive appearance. Minimum quality standards, standardized product lines, common size and fitting scales, as well as the standardization of lasts are practically non-existent in the footwear industry.

Leather Garments

By raw material, style and make, leather garments rank at the lower end of the world market with the exception of gloves which can be considered of good quality. As leather of the best quality is mainly exported in crust or wetblue condition, it is only available at high prices to the domestic garment makers, with the exception of companies supplied by their own tannery. The style of the garments is often copied from Western patterns and lacks originality. So do the few Pakistan developed designs.

Though garment producers are on the whole highly skilled, stitching and cutting are often poor due to old and obsolete machinery which is also unsuited for sophisticated stitching patterns. Pakistani made linings, buttons and accessories are also of low quality and unfashionable.

Leather Goods

Overall quality is satisfactory as far as leather and workmanship are concerned. However, style and make of Pakistani made accessories and linings are poor. Producers, therefore, try to import these items to increase their products' value and international competitiveness.

3.1.3 Classification by Markets

Tanneries

The designation of the different products is shown in table 3.1:

Table 3.1: Designation of Tannery Products

Products	Designation
Wetblue and Crust Leather	Export of high quality goat and sheep to Italy, Spain, Japan, China, Yugoslavia and USSR Medium and low qualities for domestic use in footwear and leather goods industry Export of cow is banned
Finished Upper Leather	Production of leather garments Football production Upper leather, domestic shoe production Saddlery Production of leather goods
Sole Leather (cow and buffalo)	Export of all qualities to Middle East Domestic shoe industry

Footwear

Shoes are mainly produced for the domestic market in all qualities and sizes. Rubber, canvas, PVC- and Jutti-type shoes are considered cheap shoes retailing up to 50 Rs/pair. More sophisticated women shoes and common leather shoes sell for 50 to 130 Rs/pair. High quality shoes and imported footwear are even more expensive. Cheap non leather footwear of all types are produced for export purposes, too.

Leather Garments and Goods

Leather garments are almost exclusively produced for exports to European countries as they are a comparatively cheap merchandise by international standards. The same applies to most of the leather goods. Only saddlery, travel appliances and leather for industrial purposes are partly produced for the domestic market.

3.1.4 Level of Technology

In principle, two tanning processes are applied in Pakistan, i.e. vegetable and mineral tannage. The former is applied for sole, harness and technical leather with vegetable tanning extracts. The mostly used extracts are of Quebracho Mimosa, Chestnut and Valonea and must be imported. There are only a few vegetable tanning materials available in Pakistan, i.e. Babul bark (accacia Arabia), Avaram (Cassia auriculata), Pomegranata (Pencia auriculata) and Pine. Unfortunately, these materials are not found in abundant quantities.

Mineral tannage is applied for shoe upper leather, garment leather, leather for bags, wallets, purses etc. The tannage material used is a chrome salt.

The Pakistani upper leather producing units can be divided into two categories.

1. Wetblue tanneries: The hides and skins are tanned with chrome liquors mostly in drums, and occasionally in pits. Small units sell their processed leather to bigger companies, who then do the exporting.
2. Semi- or full mechanized tanneries with leather finishing equipment. This leather is mainly designed for further domestic processing.

Vegetable and sole-leather tanneries that are reported to carry out complete tanning, apply mainly the following procedures (see table 3.2):

1. Tanning in so-called suspended bags", an outdated technology (duration 4 weeks): UTD
2. "Pit"-tanning system, an upgraded and adapted technology (duration 3-4 weeks): ATD
3. "Drum"-tanning, the modern technology of industrial countries: ATI/UTI

Table 3.2: Stages of Technologies Used in Tanning

Unchanged Technology in Developing Countries: Bag tanning for sole leather, chrome tanning in pits	UTD
Adapted Technology in Developing Countries: Pit tanning for sole leather	ATD
Adapted Technology from Industrialized Countries: Drum tanning for sole leather and chrome upper leather	ATI
Unchanged Technology of Industrialized Countries	UTI

The various types of technologies applied are shown in table 3.3.

Table 3.3: Applied Technologies

Product Lines	Type of Technology			
	ATD	UTD	ATI	UTI
Tanneries	5	4	6	6
Footwear	4	4	3	-
Garments	-	8	2	-
Leather Goods	1	1	-	-

It was found that a variety of technologies is applied in the different product lines. While most of the smaller Punjab tanneries use ATD and UTD, larger units and those of Sind, producing wetblue or garment leather, apply ATI and UTI. Since the export of wetblue cow has been banned, wetblue tanneries concentrate on goat and sheep skins (representing about 70 % of total leather exports), requiring less sophisticated technologies and machinery investments than the leather finishing line (see table 2.4). Overseas buyers usually indicate the applicable technology with respect to the leather finishing. As regards smaller tanneries producing shoe upper and other leather for domestic use, there is little sophisticated technology (software) mainly on account of lacking process control. Hardly any use is made of thermometers, pH-meters or barco-meters for check-ups. There is no re-tanning, loading, stuffing and fatliquoring for sole leather, or else, carried out in a careless way resulting in products of varying properties and quality. As the applied techniques are commonly passed from the father on to the son, they lack development and refinement.

The Gujranwala Leather Training Institute was originally designed to provide both, training of tanners and footwear technologists, as well as facility services, but concentrates on securing the latter. It accommodates mainly smaller tanners for leather finishing or complete tanning. However, with respect to facility services, it is actually the only institution, except the so-called "commercial service centers" in Pakistan that offers the use of its equipment against small fees. One of these centers was visited in Kazur (Punjab). Most tanneries are adequately equipped with respect to their hide processing. This is the reason why subcontracting is negligible. However, especially with regard to the finishing process (see chapter 3.1.5.3), splitting machines, hydraulic presses, setting-out machines, spray units, resting equipment, etc., are badly needed.

Footwear

The level of technology and the process applied differ from one unit to the other. Generally it should be distinguished between mechanized, semi-mechanized and non-mechanized production.

In Pakistan, only some 20 companies operate with machinery and equipment similar to those of industrialized countries. These factories are usually supplied from integrated tanneries and dominate the market.

Semi-mechanized production is mainly found in small to medium sized companies. Their production processes may comprise the following

- cementing
- injection moulding
- flexible make
- Mc Kay make
- string lasting
- Goodyear welt and
- California make.

Small and cottage industries employing skilled craftsmen, perform all operations by hand except stitching and grinding of upper leather. They produce mainly country shoes and common leather footwear. The products are designed individually and rarely integrated into complete production lines. Labour is usually trained on-the-job, and skills are limited to specific performances. Styling and shoe design are on the whole neglected; they are mostly copied from catalogue fashion models and lack refinement. The applied technology and the product quality gave evidence of a poorly developed shoe industry. Especially smaller units work in comparatively dirty and dark environment. On account of poor workmanship, the products often show scratches, marks and spots, etc. Finally footwear accessories were often found to be of low quality in varying respects; however, they seem to satisfy Pakistani customers. Besides, there are but few kinds of lasts which also have usually been long in use and often lost their shape. A major constraint for export is that they often do not comply with European standards. This would be a prerequisite for the export of footwear to industrialized countries.

While the bigger footwear manufacturers sell good quality footwear at comparatively low prices, smaller units are more and more forced to work as their subcontractors, like in the "Bata-System". Models, lasts and leather are provided by the big companies and payment is done on delivery.

Apart from the Hyderabad SSIC Footwear Training Centre, there are practically no other similar technical service centres for the shoe industry. The footwear department of the Gujranwala Institute of Leather Technology ceased its services and training. This is why the IBRD proposal to establish a respective service centre in Bannu should be strongly supported.

Leather Garments and Goods

The mostly small to medium scale leather goods and garments manufacturers generally use outdated and obsolete sewing machines and rarely additional buttoning and other machines, unsuitable for quality work. Skills are of medium level. Styling and design are mostly copied

or prescribed by the foreign importers who also set quality standards. However, the technology, in particular in garment making is relatively unsophisticated, as regards machinery employed and skills in stitching, lining and material selection. The industry is at present not in a position to produce on a larger scale and at competitive prices, products of consistent quality and standard that can compete with those of countries like Taiwan or South Korea.

Subcontracting was not observed except in the production of souvenir-garments where some cottage units took over stitching orders from larger dealers.

3.1.5 Plant and Machinery

3.1.5.1 Age Structure of Plants

The age structure of the units visited is reflected in table 3.4.

Table 3.4: Age Structure of Units ¹⁾ Visited

Product Line \ Age	less than 2 years old	2 - 5 years old	6 - 10 years old	more than 10 years old
<u>Punjab</u>				
- Tanneries	3	-	4	6
- Footwear	2	1	-	2
- Garments	-	-	1	-
- Leather Goods	-	-	-	-
<u>Sind</u>				
- Tanneries	-	1	1	5
- Footwear	1	-	1	3
- Garments	3	1	4	2
- Leather Goods	1	-	-	-
<u>NWFP</u>				
- Tanneries	-	1	-	1
- Footwear	-	1	-	-
- Garments	-	-	-	-
- Leather Goods	-	-	-	-

Most enterprises, particularly the larger units, existed for more than 6 years. Tanneries being frequently inherited within the family, have been in business for sometimes up to 35 years. Their total number has risen sharply since 1947, from 20 up to now about 300,

1) Except cottage industries for which reliable data were not available.

50 of them being larger units. However, the sale or temporary closure of factories does often occur. In particular, comparatively high fluctuation is observed in the Sind garment industries, where extensive financial and quality requirements for exports are the reason for frequent factory sales or temporary closures.

3.1.5.2 Size of Plant

Tanneries

Plant sizes differ from one product line to the other and depend, besides the scale of production and technology applied, on the local situation, in particular on the cost for land. Required production areas can be estimated as follows:

- Tanneries: 800 - 1,200 m² for an average unit and up to
 2,500 m² for a larger unit
- Footwear: 50 - 150 m² for small scale production
 1,000 - 1,500 m² for medium scale production
- Garment and 20 - 50 m² for small units (up to 15 workers)
 Leather Goods: 250 - 500 m² for medium scale production.

3.1.5.3 Machinery and Equipment

Tanneries

The composition of machinery and equipment commonly used is related to the technology applied and degree of mechanization as shown in table 3.5.

Table 3.5: Type of Machinery in the Tanneries

	Sole Leather	Upper Leather
Non-mechanized	Bag tanning Pits (no further machines)	Pits (no further machines)
Semi-mechanized	Pits Heavy jacks Scales	Drums Buffing machine Staking machine Shaving machine Spray guns
Fully mechanized	Drums Fleshing machine Rolling press	Fleshing machine Splitting machine Setting out machine Glazing machine Polishing machine Buffing machine Togglng machine Pasting plates Hydraulic Press

About 30 % of all tanneries imported large parts of their machinery at high prices compared to the respective sales prices of local tannery equipment. However, the quality, efficiency and performance of imported machinery are normally far above those of the mostly copied domestic equipment. The smaller tanneries, however, almost exclusively use machines made in Pakistan except for spray units and splitting machines. These tanneries, dealing basically with wetblue or pigment finished leather for domestic sales, usually are semi- or fully mechanized. The domestic machinery, although in good condition, does not ensure the output and product quality achieved with imported equipment. This applies in particular to the splitting and setting out machines. For further export stimulation of finished cow hide-leather, in particular on larger scale, the finishing method has to be changed from corrected to full grain. This of course would call for a different type of technology and machinery to be applied, e.g. replacement of pasting plates by togglng units.

Table 3.6 gives details on the average age and condition of machinery. In most units the overall condition of the machinery, in respect of the age was found to be good to fair.

Table 3.6: Age of Machinery of the Units Visited

Product Line	Average Age				Condition		
	0 - 2 years	3 - 5 years	6 - 9 years	above 9 years	good	fair	bad
Tanneries	3	6	2	10 ¹⁾	11 ²⁾	10 ¹⁾	-
Footwear	1	2	1	8	2	11	-
Garments	3	3	2	3	1	8	2
Leather Goods	-	-	-	2	-	2	-

1) mainly Sind

2) mainly Punjab

As far as value, quality and sophistication of machinery are concerned, the best equipped tanneries are located in Sind. They produce mainly for export (wetblue or finished leather for garment or gloves) and generally show the highest output/capital (relating to investment in machinery) ratio. The fact that as a rule higher investment/employee results in higher capital productivity could not be proved satisfactorily by the recorded data. However, as an average, the ratio turnover/investment in machinery ratio ranged for cow upper leather as well as for high mechanized wetblue tanneries in between 20 - 30. This ratio may increase for garment and glove leather up to 110.

Footwear

In this product line it is commonly distinguished between non-mechanized and cottage industries. The cottage industries perform most of the operations by hand and use only a few

- sewing machines and
- grinding machines.

Semi-mechanized units operate generally with

- stitching/sewing machines
- skiving machines
- sole splitting machines
- pulling over machines
- heel nailing machines
- sole pressing machines
- lasting machines
- sometimes injection moulding machines.

In addition to the machinery mentioned above, fully mechanized industries also use:

- cutting presses
- perforating machines
- eyeletting machines
- steam machines
- head setter machines
- last removers
- finishing cleaning machines
- sole cementing machines
- heaters
- dryers
- spray units
- other sophisticated machinery.

Most of the smaller units' machinery was locally made, often more than 10 years old, but still in fair condition. As in the case of tanneries, only larger units are in a position to afford imported equipment, which would ensure higher quality and accuracy.

Thus, despite the fact that small units employ often excellent craftsmen, the larger units generally produce leather shoes of higher average quality and uniformity. As far as injection moulded plastic shoes are concerned, it was observed that small units owning one of these machines, were also working as subcontractors for the larger footwear corporations.

Regarding quality and price of Pakistan made shoes, their export would require highly improved leather qualities and styles, the latter to be ensured by more sophisticated machinery. Domestic demand showing a high price elasticity, still more or less regardless of quality, is likely to remain more or less unchanged. The annual turnover/investment in machinery ratio ranging on the average between 10 - 20 could be remarkably increased by the opening of export markets and by the employment of improved machinery.

Leather Garments and Goods

The manufacturing of leather goods requires little capital, as only a few ordinary tools are used. The most commonly used machines in all units are either hand-driven or electric stitching/sewing machines and occasionally cutting and buttoning machines. The machinery is of different origin (imported or locally made) and commonly in fair condition. The age of the machinery amounts to mostly up to 5 years in the garment industries and on the average to more than 10 years in the leather goods units. Compared to the quality requirements for export goods, its performance is poor and does not allow sophisticated stitching patterns and buttoning. Also, neither grading, over lock, zig-zag, button hole making and fixing machines nor pressing, folding and fusing-interlining equipment were found.

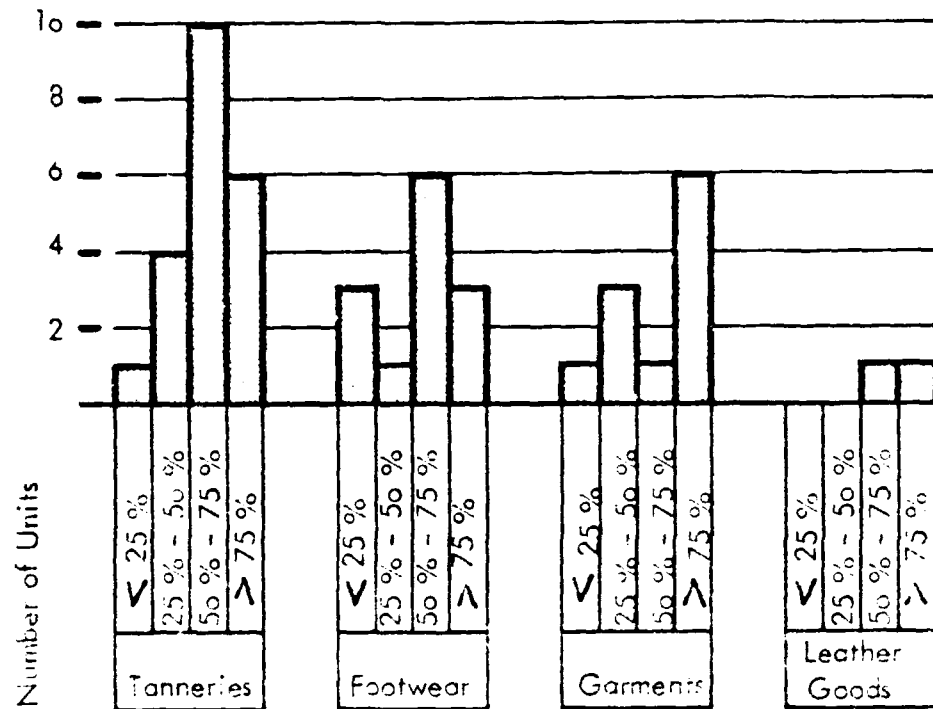
However, it has to be mentioned that the quality of finished leather garments primarily depends on design, quality of raw materials used and the craftsmanship, and only secondarily

on the performance of the machine. The annual turnover/machinery ratio may be as high as 150 - 250 (for export oriented businesses). Investment in machinery and equipment per job averaged for the higher qualified enterprises to some 1,500 Rs. If exports of garments and leather goods were to be increased, besides improvements in style and make, the composition of machinery would have to be more sophisticated.

3.1.5.4 Capacity Utilization

The capacity per product line, based on the number of units visited, is shown in figure 3.1.

Figure 3.1: Distribution of Capacity Utilization by Product Line



Low average capacity utilization of some tanneries is presently attributable to a shortage of local hides, caused by insufficient cattle raising and slaughtering.

In the footwear factories, the majority of companies utilize only 50 - 75 % of their capacity; they suffer from a lack of demand due to competition or too few of subcontracting orders from the larger manufacturers. However, besides being in financial predicaments, some of the entrepreneurs are not in a position to ensure sufficient supplies of finished leather due to the shortage on the raw material market. They are not able to demand higher shoe prices from the retailers without suffering corresponding sales declines.

Garment and leather goods industries are presently using almost their full capacity; however, they depend highly on export orders which are placed irregularly. Due to their relative unimportance, the raw leather shortage is only of minor influence to them.

3.1.6 Technological Constraints

3.1.6.1 Technical Aspects

There are no severe technical constraints such as frequent machine breakdowns in the interviewed units. Locally made machinery is fairly susceptible to break downs; it can usually be repaired by local mechanics with locally manufactured spare parts. Imported machinery being more lasting, rarely requires reparation. However, high import prices and long order delivery times for foreign made spare parts represent a serious problem. In particular for the semi-mechanized shoe production, availability of spare parts may be a problem if the machines are too old. Overall yearly cost of repairs and maintenance can reach up to 1 % of the annual sales volume. There are also frequent breakdowns in electrical supply, mainly as a result of improper installations.

3.1.6.2 Quality and Quality Control

Tanneries

There exist no official standards or quality specifications for the judgement of raw hides and skins and leather except for those wetblue exports which are in accordance with the requirements, previously specified by the overseas buyers. Generally, there is a common agreement on the quality and characteristics of sole and upper leather which are, however, in any case only controlled visually. Facilities and equipment for quality control do not exist within the units (except for the larger tanneries); thus there is little consistency regarding the standard of leather produced. Besides, quality checks are not considered important by numerous tanners.

Footwear

Almost every conceivable material is used for shoe making and there is hardly any criterion for selecting it. The same applies to the end product which is only visually checked for defaults.

Standard specifications for the manufacturing of shoes are commonly not applied except by large scale companies, such as "Bata". Besides this, no equipment for quality control is available in this SSI sub-sector.

Leather Garments

Quality control is only performed visually observing common sense standards or particular specifications given by importers. Raw materials are controlled by the respective cutters, finished garments usually by a specially assigned inspector.

3.1.7 Working Conditions

Working conditions normally vary with factor size. While larger companies in general recognize the necessity of convenient working places with fresh air, sufficient illumination, adequate equipment, rest and washrooms, the smaller companies often cannot provide such facilities. Their working places are as a rule not sufficiently illuminated nor located in accordance with a logical production sequence minimizing the internal material flow. Safety regulations concerning machinery are often neglected or unknown. Also the machinery itself is rarely inspected with respect to accident prevention. Protective measures against dust and noise are generally not taken.

3.1.8 Main Problem Areas

As far as technology and production are concerned, the visits to units disclosed the following main problem areas:

- Product variety is generally narrow and could be largely extended without great efforts. In particular styling and design of footwear and garment products need refinement as their export potential is highly fashion-dependent.
- The lack of quality standards, specifications and quality control affects the international competitiveness of all products studied since uniformity in shape and a steady quality level cannot be guaranteed.
- The lack of quality control, being a feedback to the working process, prevents major improvements.
- The level of technology applied (software) e.g. scientific control of the production process in small tanneries, is generally low due to lack of know-how. This applies in particular to leather finishing.
- Consequently, tanneries envisaging to be future suppliers to the footwear export industry, have to change and improve upper and sole leather processing, not only in view of European taste for soft full grain finishing (incl. increased utilization of goat), but also to increase the shoes' wear resistance. These changes would require i.a. the set up/replacement of (additional) machinery.
- Footwear industries whose products are bought by local customers with comparatively low quality requirements would have to improve their standard for exports. This applies

- to quality of used raw material and styling, design as well as utilized lasts and demand for improved technologies.
- Improvement of machinery and equipment (hardware) is needed in most product-lines.
- The number and capacity of existing technical service centres does not meet the prevailing demand for training, extension services and special facilities (quality control, etc.)
- Tanneries and footwear industries are presently suffering from low capacity utilization, the first on account of the prevailing hide and skin shortage, the latter as a consequence of lacking demand due to severe competition and deficient subcontracting orders.
- The garment sector's unsteady capacity utilization is due to an irregular placement of foreign orders, being a consequence of changing quality, style and price of the merchandis
- An improvement in the smaller units' working conditions, in particular with respect to sufficient illumination, would enhance work accuracy.

3.2 Materials and Components

3.2.1 Hides and Skins

Pakistan ranks third in the livestock population in Asia. Of the total 82 million heads, more than 80 % are buffaloes, cows, goats and sheep; the rest are camels, donkeys, horses and mules being left out of consideration in this report. The past and present composition of livestock is given in table 3.7.

Table 3.7: Livestock Population and its Composition in Pakistan

Livestock	1979	
	Mill. heads	%
Buffaloes	9.4	11.5
Cows	12.3	15.0
Goats	24.8	30.2
Sheep	20.7	25.2

Pakistan's livestock population has steadily grown, though at different individual rates. The population of sheep and goats has nearly doubled since 1972, not only because of the rise in demand for mutton and the development in the tanning industry, but also because of the substantial progress of carpet- and rugmaking industries, who offer good prices for wool and hair.

The buffalo and cows' population, however, has been growing slowly during the last ten years, probably because of the heavy imports of milk and milk products which curtailed the market for the domestic livestock food products. A second reason is the sharp decline in the utilization of buffalo and cows for transport purposes. Exact figures on the production of hides and skins are difficult to obtain since slaughtering is not only done in the recognized slaughter houses, where figures are recorded. The population of hides and skins is estimated for 1979/80 as follows:

- hides 4.8 millions
- skins 41.7 millions.

While self-sufficient in skins, Pakistan still imports small amounts of cattle hides, mainly from South America and USA. These imports should be gradually stopped and ways and means be found to develop alternative technologies to produce shoe upper leather from buffalo hides. Up to now, upper leather made from buffalo hides, which are sufficiently available is not common in Pakistan, but could be further introduced through insignificant changes in the applied tanning technology.

The use of buffalo hides could enhance exports of certain leather types to Europe where

buffalo grain is highly appreciated.

The quality of Pakistani produced hides and skins is excellent due to the prevailing specific natural conditions. The Punjab Buffalo and the Sindi Red Cow are considered to be among the best cattle races of the world. The vegetation and soil contain a lot of salt which fattens the cattle. However, the treated hides and skins are badly handled during their further processing, before arriving in the tanneries. Moreover, the livestock is the victim of various diseases which have an adverse effect on the quality of the hides and skins as well.

The conditions in many of the slaughter houses are non-hygienic and extremely poor. They are disorganized and overcrowded and there is a lack of slaughtering facilities, like hoists, dressing hooks, adequate illumination and water-supply, as well as poorly organized flaying. None of the preparational tasks to preserve the hides and skins is done on site, which means that they are taken from the slaughter houses (often after having been auctioned) without being cleaned, washed, fleshed or trimmed, to the place where they are to be salted, which again is frequently delayed resulting in putrefaction. Later storage, in several tanneries has been observed to be deficient; hides and skins are left lying or stacked on dirt, and/or salt water, though adequate facilities are available.

An analysis carried out recently in Punjab, quotes annual losses due to these factors as follows:

	<u>hides</u>	<u>skins</u>
- non collection of fallen hides/ skins	0.88 %	0.04 %
- faulty flaying	1.41 %	0.66 %
- defective curing	1.06 %	0.44 %
- animal diseases	1.76 %	0.04 %

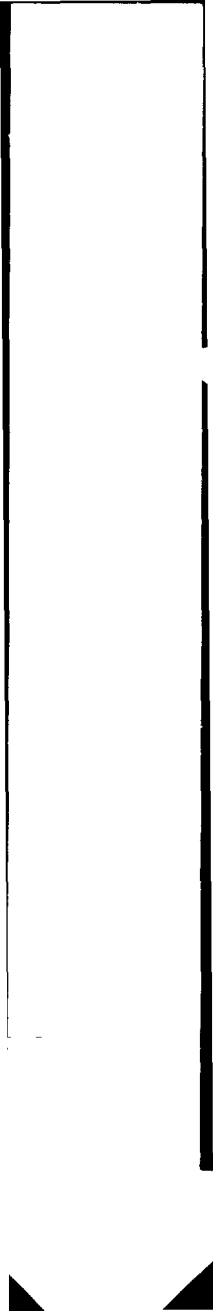
Only in Punjab, the annual loss amounts to 6.24 % equalling about Rs 35 million in value. In NWFP, the situation is even worse: 18 % of all selected hides and skins are rejected for poor flaying.

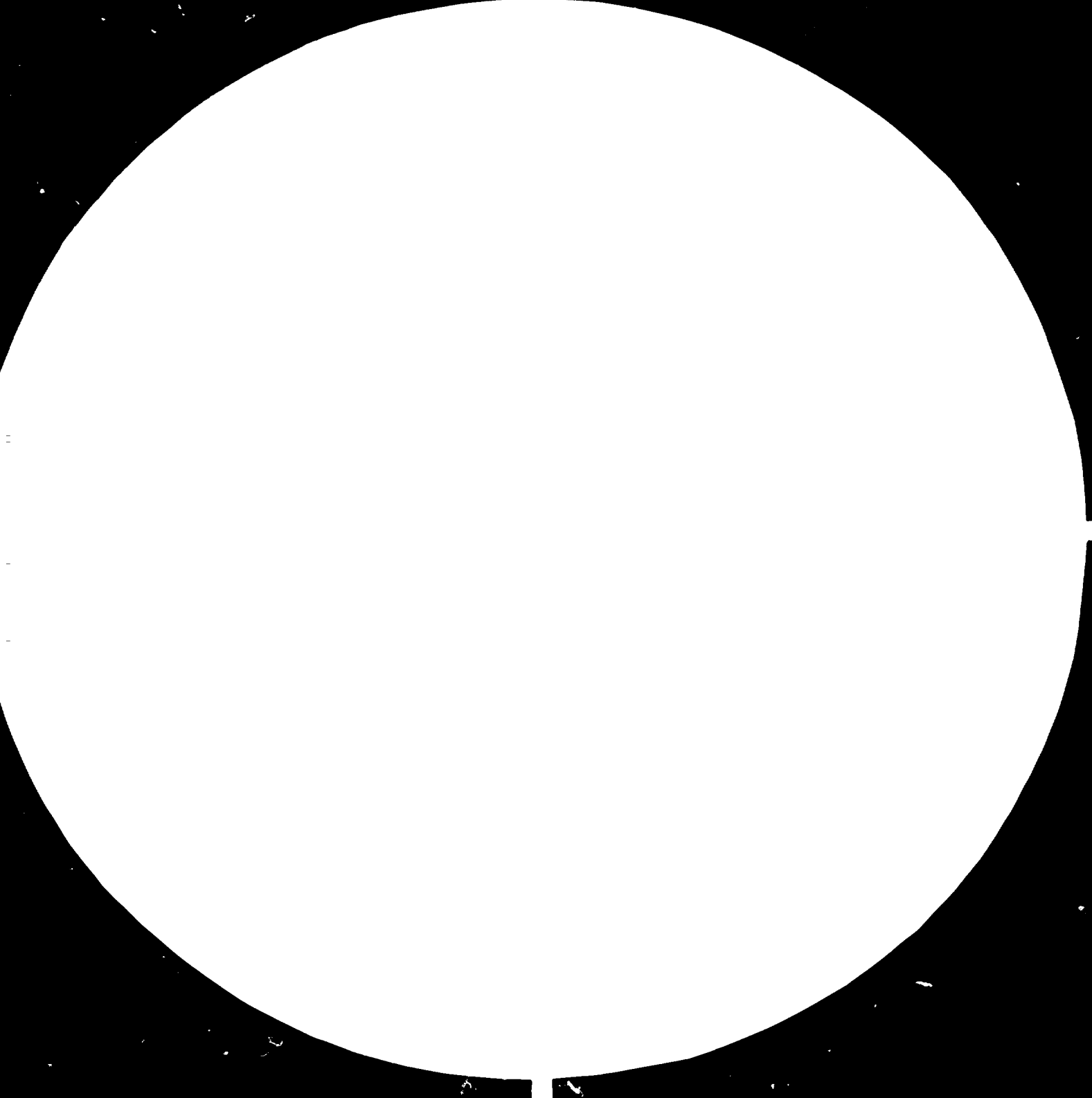
Regardless to origin, hides and skins differ with climatic, geographical and health conditions. No marking system indicating the origin of sold hides, could be identified. Distinction is left to the auctioneers.

43 % of the hides produced is of good quality; the rest consists of aged, barren and dry stock.

While 50 % of the skins is of good quality, at least 26 % of the production must be considered defective in one way or another, through diseases, mechanical damages or putrefaction.

Hides and skins are sold by auction in different cities. Quality preferences for hides and skins rank as follows:







28



32



36



40



45

W. S. K. Co., Ltd., 100, Queen's Road, Hong Kong

1. Punjab
2. Sind
3. NWFP
4. Baluchistan.

The export of raw hides and skins is banned.

While skins are usually offered in lots of up to a dozen pieces at a time, hides are graded according to their size. For cow, there are six ranges, from 5 to 32 sqft; for buffalo, there are twelve ranges, from 4 to 40 sqft. In both cases the top ranges, i.e. heavy hides are usually used for producing sole leather. As far as quality is concerned, 4 grades are recognized for cow hides and 3 for buffalo. Goat skins range from 2 - 12 sqft (sheep skins 2 - 10 sqft) and are classified as small, medium or large. Also four different quality grades are distinguished. As far as footage of raw materials is concerned, "cheating" on the real size of skins is very common. This applies also to the raw hides.

Prices for Pakistani raw hides and skins, highly correlating with world market price developments, amount to (October 1980) 4 - 5 Rs/sqft (43 - 54 Rs/m²). The average surface of hides/skins and their respective value are shown in table 3.8.

Table 3.8: Prices for Raw Hides and Skins

Item	Average surface: hides/skins (sqft)	Value: hide/skin (Rs)
Cow	24.0	100 - 120
Buffalo	35.0	150 - 225
Goat	7.5	25 - 30
Sheep	7.04	20 - 25

However, speculation is a common phenomenon in the raw hide business, causing high price fluctuations. Due to a general world market decline, goat and buffalo hides fell by 40 - 50 % in value last year, cow hides by almost 70 %. Apart from speculation and demand fluctuation, the amount of hides and skins available is influenced by seasonal livestock slaughtering. The absorption of the price fluctuations represents a serious problem to the tanneries as well as to the following domestic leather processing manufacturers.

Though they may vary with individual enterprises, the terms of payment generally are.

- Slaughter houses or butchers to hide dealers: Cash payments
- Hide dealers to tanners: Cash payment with discount (5 %);
30 days net less 3 %.

Hides and skins are stocked by most smaller tanneries for 5 - 10 days on an average, and for 28 days by the larger ones. This also reflects the scarcity of working capital. The present hide

shortage with its consequent price increases and monthly (in average) price fluctuations account for the fact that only financially stronger (mostly larger) tanneries are in a position to hold large stocks.

3.2.2 Chemicals and Other Raw Materials for the Tanning Industry

Depending on the type of leather, different chemicals are required for treatment. Due to the absence of large chemical, and agro-processing industries, about 80 % of the material has to be imported, either directly by the tanneries or sales representatives / wholesalers. The quality of these chemicals is of world market level and meets the requirements of Pakistani tanners. The value of all chemicals needed amounts to 50 - 75 % of the corresponding raw hide value; Payment is usually in cash. Generally tanneries have to reckon with long order delivery times. Therefore, tanneries tend to hold large chemical stocks (up to 5 months) which represents a considerable financial burden.

3.2.3 Materials and Components for Footwear Production

Besides leather and leather components, materials like PVC, linings, glue, nails, strings, different chemicals, packaging, etc. are needed for footwear production. Almost no imports are necessary. Finished leather is bought either directly from the tanneries or from wholesalers at 12 - 15 Rs/sqft. Only the large domestic footwear producers have their own tannery. The leather price depends on quality, order quantity and terms of payment. 30 - 45 days of credit usually account for a price increase of 1 Rs/sqft. Leather supply brings about serious problems. Footwear producers, complain about price fluctuations. Besides buffering leather prices, they finance partly their retailers, the extent depending on the market power of the individual company. Also leather is not always available in sufficient quantity. Furthermore, the variety of different leathers is narrow not permitting much differentiation in styling. However, in order to be supplied regularly with consistent quality at agreed terms of payment, shoe manufacturers do not tend to change their leather suppliers often.

The leather quality varies; however, nearly all species are finished with pigments in order to cover irregularities. While the applied leather buffing and impregnation are appreciated by Pakistani consumers, they do not meet European export requirements. Good quality leather is not always available and some shoe manufacturers complained about testing facilities, missing outside and/or in the factories. Besides, "cheating" on the footage of the sold leather is a common practice, since measuring machines are practically unknown.

Most other materials are available with the exception of certain bottlenecks in the case of tacks and sometimes also PVC for local injection moulding.

Stocks of raw materials are usually held 5 days in cottage industries and about 1 month in large companies.

3.2.4 Materials and Components for Garment Production

Materials needed for leather garment production comprise mainly leather, thread, lining (synthetic, cotton, woolen, quilt), buttons, zippers, accessories and auxiliaries (fats, solutions, etc.).

With the exception of a few accessories like buttons and zippers that are provided by the foreign customers or imported, all components are available in the country.

The main problem for the garment manufacturers, not owning a tannery is the quality leather supply, in particular for exports. This applies to 80% of the units visited. While most of the better leather qualities are exported in wetblue condition, the remaining finished leather often can hardly meet export requirements. Full graded garment leather is either processed by an integrated garment or glove factory, or sold at high and fluctuating prices to independent garment makers (8 - 15Rs/sqft). The entrepreneurs, though trying to overcome this predicament, are reluctant to change their sources of supply and will rather pay the demanded prices, since minor leather qualities do not stand international competition. Besides this, the variety of leather available is rather narrow. The quality of other needed materials is medium. Accessories have to be imported on account of high quality requirements. Order processing and delivery are time consuming; import duties vary from 40 - 110 % but can be rebated in the case of exports.

Stocks are commonly held for 7 - 14 days of production; for the mentioned accessories, they may be considerably higher.

3.2.5 Materials and Components for the Leather Goods Production

The previous considerations also apply to the leather goods production. The supply of imported accessories is even more vital to the export producers. As far as production for the domestic market is concerned, no predicaments could be observed except for the fluctuation of leather prices.

3.2.6 Main Problem Areas

The quality of Pakistani hides and skins enjoys widely known reputation but is often jeopardized by inadequate handling and livestock diseases. This former applies in particular to deficient flaying and curing and also to delayed salting, resulting in putrefaction. As an example in Punjab 57% of the hides and 26% of skins must be considered defective in one respect or another. Besides, they are subject to high price fluctuations according to the world market situation. This imposes often financial burdens on the tanneries and even more on the footwear and garment producers who cannot pass them on without difficulty. In addition, the availability of quality garment leather is a problem to many garment industries, since most material is already sold in wetblue condition. Generally only few kinds of finished leather are available. This jeopardizes exports of leather footwear to European countries, where more differentiation in product style and design are demanded. The reduced number of leather kinds a consequence of a poor variety in leather finishings. It was also observed that in particular

smaller tanneries suffer from long order delivery and processing times with respect to the needed chemicals, which almost entirely have to be imported.

Footwear and garment factories complain about scarce possibilities for testing the leathers' physical and chemical composition and characteristics.

As regards other materials for the footwear production, only few quality criteria were used for their selection, impairing the total quality of the product. Furthermore, Pakistani made accessories needed for garments, leather goods and shoe production, like zippers, buttons, buckles, etc., mostly proved to be of low quality in style and make.

As exports are of vital importance to these industries, they are obliged to import most of these articles, which often causes delays.

3.3 Manpower, Management and Organization

3.3.1 Manpower

3.3.1.1 Employees by Category

The structure of manpower by category is compiled in table 3.9.

Table 3.9: Distribution of Manpower by Category

Tanneries

Number of Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Staff	1	3	2	2	2	4	3	3	4	5	6	4	2	9	4	16	22	59	65	3	6
Skilled	14	7	-	4	5	-	7	10	10	20	10	46	2	4	4	22	12	21	24	30	24
Semi-skilled	-	10	18	15	15	26	21	22	22	25	40	70	12	17	40	15	38	120	165	17	70
Total	15	20	20	21	22	30	31	35	36	50	56	120	16	30	48	53	72	200	254	50	100

Footwear

Number of Unit	22	23	24	25	26	27	28	29	30	31	32	33	34
Staff	1	1	1	2	2	4	-	2	4	8	10	-	40
Skilled	5	15	12	10	20	50	3	2	3	30	20	3	50
Semi-skilled	2	-	3	8	10	30	2	3	4	17	40	2	66
Total	8	16	16	20	32	84	5	7	11	55	70	5	156

Garments

Number of Unit	35	36	37	38	39	40	41	42	43	44	45
Staff	4	1	2	1	2	5	6	2	5	8	6
Skilled	15	6	8	12	2	20	10	23	25	27	66
Semi-skilled	6	-	-	-	12	-	10	-	20	-	30
Total	25	7	10	13	16	25	26	25	50	55	102

Leather Goods

Number of Unit	46	47
Staff		4
Skilled		4
Semi-skilled		20
Total	100	28

Supervisory and administrative positions are mainly held by the company owners or their family members. This applies in particular to the smaller units and cottage industries. With increasing units sizes, supervisors and foremen are employed from outside. Since the entrepreneur of small and medium-sized units is more of a technician than of a business-manager, employment of administrative and marketing personnel is neglected in favour of skilled technical staff. Pakistani skilled workers are normally trained on-the-job. This type of traineeship may last from a few weeks to one or two years depending on the work. Apprenticeship programmes lasting up to 3 years, as known in industrialized countries, are uncommon.

Tanneries requiring comparatively low skills from most of their workers (due to the applied

tanning process) generally rely on a few qualified tanners, supervisors and skilled fleshing operators. The number of semi-skilled workers is consequently high. Children and women are not employed.

Shoe factories need more highly skilled craftsmen, the extent depending on their degree of mechanization. Small units with low mechanization have the highest skill demand. Tanning, however, requires supervisors and foremen in accordance with the unit's increasing mechanization.

An exception are the garment factories, which are labour intensive, employing comparatively few un- and semi-skilled workers. It has been tried recently to increase the share of female workers in this business.

Children are commonly employed in glove making, as well as in shoe factories, especially cottage industries, for handstitching, cutting and glueing.

3.3.1.2 Qualification of Staff

Qualification and capabilities of the technical staff evidently depend on the size of the enterprise. On the whole, vocational and on-the-job training are prevailing. Real leather technicians, trained in one of the following training institutes and service centres were only rarely met in the smaller units:

- Institute of Leather Technology, Gujranwala
- Leather and Footwear Centre, Hyderabad
- Leather Research Centre, Karachi
- Leather Garments Training Centre, Karachi.

Tanners themselves have mostly been trained on-the-job in their fathers' businesses or sometimes abroad in the case of larger tanneries. The first applies also to entrepreneurs in the footwear and leather goods industries, who are sometimes even less trained, and this explains these sectors' lack of qualified technicians, all the more as existing talented craftsmanship is frequently left undeveloped. It takes a long time until applied techniques are abandoned in favour of new ones.

3.3.1.3 Employment by Term and Remuneration Structure

As far as the remuneration structure is concerned, there is not much difference between the product lines. Generally the workers wages are paid as follows:

- unskilled personnel: 400 - 500 Rs/month
- skilled personnel: 600 - 800 Rs/month
- Supervisory staff: 1,000 - 2,000 Rs/month

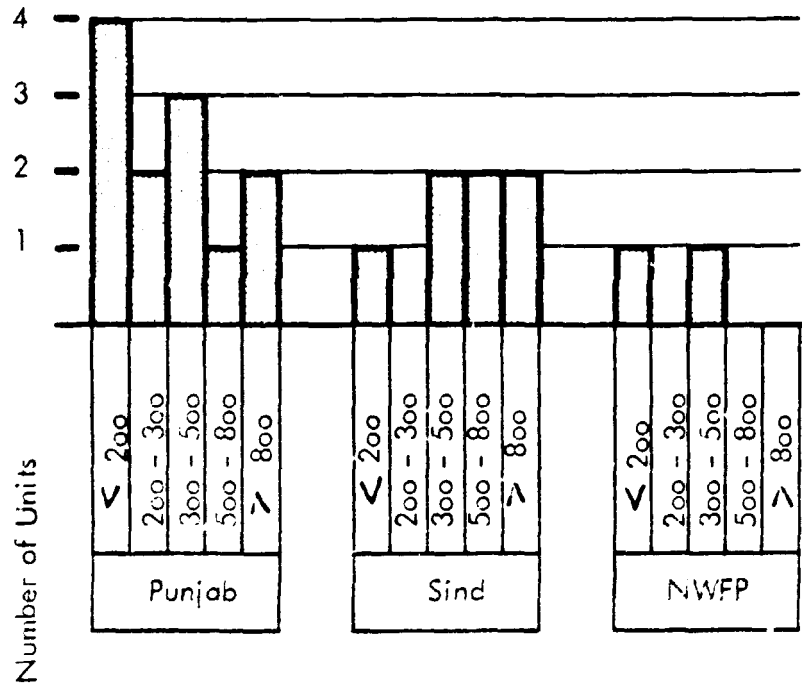
Specially skilled workers, however, such as fleshing operators employed by the tanneries, can reach higher incomes; they are normally paid on a piece rate system. Tanneries prefer regular employment with additional unskilled helpers on daily basis.

In the footwear industry piece rates are prevailing in the large and medium scale companies. Since qualified workers are scarce, it is a common practice of the smaller units to pay cash advances for the whole season. Piece rate remuneration is also preferred in the leather goods and garments industries, where usually one man makes one individual piece which he is responsible for.

3.3.1.4 Labour Productivity

Labour productivity is defined as the ratio between output in terms of annual turnover and input of employment. The distribution of labour productivity is illustrated separately for the individual product lines in the following graphs (figure 3.2 - 3.4).

Figure 3.2: Labour Productivity for the Tanneries (1000 Rs)



Most tanneries' labour productivities amount to 300,000 - 500,000 Rs/employee. Punjab tanneries tend to be below this range, Sind enterprises account for higher ranges. Table 3.10 shows that in the visited enterprises there is a clear trend to higher labour productivity with increasing unit size.

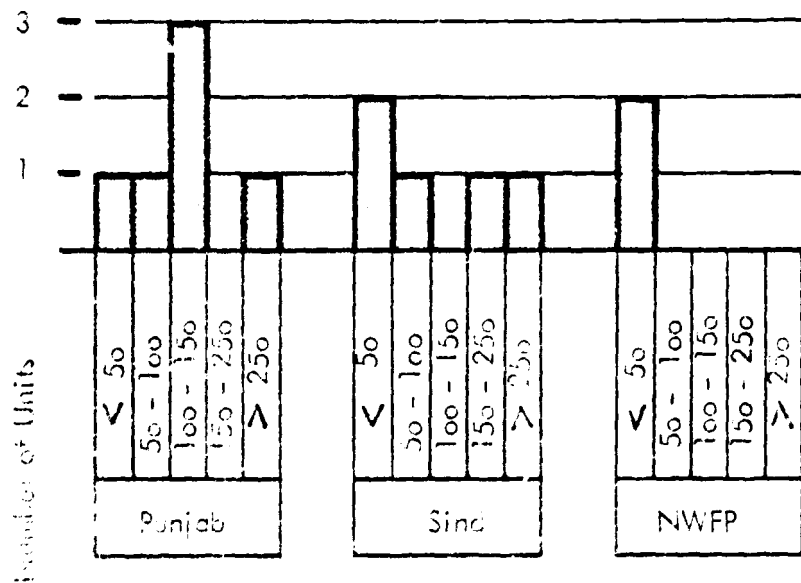
Table 3.1o: Average Labour Productivity by Size of Tanneries

Province	No. of employees		
	1 - 20	21 - 35	35 and more
Punjab	147,300	256,334	793,171
Sind	312,500	333,333	724,935
	(only 1 unit)		
NWFP	-	-	254,015 (only 2 units)

Most of the units visited in Sind are within the upper end of the bracket, i.e. their labour productivity is comparatively high. This is due to the fact that they are better equipped and deal mostly with goat and sheep wetblue in a comparatively simple manufacturing process, requiring less workers.

The labour productivity for the footwear industry is illustrated in figure 3.3.

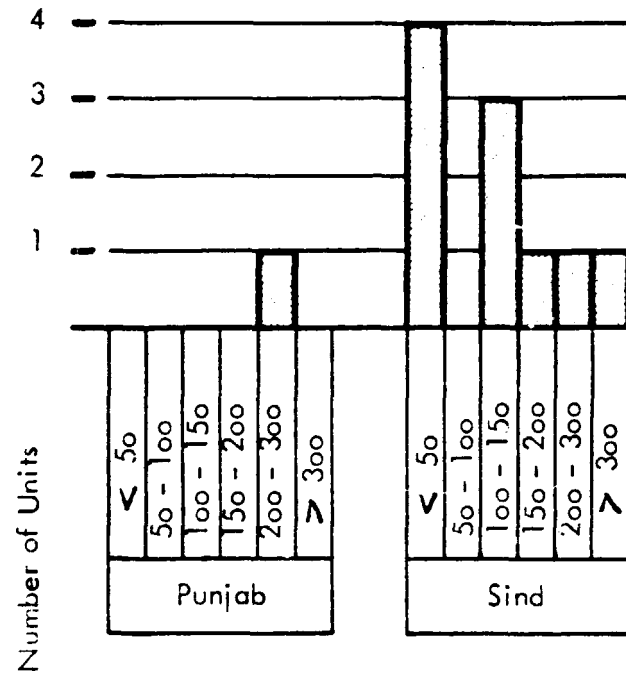
Figure 3.3: Labour Productivity for the Footwear Industry (1000 Rs)



The prevailing labour productivity rate is within the bracket up to 50,000 Rs/employee, in particular in the cottage industries located in Bannu, Lahore and Hyderabad. Only in Punjab with its larger sized shoe factories and Sind with its 2 more important companies, higher averages have been registered.

Labour productivity for the visited garment industries is indicated in figure 3.4.

Figure 3.4: Labour Productivity of Garment Industries (in 1000 Rs)



The highest figures in this branch are reached by some well organized glove and garment export producers; lowest values characterize the cottage industries which are mainly manufacturing for the domestic market.

In the leather goods sector, the respective figures range only from 8,000 - 10,000 Rs/employee, due to the fact that this product line is dominated by cottage industries.

3.3.1.5 Availability of Skilled / Unskilled Workers

Unskilled and semi-skilled labour is available in sufficient quantity all over the country. However, due to the lack of sufficient training facilities and the migration of qualified workers to Middle East countries, skilled personnel is scarce. This applies in particular to specialized machine operators, technicians other than simple craftsmen, designers, stylists and other professions requiring specialized training.

The shortage perceived is reflected in table 3.11.

Table 3.11: Distribution of Availability of Skilled Labour, Fluctuation and Training Facilities ¹⁾

	Availability of Skilled Labour		Seasonal Fluctuations		Training Facilities			
					within the company		outside the company	
	+	-	yes	no	yes	no	yes	no
Tanneries	33	29	38	24	-	76	19	57
Footwear	38	46	8	16	8	77	-	85
Garments	27	45	40	20	80	20	90	10
Leather Goods	50	50	-	-	50	50	50	50

1) Percentage of total product line units.

Tanneries

Tanneries that require mostly unskilled / semi-skilled labour and only few specialized skilled workers, can satisfy their demand on the labour market, although they are in want of technicians for further quality improvements. There are hardly any respective training facilities. To the perception of the small and medium sized units, the Gujranwala Institute supplies preferably the larger industries who can pay the requested fees.

Footwear

The footwear industry relies, even more than the tanneries, on skilled labour, as the production of their goods in a satisfactory quality demands acquired skills. The shortage of skilled labour is thus strongly felt, especially in the medium sized factories, less in the cottage industries. Skills required refer to operation of machinery, stitching and shaping techniques needed to run a large scale quality production. Cottage industries, using traditional technology for small scale production have also difficulties in labour force supply, since their work is growingly considered less attractive than that in better equipped factories. Despite the presence of the Hyderabad Footwear Institute, the visited companies complain about missing a lack of training facilities in and outside the factories.

Leather Garments

As in the case of the footwear sector, garment production is run by cottage and small non-cottage industries and strongly suffering from the lack of skilled workers, i.e. cutters, pattern makers, designers and stitchers. In order to maintain and improve Pakistani garment makers' international competitiveness, upgrading of workmanship quality seems to be the most important task. The Training Institute in Karachi which was set up for this purpose, conferred a favourable impression. Nevertheless, most companies continue to practice on-the-job training which hampers the introduction of new technologies.

Leather Goods

The manufacturing of leather goods for the domestic market does not require high skill; therefore, this group of industry is not hampered by the prevailing shortage of skilled labour. However, export producing units face labour problems, similar to those of the garment industry.

3.3.1.6 Fluctuation

Labour fluctuation depends on the type of work and the employees' position within the company. It is estimated that the annual labour fluctuation rate reaches frequently up to 20%. Besides job changes as a consequence of low remuneration, fluctuation is also season related. The degree of seasonal fluctuation in the visited units is shown in table 3.11. The average rate of worker's daily absence is estimated at 5%.

3.3.1.7 Training Requirements and Facilities

To serve the leather industries in Pakistan, the following four training and service centres are in operation:

- Institute of Leather Technology, Gujranwala
- Leather and Footwear Centre, Hyderabad
- Leather Research Centre (FULREC), PCSIR, Karachi
- Leather Garments Training Centre, Karachi.

However, the field work revealed that most of the achievements in the leather sector have been accomplished in cooperation with foreign experts and companies. With the exception of the Leather Garments Training Centre, there is no fully fledged independent institute to provide adequate training facility and advisory services to the tannery and footwear industry. The mentioned institutes cannot fully meet the industries' requirements in this respect.

The Gujranwala Leather Institute though offering both facility services and training, is concentrating on the first for financial reasons (shortage of funds). Education, though not inadequate, lays emphasis on the acquisition of theoretical knowledge instead of practice on the job. Besides, the footwear department has been closed.

The Hyderabad Footwear Training Centre is designed to provide training as well as facility services. The first was observed to be irregular or not offered at all, the latter are only inadequately supplied, given the centre's distance (up to 5 miles) from most footwear producers. Besides, its machinery and equipment are out of date. The institute is planned to be rehabilitated by IBRD funds. The Leather Research Centre, not intended to provide training, pays too little attention to the leather industry's problems in its research work.

3.3.2 Management

The tanneries have satisfactory business experience; their owners tend to be more technicians than business managers, they appear to be little commercial minded. Tanners at least with smaller tanneries have commonly learned their fathers' technology and run their business in a very traditional way. Innovative ambition and ability are mostly rudimentary; so is their motivation for accurate performance.

Footwear, garment and leather goods producers are of different educational and professional background. Business experience proved to be scarcely acquired which was felt in particular by entrepreneurs in search of a new profession. Although the latter have ambitious business intentions, they lack a sense for innovation and commercial requirements. This applies in particular to the knowledge of markets, regulations, taxes etc. Furthermore, there is little management delegation. Management is mainly handled by the company's owner. He has thus to perform all business related functions but is, to the consultant's perception, often not in a position to do so. Finally, it has to be taken into account that illiteracy is still fairly common, at least in the cottage industries.

3.3.3 Organization

With decreasing unit size, accounting and record keeping are poorly performed. While these functions are generally unknown in the cottage industries (frequent illiteracy), smaller and medium-sized units keep cash books and ledgers on the basis of a revenue-expenditure system, and larger industries apply double bookkeeping. Appraisals on the accuracy are not possible, since exact figures are rare. Also statistical data on past performance and cost accounting were practically never found, or at least not made use of by the managers. Besides, accounting is done mostly by outside personnel.

Technical organization of the production flow is poor in the small and medium sized tanneries. Transport facilities for raw and tanned hides are scarce. The material flow is usually not organized in a way as to ensure an optimal work flow. Work preparation and order administration are also little known.

The same applies to the small and medium sized footwear, leather garments and leather goods producers. In garment factories, in particular, one worker manufactures as a rule the entire piece. In view of more uniformity in garment quality and make, this practice will have to be changed.

3.3.4 Main Problem Areas

The main problems with respect to manpower, management and organization are more or less the same for all product lines, and may be summarized as follows:

Manpower

- The non-availability of designers and stylists is reflected in generally poor product design, in particular in the field of leather garments and - goods.
- The lack of qualified leather technicians and specialized machine operators impairs the implementation of advanced technologies and diminishes product quality and output.
- The high labour fluctuation due to migration to Middle East countries impairs the achievement of higher quality and productivity standards.
- Labour productivity, in particular in cottage and small scale industries is very low.
- The performance of the training institutes and service centres does not always comply with the industries' needs for training and solving technological problems.

Management

- Commercial management and innovation are given insufficient attention as a consequence of most entrepreneurs' primarily technical background.
- The educational level of the owners of the smaller units is mostly low, some of them have no formal education at all. This makes the introduction of efficient management techniques almost impossible.
- The entrepreneurs lack knowledge on institutional and credit facilities, tax systems and incentive programmes.

Organization

- Cost accounting, in particular in smaller units, is non-existent or poor. As a consequence, product prices often do not cover production costs.
- The production process is only rudimentarily organized. Labour divisions and material flows are deficient.

3.4 Demand and Marketing

3.4.1 Demand

3.4.1.1 Demand Pattern

The following general statements are based on the interviews held with entrepreneurs, dealers, buyers and Government officials.

Tannery products

The range of products, quantities and designation are shown in tables 2.2 and 3.1. The present price structure for the different leather kinds is given below (table 3.12).

Table 3.12: Price Structure¹⁾ for Leather (in Rs/sqft; Oct. 1980)

Livestock	Wetblue Leather	Crust Leather	Finished Leather	Glove Leather	Football Leather	Sole Leather
Cow	} 6 - 7	} 8 - 9	} 10 - 13	} 8	} 7	} butt: 40Rs/kg belly: 25Rs/kg shoulder: 30 Rs/kg
Buffalo						
Goat						
Sheep						

1) Local prices, excluding duties/rebates

A distinction is made between export and domestic demand. While the latter almost exclusively comprises finished leather of any kind, export demand is directed to wetblue and crust. Finished leather, in particular shoe upper leather, due to the applied processing, does not meet European requirements and is only exported to the Middle East.

Footwear

Products, quantities and markets have already been described in chapter 3.1.3 (table 2.2). Quality consciousness is increasing, but it is wrongly believed that the presently sold hard type of leather shoe is of better quality than the soft one. Nevertheless, demand for soft shoes continues to increase. Contrary to European consumers Pakistanis prefer glossy pigment finish and corrected grain. Shoes for exports to Western countries would have to be of soft leather with full grain and of fashionable styling. Apart from leather shoes, canvas and PVC shoes are also frequently demanded in fancy designs, mostly copied from Europe. Large department stores in industrialized countries selling mass merchandise at favourable prices would be the target group for such exports.

On the domestic market the independent small and medium sized footwear producers enjoy a good reputation because of their product quality and price. This applies also to the cottage industries who sell most of their shoes to the country population . In the long run , however, with rising quality and price consciousness of the consumers, "Bata" as the largest manufacturer, will outdo the smaller competitors. It is estimated that on the average, 1 - 2 pairs of shoes of 6 - 12 months' durability will be sold per capita and year. This is confirmed by retailers' experiences. However, with rising quality consciousness, consumers are expected to buy more resistant quality shoes, which may impair sales growth, in particular that of the cobblers and cottage industries.

Leather Garments

Prices for leather garments are stated in table 3.13.

Table 3.13: Average Prices for Leather Garments (in Rs/piece)

Product	Domestic Market	Export Market
Short Jacket	350	400 - 500
Safari Jacket	430	500 - 650
Long Coat	575	700 -1250
Skirt	-	500 - 550
Trousers	-	500 - 550

Customers of locally sold items are mostly foreigners since leather garments are not commonly worn by Pakistanis. All other garments are mostly low to medium quality merchandise for department or larger garment stores in Europe and USA. While prices may vary within certain limits according to international competition, the importing firms insist on a given quality although this may not even be required by the final consumer.

Style and design have to be according to the importers' directions; typical Pakistani creations are not in high demand.

Leather Goods

Due to the variety of leather goods no average prices can be given. Export leather goods are generally of medium to low quality (by international competition) to be sold as mass merchandise in larger shops and department stores.

3.4.1.2 General Potential and Prospects / Trends

Demand potential for Pakistani leather and leather items is evidently highly linked with world market developments. Demand for leather, in particular in industrialized countries, will continue to increase since tanneries in these countries are faced with strict anti-pollution regulations and labour problems. The latter also applies to their footwear industries. Demand for leather shoes is overall increasing. It is estimated that the Pakistani leather footwear sector will become highly competitive within ten years time on the international market. Leather garments as a comparatively valuable item are also highly demanded (evidently mostly in the northern industrialized countries). The trend rather supports the products' fashionable image than its functional aspect. Demand is increasing and will continue to favour Pakistani merchandise.

3.4.2 Marketing

3.4.2.1 Description of Markets

Depending on item and quality, products are sold as described in table 3.14. The regional distribution of sales is varying for the visited manufacturers. Only large companies are in a position to sell nation-wide. Locally sold leather goods are mainly travel appliances and harness leather.

Large export markets for wetblue and garments are Western European countries such as Germany, Italy, France, etc. The large and medium size importers are highly quality and price conscious, so that Pakistani products are subject to tight international competition. Another large customer are the East Bloc countries (Russia, Hungary, Romania, etc.) and China; a few big companies import great quantities, but they are less quality conscious than Western European buyers.

3.4.2.2 Marketing Mechanisms

Tanneries

Main distribution channels in domestic sales are wholesalers, commission agents or retailers (see table 3.14). Direct sales are less frequent. No specific patterns in the choice of domestic distribution channels could be observed. Often it is difficult to distinguish commission agents from wholesalers, as their functions may vary depending on the individual leather business. A main problem are the terms of payment which are commonly on a 2 - 3 months credit basis and generally dictated by the stronger financial partner. In this context, smaller tanneries often complain about unfavourable credit agreements.

Table 3.14: Distribution Channels of the Units visited

	Domestic Sales						Export				
	Further Processing in Own Factory	Wholesalers	Commission Agents/Dealers	Retailers	Job Order	Direct Sales	Wholesalers	Commission Agents/Dealers	Direct	Retailers	Job Order
Tanneries	3	4	4	4	-	3	3	6	1	1	1
Footwear	-	3	1	4	2	2	-	-	-	-	-
Garments	-	-	-	2	1	-	3	3	3	-	1
Leather Goods	-	-	-	1	-	-	-	1	-	1	-

The export distribution channel is that of commission agents or dealers. They act as specialized importers. Direct sales, sales to retailers or on job orders are less frequent. However, foreign importers are sometimes giving technical instructions as to the applicable tanning procedure (wetblue tannage). Export business connections are rarely entertained by the tanners themselves, and if so, only by larger ones, though as a rule mainly through Chambers of Commerce and the Leather Trade Associations, who mediate the addresses of their members.

70 % of the Pakistani leather exports are made up by wetblue and crust of sheep and goat skins (mostly from Sind tanneries). Export of wetblue cow hides is banned. Authorized exports of wetblue are charged with a 25 % export duty in order to enhance domestic processing. Most Pakistani tanneries are not in a position to increase their exports of finished leathers on account of the required leather type (full grain) and quality.

Wetblue production is jeopardized by its deficient technology which often cannot ensure the execution of larger quality export orders. Furthermore, changing fashions ask for more variety in the kind and finishing of tanned leather (e.g. aniline leather) than can be provided. Finally due to skin shortages, tanneries are at times unable to process all orders. Certain tanneries, however, show good prospects for sole leather exports to the Middle East and Iran, which on the whole may become a prosperous market for Pakistani leather. Sometimes there is a strong dependence on one single customer. This applies in particular to tanneries that serve East Bloc countries, who place large orders.

Footwear

Factory shoes are mainly sold through retailers and wholesalers (table 3.13), who are contacted by factory agents who travel all over the country or by locally established business relations. Cottage industries, mostly located in the centre of towns sell directly. Job orders are increasingly placed by larger companies, such as the "Bata System", in a form of subcontracting. This, although easing the distribution and improving regularity of sales, imposes a tight price pressure on the respective company and narrows profit margins for the smaller producers.

Factories producing for export purposes were not visited. However, it can be taken for sure that Pakistani shoe exports, that are presently confined to low price canvas and rubber shoes, could be considerably increased if the shoes' quality and style were improved. Footwear manufacturers are unexperienced in design, styling and quality processing. Well trained technicians and adequate machinery are required as well as a steady feed back from the importers on any necessary changes according to fashion and consumer groups.

As far as marketing for the domestic market is concerned, the main areas of complaint are overcapacity, lack of orders, changing fashions and raw materials' price fluctuations. They reflect the particular predicament of the SSI shoe industry; on the one side, lack of quality, quality awareness, production flexibility and capital, on the other, an almost stagnant domestic market (in terms of price/quality). At present, there is no market for better quality shoes at higher prices, while sales may be enhanced by increased labour productivity and unchanged price levels.

Leather Garments

As far as domestic sales are concerned, the units are either selling via job order or retailers. However, leather garments are considered a souvenir item in Pakistan and sold in small quantities.

Export is arranged via wholesalers and direct importers, as well as commission agents and, to a small extent job orders. It is difficult for the exporting companies to distinguish between importing wholesalers and direct importers. Leather garment exports are commonly paid on the basis of L.C. or C.O.D. However, producers prefer the L.C. basis, since payment is received earlier, and it is possible to obtain credit on a L.C. by the export re-financing scheme.

In the garment business, the merchandise is usually inspected at the port of arrival. In case of complaints, lots are sent back at the manufacturer's charge. Usually cash compensations from the exporter are not accepted. This procedure involves high risks for the producer who cannot repair discovered deficiencies at short hand. Deficient quality also affects the product's overall image.

From the units interviewed it became clear that the main difficulties in garment marketing are the low quality of leather, processing and styling in comparison to international standards. In fact, proper product designing was done in one single unit by a stylist hired from Europe, all other exporters relying on design specifications laid down by the importers. After their approval of a preliminary sample the order is carried out.

Other constraints to the entrepreneurs are the lack of adequate technology and trained workers, to ensure a steady level of product uniformity and quality. Also are there scarcely capacity and organization to meet large export orders. Moreover, the garment manufacturers, being afraid of high investments in working capital and rejections of merchandise by the importers, are reluctant to accept large orders. The lack of regular orders, however, narrows down profit margins which are furthermore jeopardized by price fluctuations and leather shortages. It also reduces the number of tailors, partly working as subcontractors for the larger units.

GOP actually promotes garment exports by a 9 % export rebate, which is, however, claimed to be too low in relation to the involved risks.

Business connections were either established through the Export Promotion Bureau, as well as visits of buyers or larger importers. Though only one unit interviewed actually complained about limited market outlets, marketing is poorly developed and often directed only to few customers. Fashion and design feed back is almost non-existent.

Leather Goods

The above consideration also apply to the leather good manufacturers. Products for the domestic market are mainly provided by cottage industries and preferably distributed through retailers. Exports to the Middle East are arranged through commission agents and via retailers. Exports of fashion items are faced with the problems mentioned above.

3.4.2.3 Prices

There is strong price competition in all leather production branches. The market is more or less ruled by the principles of perfect competition where prices correspond to the production costs of the cheapest competitor.

90 % of the tanneries orientate their prices at market level; only the integrated enterprises apply cost prices. Export prices and profits are highly world market dependent.

The situation in the footwear industry is somewhat similar. 50 % of the units (mostly leather shoes) base their sales prices on the prevailing market prices, which may be done as long as different styles and qualities are not directly comparable. The other 50 %, including those producing on job orders, calculate on cost basis in order to keep their prices low.

Most garment producers calculate their prices in accordance with the prevailing market conditions, actually characterized by cut throat international competition.

3.4.2.4 Competition

Most of the small-scale industries in the product lines in question are facing heavy competition with

- comparable industries
- medium and large scale local manufacturers in the same branch and
- imports.

Tanneries

While practically no price competition was observed, there were substantial differences in the interviewed units' leather qualities. Low quality output is almost entirely attributable to low technology levels and sometimes to the used low quality material as a consequence of unaffordable quality raw material. If they produce good quality the small units are not negligible competitors to the larger industries.

Footwear Industry

Competition is strong as far as cottage industries are concerned; being crowded in small areas and producing a line of individually made standard items, they are severe competitors in price and quality. Since they serve the domestic market, they are at the very low end of the price and quality scale; large and medium shoe producers are presently no strong competitors in this market.

Competition of medium scale enterprises among peers is fair and due to the low quality consciousness of the customers, only related to the price. However, in face of large scale industries, their cost of raw material, low labour productivity and lack of technology are severe constraints which will be increased by growingly appreciated quality products offered by the large companies at reasonable prices. Thus their turnovers are due to decline. As far as international shoe exports are concerned, European and Far Eastern producers dominate in quality, while Pakistanis compete via prices.

Garments and leather goods, as far as they are not sold locally, are competing in price and, to a lesser extent, in quality with Indian and Far Eastern producers. In quality, however, they are ranging at the end of the world market standards. Competition is tough and even impaired by the unsteadiness of Pakistani garment quality, which, furthermore, cannot be sold as individual brand.

3.4.3 Main Problem Areas

Demand for leather and leather products is increasing worldwide. However, in the European markets, quality and price will gain growing importance. With regard to international competition, especially from developing countries, Pakistan will have to focus its efforts on better quality production. Besides, Pakistani produced leather and leather goods do not yet allow the marketing of brand names which is a prerequisite if exports are to be enhanced.

The export of wetblue and crust is still the best paying in Pakistan's leather industry. The export of shoes and garments meet with cut throat competition, and entrepreneurs complain about narrow profit margins. Many Pakistani exporters, especially of the garment industries, are not in a position to satisfy large orders neither in respect to size, nor as regards technology and product quality.

For this reason, foreign buyers place larger orders with other countries. This, again, makes Pakistani entrepreneurs reluctant with respect to new investment and training of workers.

all the more since the orders placed with them come in irregularly, particularly in the garment industries.

As regards manufacturers of footwear, the terms of payment from the retailers'/wholesalers' side are a problem in view of the companies' limited financial sources. This applies in particular to the smaller enterprises, who have to cope with fluctuating leather prices, on the one hand, and the financing of distributors' trade credits on the other.

Both, garment and footwear producers are complaining about the quickly changing fashion requirements. They are not capable to keep up, nor to develop own fashion designs. In this respect the units are largely dependent on customers' instructions. Besides, the approval and checking of rendered merchandise is often done by the customers at the port of arrival. This, however, may cause damage and, short term repairs being impossible, there is a consequent risk of complete order rejection.

3.5 Investment and Financing

3.5.1 General Remarks

The figures are based on present values, i.e. the assets are not valued at their historical value minus depreciation, but at the value they are attributed by the entrepreneur and the expert. This procedure takes account of inflationary developments and possible errors in former value estimations and thus allows for more realistic value comparisons. Most of the machines and equipment have not been evaluated individually but as a whole. However, all figures represent estimates, as there were almost no balance sheets available and entrepreneurs reluctant to reveal exact details on their costs and revenues.

3.5.2 Capital Structure

3.5.2.1 Land and Buildings

The average values of land and buildings by province are as follows:

Table 3.15: Average Value of Land and Buildings in Rs/m²

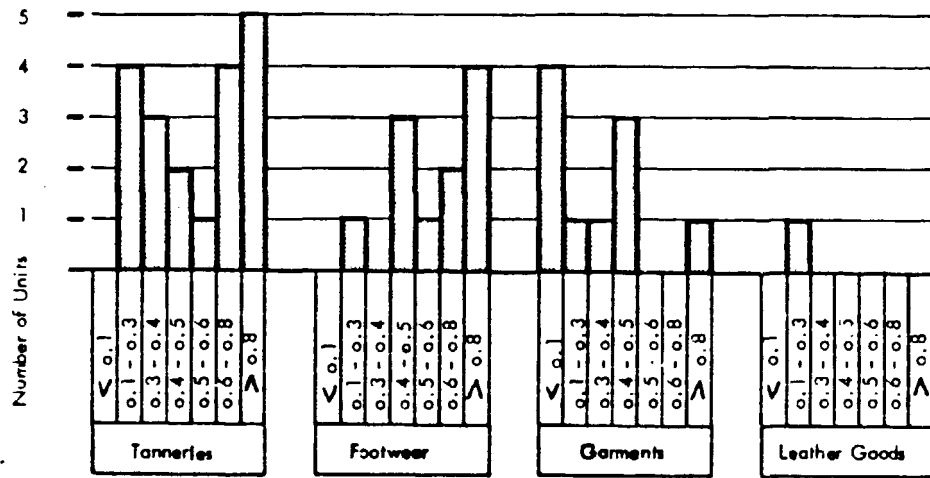
	Punjab		Sind		NWFP	
	Land	Buildings	Land	Buildings	Land	Buildings
<u>Tanneries</u>						
Average:	377	620	450	792	350	800
Range:	(360-600)	(364-1,250)	(400-500)	(750-1,000)	(300-400)	(600-1,000)
<u>Shoe Factories</u>						
Average:	550	1,828	185	1,500	-	-
Range:	(500-600)	(1,000-2,727)	(120-250)	(1,000-2,000)	-	-

The respective figures for garments and leather goods manufactures could not be assessed, since nearly all manufacturers in these branches work on rented premises.

3.5.2.2 Fixed Assets / Total Investment Ratio

The fixed assets / total investment ratio is shown in figure 3.5. The figure indicates a heavy concentration of tanneries with a ratio within the brackets 0.1 - 0.4 (mainly in Punjab and NWFP) and 0.6 - 1.0 (Sind), which reveals a higher rate of fixed assets in the Sind region.

Figure 3.5: Fixed Assets/ Total Investment Ratio

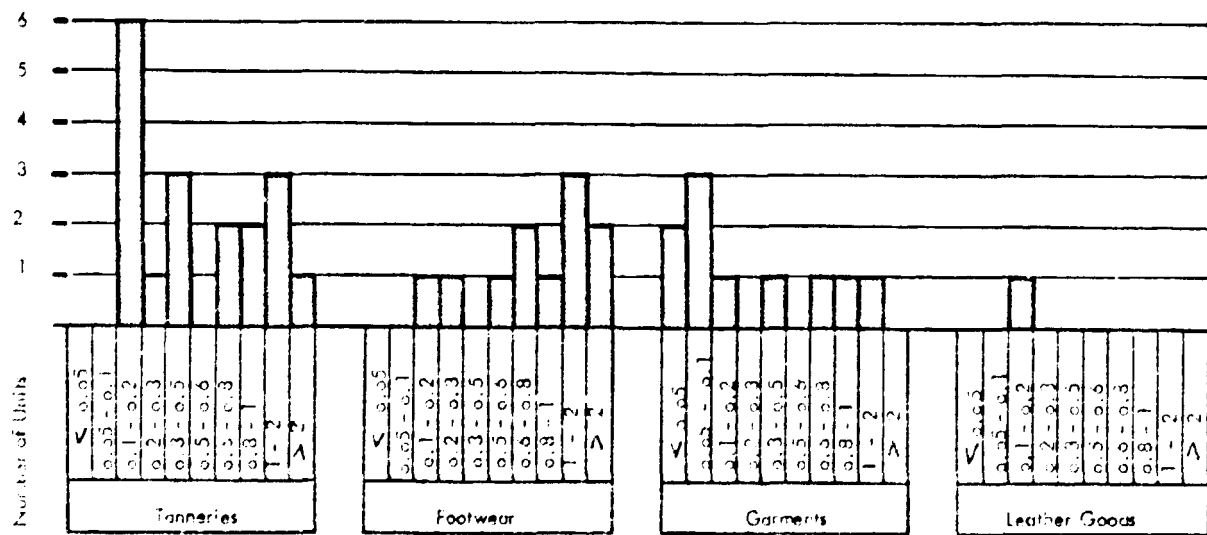


As regards the footwear industries, the larger units accumulate in the 0.4 - 0.5 bracket, while the smaller units are at the upper end of the scale, due to their high share of fixed assets. The garments and leather goods are characterized by a ratio of up to 0.5 on the average.

3.5.2.3 Machinery Investment / Current Assets Ratio

To exclude the influence of the highly varying values of land and buildings in the following figure 3.6 the ratios have been evaluated on the basis of investment in machinery and equipment/working capital.

Figure 3.6: Investment in Machinery and Equipment / Working Capital



The figure shows for the tanneries two areas of concentration: the lower bracket applying mostly to the Sind tanneries, the upper one to units in Punjab and NWFP; this reveals the need of the latter group for working capital. The machinery investment of the footwear companies almost equals their working capital. The garment factories concentrate more on the lower brackets which reflects their lack of fixed assets.

3.5.3 Sources and Funds

Most units financed their investments by equity and only a minor part by means of loans, mainly from commercial banks.

Table 3.16: Sources of Borrowed Funds According to Product Lines

Product Line	Total Investment (Rs)			Long Term Loans (Rs)			Short Term Loans (Rs)		
	Short Term	Long Term	Total	Comm. Banks	IDBP, PCIC etc.	Others	Comm. Banks	IDBP, PCIC etc.	Others
Tanneries	128,249,272	83,909,000	212,158,272	42,266,000	600,000	-	8,500,000	12,000,000	-
Footwear	11,696,500	38,193,000	49,889,500	400,000	132,000,000	3,500,000	21,000,000	-	-
Garments	2,068,000	11,177,000	13,245,000	-	600,000	2,000,000	415,000	3,000,000	-
Leather Goods	80,000	550,000	630,000	-	-	-	-	-	-

67 % of the total loans granted are provided by commercial banks, 40 % being long-term liabilities. Second largest creditors, in particular for the footwear industries, and there concentrating on one shoe factory in NWFP, are institutions like IDBP, PCIC and ICP a.o.. Short term loans mainly required by the garment industries to finance their working capital are provided mainly through the governmental export finance scheme.

Short term credits to the footwear industry are almost entirely confined to one NWFP factory.

3.5.4 Lending Institutions, Borrowers and Credit Schemes Used

Credit conditions are more or less the same in the different institutions: 11 % interest exclusive contract fees, payment against securities. However, pay back periods and amount of required securities are differing.

Other credit schemes used are the export refinance scheme requiring Letter of Credit on which the discounted value of respective orders (at 3 %) can be paid in advance. Besides these are various other forms of trade credits in use (terms of payment) which have not been further investigated. Also overdraft allowances with commercial banks are frequent, although at interest rates that lie generally above 14 % p.a.. However, for various reasons (listed in table 3.17), the majority of the interviewed units never approached financial institutions for assistance.

Most of the entrepreneurs considered the interest rates too high or disapproved in general the interest system on account of their religious conviction. Other reasons were the complex lending procedures and the absence of securities, the latter applying mostly to the garment industries with their low fixed assets.

Table 3.17: Difficulties Faced with Lending Institutions

	Tanneries	Footwear	Garment	Leather G.	Total
Financial Institutions:					
- already approached	7	3	6	1	17
- not approached	8	8	3	1	20
Difficulties faced with lending institutions:					
Complicated lending procedure	4	5	1	-	10
Submission of documents	-	1	1	-	2
Interest too high	9	7	3	1	20
Credit limits too low	-	1	2	-	3
Non-availability of securities	-	4	3	-	7
Lack of confidence in lending institutions	-	2	-	-	2
Rejection of loans	-	1	1	-	2
Muslim belief	5	1	1	1	8

Looking at the overall profit situation of the visited enterprises, returns on investment seem to promise in many cases profitable financing, even with credits at 14 %. However, since this possibility has so far not been made use of, it is assumed that there are other reasons that prevent small and medium scale units from credit financing; one of these may be their lacking confidence in the lending institutions.

3.5.5 Availability of Capital

Tanneries are mostly well equipped with machinery and own larger lots of land, so that the availability of capital does not represent any problem. However, as they are neither innovation minded nor growth oriented, they do not apply for loans which they could be sure to obtain on account of their adequate securities. Besides, they would be able to invest on the bank's of their equity and profits. Footwear producers, although able to offer satisfactory securities (at least the bigger companies) are generally in need of means for modernization and diversification. They also lack working capital to finance raw material stocks and distribution of merchandise. However, on account of their narrow profit margins as compared to those of the tanneries, they are susceptible to capital debt charges, a fact that is well realized by the banks. Cottage industries have no access to larger credits and do not need them, anyway. Leather garment producers, as far as they are export manufacturing, are in urgent need of working capital. However, as they are unable to pledge extensive securities, the availability of capital from commercial banks is limited. The same applies to the leather goods manufacturers. In this situation, the enterprises make wide-spread use of governmental aids such as the export refinance scheme.

The domestic market is mainly supplied by the products of the cottage industries who, as mentioned above, are not in particular need of credits.

3.5.6 Cost-to-Sales Structure

In table 3.18 and figure 3.7, the product lines' sales are broken down into average percentages of their cost and profit components. As can be noticed, the ratios vary depending on the

- economic situation of the enterprise
- the units' individual properties
- consultant's estimate (actual figures had not always been revealed)
- accuracy of recorded figures (given by the entrepreneurs).

On account of the different types of leather processed, the tanneries have been divided into the Punjab plus NWFP units and those of Sind. The remarkable deviations within the "other costs" position are due to the duties payable on wetblue exports, which increase the costs considerably. The profits of the Punjab and NWFP tanneries are of a wider range than those of the Sind industries, the latter showing a steadier development on account of less risky business prospects.

The footwear industries' material intensity is similar to that of the tanneries; on an average they achieve smaller profit rates on turnover due to higher labour costs and depreciation rates. Moreover, high commission fees are occasionally paid to sales agents.

Competition is particularly strong in the footwear business and does not allow large mark ups in pricing.

Table 3.18: Cost-to-Sales Structure by Product Lines (in average percentages and ranges)

Product Group	Raw Material	Manpower	Depreciation/ Interest	Maintenance	Others	Profits
<u>Tanneries</u>						
Punjab, NWFP	73 (47 - 90)	3 (0.8 - 4.5)	1.7 (0.3 - 5.0)	0.9 (0.2 - 2.5)	2.7 (0.1 - 10.0)	21.5 (0.0 - 0.4)
Sind	69 (55 - 80)	1.6 (0.5 - 3.0)	1.7 (0.6 - 4.0)	0.4 (0.1 - 1.0)	17 (3.0 - 27.0)	11.0 (5.0 - 21)
<u>Footwear</u>	69 (60 - 88)	11.7 (1.5 - 25)	2.0 (0.5 - 4.5)	1.0 (0.1 - 2.0)	6.3 (0.5 - 10.0)	12.0 (2.5 - 32)
<u>Garments</u>	72 (65 - 82)	11.2 (7.0 - 19)	1.6 (0.05 - 6.0)	1.5 (-)	4.0 (0.5 - 6.2)	12.6 (2.5 - 20)
<u>Leather Goods</u>	60 (50 - 70)	21.5 (13 - 30)	1.0 (-)	0.5 (-)	-	17.5 (15 - 20)

Figure 3.7: Cost-to-Sales Structure by Product Lines

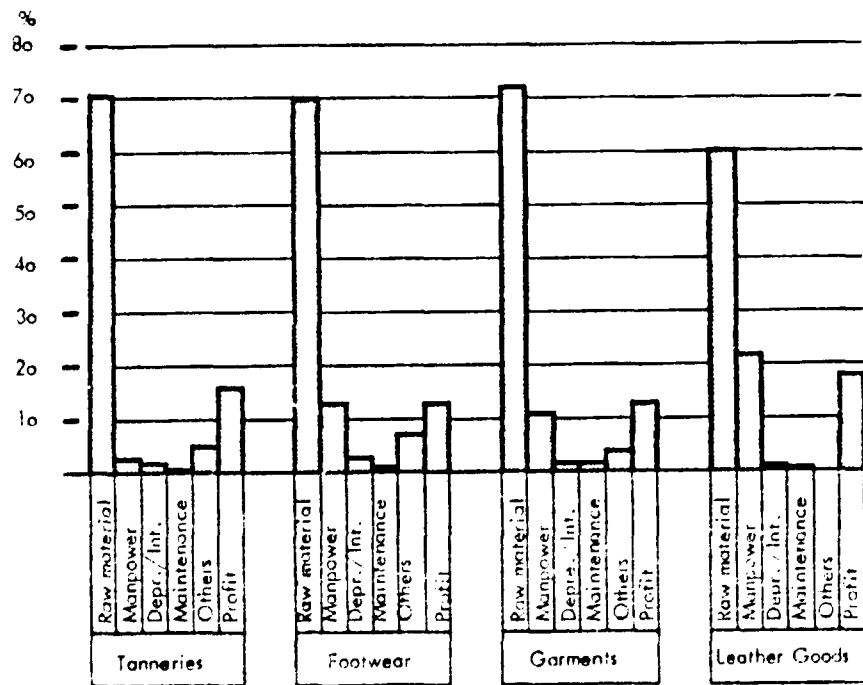


Table 3.19 shows as representative example the calculation for a pair of ordinary leather shoes.

Table 3.19: Sample Calculation of a Leather Shoe

Item	Calculated Value (Rs)	%
Leather	30.0	37
PVC/Sole	15.0	18
Inner Sole	2.0	3
Toes/Heels	1.50	2
Labour	10.0	12
Overheads	8.0	10
Packaging	2.50	3
Wooden Case	1.20	2
Others	0.30	-
Profit	8.0 - 10.0	10 - 12
Total	80.0 - 82.0	100

As it can be seen, profits before deduction of sales costs and general overheads (depreciation, utilities etc.) range between 10 - 12 % in the sample, which seems low in view of the high share of raw materials in the product price calculation. However, retailers and consumers are highly price conscious. So the shoe manufacturers must try to buffer leather price fluctuations and can generally pass on cost increases only stepwise in order to keep up with their competitors.

Similar considerations apply to the leather garments and goods sectors, faced with a tight price competition, at least in the important international markets. To a large extent, profits are made up by actual export rebates.

3.5.7 Profitability

In view of the highly varying total investment values caused by fluctuating land prices, it is almost impossible to determine an average profitability in terms of a profit/total investment or profit/equity ratio for the interviewed enterprises. However, the figures of table 3.20 show that capital productivity is centering within certain brackets up to 0.8. The ratios seem to increase with the size of the units in terms of employees, as long as the increase in size is accompanied by a correspondingly rising degree of mechanization.

Table 3.2a: Distribution of Profits to Total Capital and Equity

Product Group	0.0 - 0.2		0.2 - 0.5		0.5 - 0.8		0.8 - 1.0		1.0 - 2.0		2.0 - 5.0		More	
	Profit/ Total Inv.	Profit/ Equity	Profit/ Total Inv.	Profit/ Equity	Profit/ Total Inv.	Profit/ Equity	Profit/ Total Inv.	Profit/ Equity	Profit/ Total Inv.	Profit/ Equity	Profit/ Total Inv.	Profit/ Equity	Profit/ Total Inv.	Profit/ Equity
Tanneries	4	3	4	2	5	4	1	1	1	3	1	2	-	1
Footwear	2	2	3	4	3	2	-	-	-	-	1	1	-	-
Garments	2	1	3	2	-	-	-	1	2	1	2	2	1	2
Leather Goods	-	-	-	-	1	1	-	-	-	-	-	-	-	-
TOTAL	8	5	10	8	8	7	1	2	3	4	4	5	1	3

In some cases, the profit/equity ratio reaches a value as high as 20. Profitability is highest in the garment industries; since they require comparatively little investment to achieve high turnovers.

3.5.8 Overall Entrepreneurial Attitude Towards Financial Management

The smaller enterprises visited are practically without any financial management, in particular those who do not participate in exports.

The tight competition in the international markets obliges all exporting companies to make precise calculations. However, basic calculations on efficiency and business performance are only made by larger units. As long as they consider their revenues to be sufficient, the smaller companies neglect accurate calculation, which many of them are not in a position to perform anyway, on account of

- illiteracy and ignorance of financial controlling
- poor business organization
- lack of reliable data, inadequacy of book-keeping
- lack of entrepreneurial motivation.

3.5.9 Main Problem Areas

Contrary to the large companies who account for the bulk of liabilities, the smaller units make little use of credits/loans. This may be explained by their lacking confidence in the credit institutions. They also consider the interest rates too high or refuse to enter into capital lending by religious conviction. Most of them claimed to have never approached a bank for a loan.

Both, footwear and garment producers need financial means to replace obsolete machinery

and to serve larger orders. However, while the present profit situation of the shoe producers does not allow large scale debt servicing, the garment makers can generally not provide for sufficient securities. In the light of the envisaged improvement of the leather processing sector's overall performance and exports, substantial credits will be required for its necessary expansion and modernization in all product lines.

4. EVALUATION OF MAIN PROBLEM AREAS, ANALYSIS OF INTERDEPENDENCIES AND OVERALL DEVELOPMENT PROSPECTS

4.1 Ranking and Structure of Problem Areas

Of the main problem areas: supplies, production, manpower, marketing and finance, those which were found to be most problematic over the average of all firms were mainly finance, production and supply (figure 4.1), whereby considerable differences were found to exist in between the investigated product lines. Figure 4.2 summarizes the structure of each problem area for each production line.

4.2 Potential for Growth

Pakistan's domestic demand for leather goods is concentrated on cheap shoes, harness leather, and travel appliances. Leather for these products need only to be of medium to low quality. There is a low growth potential in the domestic market since leather shoes are still fairly expensive to the bulk of the population who also does not require a high quality. There is a growth potential, however, for the domestic leather industries in the export market. The leather industries could develop their potential through incentives and feedback from export markets requiring high quality items in large quantity. These resources have already been used by two export intensive leather industries: wetblue tanneries and garment producers. The garment producers, although with the highest level of production in the leather industry, account for a comparatively low value added. The potential for further development for the production of finished leather goods is shared with the garment manufacturers by the footwear manufacturers. It is estimated, provided promotion is encouraged as recommended in chapter 5, that the Pakistan footwear industry may develop into an international competitor within 10 years. This development requires technological improvements in the footwear industry in general and in leather finishing methods, in particular. This applies to the finishing of goat and sheep skins presently sold in the wetblue or crust stage, as well as the treatment of cow and buffalo hides the latter not yet being used in making soe upper leather.

Quality improvements in tanned leather will result in an improved international competitiveness, provided the supply of raw hides and skins can be guaranteed.

4.3 Specific Constraints and Requirements

4.3.1 Tanning

Compared with the other leather industries in Pakistan, the tanneries are presently the problem of least importance.

As far as wetblue and crust production for export is concerned, customers are generally satisfied with the good quality of material provided. This also applies to most domestic customers, who buy finished leather for footwear and garment production. However, in absolute terms, the quality and variety of most finished leather cannot withstand international compe-

Figure 4.1: Problem Areas by Function

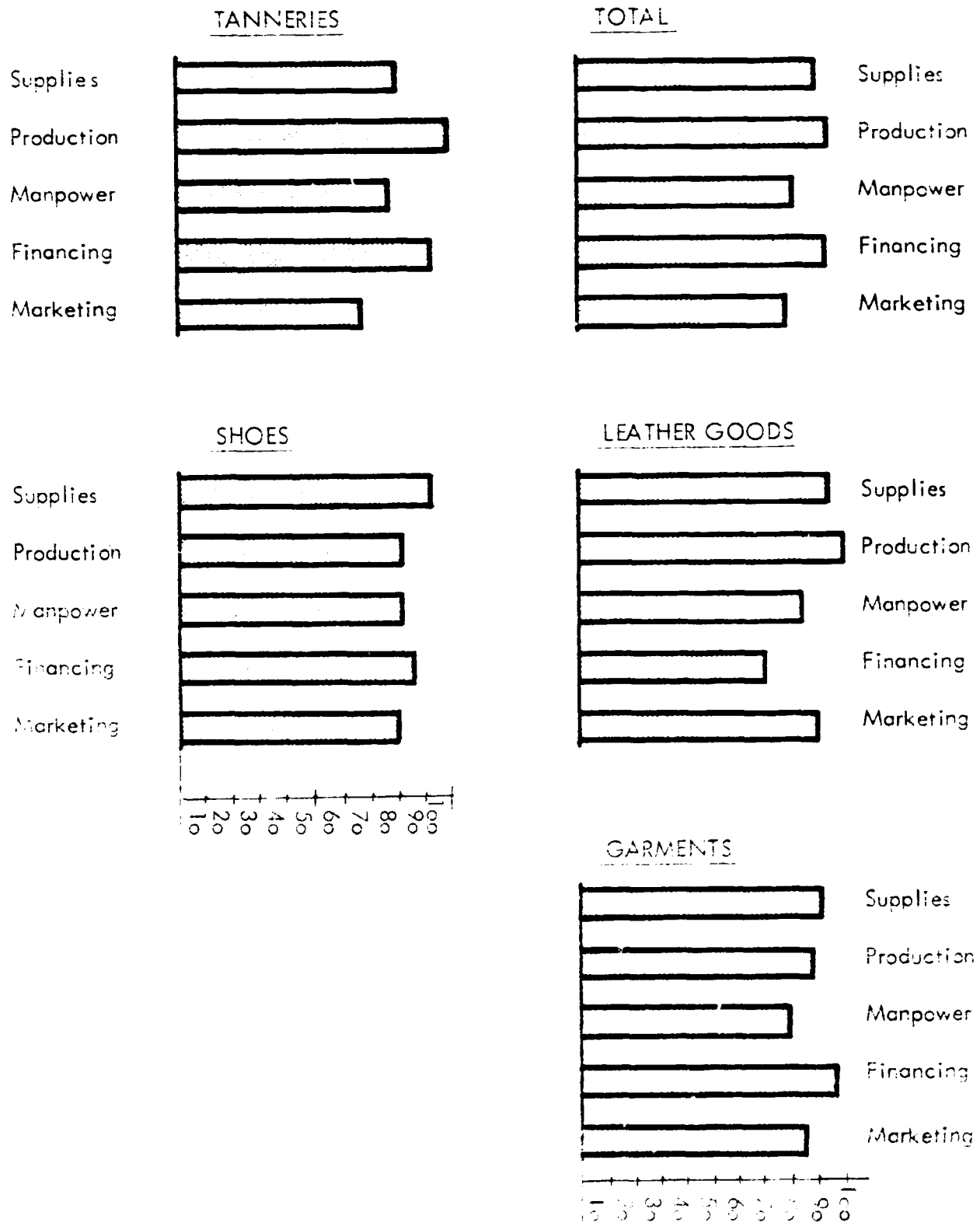
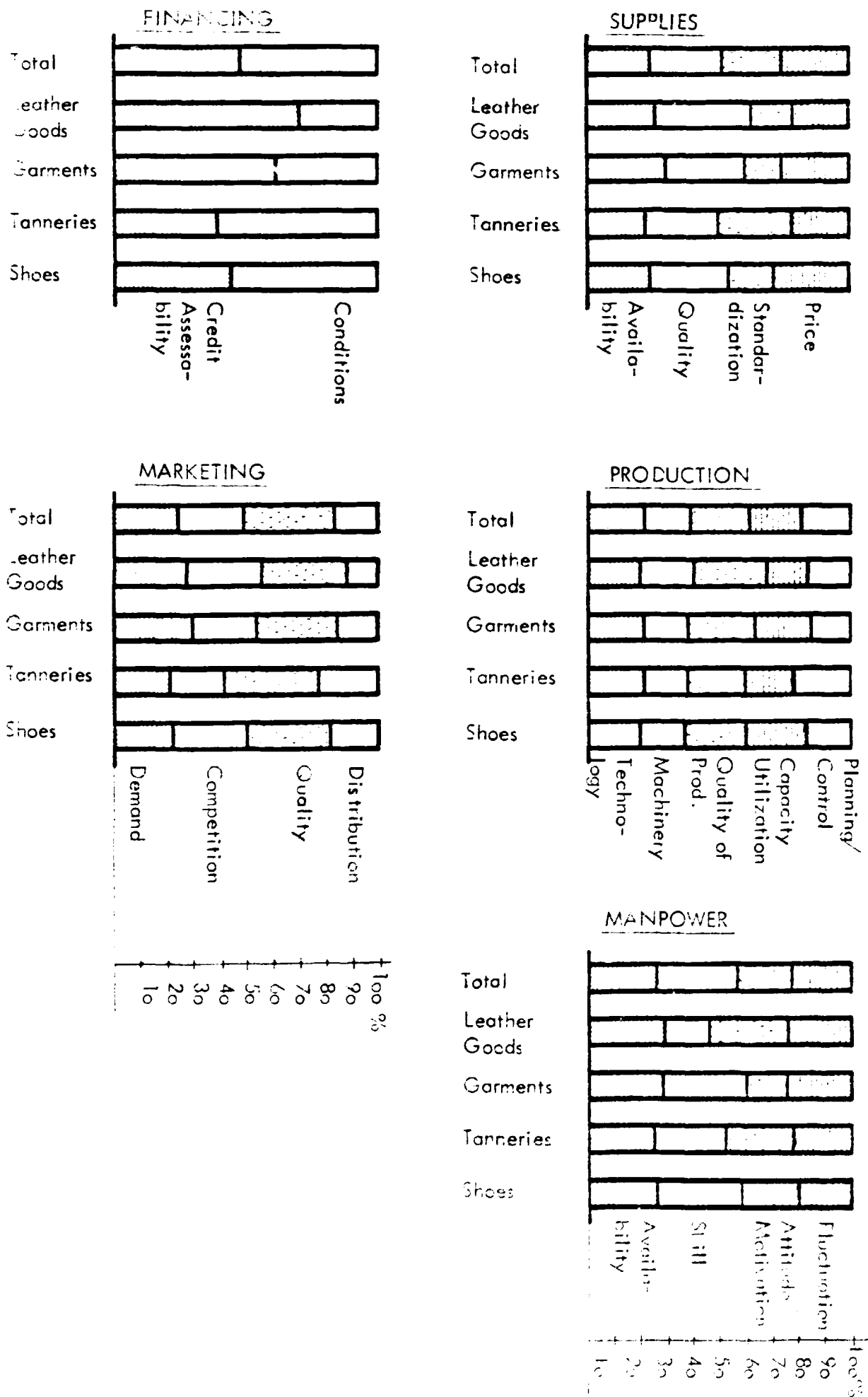


Figure 4.2: Structure of Problem Area by Function



tition, which would become mandatory if the footwear industry is to be developed further. This is further confirmed by the fact that only marginal amounts of finished leather are presently exported.

The domestic garment industry is also complaining about the unavailability of good quality finished leather. Though some tanneries have integrated garment factories, the bulk of them consider it less risky and more profitable to sell their leather in wetblue or crust condition. Main problems in this area are the technologies applied in tanning as well as finishing of the leather. Sole leather tanning, mostly accomplished in semi or unmechanized tanneries must be changed to reach better wear resistance and also more consistency in quality. Shoe upper leather, in order to be used in shoe exports, has to be finished in a different way. Garment leather has to be produced in larger quantities and in better uniformity. These measures require the use of machinery other than is commonly operated in Pakistan and more testing equipment. Moreover, the training of leather technologists, tanners and specified workers must be intensified. The present training in the existing institutions is unsatisfactory in respect to process and quality control, machine operation and general tanning management.

As shown by figure 4.1, a most important problem area is financing of supplies. This relates in particular to the fluctuation of leather prices which are correlated to the world market development. Different from world market induced fluctuations, real shortages of adequate local hides and skins lead to price increases. This is mainly a result of short livestock but also caused by deficient hide and skin handling as well as livestock diseases.

The adequate supply of chemicals and auxiliaries of sufficient variety is in particular a problem for smaller tanneries. This is due to their lack of adequate financial resources but also their inability to order minimum quantities. The lack of working capital affects in particular smaller units, but does not seriously endanger their existence since price increases can be forwarded to the customers (i.e. shoe factories, importers etc.). Nevertheless, improved credit conditions from commercial banks could ease financial problems in this respect.

4.3.2 Footwear

The small and medium scale Pakistani footwear industries are in a position to supply the domestic market satisfactorily as far as quality and price are concerned. However, quality awareness of the Pakistan customers is rising; they are buying more and more from the large shoe manufacturers. Highly mechanized and offering attractive wages for skilled labour, they are leading in quality and price.

However, most of the country population still buys the Jutti type shoe, which is manufactured by cottage industries. Besides the heavy competition, due to the large number, they are faced with a shortage of qualified workers. These units are poorly developed as far as technology is concerned and in the long run medium sized industries have more prospects to survive. However, these units, too, are presently faced with an almost stagnating domestic market in terms of purchasing power and quality awareness of Pakistani customers. Their profits are considerably lower than those of the tanneries and are steadily squeezed on account of their function as subcontractors for the large industries, e.g. Bata. Moreover, footwear

producers have to buffer leather price fluctuations which cannot be directly forwarded to the retailers. Hence, working capital financing is a problem to the medium sized units. On the other side, market expansion through exports is not easy. While Pakistani footwear from synthetic materials is considered to be of medium quality (produced and exported mainly by larger units), leather shoes are not exportable to industrialized countries.

This relates in particular to the leather quality, design, style and make. The finish of local leather does not meet industrialised countries' demand. Especially, wear resistance is unsatisfactory. The processed leathers are poor in variety, finishing should be multiplied and more goat and buffalo be used. Pakistani-made shoe accessories are also mostly unsuitable for export and must be imported. Shoe style and design are poorly developed, partly due to insufficient feedback from the (mostly) European customers to the Pakistani producers. With regard to shoe models, only a few types of lasts are in use. Most of the units interviewed showed rather poor shoe makes, which depend on the applied technologies and machinery. The introduction of improved technologies is hampered by the lack of badly needed training and service facilities.

The footwear training centre in Hyderabad is too far away from the footwear producers' centre, and there were no training courses at the time of field work. In order to produce export suited leather shoes, most of the medium sized units would have to enlarge/change their machinery. Their present revenues do not cover the involved financial investments.

4.3.3 Garments

Quality of Pakistani made leather garments is medium to low by world market standards. This applies to the leather quality, style and make. Pakistani tanneries, though in some cases able to produce excellently finished goat and sheep leather, either sell the better graded material in wetblue condition or their finished leathers are of insufficient uniformity and variety.

The machinery of most garment factories does not allow sophisticated processing. Trained manpower is scarce, though satisfactory training is provided by the Leather Garment Training Institute in Karachi. On account of these impediments, the domestic garment manufacturers are not in a position to take over large export orders.

Buyers complain about lacking uniformity and quality, and, therefore, place irregular orders with many units. Marketing is poorly developed in the garment sector, and the producers rely on a few customers. The irregularity of revenues make the manufacturers reluctant to invest in machinery and to hire expensive labour. Government export rebates are a main source of income. They have also difficulty in obtaining credit facilities, as they have almost no securities to offer. Hence urgently needed working capital for raw material inputs can only be obtained at a later stage in connection with the export refinancing scheme.

Smaller enterprises lack confidence in the lending institutions. Interest rates are considered too high; complicated lending procedures and religious convictions keep smaller companies from capital lending. Most units claimed to have never approached a lending institution.

The availability of capital for expansion and modernization is a problem, too. The footwear and garment producers are in need of capital to the replacement of obsolete machinery and to finance larger orders. While the shoe producers' present profit situation does not allow large scale debt servicing, the garment manufacturers can usually not provide the required securities. However, if the leather processing sector is planned to be overall expanded and modernized with a view to raise its output and consequent exports, substantial credits will have to be invested in the footwear, garment and leather goods industry.

Finally, the units' financial management was found to not regularly control and reflect their business performance.

4.3.4 Leather Goods

The observations made with respect to the garment sector also apply to leather goods manufacturing. Though make and quality of export designed leather items are of medium quality, style and design are generally unsatisfactory. This applies in particular to accessories such as linings, buckles, clips, zippers etc. which, if Pakistani made, are on the whole unfashionable and unsatisfactory also in other respects. The manufacturers, aware of this fact, import most of the needed material. Leather goods for domestic purposes were found to be adequate.

However, overall leather goods production for exports is still of minor importance in terms of output, and a consequence of the industries' prevailing cottage type. Export expansion will represent the same problems as for the garment producers, particular:

- procurement of good quality leather
- improvement of machinery
- improvement of skills
- uniformity and quality of output.

5. RECOMMENDATIONS

5.1 Specific

5.1.1 Technology

Tanneries and Footwear

(1) The availability of well trained leather and footwear technologists is of vital importance, in particular to

- tanning technology
- footwear processing technology
- machine operating
- consulting and training services
- styling and design.

Furthermore, technicians must be available in sufficient numbers to serve small and medium scale enterprises either by rendering extension services (technical guidance) or as regular staff. This, however, requires more efficient training by the footwear and leather training institutes (as in the case of the Gujranwala and Hyderabad institutes).

These technicians will be concerned, in particular, with

- leather tanning methods and scientific process control
- leather finishing
- quality control
- shoe styling and design incl. prototype preparing
- footwear processing technology.

(2) It is recommended that the Ministry of Industries promotes the establishment of a national institute for leather and shoe technology. The institute should be located in Lahore or Karachi, and provide higher level education under the management of the tanners' and shoe manufacturers' associations. While the National Leather Development Board should play a coordinating role. All institutions should participate in financing, though the larger share should be borne by the Government.

(3) In order to provide direct advisory services also to smaller units, extension services should be organized province- or townwise, depending on the units' concentration. The services should be free of charge or at a nominal fee in accordance with the financial situation of the particular company.

(4) It is further recommended that technical and commercial staff of the respective industrial branches be sponsored to participate in international seminars, fairs, conferences and study tours, so as to become acquainted with the latest developments in the fields of technology, design and machinery in technically more advanced countries. This would be of particular advantage to the export oriented branches.

- (5) Besides improved software, the availability of adequate hardware is also a prerequisite for better quality and thus competitiveness. In this context, it is recommended to set up technical service centres with special machinery, such as:

Tanneries

Fleshing machines
Splitting machines
Shaving machines
Staking machines
Toggling machines
Hydraulic presses
Measuring machines

Footwear factories

Grading machines
Cementing machines
Pulling over machines
Lasting machines

Quality testing facilities should be available to the tanneries of Multan and Kazur and to the footwear industries of Peshawar, Bannu and Hyderabad. Technicians, such as operators, pattern makers, cutters, sewers, assemblers, etc. should be trained on the respective equipment.

- (6) Standards and standardization schemes for the selection, grading and quality control of hides and skins as well as for types and grades of leather and footwear articles should be elaborated by the institutes or associations concerned and be enforced in order to improve the product image.
- (7) Subcontracting should be encouraged, in particular in the footwear industry with a view to further specialization.
- (8) Manufacturing of locally made, appropriate machinery should be encouraged, while sophisticated leather finishing equipment should still be imported, possibly by an encouragement through tax incentives.
- (9) In accordance with the previously recommended measures, exports of wetblue leather should be gradually restricted with a view to increase the availability of quality leather for the domestic market. This may be done by an export quota system of progressive export taxation.
- (10) The present state of machinery represents the serious concern in view of desired quality improvements and consequent export promotion. The set-up of adequate machinery should thus be favoured. Revenue financed machinery should be promoted by export rebates.

Garments and Leather Goods

- (11) Training as a prerequisite to the application of adequate technologies is of vital importance for increasing the exporting units' competitiveness. Though such training is offered by the Karachi Leather Garment Institute, more emphasis should be placed on product styling and design. The number of teaching staff should be increased and selected personnel be encouraged to take part in international fairs, seminars and conferences. In this context the IBRD proposal to establish a Leather Goods Service Centre in Bannu is highly supported.
- (12) Standards of quality size and certain technical features should be elaborated and their application be enforced by the respective entrepreneurs' organization or by the National Leather Development Board.

5.1.2 Materials and Components

- (13) For a better balanced livestock population in Pakistan it should be considered to promote the raising of cattle and buffalo calves. It is estimated that about 300,000 cow calves and 900,000 buffalo calves are slaughtered annually for meat processing purposes. An increased number of hides obtainable by means of intensified livestock production and/or longer raising periods might further import substitutions and relieve prevailing hide shortages.
- (14) Veterinary health care should be improved for livestock to prevent diseases. This will result in better quality meat, milk, hides and skins.
- (15) The supervision of slaughter house practices with respect to slaughtering, flaying, selection, grading and curing of hides and skins needs to be improved in accordance with tannery requirements, which is presently already done by a foreign expert rendering advisory services. It is recommended to extend short term training on flaying and curing of hides and skins.
- (16) The set-up of industries supplying components for the leather and leather product industries should be encouraged. This entails in particular the production of chemicals, dye stuffs, adhesives, plastics, ornaments, buckles, shoe lasts, etc.
- (17) As for the garment and leather goods industries, supply of good quality leather is vital for exports. Since such leather is commonly sold in the wetblue stage, garment factories must be assisted to pay higher prices for raw materials or be allotted given quotas (by Government regulation) of quality leather the provision of which is compulsory to the tanneries concerned.

In order to enable the respective industries to pay higher raw material prices, it is recommended to intensify export rebates and to develop and expand the export re-finance credit schemes (see recommendation (21)).

5.1.3 Manpower and Management Organization

- (18) The importance of adequate manpower training has already been emphasized. Generally, more specialization in specific tasks is required. Besides training technicians, the institutes concerned should provide courses for machine operators and elaborate standardized apprentice curricula.

Short-term training of workers on special machinery should be particularly promoted. The costs may be borne jointly by the entrepreneurs and respective associations. Refunding premiums to avoid fluctuation of trained labour could be agreed upon. This would involve the elaboration of general guidelines on labour employment.

- (19) Courses in small business management for entrepreneurs and professional managers focussing in particular on bookkeeping techniques and financial management should be elaborated by the Chambers of Commerce or respective associations.

5.1.4 Marketing (Domestic and Export Markets)

- (20) Export marketing of leather garments and goods as well as leather footwear calls for improvement. This relates in particular to the overall image of Pakistani leatherware but also to a more regular inflow of orders and the financial ability of the units to cope with larger orders.

It is recommended (last not least in view of similar measures applied in competing countries) to raise the export rebate to at least 20 % of the export value (India: 35 %). This seems to be justified not only in view of the garment sector's value added, but also on account of the highly fluctuating profit rates which impair steady investments for quality improvements.

- (21) It is further suggested to encourage the set-up of a cooperative society for the marketing of leather garments and goods. Since most of the entrepreneurs cannot afford regular acquisition trips to Europe, such society should take over the marketing activities of several units, as well as being engaged in market research and up-dating of fashion models and designs.

5.1.5 Financial Management

- (22) Most of the given recommendations require capital investments. However, the general objective being to strengthen the leather sector's value added and, thereby, its revenues, outside financial help will be gradually substituted to the extent to that it is not essential to initiate further development.

Special credit schemes should be developed for financing both fixed assets and working capital, the first to satisfy the need for better machinery and training, the latter to finance improved inputs and increased values added.

The recommendations include in particular

- Development of adequate credit conditions in terms of:
 - . lending procedure (simplified administration)
 - . security requirements (adapted to prevailing profit and equity situation)
 - . interest or profit sharing schemes
 - . re-payment schedules

- Set-up of credit advisory services in respect to:
 - . use of loans
 - . problem identification.

Credit schemes should comply with the manufacturers' needs of the respective product group, streamlined in the previous recommendations. Producers' confidence in lending institutions should be encouraged. Loan efficiency should be ensured by advisory services, possibly carried out by the respective SIC's in cooperation with the enterprises concerned.

5.2 General

In view of the objective to increase the value added of Pakistan's leather industries, priority should be given to the promotion of the footwear producers, requiring most of the domestically used leather. Better quality leather shoes, being a labour intensive product (in comparison to tanned leather) may become a competitive export item, especially on European markets where shoe prices are steadily rising.

The production of better footwear will require the use of different and better leather which may be obtained by improved tanning technologies.

A prerequisite to the mentioned prospects is a more intensive feed back between market and suppliers, especially in the fields of technology, styling and design. The present status of Pakistan's leather industry cannot be raised by the individual firms on their own, but is also subject to a closer cooperation on the side of agencies concerned, and in this context, on the performance of joint ventures.

6. SUB-SECTOR PROFILES

ó. Sub-Sector Profiles

As part of the results of the study, typical sub-sector profiles have been prepared in order to facilitate institutional, financial and technical support. The profiles contain the following criteria:

- production programme
- technology and production facilities
- raw materials
- manpower and management
- investment
- cost structure
- financial ratios.

The actual situation of each product line or type of industry (labour intensive, mechanized, export oriented) has been drawn up. It reflects the target group units' specific pattern with respect to structure and ranges of the above criteria.

Based on the experience and know-how of the sector, a profile for a typical new company has been elaborated. This profile contains the estimated structural data and ratios for a model unit, with sub-sector specific

- technology and machinery
- personnel outfit
- investment and cost-structure.

The financial ratios represent estimates and may fluctuate in both directions.

A detailed proposal for such a "pilot unit" will require a thorough analysis within the framework of a comprehensive feasibility study.

Leather

Tanneries

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:		on % Capacity	
	Major Products:	Units:	Rs.:		
	Upper leather cow, goat	30,000 hides and skins	4,200,000	90 %	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:		Imported (local)	
	Drum tanning, semi-mechanized	Drums 1 buffing machine 2 shaving machines 1 staking machine 1 setting-out machine 1 hydraulic press 24 pasting plates 1 salting machine * 1 fleshing machine * 1 glazing machine * 1 tagging unit		x x x x x x x x x x x	
		measuring machine * spray unit * required			
Land and Buildings:					
Buildings: Value / sqm.		min.: 400	max.: 1,000	average: 800	
Land: Value / sam.		min.: 300	max.: 500	average: 400	
		Building Area / Employee		min.: 18	
				max.: 30	
				average: 30	
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Quality:
	Raw hides and skins Chemicals	30,000/a	cow 100 - 120 Rs goat 25 - 30 Rs 3 Rs/sqft	local imported	-	medium high
4	MANPOWER AND MANAGEMENT:				
		min.:	max.:	average:	
	Management:	1	3	1	
	Staff:	-	5	2	
Skilled Workers:	4	20	7		
Semi-Skilled Workers:	10	17	20		
Unskilled Workers:	-	-	-		
TOTAL:	15	45	30		
Entrepreneurial Background of Sponsor/Owner: tanner					
External Technical Cooperation necessary? yes					
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (Ranking):		
	Domestic:	Export:	Domestic:	Export:	
100 %	--	Commission agents wholesalers retailers			
6	INVESTMENT:				
	Fixed Assets: (Rs. '000)	min.:	max.:	average:	
	Land:	250	1,000	500	
	Buildings:	350	1,500	1,000	
	Machinery/Equipment:	90	1,400	500	
Miscellaneous:	-	-	-		
TOTAL:	690	4,300	2,000		
Working Capital: (Rs. '000)					
	min.:	max.:			
	100	1,000			
	max.:	1,000			
	average:	400			
7	COST STRUCTURE:				
		min. %	max. %	average %	
	Raw Materials:	47	70	73	
	Manpower:	0.3	4.3	3	
	Depreciation / Interest:	0.3	5.0	1.7	
	Others:	2.7	10	3.3	
Profit:	5	40	21.3		
Remarks:					
8	FINANCIAL RATIOS: (Rs. '000)				
		min.:	max.:	average:	
	Turnover / Employee	00	1,000	500	
	Turnover / Machinery and Equipment	0	42	20.4	
	Machinery and Equipment / Employee	4.5	43.5	21	
	Total Investment / Employee	21.15	103.0	66.7	
	a) Building owned				
	b) Building rented				
Fixed Assets / Working Capital	5.9	3	5		
Profit / Investment			3.3		
Loans / Total Capital			-		
Remarks:					

SUBSECTOR:

CATEGORY:

Page 2: NEW COMPANY

Leather

Tanneries

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:		on % Capacity	
Major Products:		Units:	Rs.:		
Upper leather cow, buffalo, goat		200,000 hides 100,000 skins	80,000,000	70	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:		Imported	Local
Drum tanning complete mechanization		6 drums 1 fleshing machine 1 setting-out machine 2 shaving machines 1 tagging unit 1 staking machine 1 glazing machine 1 polishing machine 1 buffing machine 1 spray unit 1 measuring machine		x x x x x x x x x	x x x x x
Land and Buildings:		average:		Building Area / Employee	
Buildings: Value / sam.		1,000		average:	
Land: Value / sam.		400		45	
3	RAW MATERIALS:				
Type:	Quantity:	Price/Unit:	Imported/Local:	Import Duties:	Quality:
Raw hides and skins	200,000 hides	20 - 120 Rs	local	-	high
different chemicals	100,000 skins	3 Rs/sqft	imported		high
4	MANPOWER AND MANAGEMENT:				
	min.:	max.:	average:	Entrepreneurial Background of Sponsor/Owner:	
Management:			5	experienced tanner	
Staff:			10	External Technical Cooperation necessary?	
Skilled Workers:			15	---	
Semi-Skilled Workers:			30		
Unskilled Workers:			20		
TOTAL:			60		
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (Ranking):		
Domestic:		Exports:	Domestic:		Exports:
100		-	wholesalers commission agents direct sales		---
6	INVESTMENT:				
Fixed Assets (Rs. 1000)	min.:	max.:	average:	Working Capital (Rs. 1000)	
Land:			5,100	min.:	
Buildings:			7,300	max.:	
Machinery/Equipment:			2,000	average:	
Miscellaneous:			14,400	10,000	
TOTAL:					
7	COST STRUCTURE:				
	min. %	max. %	average %	Remarks:	
Raw Materials:			70		
Manpower:			3		
Depreciation / Interest:			4		
Others:			5		
Profit:			10		
8	FINANCIAL RATIOS (Rs. 1000):				
	min.:	max.:	average:	Remarks:	
Turnover / Employee			1,200		
Turnover / Machinery and Equipment			11.4		
Machinery and Equipment / Employee			110.3		
Total Investment / Employee			400.0		
a. Building owned					
b. Building rented					
Fixed Assets / Working Capital			1.1		
Profit / Investment			0.25		
Loans / Total Capital					

SUBSECTOR:

CATEGORY:

Page 1: ACTUAL SITUATION

Leather

Leather Garments

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:	as % Capacity		
	Major Products:	Units:	Rs.:		
	Leather garments for export: - jackets - coats - trousers etc.	5,000 - 20,000	2,000,000 - 10,000,000	95	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:	Imported	acc.	
	Knife cutting Machine stitching one jacket completely made by one worker Lack of skilled workers, no know how about fashion and design	Sewing machines Button fixing machines Pattern Cutting Machine + Modern Sewing, Stitching Machines + Zig-Zag Machines + Overlocking Machines + Button hole making Machines + Button fixing Machine + Fusing Machine + Pressing Mach., Folding Machine +	x x		
	Land and Buildings: Buildings: Value / sam. min.: 300 max.: 600 average: 500 Land: Value / sam. min.: 50 max.: 500 average: 250	Building Area / Employee min.: 5 max.: 20 average: 10			
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Quality:
	Sheep and goat skin lining yarn, buttons, accessories	36 sqft/piece 2 y/ piece according to model	13 Rs/sqft 15 Rs/y	local imported imported	medium " "
4	MANPOWER AND MANAGEMENT:				
		min.:	max.:	average:	
	Management:	1	2	1	
	Staff:	2	8	4	
Skilled Workers:	22	40	35		
Semi-Skilled Workers:	-	-	-		
Unskilled Workers:	-	-	-		
TOTAL:	25	50	40		
Entrepreneurial Background of Sponsors/Owners: Textile business, other professions					
External Technical Cooperation necessary? yes, advice in processing technology and design					
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (Ranking):		
	Domestic:	Export:	Domestic:	Export:	
---	100%	-	Commission agents Wholesalers Direct		
6	INVESTMENT:				
	Fixed Assets (Rs. '000)	min.:	max.:	average:	
	Land:				
	Buildings:	Painted			
	Machinery/Equipment:	70	450	300	
Miscellaneous:	9	11	10		
TOTAL:	78	461	300		
Working Capital (Rs. '000)					
	min.:	max.:		average:	
		200			
		5,000			
		1,500			
7	COST STRUCTURE:				
		min. %	max. %	average %	
	Raw Materials:	65	82	70	
	Manpower:	7	19	10	
	Depreciation / Interest:	0.35	5	1.3	
	Others:	1	7	3.5	
Profit:	15	20	12.5		
Remarks:					
8	FINANCIAL RATIOS: Rs. '000				
		min.:	max.:	average:	
	Turnover / Employees	48.2	304.1	100.0	
	Turnover / Machinery and Equipment	5.4	250	100	
	Machinery and Equipment / Employee	1.1	4.0	3.5	
	Total Investment / Employee				
	a) Building and acc.	21.0	56.4	25.5	
	b) Building and acc.				
	Fixed Assets / Working Capital	0.54	0.7	0.60	
	Plant / Investment	0.62	0.5	0.5	
Loans / Total Capital	-	0.7	0.5		
Remarks:					

SUBSECTOR:

CATEGORY:

Page 2: NEW COMPANY

Leather

Leather Garments

1	PRODUCTION PROGRAMME:				
	Type of Products: Major Products:	Annual Average Output: Units: Rs.:	on % Capacity		
Leather garments for export: - jackets - coats - trousers etc.			35,000 21,000,000 90		
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied: Technology industrialized countries	Major Machinery/Equipment: Pattern cutting machine Sewing machines (double and single stitch) Zig-zag machine Oversticking machine Buttonhole making machine Button fixing machine Fusing machine Pressing machine Folding machine	Imported local x x x x x x x x		
Land and Buildings: Buildings: Value / sam. average: 500 Land: Value / sam. average: 300		Building Areas / Employee average: 5			
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Quality:
Sheep and goat skin	30 sqft/piece	13 Rs/sq ft	local	high	
lining	2 y / piece	12 Rs/y	local	high	
yarn, buttons, accessories	according to model		local	high	
4	MANPOWER AND MANAGEMENT:			Entrepreneurial Background of Sponsor/Owner: Garments External Technical Cooperation necessary? No	
		min.:	max.:		average:
Management:	1	2	2		
Staff:	3	5	4		
Skilled Workers:	42	48	44		
Semi-Skilled Workers:	4	6	5		
Unskilled Workers:	-	-	-		
TOTAL:	50	61	55		
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (Ranking):		
Domestic:	Export:	Domestic:	Export:		
No	Rising demand for good quality items	---	Direct Wholesalers Commissioners		
6	INVESTMENT:			Working Capital (Rs. lacs)	
	Fixed Assets: (Rs. lacs)	min.:	max.:		average:
Land:		Rented		min.:	
Buildings:			200	max.:	
Machinery/Equipment:			20	average:	
Miscellaneous:			220	3,000	
TOTAL:					
7	COST STRUCTURE:			Remarks:	
		min. %	max. %		average %
Raw Materials:			50		
Manpower:			10		
Depreciation Interest:			1		
Others:			3		
Profit:			4		
8	FINANCIAL RATIOS: (Rs. lacs)			Remarks:	
		min.:	max.:		average:
Turnover / Employee			400		
Turnover / Machinery and Equipment			75		
Machinery and Equipment / Employee			0.5		
Total Investment / Employee			4.0		
a) Building owned					
b) Building rented					
Fixed Assets / Working Capital			0.27		
Profit / Investment			13		
Debt / Total Capital			-		

SUBSECTOR:

CATEGORY:

Page 1: ACTUAL SITUATION

Leather

Footwear

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:		as % Capacity	
	Major Products:	Units:	Rs.:		
	Leather shoes	65,000	4,000,000	80	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:		Imported | acc	
	semi and partly fully mechanized production	10 sewing machines 1 skiving machine 2 cutting presses 1 roughing machine 2 sole splitting machines		x | x x | x x | x	
Land and Buildings:					
Buildings: Value / sam.		min.: 1,000	max.: 3,000	average: 2,000	
Land: Value / sam.		min.: 100	max.: 500	average: 250	
		Building Area / Employee		min.: 3	
				max.: 50	
				average: 15	
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Quality:
	leather upper leather sole accessoires etc.	2 soft/pair	15 Rs/soft 20 Rs/pair* 20 Rs/pair	local " "	low - medium
4	MANPOWER AND MANAGEMENT:				
		min.:	max.:	average:	
	Management:	1	2	2	Entrepreneurial Background of Sponsor/Owner: Shoe business
	Staff:	1	8	4	
	Skilled Workers:	10	20	30	
	Semi-Skilled Workers:	3	40	14	
	Unskilled Workers:	-	-	-	
	TOTAL:	20	70	50	External Technical Cooperation necessary? yes
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (Ranking):		
	Domestic:	Export:	Domestic:	Export:	
	100%	---	Retailers wholesalers job order	---	
6	INVESTMENT:			Working Capital (Rs. 1000)	
	Fixed Assets: Rs. 1000:	min.:	max.:	average:	
	Land:	mostly rented			
	Buildings:			min.: 450	
	Machinery/Equipment:	300	2,500	600	
	Miscellaneous:			100	
	TOTAL:			700	
7	COST STRUCTURE:			Remarks:	
		min. %	max. %	average %	
	Raw Materials:	50	49	50	
	Manpower:	1.5	25	11.7	
	Depreciation/Interest:	5.5	4.5	2.5	
	Others:	2.0	10	6	
	Profit:	2.5	32	12	
8	FINANCIAL RATIOS: Rs. 1000			Remarks:	
		min.:	max.:	average:	
	Turnover - Employee	45.0	110.0	50.0	- Profits are extremely varying
	Turnover - Machinery and equipment	2	4	3.7	
	Machinery and Equipment / Employee	3.0	45.0	2.5	- Loans are not common
	Total investment / Employee			4.0	
	a) building owned				
	b) building rented				
	Fixed Assets / Working Capital	3.7	3	1.2	
	Profit / investment	1	1	0.76	
	Loans / Total Capital	-	-	-	

SUBSECTOR:

CATEGORY:

Page 2: NEW COMPANY

Leather

Footwear

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:		on % Capacity	
Major Products:		Units:	Rs.:		
Leather shoes		150,000 pairs	13,000,000	70	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:		Imported	Local
Completely mechanized shoe production		see page attached		x	
Land and Buildings:			Building Area / Employee		
Buildings: Value / sam.		average:	2,000		
Land: Value / sam.		average:	350	average: 20	
3	RAW MATERIALS:				
Type:		Quantity:	Price/Unit:	Imported/Local:	Quality:
Leather		2 sqft/pair	15 Rs/sqft	local	high
PVC		1.5 lbs/pair	10 Rs/pair	local	high
Accessories, chemicals Paging, etc.			6.50 Rs/ pair	partly local and imported	high
4	MANPOWER AND MANAGEMENT:				
			min.:	max.:	average:
Management:					2
Staff:					10
Skilled Workers:					25
Semi-Skilled Workers:					23
Unskilled Workers:					-
TOTAL:					50
Entrepreneurial Background of Sponsor/Owner: Shoemaker					
External Technical Cooperation necessary? ---					
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (Ranking):		
Domestic:		Export:	Domestic:		Export:
50%		50%	Wholesalers Retailers Commission agents		Wholesalers Job order
6	INVESTMENT:				
Fixed Assets (Rs. 1000)		min.:	max.:	average:	Working Capital (Rs. 1000)
Land:					min.:
Buildings:				2,400	max.:
Machinery/Equipment:				19,000	average:
Miscellaneous:				200	3,000
TOTAL:				21,600	
7	COST STRUCTURE:				
		min. %	max. %	average %	Remarks:
Raw Materials:				57	
Manpower:				10	
Depreciation/Interest:				15	
Others:				8	
Profit:				10	
8	FINANCIAL RATIOS: (Rs. 1000)				
		min.:	max.:	average:	Remarks:
Turnover / Employee				215.7	
Turnover / Machinery and Equipment				20.7	
Machinery and Equipment / Employee				215.7	
Total Investment / Employee				300.0	
a. Building owned					
b. Building rented					
Fixed Assets / Working Capital				7.2	
Profit / Investment				4	
Loans / Total Capital				-	

Major Machinery and Equipment for a "New Footwear Company"

4	cutting presses (mech.)
2	cutting presses (hydr.)
1	splitting machine
1	lining machine
1	sole laying machine
2	skiving machines
10	sewing machines
1	perforating machine
1	loop machine
1	zig-zag machine
2	two needle sewing machines
1	rope seam sewing machine
1	edging machine
1	folding machine
1	eyeletting machine
3	sole leather clicking presses
1	sole splitting and roughing machine
1	counterskiving machine
1	sole roughening-scouring machine
1	cementing machine
1	hand tacker
2	counter moulding machines
2	pulling over and lasting machines
2	steam machines
1	heel seat lasting machine
1	tinetaek pulling over and lasting machine
1	roughening machine with vacuum cleaner
1	heel scouring machine
1	pounding-up machine
1	head setter
1	two parts hydraulic sole laying machine
1	heel nailing machine
1	trimming machine
1	finishing cleaning machine
1	last remover
2	sprayer cabins
2	air compressors
1	edge varnishing machine
1	toe puff ironing machine
1	ironing machine press
1	tape cementing machine
1	sole cementing machine
1	hot air ironing machine
1	injection moulding machine

LITERATURE

LITERATURE

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- Warsi, M.T.: Speech on Occasion of the certified Distribution Ceremony to Candidates of the Leather Garment Training Centre, Karachi, 1980
- World Bank: Project Appraisal on the Leather Goods Service Centre in Bannu
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BASIC DATA AND RATIOS
of
UNITS INTERVIEWED

LEGEND FOR BASIC DATA AND RATIOS

- 1) Sales figures 1979
(estimates of yearly sales volume)
- 2) 1 = Wholesaler
2 = Commission agent
3 = Retailers
4 = Job order
5 = direct sales to end user
6 = Exporters
- 3) g = good
f = fair
b = bad
- 4) TTD = Traditional Technology Developing Countries
UTD = Upgraded Technology Developing Countries
ATI = Adapted Technology Industrialized Countries
UTI = Unchanged Technology Industrialized Countries
- 5) Staff = administrative and management personnel
- 6) % of total raw material (in terms of value)
- 7) Turnover/value of machinery and equipment
- 8) Value of machinery and equipment/employees
- 9) Cost-to-sales ratio (%)

Province	Unit No.	Description Product	Year of Establishment	Sales Marketing				Land			Buildings			Assets Rs.
				Sales Rs.	Direct %	Export %	Channel %	Area m ²	Total value Rs.	Value per m ² Rs.	Covered area m ²	Total value Rs.	Value per m ² Rs.	
P	1	Tannery ul	62	1 200 000	100	-	1	2 200	500 000	364	550	400 000	727	194 000
P	2	Tannery sl	66	5 238 000	100	-		550			225	500		128 000
P	3	Tannery ul gloves	78	1 980 000	100	-	own traded	600	250 000	400	400	300 000	300	90 000
P	4	Tannery ul	93	6 000 000	100	-	1, 2	4 400	1 000 000	363	1 100	400 000	364	65 000
P	5	Tannery ul		7 260 000	100	-	2	1 500	1 200 000	200	1 100	300 000	455	514 000
P	6	Tannery ul	78	3 600 000	-	100	7	1 650	1 000 000	600	800	1 000 000	1 250	177 000
P	7	Tannery ul	70	4 138 500	100	-	5	4 400	1 600 000	363	1 650	600 000	364	60 000
P	8	Tannery sl	65	13 936 550	-	100	1	2 750	1 000 000	363	1 650	600 000	364	41 000
P	9	Tannery ul wbl	78	22 000 000	90	10	5, 2	1 650	600 000	360	1 100	300 000	375	1 000 000
P	10	Tannery ul	43	19 250 000				3 300	1 200 000	360	1 650	300 000	364	195 000
P	11	Tannery ul sl	50	66 000 000	27	73	1, 5	Land + Building			2 200	200 000	900	3 000 000
P	12	Tannery ul	73	120 000 000				5 000	2 000 000	400	2 000	1 600 000	800	5 200 000
S	13	Tannery ul	62	5 000 000	100	-	1, 3	1 500			500	500 000		120 000
S	14	Tannery wbl.	74	10 000 000	5	95	7	1 000	400 000	400	800	600 000	750	210 000
S	15	Tannery ul	60	41 250 000	10	90	3, 7	2 000	1 000 000	500	1 000	1 600 000	1 000	360 000
S	16	Tannery ul	65	70 000 000	-	100	7	10 000	rented		2 000	1 000 000	750	1 000 000
S	17	Tannery ul	47	12 675 000	10	90	3, 7	Land + Building			750	500 000	670	1 500 000
S	18	Tannery ul	76	120 000 000	26	74	3, 7	Land + Building			2 000 000			6 000 000
S	19	Tannery ul	50	150 000 000	4	96	3, 7	Land + Building			250 000			750 000
N	20	Tannery ul	57	9 326 556	8	92	3, 7	1 200	400 000	400	1 000	100 000	1 000	1 000 000
N	21	Tannery ul	77	22 500 000	100	-	3, 5	10 000	5 000 000	300	7 500	4 500 000	600	1 500 000

SECTION 1

Sl. No.	Machine No.	Machine Equipment Value (Rs)	Acquisition Year	Type	Condition	Category	Machinery				Raw material import (%)	Fixed Assets (Rs)	Value	Depreciation	Residual Value	Total Assets	Total Liabilities	Net Worth		
							Total	Scrapped	Repair	Spares										
100000	727	194000	20	F	X	60	15	14	1	40	1394000	100000	-	-	80000	1474000	1474000	0		
5000		123000	10	G	X	50	20	7	10	3	40	123000	300000	-	-	201000	524000	524000	0	
20000	50	90000	3	G	X	70	20	-	10	2	35	690000			100000	790000	790000	0		
20000	364	468000	10	F		X	33	31	4	15	2	30	2468000	420000	-	-	300000	2768000	2768000	0
20000	455	574000	2	G		X	90	22	5	15	2	20	2174000	2500000	-	-	430000	6674000	6674000	0
20000	1250	177000	2	G	Y		60	10	-	20	4	30	2177000	200000	-	-	120000	2297000	2297000	0
20000	364	500000	5	C		X	90	30	7	21	3	30	2000000	300000	-	-	1300000	2300000	2300000	0
20000	364	410000	5	C		X	80	35	10	22	3	30	2010000	1000000	-	-	390000	3000000	3000000	0
20000	275	1400000	2	G		X	75	30	10	22	4	40	2300000	1000000	-	-	511000	3300000	3300000	0
20000	364	195000	10	G		X	50	50	50	25		40	1995000	1100000	-	-	305000	3095000	3095000	0
20000	900	3000000	20	F		X	50	50	10	40	0	25	1700000	22500000	50000	50000	1170000	22617000	22617000	0
20000	800	5200000	6	C		X	80	170	40	70	4		8800000		-	-	1000000	9800000	9800000	0
20000		120000	8	F	Y		70	15	1	3		25	120000	500000	-	-	312000	412000	412000	0
20000	750	310000	10	F	X		50	30	4	17	9	40	310000	2000000	1000	-	330000	2330000	2330000	0
20000	1000	360000	10	F	X		70	40	4	10	4	30	2360000	3000000	-	-	854000	5314000	5314000	0
20000	750	1000000	15	F		X	70	53	22	15	16	20	3000000	13000000	-	100	1200000	4200000	4200000	0
20000	670	1500000	20	F	X		50	12	12	38	22	30	2000000	1500000	30	70	170000	3670000	3670000	0
20000		6000000	5	C		X	80	200	21	120	50	30	8000000	12000000	-	100	600000	18600000	18600000	0
20000		7500000	10	F		X	60	250	24	165	20	30	10000000	50250000	100	-	590750	50840750	50840750	0
20000	1000	2000000	3	X		X	50	30	17	3	-	30	9480000	1304272	100	-	186536	9666536	9666536	0
20000	600	1100000	3	C		X	70	40	70	6		30	2350000	9000000	70	30	321500	3271500	3271500	0

SECTION 2

Firm	Turnover				Capital				Cost				Notes	
	Turnover total investment	Turnover in activity	Turnover in equipment	Turnover in working capital	Total investment employees	Machinery and equipment employees	Fixed assets working capital	Loans total capital	Total investment	Power	Domestic investment	Material cost		Others
0000	1.3	2.2	12.1		99600	12933	13.9	-	88			1.3	1.3	4.7
01900	12.4	42.3	17.5		21150	1150	0.4	-	47	2.5			1.1	1.4
0000	2.2	12.3				4000			70	3.3	1.3	1.3	1.3	10
0000	1.8	13.5	4.8		62657	13071	1.3	-	90	1.0	0.1	1.0		19
0000	1.5	12.5	2.9		225318	36090	1.9	-	70	2.4	1.3	1.3	1.3	19
0000	1.5	20.3	13.3		81566	5900	8.3	-	68	3.3	1.3	2.3	1.3	20
03500	1.3	6.9	13.8		100000	19355	9.3	-	57	4.3	1.4	1.3	1.3	30
0173	5.3	34.3	23.2		74571	11714	3.4	-	44	0.3	0.3	1.3		1.4
1111	3.3	15.7	14.3		105555	38888	1.5	-	87	2.3	0.4		1.2	1.4
0000	1.4	98.7	19.2		60000	39000	2.3	-	77	2.3	1.3	1.3	1.3	18
0571	-	22.3	3.3		392857	53571	0.5	1.00	80	1.3	1.3	1.3	1.3	10
0000	-	23.1				43333		-	50	0.8	1.3	1.3	1.3	33
2000	41.0	41.0	16.0		26250	7500	4.0	-	90	2.3	1.3	1.1	-	0
03330	3.3	30.3	3.3		110333	10333	1.3	1.3	73	1.3	0.3	0.4	1.3	21
0470	7.7	114.0	14.0		111666	7500	0.6	-	50	1.5	1.5	1.3	1.3	10
00755	4.4	46.3	0.0		301886	28002	0.23	0.4	64	0.5	2.3	0.2	20.3	7
0000	-	8.0	8.0		48611	20000	1.3	0.7	57	0.3	4.3	1.3	25.3	1
0000	6.0	20.0	10.0		100000	30000	0.7	0.6	66		1.3	1.3	14.3	10
93750	2.5	20.0	0.0		585937	29296	0.2	0.16	80	1.0	1.3	1.3	1.3	0
04536	0.9	1.0	7.0		215685	160000	7.0	1.0	80	4.0	4.3	1.3	3.6	1.0
021500		2.0	3.0			110000	2.0	1.0	60	23.0	15.0	2.0		120

Shoe Factory integrated

SECTION 3

Province	Unit No.	Plant Name	Year of establishment	Shoes Manufactured				Land			Buildings			M. E. /sq. ft.
				Value (R)	QTY	Export	Change	Area (sq. ft.)	Total Value (R)	Value (sq. ft.)	Change (sq. ft.)	Total Value (R)	Value (sq. ft.)	
P	22	Shoe Factory	79	3 20 400	100	-	1,4	-	-	-	145	1 000	-	330
P	23	Shoe Factory	65	1 650 000	100	-	4	-	-	-	145	300 000	1 650	75
P	24	Shoe Factory		1 20 000	100	-		-	-	-	55	100 000	27 000	4
P	25	Shoe Factory	79	114 400	100		2	3 636	21 000 000	605	1 000	0 000	1 33 3	
P	26	Shoe Factory		2700 000	100	-	1	-	-	-	91			
P	27	Shoe Factory	78	10 000 000	100	-	2	00	400 000	500	300	300 000	1 000	70
S	28	Shoe Factory	75	70 000	100	-	3,5	25	-	-	25	300-500	-	
S	29	Shoe Factory	49	600 000	100	-	3,6	900	-	-	1 500	2 000 000	-	250
S	30	Shoe Factory	54	3 860 000	100	-	3	Land + Building				1 000 000	-	70
S	31	Shoe Factory	60	15 050 000	100	-	5	1 200	300 000	250	700	700 000	1 000	1 200
S	32	Shoe Factory	72	13 530 000	100	-	1	8 281	1 000 000	120	1 000	2 000 000	2 000	2 000
N	33	Shoe Factory	20 76	120 000	100	-	3,5	25			25	300-500	-	0
N	34	Shoe Factory	77	6 300 000	100	-	3							4,40

SECTION 1

Sl. No.	Buildings			Machinery + Equipment		Technology				Manpower					Raw material import % 6)	Investment		Composition of Assets		Turnover (No. of units/year)	Turnover total investment
	Covered area (m ²)	Total value, Rs.	Value per sq. m., Rs.	Value (Rs.)	Average age (years)	FDI	USD	ATI	UTI	Capacity utilization %	Total	Skilled workers	Semi-skilled workers	Staff		Fixed assets (Rs.)	Working capital (Rs.)	Fixed assets %	Working capital %		
	145	(1 000)		330 000	1.5	F	X			80	8	5	2	1	-	360 000	450 000	-	-	452 450	4.5
	145	300 000	2 055	75 500	6	F	X			90	16	15	-	1	-	375 500	300 000	-	-	1 031 25	2.4
	55	150 000	27 27	4 000	20	F	X			80	16	12	3	1	-	152 000		-	-	120 000	
55	1 500	2 300 000	1 533	31 000 000	13	G		X		16	20	10	8	2	14	7 600 000	19 000	100	-	5720	0.00
	91	(4.0)		66 000		F	X			70	32	20	10	2	0.3	66 500	500 000	-	-	84 375	4.9
50	300	300 000	1 000	756 000	2 20	F	X			80	84	50	30	4		1 456 000	700 000	-	-	119 047	4.6
	25	(300-500)	-	7 500	15	F	X			60	5	3	2	-	-	7 500	10 000	-	-	14 000	20
	1 500	2 000 000	-	250 000	10	F	X			6	7	2	3	2	-	2300 000	60 000	-	-	90 000	0.7
		1 600 000	-	1 570 000	20	F		X		19	11	3	4	4	-	3170 000	1 250 000	-	-	350 000	0.9
50	700	700 000	1 000	1 200 000	20	F	B	X		70	55	30	17	8	2	2200 000	2500 000	-	-	300 000	3.2
20	1 000	2 000 000	2 000	2 500 000	13	F		X		60	70	20	40	10	-	4 500 000	1 000 000	-	100	193 285	2.
	25	(300-500)	-	6 500	15	F	X			60	5	3	2	-	-	6000-7000	5 000-10 000	-	-	24 000	8.7
				4 540 000	3	G		X		40	120	50	66	4						52 500	

No. of plants	Working capital	Financial Ratio									Cost Structure ⁹¹					Remarks
		Turnover No. of employees	Turnover total investment	Turnover machinery + equipment	Turnover, working capital	Total investment employees	Machinery and equipment employees	Fixed assets working capital	Loans total capital (%)	Raw material	Manpower	Deprac. interest	Maintenance	Others	Profit	
-	-	452 450	4.5	10	8	101 250	45 000	0.8	-	88	1.6	1		0.5	9	
-	-	103 125	2.4	22	5.5	42 187	4 688	1.25	-		25	0.5				
-	-	120 000		960			125		-	70	23				7	
00	-	5720	0.02	0.04	6	380 950	155 000	400	0.04							severe financial predicaments
-	-	84 375	4.8	41	5.4	28 325	3 325	0.1	-	79	12	0.5	0.5		8	labor problems
-	-	119 047	4.6	13.2	14.3	25 666	9 000	2.1	-	48	8	1	0.5	10	32	
-	-	14 000	20	20	12	3 500	1 400	0.75	-	62	17			14	7	equivalent to abt. 1,000 cottage industries
-	-	90 000	0.3	2.4	10	337 142	35 714	40	-	00	20		5		15	
-	-	350 000	0.9	2	3	401 818	142 727	2.6	-	80	1.5	4.5	0.1	5	8	labor problems
-	-	300 000	3.2	14	6	85 454	22 000	0.9	-	65	5	2	1	7	20	
100		193 285	2.5	5.4	13.5	78 571	35 714	4.5	18	65	12	5	2	4.5	11.5	
-	-	24 000	8.6	20	17	2 800	1 300	1	-	70	15	-	-	10	2.5	equivalent to abt. 600 cottage industries
		52 500					38 000								loss	integrated into a large tannery, No. 21

SECTION 3

Province	Unit No.	Production Program	Year of establishment	Sales Marketing			Land			Buildings			Machine Equipment	
				Sales (Rs)	Domestic	Export	Channel	Area (m ²)	Total value (Rs)	Value per m ² (Rs)	Covered area (m ²)	Total value (Rs)	Value (Rs)	Value (Rs)
P	35	Garments	71	5 250 000	-	100	7	Land + Building			200	150 000	750	30 000
S	36	Garments	80	300 000	100	-	4	-	-	-	20	(400)		5500
S	37	Garments	67	550 000	-	100	7	rented			-	800	-	7500
S	38	Garments	80	1 912 500	100	-	3	-	-	-	50	128 000	-	19 000
S	39	Garments	73	2 200 000		100	7	rented			-	1 500	-	18 000
S	40	Garments	70	5 280 000	-	100	1	205	100 000	488	164	200 000		70 000
S	41	Garments	66	1 075 000	25	75	3,7	rented			-	800	-	200 000
S	42	Garments	72	2 420 000	-	100	1		-	-	246	(1 500)		30 000
S	43	Garments	78	18 205 000	-	100	1,4	820	-	-	574	(2700)		64 000
S	44	Garments	75	13 200 000	-	100	1	492	-	-	574	(3 000)	5.2	80 000
S	45	Garments	73	11 275 000	-	100	1	Land + Building			1 500	300 000	200	450 000
P	46	Leather Goods		862 500	50	50	5,1	Producing at different			locations			5 000
S	47	Leather Goods	80	3 000 000	100	-	0	rented			-	1 000	-	80 000

SECTION 1

Value Rs	Machinery + Equipment		Technology				Manpower in numbers					Raw material import (%)	Investment		Utilization of assets		Turnover No. of employees	Turnover total investment	Turnover machinery equipment	Turnover working capital	Total investment employees
	Value (Rs.)	Average age (Years)	D	U.D	A	U	Capacity utilization %	Total	Skilled workers	Semi- unskilled workers	Others		Fixed assets (Rs)	Working capital (Rs)	Fixed assets %	Working capital					
750	30000	15	F	X			33	25	15	6	4	-	190000	260000	-	-	210000	-	75.0	20.0	18.00
-	5500	10	F	X			85	7	6	-	1	-	5500	7000	-	-	42057	23.6	55.0	43.0	178
-	7500	15	F B	X			5	10	8		2	-	7500	200000	-	-	55000	2.7	66.0	2.5	2075
-	19000	1	G	X			85	13	12	-	1	-	147000	10000	-	-	147	13.9	12.1	1.9	11300
-	18000	6	F	X			50	16	2	12	2	-	118000	200000	-	100	137500	6.9	122.0	11.0	19000
-	70000	6	F	X			85	25	20	-	5	-	370000	400000	-	100	211200	6.9	75.0	13.2	30800
-	200000	15	F	X			40	26	10	10	6	-	250000	300000	-	-	41346	2.0	5.4	0.6	21100
-	80000	5	B	X			60	25	23	-	2	7	80000	1300000	-	100	48400	1.8	30.0	1.9	2700
-	64000	5	F	X			85	50	25	20	5	-	70000	2000000	-	100	664100	8.8	260.0	9.1	41400
5.2	80000	5	F	X			80	55	47	-	8	9	80000	1500000	-	-	240000	4	165.0	8.8	28720
200	450000	2	F	X			5	102	66	30	0	-	750000	5000000	-	100	109466	5.0	25.0	2.3	26370
-	5000	50	F	X			80	100									8625		172.5		
-	80000	10	F	X			70	28	4	20	4		800	550000	-	-	100000	4.8	40.0	6.0	22

SECTION 2

No.	Type of business	Financial Ratio								Cost Structure ⁹⁾						Remarks
		Turnover No. of months	Turnover total investment	Turnover/ machinery equipment	Turnover/ working capital	Total investment employees	Machinery and equipment employees	Fixed assets/ working capital	Loans total capital	Raw material	Manpower	Deprec. interest	Maintenance	Others	Profit	
-	-	210000	-	175.0	20.0	18000	1200	0.7	-	70.0	3.0	0.3	0.3	0.7	27.0	gloves
-	-	42857	23.6	55.0	43.0	1786	786	0.8	-	13.5	50.0	1.0	-	2.0	33.0	
-	-	55000	2.7	66.0	2.5	20750	750	0.04	-	73.0	19.0	1.8	-	3.2	10.0	
-	-	147	13.9	12.1	1.9	11307	1461	14.7	-	65.0	12.0	0.1	-	3.0	20.0	
-	100	137500	6.9	122.0	11.0	19075	1000	0.6	0.7	65.0	4.0	2.0	1.0	10.0	18.0	
-	100	211200	6.9	75.0	13.2	30800	2800	0.9	0.5	82.0	12.0	0.1	-	1.0	5.0	
-	-	41346	2.0	3.4	3.6	21154	8000	0.8	-	65.0	11.0	1.9	1.4	11.1	9.3	
-	100	48400	1.8	30.0	1.9	27600	1600	0.06	0.7	81.0	10.0	1.0	-	1.5	5.5	
-	100	364100	8.8	260.0	9.1	41400	1400	0.04	0.9	69.0	7.0	6.0	-	0.3	25.0	own tannery
-	-	240000	7.4	165.0	8.8	28727	1455	0.05	-	75.0	9.0	0.05	-	0.5	15.0	
-	100	109466	2.0	25.0	2.3	56372	4411	0.15	0.35	72.0	16.0	1.0	-	-	11.0	own tannery
		8625		172.5			50		-	50.0	30.0				20.0	suitcases
-	-	100000	4.8	40.0	6.0	22500	3000	0.15	-	70.0	13.0	1.0	0.5	0.5	15.0	bags, wallets, etc.

SECTION 3

10801
(6 of 6)

**STUDY ON SMALL SCALE INDUSTRIES
IN PAKISTAN**

**Volume 6
SUB-SECTOR: TEXTILES**

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STUDY ON SMALL-SCALE INDUSTRIES
IN PAKISTAN

SUB-SECTOR STUDY

- TEXTILES -

Volume 6

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Annex I: Basic Data and Ratios of Units Interviewed

Annex II: Interviews and Case Studies

1. Introduction and Method of Approach

The textile industry in Pakistan is vital; it clothes about 81 million people without assistance from major imports. It accounts for 25 % of value added in the manufacturing sector, provides employment for 350,000 persons and generates US \$400 million of foreign exchange through exports¹⁾.

The organised mill sector and the unorganised power loom sector each produced 700 million yards of cloth in 1976/77. The SSI-textile sub-sector depends entirely on the mill sector for its raw material which is mainly cotton yarn, which is spun from low cost indigenous short staple cotton.

The terms of reference indicate that particular attention should be paid to hosiery, garments, towels and canvas, which have great export potential although they currently represent a very small percentage of the whole textile industry output. The power loom sector with at least 50,000 looms is the most important group of the sub-sector in question. The Textile Commissioner's Office therefore made a special request that particular attention should be paid to this sector because the Federal Government has appointed a committee to study the SSI power loom sub-sector.

During the field work about 200 visits were made in Karachi, Lahore, Gujranwala, Faisalabad, Islamabad/Rawalpindi, Peshawar, Quetta and Hyderabad. A representative selection of small industries were questioned according to plan and grouped in typical units for reporting purposes. Sufficient yarn suppliers, warping and sizing plants, as well as commission dyers and finishers were interviewed. A textile institute and a Government weaving and finishing institute were visited as well as provincial small industries departments. The success of the entire programme was furthered by the excellence of the counterparts in each province and the cooperation of IACP directors and staff in Karachi. Thanks are also due for the exceptional assistance and kindness from people in all walks of life who made this work possible in a short time.

Some information was obtained concerning household/cottage industries and the training centres which support them. The importance of such activities and the very large numbers employed was appreciated, but this study was focussed on small textile industries which are better documented than household activities.

1) Sources:

- PSIC Basic Statistics 1975/6, Vol II, page 20.
- Werner Report
- Marketing Problems of the SS Power Loom Industry, UNIDO 1976
- Textile Commissioner's Office
- IACP Absorption, Assimilation + Diffusion of Imported Technology, 1980.

The main source of information is the 1976/76 Census Report issued by Punjab SIC, called "Basic Statistics on Small and Household Manufacturing Industries". 16,989 SSI textile units were surveyed in the urban areas of the Punjab representing more than 80 % of the working units. Baluchistan was found to have virtually no textile units with the exception of carpet making. North West Frontier Province (NWFP) had few in number although those few were of exceptional interest as examples of decentralisation.

Important small and medium scale industries were visited in Sind but they represent about 25 % of the number to be found in Punjab. They have been covered by the second recent basic document called "UNIDO/IBRD Study on Small Industries", October 1978, in collaboration with IACP.

Much information was obtained from the units visited recently all over Pakistan; however, the number was too small to serve as reliable samples for statistical purposes. For this reason full use has been made of the two basic studies aforementioned and of several other studies which are listed for reference purposes.

The following report is based squarely on the terms of reference, UNIDO/IBRD Study.

2. Structure, Significance and Development Potential of Sub-Sector

2.1 Size of Sub-Sector

As quoted in the macro-economic study, the sub-sector textiles comprises more than 17,500 units¹⁾, with a total employment of above 84,000 persons. Out of these

- 3.5 % are large-scale units
- 70 % are small-scale units, and
- 26.5 % are household units.

Detailed statistical figures for the total sub-sector do not exist; estimated figures with detailed breakdown are published only for Punjab. The 1975/76 Punjab figures²⁾ for 16,989 working units give the best available picture of small textile industries:

<u>Production Units</u>		<u>Service Units</u>	
Cotton canvas	444	Warping and sizing	102
Cotton weaving	10,109	Printing	96
Art. silk weaving	3,861	Bleaching and dyeing	163
Cotton towels	94		
Ready-made garments	34		
Hosiery	244		
Narrow fabrics	275		
Specialized weaving	1,246		
Handlooms	321		

The regional distribution for the individual product lines is as follows:

	<u>No. of Units</u>	<u>Employment</u>
- Baluchistan	13	57
- NWFP	389	1,659
- Punjab	16,989	65,101

The regional breakdown for Punjab by product lines is shown in the following table 2.1.

-
- 1) Macro-Economic Study, Vol. 1, table 5.1; data for Sind had not been available before submitting this report.
 - 2) Source: 1975/76 Punjab SIC Census Report:
 - Hosiery, page 68
 - Garments, page 59
 - Towels, page 49
 - Canvas, page 13
 - (Others) Power loom, page 22.

Table 2.1: Regional Distribution of Units by Product Line (Punjab)

Product Line	Number and Location	% of Total Textile Output
Hosiery	244 units in Punjab of which 70 % in Faisalabad 15 % in Gujranwala 8 % in Lahore	1 %
Garments	34 units in Punjab of which 82 % in Lahore	0.9 %
Towels	94 units in Punjab of which 42 % in Gujranwala 42 % in Faisalabad	0.5 %
Canvas	444 units in Punjab of which 90 % in Kasur	2.26 %
Power Looms	10,095 units in Punjab of which 61 % in Faisalabad 9 % in Gujranwala 8 % in Gujrat 7 % in Jhang	48.83 %

2.2 Characterization of Units Interviewed

2.2.1 Number of Units and Regional Distribution

The regional distribution and breakdown by product line of the 32 units visited during the survey is shown in table 2.2. Very small and homogenous units, such as units belonging to the household and cottage industry, have been grouped in one typical unit. All relevant data of the companies interviewed are compiled in Annex 1.

Table 2.2: Regional Distribution by Product Line

Province	No. of Units	Percentages by Provinces				
		Hosiery	Garments	Towels	Canvas	Others
Punjab	Hosiery 4	50	50	40	67	20
	Garments 3					
	Towels 2					
	Canvas 2					
	Others 2					
Sind	Hosiery 2	25	50	40	33	-
	Garments 3					
	Towels 2					
	Canvas 1					
	Others -					
NWFP	Hosiery 2	25	-	10	-	40
	Garments -					
	Towels 1					
	Canvas -					
	Others 4					
Baluchistan	Hosiery -	-	-	-	-	40
	Garments -					
	Towels -					
	Canvas -					
	Others 4					
	32	100	100	100	100	100

The distribution indicates the high concentration of textile industry in Punjab and Sind.

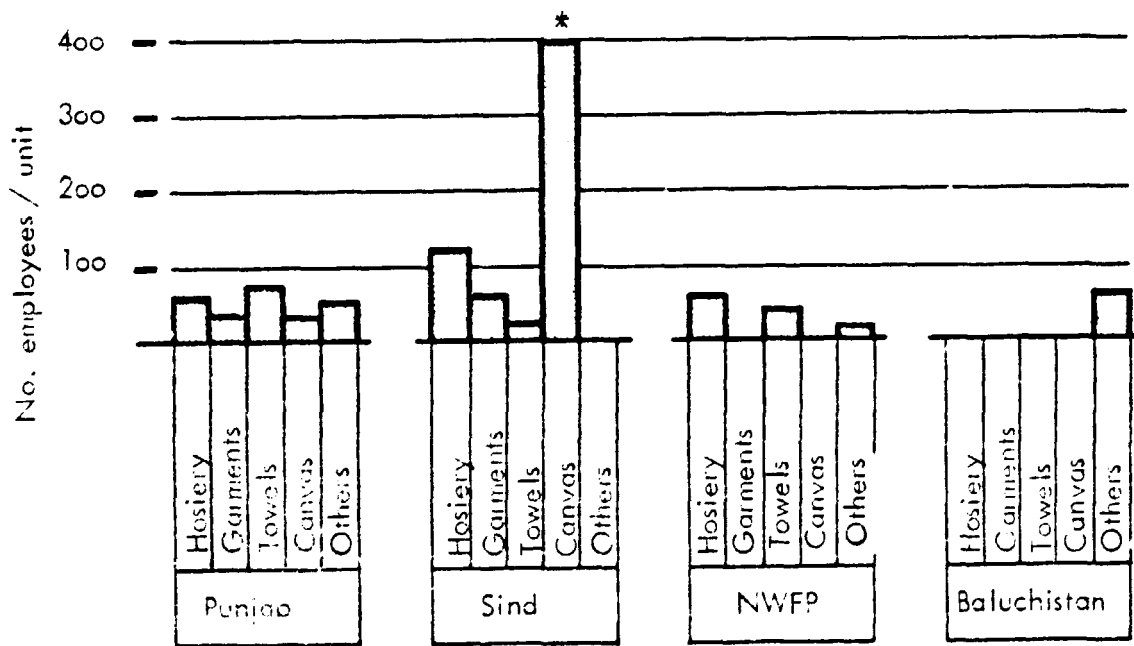
2.2.2 Classification of Units

The following figures show the distribution of employees per unit, investment and sales per employee by region and product line.

Figure 2.1 illustrates the regional distribution of average unit size (number of employees per unit). As can be seen from this figure, the average number of employees is different from product line to product line:

- Hosiery 66 employees
- Garments 45 employees
- Towels 44 employees
- Canvas 155 employees
- Others 37 employees.

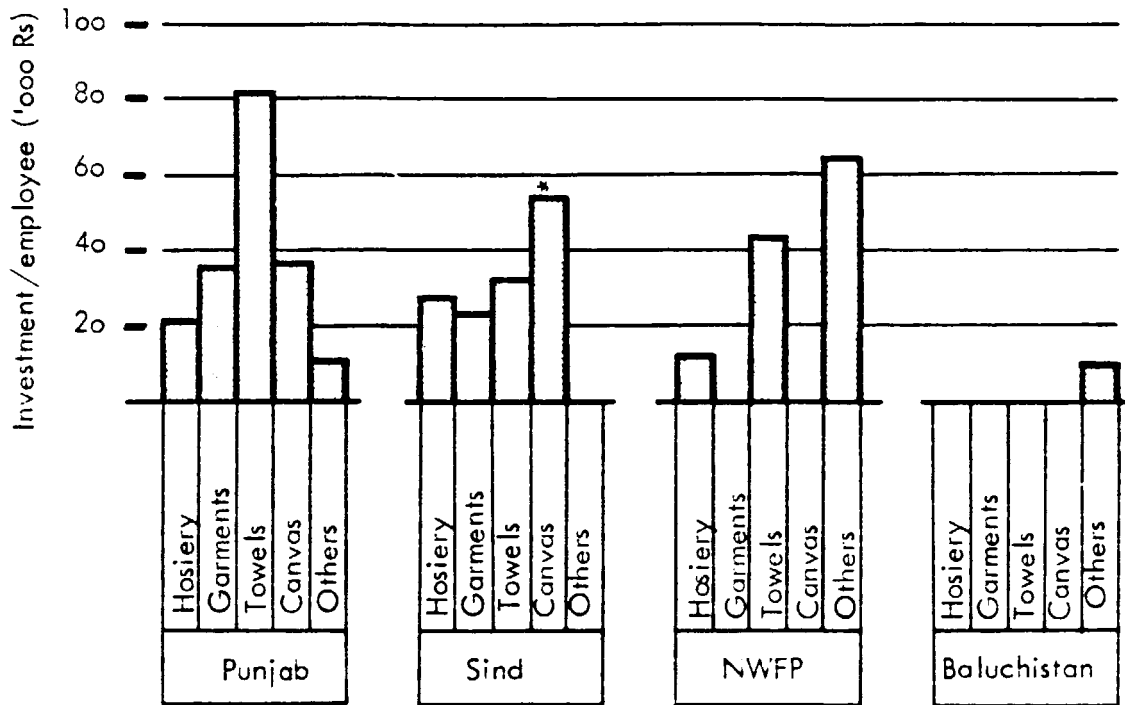
Figure 2.1: Distribution by Employees



* only 1 unit visited

In figure 2.2 the total investment in fixed assets including land is broken down by province and product line.

Figure 2.2: Distribution of Total Investment/Employee



* only 1 unit visited

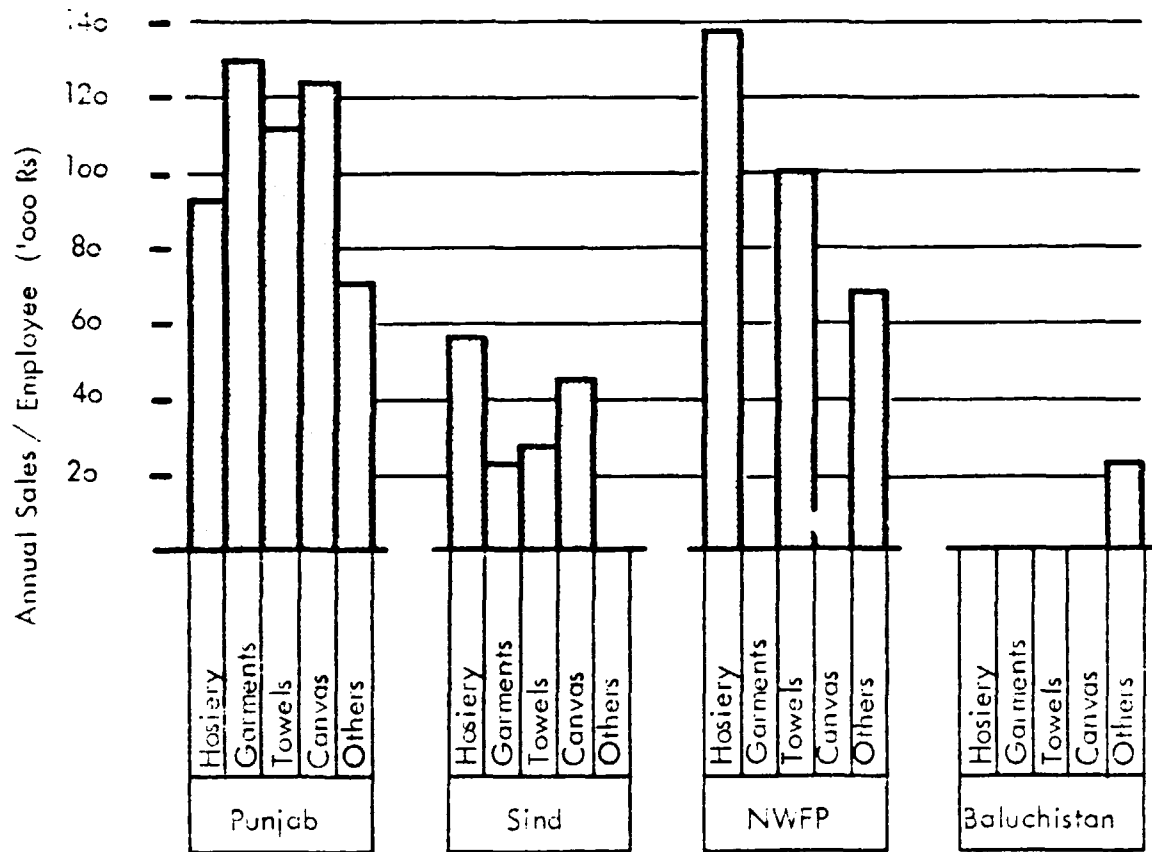
Based on the number of units visited per product line the average range of total investment per employee can be estimated as follows:

- Hosiery Rs. 12,000 - Rs. 28,000
- Garments Rs. 24,000 - Rs. 36,000
- Towels Rs. 33,000 - Rs. 82,000
- Canvas Rs. 37,000 - Rs. 55,000
- Others Rs. 10,000 - Rs. 12,000.

With a weighted average of about Rs. 40,000 per job, the textile sector is the most capital-intensive sub-sector of the sub-sectors analyzed.

The average sales per employee by province and product group are shown in figure 2.3 and can be estimated as follows:

Figure 2.3: Distribution of Sales / Employee



- Hosiery Rs. 56,000 - 139,000
- Garments Rs. 22,000 - 129,000
- Towels Rs. 26,000 - 113,000
- Canvas Rs. 45,000 - 123,000
- Others Rs. 22,000 - 71,000.

The capital/output ratio varies from product group to product group and averages in between 0.4 and 0.5.

2.2.3 Organizational Aspects

As to the legal status, the units visited are organized as follows:

- 17 (53 %) are sole proprietorships
- 5 (16 %) are partnerships between family members
- 7 (22 %) are limited liability companies
- 3 (9 %) are owned by GOP.

32 units - 100 %.

Sole proprietorships are in the majority for textile SSI enterprises (53 %). Partnerships between family members are only 16 %, limited liability companies (22 %) have grown up from SSI, GOP owned 9 % of the enterprises and provided the total investment.

The registration status with the Provincial Industries Departments is summarized in the following table 2.3:

Table 2.3: Registration Status According to Product Lines

Product Line	Registered	Unregistered
Hosiery	7	2
Garments	4	1
Towels	3	2
Canvas	3	0
Others	8	2
Total	25	7

In total 78 % were registered, and 22 % unregistered.

2.2.4 Location Inside/Outside Industrial Estates

Out of the 32 units visited in all provinces, 14 were located in Industrial Estates and 18 outside:

	<u>Inside Estate</u>	<u>Outside Estate</u>
- Hosiery	3	6
- Garments	2	3
- Towels	1	4
- Canvas	3	0
- Others	5	5
Total	14	18

3. Technical, Economic and Financial Analysis of Target Units

3.1 Production and Technology

3.1.1 Range of Products

The range of products includes for the product lines analyzed the following products:

- Hosiery: Synthetic and cotton socks, underwear and T-shirts, cotton double knit dress fabrics, synthetic warp knitted fabrics, cotton and synthetic outerwear and underwear
- Garments: Shirts, blouses of synthetics and cotton, trousers jeans corduroy mainly cotton, general garments mainly synthetics, special garments of cotton and synthetics
- Towels: Low quality cheap towels of cotton, high quality Terry towelling of cotton
- Canvas (Power-loom sub-sector): Canvas for sale in grey loomstate cotton; canvas, tarpaulins awnings + tents mainly of cotton; loomstate coarse grey cloth of cotton.

3.1.2 Quality and Standardization

The quality range is from worst to best depending on type of plant, machinery and management. The worst quality is sold in the local market. The best quality is exclusively for export. Standardization is achieved by the best plants which have modern management and imported machinery. Some degree of standardization is being achieved by the recently installed units of the canvas and power loom sector because of the simplicity of the process of weaving, e.g. the quality of raw material, counts of yarn employed, correctness of dimensions in warp and weft, as well as freedom from gross faults must obey established standards which are included in specifications and confirmed by samples.

3.1.3 Classification by Markets

3.1.3.1 Hosiery

Small size units are normal for synthetic and pure cotton socks which are sold mainly in the domestic market; but socks made from high quality materials on good machines are suitable for export (see Appendix Case Study No. 1).

Medium sized units with good layout machinery and management have excellent long term export prospects for the full range of hosiery products; Europe, USA and Arab countries are the best markets. Lower quality and export rejects are traditionally sold in the domestic market.

Larger sized units with excellent management and sophisticated machinery are able to export to all world markets; because the domestic market is oriented towards price rather than quality, such companies usually specialize in producing for export (see Appendix Case Study No. 2).

Overall, 20 % of total production is exported.

3.1.3.2 Garments

Small size units mainly operate for the domestic market because their volume of production is insufficient for normal export orders and their quality is too low.

There is a fairly good future for well organized medium sized garment plants because the industry is labour intensive and wage levels are comparatively low. However, product quality and reliability of deliveries have to be maintained.

Large sized units, preferably with advanced foreign collaboration have excellent prospects, especially when joint ventures guarantee entry to the best world markets. Whenever possible such plants should be located in duty-free areas so that high quality cotton and polyester/cotton fabrics can be utilized for re-export as finished garments.

3.1.3.3 Towels

Small sized towel industries supply the domestic market, and the best units also export to the lower level of international markets, e.g. Eastern bloc countries, Africa and Asia.

Medium sized towel industries with simple imported looms are exporting to world markets including Europe and USA; they also sell at low prices in the very competitive domestic market.

Larger sized towel industries have excellent scope for exporting upgraded terry-towelling to the best world markets because they are under supplied in the medium quality range. For the highest quality export trade the most modern machinery and technology is essential, together with specialized management. Joint ventures with foreign towel makers for production in duty free areas is recommended. However, the capital investment would be far beyond SSI limits.

Overall, 90 % of total towel production is exported.

3.1.3.4 Canvas

Small size canvas plants are working for both domestic and export markets with the support of spinners from the organized textile sector.

Medium sized canvas plants have a large and lucrative export market in the Middle East, as well as a good domestic market for housing refugees in tents.

Larger sized canvas units include sewing and finishing processes for tarpaulins, awnings and tents for Arab and world markets. Canvas is an excellent way of transforming cheap coarse yarn into an exportable product, but it is subject to severe fluctuations in demand (see Appendix Case Study No. 9).

3.1.3.5 Others

Small size power loom units vary from 1 - 16 simple looms operating mainly for the domestic market. Until recently 10 % of their production was exported through intermediaries but 25 % is now estimated to be produced for export.

Medium and larger sized units are owned directly by mill sector companies in order to avoid the provisions of the labour act and thereby to reduce overheads. Such units can amount to 200 - 300 machines with the support of large mills and under their control. They allocate the production to domestic or export markets according to the marketing strategy of the controlling company.

3.1.4 Level of Technology

The level of technology and the processes applied differ from one product to the other as described below:

Hosiery. The processes commonly applied are:

- knitting of grey yarn into fabric
- fabric finishing
- garment making, e.g. underwear, T-shirts and socks.

Sub-contracting is found in the smallest units who often knit grey fabric for converters. Virtually no facilities are available from outside excepting fabric finishing when required. The industry would benefit from properly equipped and staffed service centres in the main centres of production, e. g. Faisalabad, Gujranwala and Karachi.

Garments. The processes commonly applied are:

- preparing and cutting fabric according to patterns
- sewing, including plain stitching, seaming, button sewing and button-holing
- garment finishing including collar fusing, pressing and packaging.

Such operations are called Cut, Make and Trim (CMT).

Sub-contracting is often practiced in garment making when a converter supplies the fabric and accessories for CMT, after which the same converter attends to distribution. No facilities are available from outside excepting the services of sewing machine and finishing machine supplier's experts. Free-lance technicians also operate for their own account and are less costly.

The industry would benefit from small service centres where instructors could demonstrate modern production methods and more advanced machines.

Towels. The process commonly used is the weaving of coarse cotton yarn into terry towelling on looms equipped with special loop motions. Ideally, for best quality, bleached and dyed yarn should be employed but modern package dyeing plants are not available in Pakistan for supply of processed yarn on cones to SSI.

Unless the loomstate terry towelling is exported for treatment abroad, it must be bleached and dyed by commission finishers. When returned to the towel unit the fabric is cut to size, hemmed by overlock sewing machines and packaged.

Sub-contracting is often practiced by converters who supply yarn, attend to outside finishing and distribute the finished towels for export or domestic markets.

No facilities are available to SSI towel makers from outside.

This industry would also benefit from properly equipped and staffed service centres in the main production localities. Such support appears to be urgently needed by firms that install high cost modern machinery which must be operated at high capacity and intensity to be profitable. The industry should be export oriented for which yarn of special twist without defects is essential even for medium quality.

Canvas. The process for Small Industries consists of winding, warping, and weaving of coarse three ply yarns into grey fabric. Much canvas is sold in loomstate for domestic and export markets. Some is sent to specialist finishers for dyeing and waterproofing. Larger canvas makers have their own sewing and finishing for tarpaulins, awnings and tents.

Sub-contracting is common in canvas making by converters or mill sector companies, who supply materials and distribute finished products mainly for export.

The power loom sector, of which canvas represents 5 %, is so important that it urgently requires its own service centres, especially when the industry is decentralized to purpose built industrial estates. The objective would be to improve export potential by active support, instruction of technicians, and training for management. Testing facilities would be needed for the quality control and standardisation which is essential for modern exporting.

3.1.5 Plant and Machinery

3.1.5.1 Size of Plant

The size of the plant (sqm) by product line is shown in table 3.1.

Table 3.1: Size of Plants by Product Line

Product Line	Size of Plant (sqm)									
	Less than 250 sqm		251 - 500		501 - 1,000		1,000 - 3,000		More than 3,000 sqm	
	No.	%	No.	%	No.	%	No.	%	No.	%
Hosiery	3	9.6	3	9.6					3	9.6
Garments	1	3.0	1	3.0	1	3.0	1	3.0	1	3.0
Towels					2	6.4	1	3.0	2	6.0
Canvas					1	3.0	1	3.0	1	3.0
Others	2	6.4			2	6.4	3	9.6	3	9.6
	6	19	4	18	6	19	6	19	10	31

In all countries hosiery mills are usually very small for speciality work or very large for mass production. Garments are stitched in factories of all sizes. Towels are woven in medium or large scale enterprises. Embroidery is done in small units, but servicing such as sizing and finishing is done in large scale companies.

The space per worker (table 3.2) is from minimum to large for hosiery. Garments need medium space. Towels vary from medium to large space. Canvas is a medium space weaving operation. Embroidery occupies little space per worker but textile servicing requires very ample space.

Table 3.2: Space Per Worker

Product Line	Space per Worker (sqm)									
	Less than 5 sqm		6 - 10		11 - 25		25 - 50		More than 50 sqm	
	No.	%	No.	%	No.	%	No.	%	No.	%
Hosiery	2	6	1	3	2	6	1	3	3	10
Garments			3	10	2	6				
Towels					2	6	2	6	1	3
Canvas					3	10				
Others					3	10	5	15	2	6
	2	6	4	13	12	38	8	24	6	19

3.1.5.2 Type of Machinery

The type of machinery depends on the production programme, technology and scale of production:

- Hosiery. Different specialized machines are required for socks, circular knitting, double knitting, warp knitting, and flat-bed knitting. Mainly obsolete Japanese or low cost local machines are found in small plants, the best and latest machines were seen in medium sized plants. Machines for circular knitting and sock-making had been copied in poor and medium quality materials. Local poor copies of obsolete imported machines predominate in small plants. Medium plants have Japanese, German or UK imported machines.

Efficiency and quality are low in small and old plants. It was seen to be good in the best medium sized enterprises.

- Garments. Very small plants use low cost local sewing machines wherever possible; high quality imported models are only used for special operations which are unavoidable. Medium size units generally use imported models for all operations, but some locally made machines were used for plain stitching.

Efficiency was poor in very small plants but good for operations and quality in large plants.

- Towels. The looms were mainly locally made, converted looms at poor quality. Imported looms were mainly Japanese, although one Swiss unit was visited which had 1979 model terry looms.

Efficiency is generally poor in operations and quality.

- Canvas. Locally made power looms or recent imported looms were installed.

3.1.5.3 Age Structure and Condition of Machinery

As can be seen from table 3.3 the age of machinery differs from branch to branch. Some branches such as garments have only recently developed to the present size. Machinery and equipment is normally good to fair.

Table 3.3: Average Age and Condition of Machinery

Product Line	Age Structure			Condition of Machinery		
	Average age - years	No. of units	%	Average age - years	No. of units	%
Hosiery	0 - 5	3	33	Good	3	33
	6 - 10	2	22	Fair	5	55
	11 - 20	2	22	Bad	1	12
	above 20	2	23			
		9	100		9	100
Garments	0 - 5	4	80	Good	4	80
	6 - 10	1	20	Fair	1	20
	11 - 20			Bad	-	-
	above 20					
		5	100		5	100
Towels	0 - 5	2		Good	1	20
	6 - 10	2		Fair	4	80
	11 - 20	1		Bad	-	-
	above 20					
		5	100		5	100
Canvas	0 - 5	1	33	Good	1	33
	6 - 10	1	33	Fair	2	67
	11 - 20	1	34	Bad		
	above 20					
		3	100		3	100
Others	0 - 5	5	50	Good	7	70
	6 - 10	4	40	Fair	2	20
	11 - 20	1	10	Bad	1	10
	above 20					
		10	100		10	100

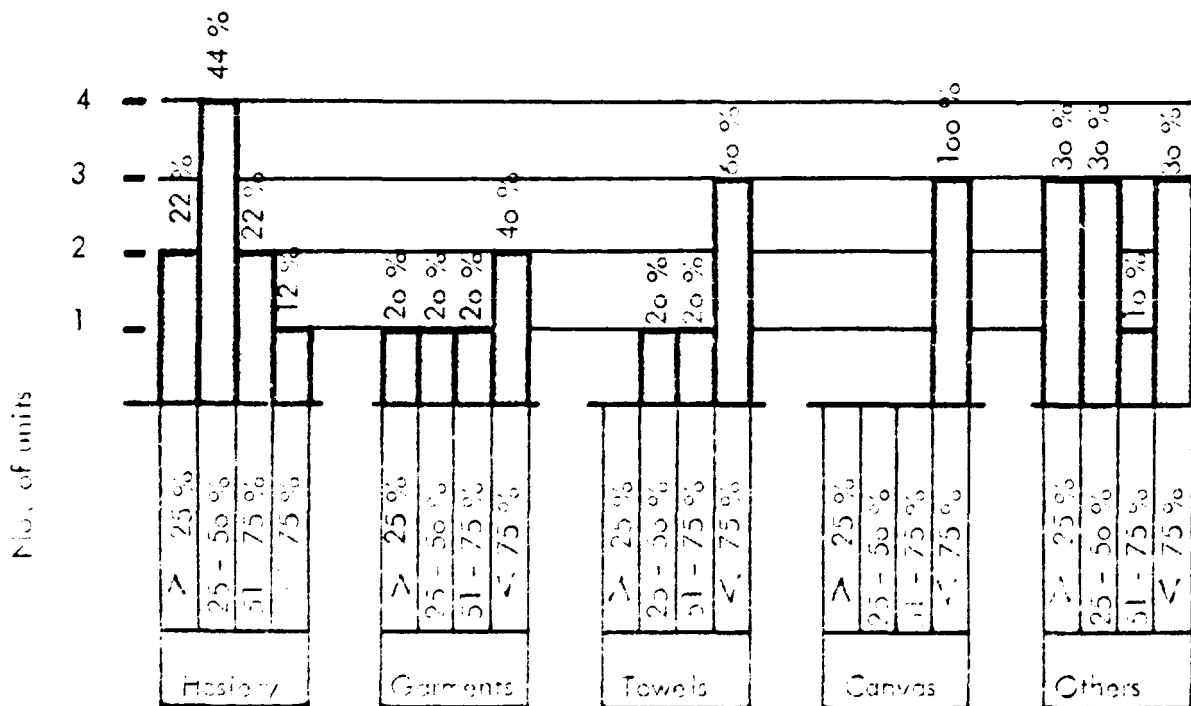
For the product lines in question the following age structure can be quoted:

- Hosiery: The average age is 10 - 20 years and condition is poor except in best plants which have recent imported German or UK models.
- Garments: The age of local machines varied from 2 - 7 years; their average age was 4 years.
The age of imported machines varies from 3 - 9 years; their average age was 6 years.
The imported machines were of German and Japanese makes.
- Towels: The average age was 9 years, with one recent Swiss exception where all looms were new.
- Canvas: The average age of canvas looms was 9 years in the plants visited.

3.1.5.4 Capacity Utilization

As to the degree of capacity utilization (figure 3.1), 37.5 % of the units were working at almost full capacity; this was due to the weaving mills which normally operate at or above 80 % efficiency. 47 % were working at 50 % or less owing to low capacity in hosiery, textile servicing, carpet yarn spinning and embroidery. This result is due to the prevailing recession.

Figure 3.1: Capacity Utilization Per Product Line



Based on the number of units visited per product line the average capacity utilization for the respective units was:

- hosiery	47 %
- garments	56 %
- towels	70 %
- canvas	78 %
- others	47 %.

3.1.6 Technological Constraints

3.1.6.1 Technical Aspects

The frequency of break-downs of machinery in hosiery, towels, and canvas was high because of the relatively poor quality of most machinery and plant. This did not apply to the garment industry which depends on the reliability of sewing machines which was generally good.

The most frequent cause of break-downs was electrical failure.

The cost of repairs appeared normal; low labour cost balanced high material cost.

Imported needles of all kinds, local shuttles, straps, picker sticks and reeds were frequently required, as well as electrical parts for imported machines. Imported needles were in short supply. Local spare parts were readily available for many uses, but poor quality resulted in excessive breakage. The cost of local spares was reasonable but imported spares for machines and electrical equipment were very expensive and difficult to procure.

3.1.6.2 Quality and Quality Control

Quality control apart from visual checking is practically non-existent except in the advanced companies.

3.1.7 Working Conditions

Working conditions range from very bad in handloom and some power loom units to very good in modern medium sized plants. The old weaving sheds in Faisalabad, Hyderabad and Karachi were crowded, poorly illuminated and unsanitary. Small knitting plants were similarly bad. Garment plants were satisfactory and the medium sized towel plants were passable.

3.1.8 Main Problem Areas

The basic problem with production and technology is that advanced modern machinery is too expensive and too little understood by the people who operate them. The Werner Report spelt out the precarious condition of the modern sector, and the GOPA light engineering industries report gives full and detailed information.

The informal small industry sector suffers to a lesser degree from obsolete machinery in poor buildings with consequent poor productivity and doubtful quality. It can be, and is being overcome by upgrading locally made machinery and by putting it to use at different locations on new industrial estates.

3.2 Material and Components¹⁾

3.2.1 General Remarks

The major input is local raw cotton which is converted into the yarn used by small and big textile industries.

The supply of raw cotton is adequate for current export and domestic consumption. The area under cotton has remained constant for the past ten years in spite of the low official price compared with world quotations. The yield per hectare has been constant for twenty years at the modest figure of 300 kgs, although there have been unusual variations since 1975.

The quality of ginning is bad, largely for lack of machinery maintenance and poor management; the excessive waste, leaf and trash has a direct effect on spinning productivity and yarn quality. However, it is a very strong fibre with a good Micronaire reading over several years, indicating maturity. The staple length averages only 28 mm which makes it suitable for counts up to 20's, although it is actually used for finer counts such as 32's NE. It is not considered suitable for blending with Polyester staple fibre, but attempts are being made to develop longer strains. Great importance should be attached to this campaign of seed selection and bulk planting.

As clearly stated in the Weiner Report the cotton price is highly competitive by world standards. It is hoped that it will continue as this is the spearhead of the successful yarn and fabric export policy.

Cotton yarn is the basic raw material of the SSI textile sub-sector. It is a disaster for small industry that the terms of payment are net cash or even payment in advance for special yarns. If SSI can negotiate 15 or 30 days credit from the mill sector the interest charge is 3 % per month. The raw material costs per unit are estimated on the basis of the annual sales in table 3.4.

Table 3.4: Estimate of Raw Material Cost (Mainly Cotton Yarn) Based on Sales per Unit in Each Product Line

Product Line	Sales/ Unit Rs 1,000	X 75 % = Net Return	X 76 % = Raw Material Cost
Hosiery	6,434	4,825	3,667
Garments	3,303	2,477	1,893
Towels	3,040	2,280	1,733
Canvas	8,720	6,540	4,970
Others	1,605	1,204	915

1) Ref.: Case study 10, Vertical Integrated Textile Mill (Annex II).
Ref.: Case study 11, Large Integrated Textile Mill (Annex II).

3.2.2 Raw Materials Used Per Product Line

The chief raw material is based on local raw cotton and is single yarn for hosiery and towels; it is 2-ply and 3-ply yarn for canvas and woven fabric of all kinds and qualities for garment industry. The normal counts and qualities employed by product line are as follows:

	<u>Raw Material</u>	
	Cotton	Synthetics
<u>Hosiery</u>		
Sockmaking	2 ₀ - 4 ₀ /1 carded 3 ₀ /1 - 4 ₀ /1 combed	4 ₀ denier nylon
Underwear	1 ₀ /1 - 3 ₀ /1 carded 2 ₀ /1 - 3 ₀ /1 combed	
Double Knitting		15 ₀ denier texturized polyester
Warp Knitting		4 ₀ - 15 ₀ denier nylon
Outerwear	5/1 - 3 ₀ /1 carded	
<u>Garments</u>	In woven cloth form	
Shirts	2 ₀ /1 carded yarn	2 ₀ /1 - 4 ₀ /1 P/C blend
Blouses	2 ₀ /1 - 4 ₀ /1 combed yarn	3 ₀ /1 - 4 ₄ /1 P/C blend
Trousers	8 - 16/1 carded yarn (corduroy + denim)	
<u>Towels</u>		
Standard qualities	1 ₀ /1, 16/1 and 2 ₀ /2	
<u>Canvas</u>		
Coarse quality	1 ₀ /2-ply, 1 ₀ /3-ply	
Finer quality	12/2-ply, 12/3-ply.	

3.2.3 Stocks of Raw Material

Stocks of raw material are usually not maintained over a longer period. The majority of the units kept stocks only up to 2 weeks, and some did not keep stocks at all (table 3.5).

Table 3.5: Raw Material Stocks By Product Line

Product Line	no stocks	1 week	2 weeks	4 weeks	above 4 weeks
Hosiery		3	4	1	1
Garments	1		4		
Towels		1	2	2	
Canvas	1	1	1		
Others	3	2	2	1	2
Total	5	7	13	4	3

Yarn stocks are non-existent or inadequate because small industry is chronically short of working capital.

3.2.4 Main Problem Areas

The main problem areas are lack of adequate credit, e. g. sufficient for 1 - 2 months working stock, and the complete dependence of small industry on the mill sector for supplies of yarn.

Certain specialist textile sectors including hosiery, towel and canvas sub-sectors require guaranteed supplies of soft twisted yarns containing few faults; only two mills cater for the special requirements of hosiery and towels; the canvas sub-sector needs better quality twisted coarse yarns for successful penetration of export markets.

Very specialized export mills with the latest costly production machinery require regular supplies of high quality synthetic yarns as well as synthetic blends with medium staple raw cotton.

The garment industry can only flourish if good quality fabrics of all sorts, and especially finer count polyester cotton blends are regularly available, on reasonable credit terms. Future garment industry exports will largely depend on the availability of such high quality, reasonably priced fabrics. The domestic market is accustomed to the present quality of garments; these are mainly traditional.

3.3 Manpower, Management and Organization

3.3.1 Manpower

3.3.1.1 Employees By Category

The structure of manpower is compiled in table 3.6 for each product line.

Table 3.6: Employees By Category

Hosiery										
Unit No. Category	Punjab				Sind			NWFP		Baluchistan
	1	2	3	4	6	8	9	5	7	
Staff	4	3	3	15	30	1	1	15	2	-
Skilled workers	5	6	10	100	150	4	4	50	7	-
Unskilled workers	10	6	17	51	150	-	-	35	-	-
Total	19	15	30	166	330	5	5	100	9	-

Garments										
Unit No. Category	Punjab			Sind		NWFP		Baluchistan		
	10	11	12	13	14					
Staff	6	6	12	1	4	-	-	-	-	-
Skilled workers	35	10	15	9	60	-	-	-	-	-
Unskilled workers	10	6	8	2	36	-	-	-	-	-
Total	52	22	35	12	100					

Towels										
Unit No. Category	Punjab		Sind		NWFP		Baluchistan			
	15	16	17	18	19					
Staff	8	11	3	2	13	-	-	-	-	-
Skilled workers	35	27	20	14	50	-	-	-	-	-
Unskilled workers	35	22	2	-	27	-	-	-	-	-
Total	78	60	25	16	90					

Canvas										
Unit No. Category	Punjab		Sind	NWFP		Baluchistan				
	20	24	25							
Staff	4	5	20	-	-	-	-	-	-	-
Skilled workers	16	20	300	-	-	-	-	-	-	-
Unskilled workers	5	15	80	-	-	-	-	-	-	-
Total	25	40	400							

Others											
Unit No. Category	Punjab		Sind	NWFP				Baluchistan			
	26	27	21	22	23	28	29	30	31	32	
Staff	12	12	-	4	2	1	4	9	18	5	3
Skilled workers	8	5	-	8	6	4	8	10	18	5	2
Unskilled workers	29	31	-	5	4	4	8	35	5	-	-
Total	49	48	-	17	12	9	20	55	141	10	5

Supervisory capacities in small industry are filled by entrepreneurs and members of their immediate families. The scale of such SSI does not admit employment of professional general supervision.

Administrative/general positions are usually in the hands of the proprietors although professional accountants are found in medium sized SSI. They appeared to be efficient. Part time accountants are used by small SSI.

Technical positions are either occupied by members of the proprietor's family or by modest practical technical staff.

3.3.1.2 Qualification of Technical Staff

Some SSI proprietors were found to be highly educated with academic background. Some SSI technical staff had received vocational training and there were many cases where they had received short periods of technical training abroad in suppliers' factories¹⁾.

3.3.1.3 Employment by Term and Remuneration Structure

Supervisory, administrative and technical staff were monthly paid in SSI with few fringe benefits except annual bonuses of around 1 - 1 1/2 months salary.

Production workers were relatively well paid on contract basis, normally by piece rate, linked with production of good work. Unskilled workers and learners were poorly paid in all mills visited.

Remuneration Structure (Rs./Month)

	Min.	Max.	Average
Learners	350	400	375
Unskilled workers	400	600	500
Skilled workers	800	1,300	1,050
Supervisors	700	1,100	900
Technicians	1,500	3,000	2,250

- 1) 20 % of technical staff are specialized in Punjab
33 % of technical staff are specialized in Sindh
5 % of technical staff are specialized in NWFP

Source: UNIDO/IBRD study SSI IACP, Oct. 78.

3.3.1.4 Availability of Skilled and Unskilled Workers

There are ample numbers of workers in and around all the traditional textile centres. They are excellent workers when organized by competent management. Many are skilled according to the local concept of skill which is quite different from that of more industrialized countries such as USA and the more advanced European countries.

Manpower is available in large numbers; it is the function of management to train them in technical skills and efficiency.

3.3.1.5 Fluctuation

Overall manpower turnover rates are at least normal by world standards because the labour supply is ample and satisfactory employment is hard to find.

The hosiery and garment industries are much subject to seasonal fluctuations which could be reduced by determined efforts to develop export outlets for a substantial share of production. Very small industries unfortunately cannot avail themselves of this method of reducing fluctuations in production and sales.

The output of towels and canvas should be deliberately harnessed to export outlets because markets exist for lower and medium qualities; such exports are very attractive to Government because they represent a simple way of valorising an abundant agricultural resource - cotton.

3.3.1.6 Training Requirements and Facilities

Training in its fullest sense is most important and adequate measures to improve the prevailing situation should be implemented. Degree courses and technical training courses are available in the Punjab and Sind. There are commercially oriented courses in weaving and textile finishing, but no research is carried out. The primary object is to train textile technicians for the mill sector. The GOP has a network of training facilities for handicrafts and carpet making. These existing training facilities sponsored by GOP and the Textile Institute require fullest possible support and encouragement.

The training needs of small textile industries require a new positive approach by concentration on their practical needs. They should be available in or near to the main SSI textile centres such as Faisalabad, Gujranwala, Lahore, Multan, Kasur, Hyderabad, Karachi and Peshawar. Ideally they should be located on Small Industries Estates in the form of Technical Service Centres equipped with the most commonly used machines under the charge of trained textile specialists, whose chief task should be to train technicians and foremen for SSI units. They should be equipped with locally made and suitable imported machines so that the demonstrators could illustrate the use of both local and more advanced technology. Each Service Centre should also be equipped with a suitable range of testing machines under the care of fully trained instructors. The emphasis should be on basic practical training of immediate application to SSI.

3.3.2 Management

3.3.2.1 Entrepreneurial and Business Related Experience

Management was usually in the hands of SSI proprietors and their immediate male relations. Most entrepreneurs had commercial experience before embarking on small industries. Education ranged from basic to university level in medium scale units. As entrepreneurs they were invariably well informed as to their own businesses, courteous and intelligent. But a purely commercial background did not prepare them fully for industry. In particular they are lacking knowledge on advanced production processes and division of labour.

3.3.2.2 Motivation and Business Intentions

Management, i. e. the proprietors, were determined to make a success as independent small industrialists through concentration on the profit angle; the best proprietors wished to expand into ownership of medium sized industries as soon as possible. Many were prepared to co-operate with chosen similar proprietors to achieve success by association for cooperative buying and selling.

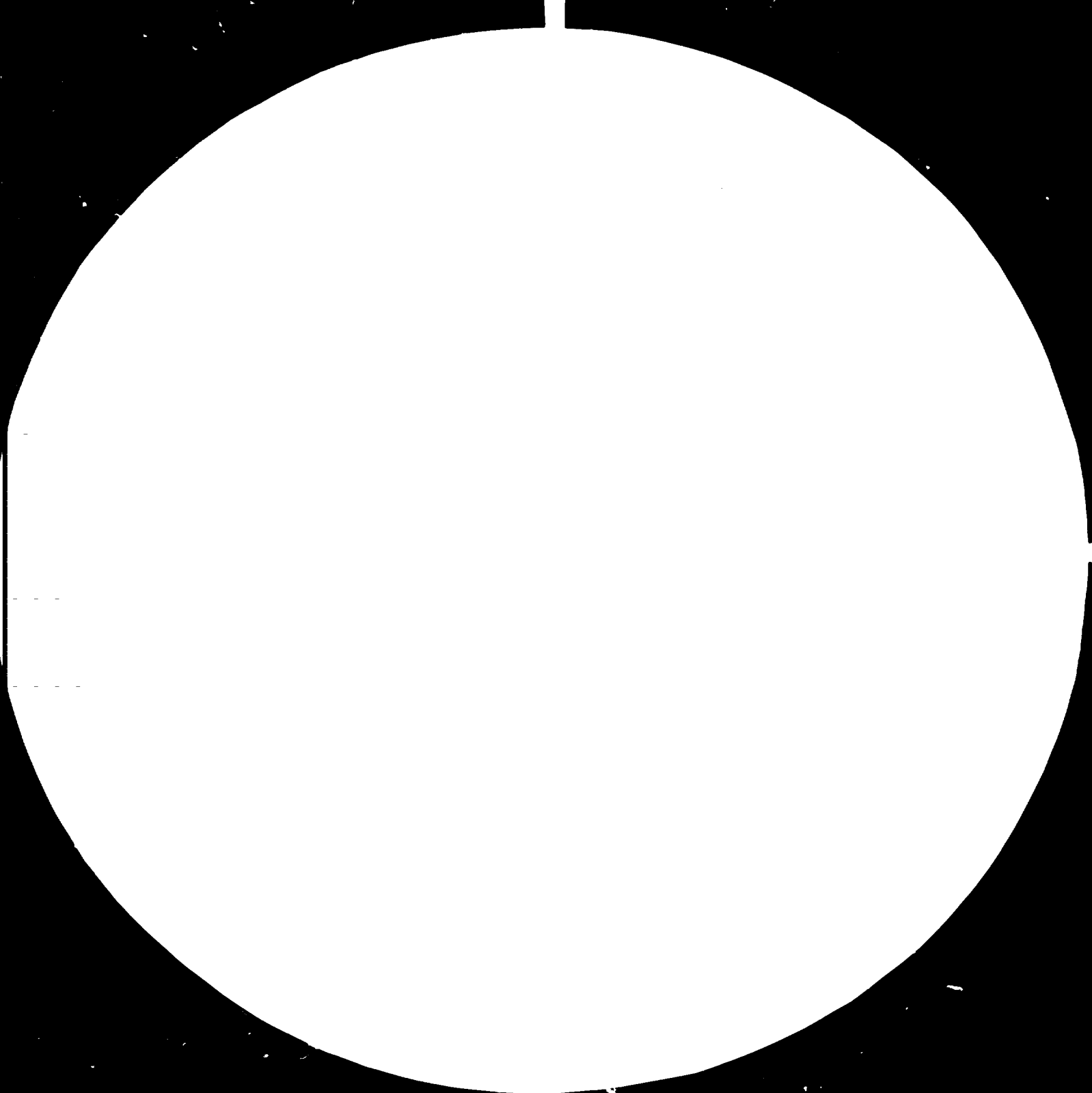
3.3.3 Organization

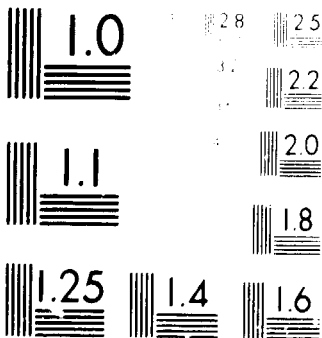
Organizational aspects can be subdivided into those related to

- Accounting and Record Keeping: Small industries generally kept simple accounting for the proprietor's benefit. Record keeping was also of the simplest kind. The tendency was for medium sized units to have full accounting with double entry bookkeeping but very small industries relied on the occasional services of outside accountants.
- Work preparation / Specialization of Labour: Winding processes were usually allocated to children. Production processes were usually done on piece-work by trained workers. Auxiliary workers performed menial tasks.
- Motivational Aspects: Contract workers took care of the important job of production. The proximity of the proprietor kept the other employees up to the mark.

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3.3.4 Main Problem Areas

From the foregoing statements the main problem areas in the field of manpower and management may be summarized as follows:

- Manpower: Ample supply of docile non-unionized workers resulted in few problems except the basic constraint owing to prevalence of illiteracy.
- Management: The proprietor was indispensable ; for reasons of scale he was a general factotum; in his absence no information was available and nothing out of the usual routine was allowed.
- Organization: Smallness of scale only allowed the most rudimentary organization; but the simplicity of most SSI activities only called for the most basic organization which had the advantage of reducing overhead costs.

3.4 Demand and Marketing (Domestic Market/Export Market)

3.4.1 Demand and Pattern

3.4.1.1 Structure: Products / Product Mix

Smallness of scale automatically limited the number of products per unit in the individual product lines:

- Hosiery: The machinery installed had a limiting effect on the possible choice of end products, e. g. different types of machinery constrained each unit to keep to special fields such as warp knitting, double knitting, sockmaking or circular knitting with own garment making.
- Garments: Small plants were most successful when they specialized in shirts and blouses, trousers, or traditional Pakistani garments.
- Towels and canvas: These weaving operations were only capable of producing one type of product per unit.
- Others: Power loom plants specialized in wide sheeting, printcloth or dress fabrics. Each unit averaging 12 power looms normally limited themselves to one count and construction. This specialization is essential when working for export, small changes in widths and constructions were made for each order, but there was little choice in raw materials which consisted of low quality coarse cotton yarns.

3.4.1.2 Substitutes

Yarn is only available from mill sector in a small range of counts with few differences in quality. Cotton was the predominant raw material and polyester /cotton blends were generally unavailable to SSI which had to be contented with whatever happened to be available, in only one basic twist, i. e. hard twisted for weaving. Towel and hosiery mills were prejudiced by the shortage of suitable yarns, and by the absence of package bleached yarn on cones.

3.4.1.3 Prices

Over-supply in the domestic market has depressed prices, which are standardized for cotton fabrics at low levels, which are well known to SSI owners¹⁾. Prices for export are in the hands of agents especially in Karachi and Faisalabad. They do not necessarily bear any direct relation to world prices.

1) Average yarn prices October 1979:
Hosiery: 20/1: Rs 11/lb; 32/1: Rs. 12.5/lb
Garments: Denim cloth Rs 46.5/mt; Corduroy Rs 55.0/mt
Towels: 10/1: Rs 9.0/lb; 16/1: Rs 10/lb; 20/2: 12.5/lb
Canvas: 10/1: Rs 9.0/lb; 10/2: Rs 9.5/lb; 10/3: Rs 11.6/lb

3.4.1.4 Consumers

Domestic market consumers buy through retail shops supplied mainly by wholesalers who buy from SSI. Some larger units sell partly through local wholesalers and partly direct to retailers. Export sales are made through agents in Karachi and Lahore.

3.4.1.5 Seasonality

The domestic trade is highly seasonal as there are traditional times for buying linked to religious and social festivals. The export trade depends on the buying programmes of importers abroad who establish exact delivery times to meet the distinct summer and winter seasons.

3.4.2 Marketing

3.4.2.1 General Market Potential and Prospects/Trends

The low capacity at which hosiery, garments and towel industries are working for the domestic market is proof of saturation; there is no apparent reason for improvement unless exports can be generated to relieve domestic market congestion.

The market potential for canvas is very promising. The canvas market already indicates what a healthy export trade can do. After a dismal period when many SSI canvas units closed, the world demand for canvas, which is unfortunately the result of instability in the Middle East, has become so strong that many units are working on three shifts; several export tentmakers are unable to satisfy the demand.

It is difficult to assess the general potential of the immense power loom sector but units visited who have installed wide automatic looms are working at full capacity on sheeting and general coarse grey fabrics. The best units, and only the best, are exporting everything they can weave, through specialist agents. A detailed market forecast, however, could not be made due to limited time available for this study.

3.4.2.2 Description of Markets

3.4.2.2.1 Domestic Market

The busiest retail outlets are located in bazaars which are large groups of medium and small sized shops in and around the city centres. In each large city there are special streets, buildings and stalls which only deal in textiles, which represent the most important retail activity in the country. Owing to its size and population Punjab Province is the predominant textile distribution locality. Faisalabad is the biggest wholesale market which has made the growth of SSI textile units possible. Punjab is estimated to have 70 % of the trade followed by Sind with 25 %; the remaining 5 % is distributed in NWFP, including a small proportion for Baluchistan.

3.4.2.2 Export Market

Overall production was static, but the SSI power loom sub-sector was estimated to export 10 % of its production in 1975 but it has recently been exporting about 25 %. This increase is partly at the expense of the mill sector where the number of working looms has declined from 34,000 to 16,000 in the past 4 years, i. e. the dynamic and aggressive SSI weaving mills, which operate with very low overhead costs, have taken away quite a market share from the organized mill sector weaving departments.

3.4.2.3 Marketing Mechanisms

Distribution Channels

Owing to the small scale of SSI units the majority of units have to sell through local wholesalers. Exports go through specialized agents located in Karachi and Lahore. But medium sized firms try to export direct to foreign buyers in order to achieve higher prices. The important distribution channels are compiled in table 3.7.

Table 3.7: Important Distribution Channels by Product Line

Product Line	Distribution Channels												Units Total
	Wholesaler		Commission Agent		Retailer		Job Order		Direct to End User		Exporters		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Hosiery	6.5	72	0.5	6	1.5	16			0.5	6			9
Garments	1.5	30	1.0	20	0.5	10	1.0	20	1.0	20			5
Towels	2.0	40	2.0	40					1.0	20			5
Canvas									2	67	1	33	3
Others			1	10	1	10	3.5	35	2.5	25	2	20	10
Total Units	10		4.5		3		4.5		7		3		32
Overall %		32		14		9		14		22		9	100

Wholesalers and commission agents handle most distribution of hosiery, garments and towels; the remainder is handled by retailers or direct to end user including job orders for garment industry.

Canvas is either direct to tent makers in the case of small units or to exporters in the case of larger weavers who have finishing and tent-making.

Others include 3 service industries working exclusively on job orders, and 2 weavers who are selling direct to exporters.

Sub-Contracting / Job Orders

Owing to chronic shortage of working capital many SSI work on job orders received from textile converters who supply the raw material and take delivery of grey goods. In some cases the converter arranges cloth finishing from commission finishers. Other SSI units work on job orders from the organized mill sector who can get weaving done for them cheaper than they can weave themselves, owing to the low overheads and lower wages in the SSI sub-sector. Sub-contracting is most common in the hosiery and canvas industries, which have high production potential without adequate working capital.

3.4.2.4 Prices (Existing Structure / Trends)

Prices for domestic trade depend on market factors which are currently depressed by over-supply and lack of local demand. Export prices in this saturated market are at the mercy of intermediaries unless the size of the producer and the quality of fabric allows him to export direct.

3.4.2.5 Competition

All product lines are facing heavy competition from outside, and also competition is intense amongst SSI producers themselves. There are mainly three groups of competitors:

- Versus Large Scale Domestic Producers: The competitive power of SSI units is so severe that the mill sector has been forced to cut considerably its weaving capacity, as mentioned above.

Mills closed down due to:

- 1) Fear of nationalization
- 2) Lack of modernization since 1972
- 3) Pressure from new producing centres such as Taiwan, Hongkong, S. Korea etc.

- Versus Imported Products and Substitutes: The amount of textile imports is limited to contraband in the case of fabrics, and is not important to SSI concerns as it consists of high quality fashion goods which SSI cannot produce. Substantial imports of used garments are an annoyance to the small and weak garment industry.

- In Export Markets: The volume of hosiery goods, towels and canvas exported is insignificant compared with world market demand. Very active export policy in these sectors would result in resistance from markets that are protected by quotas such as EEC and USA.

The recent increase in exports of low cost power loom grey fabrics is in direct competition with India, China and Eastern Bloc countries. Pakistan appears to be able to compete successfully because of the advantageous cotton price differential.

3.4.2.6 Market Potential and Development Prospects

Few countries could compete with exports of textiles from Pakistan based on small industries provided that they are given sufficient encouragement, and practical support on a selective basis. Assuming that GOP will have the assistance of UNIDO/IBRD to underpin the weak points of the textile SSI structure, it is realistic to assert that market potential for exports of hosiery, garments, towels and canvas is favourable, i. e. at least twice the present entire output of these sub-sectors. But marketing studies are required to discover the best outlets. Development will depend directly on action. In the present condition and under obvious existing constraints SSI exports can be expected to be static except for windfalls caused by stable world demand for canvas. But positive assistance to such a dynamic sub-sector could have remarkable results. Improvements in quality are most essential if exports are to grow satisfactorily.

Marketing potential for the over-supplied domestic trade relies on the increase of population and hopes of an increasing standard of living.

3.4.3 Main Problem Areas

The domestic market is kept fully supplied by customary sales from SSI to wholesalers who resell to retailers. SSI units are in a weak position because of size and lack of working capital; consequently the wholesalers are in a position to exploit them. This could be mitigated if associations are formed by groups of units in textile localities, for the purpose of bulk buying and joint selling.

Similarly the very experienced export agents in Karachi, Lahore and Faisalabad are in a very strong position compared with the small textile industries. It can be foreseen that the larger associations could negotiate export orders direct with importers abroad on behalf of members.

The nature of SSI textile products in Pakistan is currently linked to available yarn (i.e. coarse, limited in choice and poor in quality). The yarn is restricted to low quality coarse counts because of the short staple length and bad ginning of cotton. Unavailability of proper hosiery yarns and synthetic/cotton blends impose further limitations which all conspire to restrict exports to the lowest quality range in the world with a few notable exceptions illustrated in case studies¹⁾.

1) See case studies 1 and 2 (Annex 2).

Source: Cotton Textile Industry Centre DP/PAK/71/562; Marketing Problems of the Small-scale Power Loom Industry (UNIDO)

Future marketing and development prospects must depend on correction of basic weaknesses of production and management in the whole textile industry including the mill sector.

3.5 Investment and Financing

3.5.1 Capital Structure

The investment figures, as compiled in table 3.8, are based on present values. Hereby the figures of the different companies whose assets have differing initial investment times become comparable.

Table 3.8: Fixed Assets/Total Investment Ratio by Product Line (Rs. 1,000)

Product Line	No. of Units	Fixed Assets	Working Capital	Total Investment	Ratio Fixed Assets / Total Investm.
Hosiery	9	29,290	6,520	34,810	0.84
Garments	5	6,626	1,500	8,126	0.82
Towels	5	32,746	2,285	35,021	0.94
Canvas	3	24,490	3,500	27,990	0.87
Others	10	16,395	2,040	18,435	0.89

The above figures illustrate the acute and general shortage of working capital. The ratios: fixed assets / total investment range from 0.82 - 0.94.

3.5.2 Sources of Funds and Type of Loans

Similar to the other sub-sectors in question loans do not play a major role in financing small scale industry. About 50 - 60 % of the capital being contributed by the entrepreneurs and their families out of the units visited are:

- sole proprietor: 75 %
- equity partnership: 20 %
- ltd. companies: 5 %.

Sources of funds are inadequate. IBRD is the main source of long-term capital for fixed assets. IDBP offers under a special scheme to SSI unit long term credits, repayable over 5 years at 8.5 - 10 % interest p.a. on mortgage of all fixed assets. The interest rate for purchase of local made machinery is 8.5%. In all other cases an interest rate of 11% is charged.

There are only limited funds for working capital because commercial banks are not oriented towards SSI and are not organized to serve tens of thousands of individuals who are notoriously short of funds. Most of the units claimed that the rate of interest charged by commercial banks being 13 or 14 % is too high and the collateral requirements are not in favour of the industry at all. This situation reflects the fact that only 11 % of total loans are short term capital.

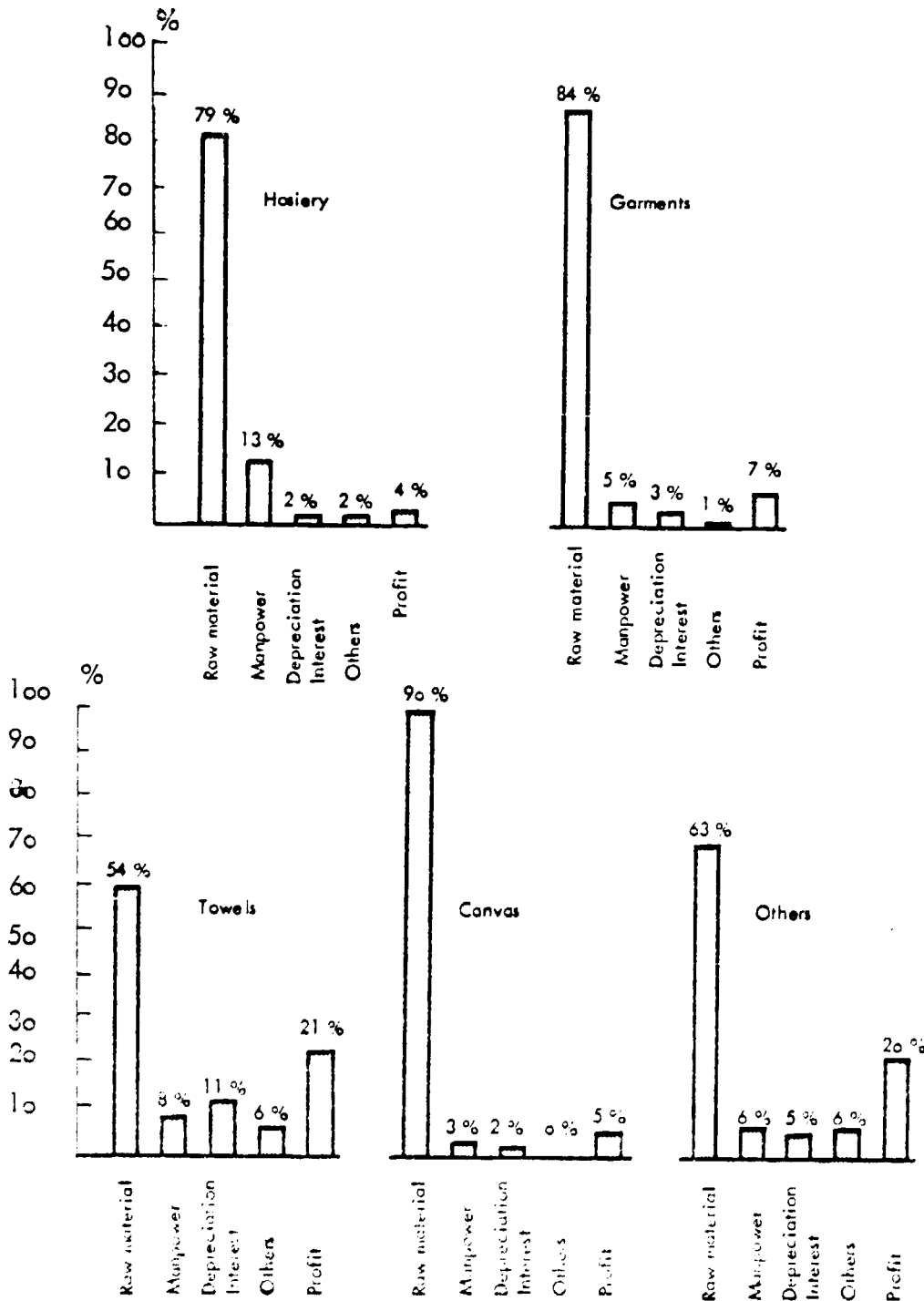
3.5.3 Availability of Capital with Regard to Modernization / Replacement (balancing)

Judging from the lack of interest on the part of SSI proprietors, capital is generally not available for balancing, expansion and diversification, except from IDBP in special cases. SSI units visited in the hosiery and towel sub-sectors received no long-term loans and few short-term loans for working capital. Two garment makers had received long-term loans from IDBP. Long-term loans from suppliers with repayment in foreign currency are too dangerous. IDBP had advanced money for fixed assets in the canvas and power loom sector; canvas is a logical sub-sector to encourage because it has now got a flourishing export market, based on a simple weaving process with large output and high value added. But it should be remembered that the domestic and export demand is not stable. IDBP has recently lent substantial long-term loans for fixed capital to 4 new enterprises located in good land and buildings on a recently completed Industrial Estate in Peshawar. This experiment in decentralization has been so well planned and executed that it can be cited as a model of what can and should be done. It has been made possible by a high capacity warping and sizing plant financed by Government.

3.5.4 Cost Structure

The cost structure shows a pattern that changes from one product line to another, depending on production programme. According to figure 3.2 all product lines have a high intensity of material consumption, in the first place canvas, followed by garments and hosiery. The cost for manpower are ranging between 3 % and 13 % (hosiery). The profit margin may, in exceptional cases (canvas), reach 20 %, but is generally rather low.

Figure 3.2: Cost Structure by Product Line



3.5.5 Profitability

As far as could be ascertained from many conversations:

- SSI hosiery such as socks and underwear is not profitable because the markets are visibly over-supplied. In one large district of Faisalabad every space is filled with locally made sock-making machines and large unsold stocks.

It was estimated by local sockmakers that 10,000 machines had been installed, working at low capacity. The warp knitting sector is also over-supplied.

Only intelligently specialized knitting and garment making plants, with attractive designs, appeared to be profitable. The most obviously profitable units were those that had succeeded in the SSI sector in spite of intense competition; outstanding management had modernized and diversified by ploughing back profits, and had expanded rapidly to emerge into medium scale industries with total investments well in excess of Rs 3,000,000 (excluding land). Such firms usually become limited liability companies, with the beginnings of professional management. It is they who start to have the scale, ability and muscle for achieving worldwide exports (see case study No. 2., Annex 2).

- SSI garment makers face severe competition in the domestic market from legions of small tailors who are struggling to maintain their independent existence. It is not profitable for those that have not adjusted their way of working to the new management psychology required in order to survive as garment makers, in a market used to traditional clothes made at home or in small tailoring workrooms.

Once again the successful innovators in this industry, which is new for Pakistan, have created very profitable garment businesses by sheer ability. Some specialize in the very varied fashion end based on novelty and design; others have selected classic garments like shirts, blouses and trousers; by application, correct layout and machinery, and efficient worker training.

- SSI towel makers find the domestic market unprofitable owing to intense competition by many units chasing an over-supplied market; they are only capable of making low quality towels with their obsolete machinery and inferior raw material. The world export markets in the quality that they produce confines them to the lower end of the market where competition is fierce.
- The local market for cheap canvas has been over-supplied; many units closed down because they were making losses owing to lack of demand.

Very recently export markets have picked up and canvas is profitable for those that can secure regular supplies of suitable yarn and work in accordance with agreed specifications. The mill sector is sub-contracting SSI units to weave standard canvas as it has become profitable.

Some successful SSI units have developed into weaving and tent-making plants for which the investment is far greater than Rs 3,000,000. Such units, which usually become limited companies can execute direct export orders on which the profit margin is thought to be high at present.

3.5.6 Overall Entrepreneurial Attitude Towards Financial Management

Small industry textile concerns are numbered in tens of thousands. In a past study their proprietors have been referred to as uneducated owners with no recognized trade, operating a fractionated mushrooming industry which is neither export oriented nor marketing oriented.

The investigation of these industries however gives a completely different picture.

The result of talking to many entrepreneurs and seeing a large number of units, particularly in sock making, hosiery, garments and weaving operations has given the impression that the proprietors and partners are hardworking, dedicated, intelligent people who are struggling. Their time is spent in trying to arrange raw materials and trying to sell in a domestic market which is glutted, or in export markets, where the majority of units cannot compete. Both buying and selling present almost insuperable financial problems because suppliers demand cash on delivery, and buyers want 2 - 3 months credit. In spite of such difficulties SSI survive and have been the most dynamic sub-sector in recent years, especially in the powerloom sub-sector.

Because it is nearly impossible for them to borrow working capital from banks and institutions they have to rely on their own resources including the scanty savings of their relations.

One result of this untenable financial situation has been the stimulation of exports, because Government sponsored facilities of discounting Letters of Credit at concessionary interest rates provides one of the only possible lines of credit for working capital. This must account for the increase of exports from the sub-sector. The interest rate is extremely attractive at 3 % p.a.

3.5.7 Main Problem Areas

The problem areas in the field of investment and finance may be summarized as follows:

- Capital Structure: Most of the units visited are under-capitalized. There is an enormous lack of adequate capital for balancing, modernization and expansion. Furthermore the SSI units are unable to cover their working capital demand which hampers their activities as they are confined to day-to-day transactions.
- Institutional Lending: Any further development of the sub-sector implies the assistance from the financial lending institutions. Up to now, however, unfavourable lending conditions (high interest rates) as well as complicated and lengthy procedures do not encourage the entrepreneurs to borrow money from a bank. Apart from that, many entrepreneurs are reluctant to apply for a credit because of religious scruples.

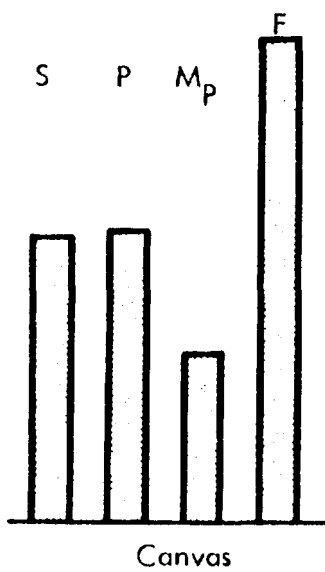
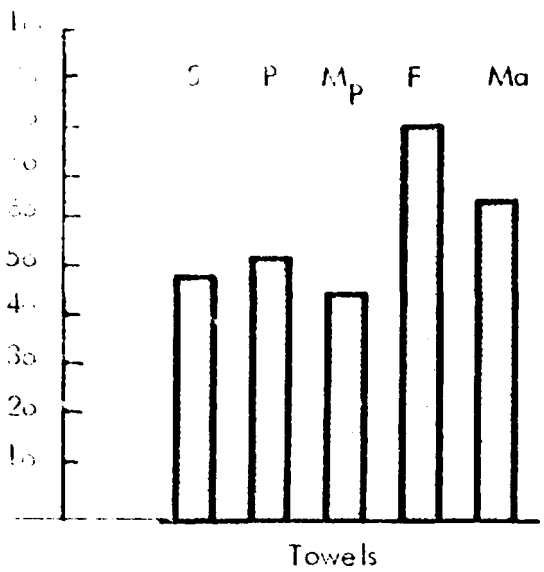
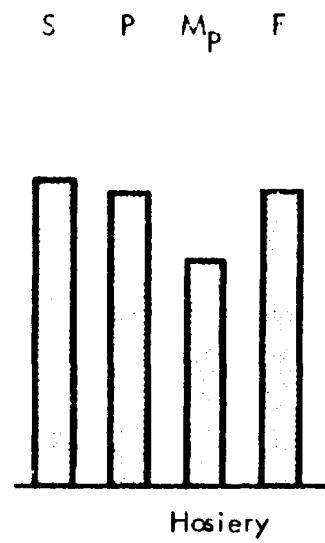
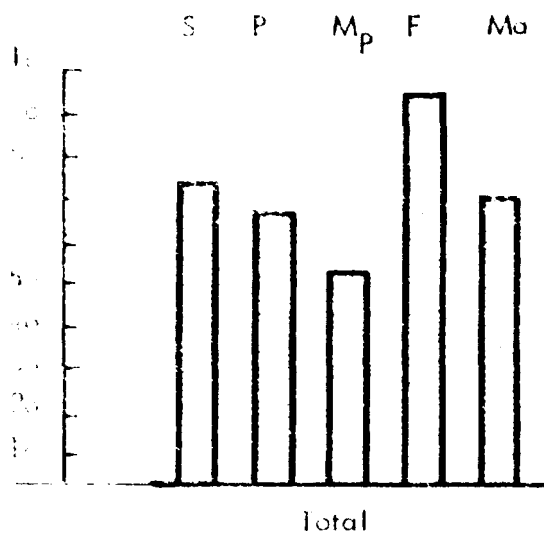
- Profitability: It was indicated that the small industry textile sub-sector has shown little profit recently, with the exception of certain specialized concerns. The very tight financial situation and disappearance of working capital are the best proofs of meagre profits.

From a general economic point of view it is unfortunate that low or non-existent profits can only result in stagnation; small industries owned and run by individuals, without access to credit, can only rely on profit as the source of balancing/modernization and expansion. Past history of the sub-sector has proved that it is dynamic, and biased towards auto-development through the ploughing back of profit.

4. Evaluation of Main Problem Areas, Analysis of Interdependencies and Overall Development Prospects

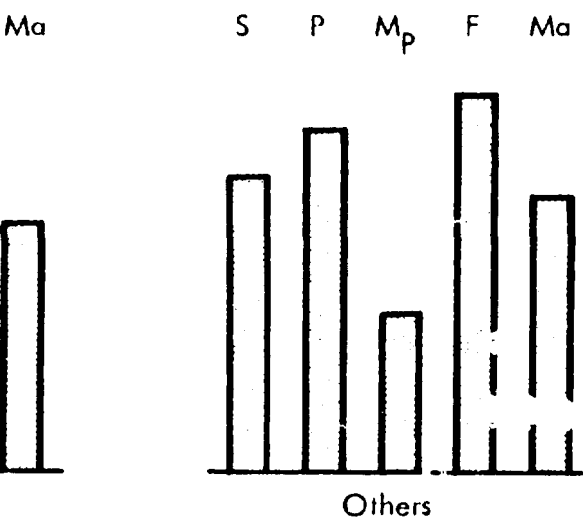
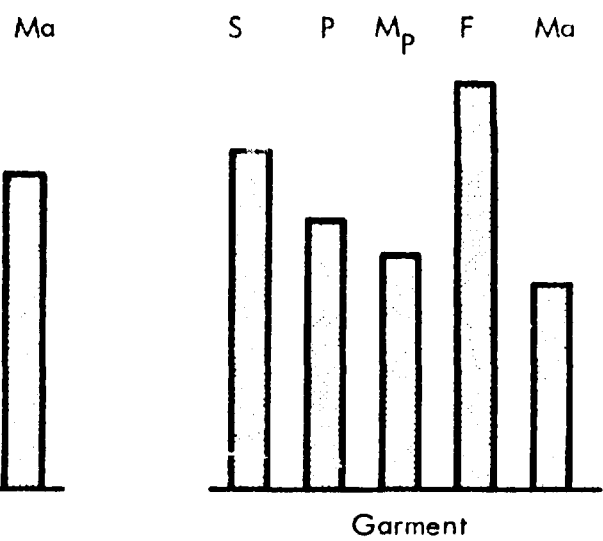
4.1 Rankings and Structure of Problem Areas

Of the main problem areas: supplies, production, manpower, marketing and finance, those which were found to be most problematic over the average of all firms were mainly finance, supplies and marketing (figure 4.1), whereby considerable differences were found to exist in between the investigated product lines. Figure 4.2 summarizes the structure of each problem area for each of the product lines.



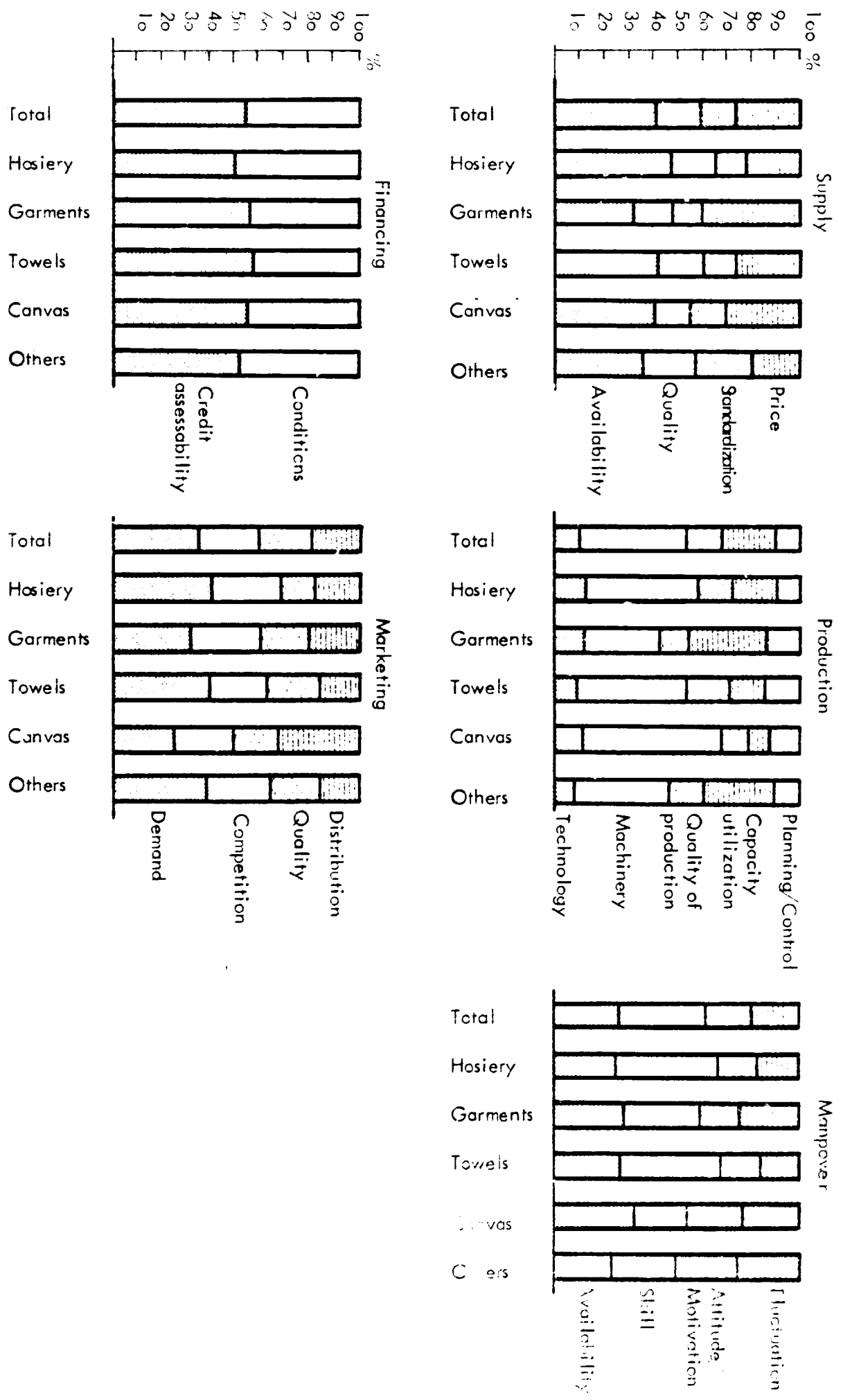
S = Supplies, P = Production, M_p = Manpower, F = Fuel, Ma = Materials

Figure 4.1 : Main Problem Areas by Functions of Industries



F = Financing, Ma = Marketing

Figure 4.2: Structure of Main Problems



4.2 Potential for Growth

The domestic market is saturated with the textiles traditionally consumed in Pakistan; there is little prospect for growth excepting population increase and possible improvement in living standards.

The potential for growth is in exports; it is the first GOP priority to increase exports in order to improve the balance of payments; this makes the investigation of constraints a matter of first importance.

4.3 Specific Constraints and Requirements as to:

4.3.1 Technology

There are two alternatives for correcting the admitted weaknesses of textile technology in both the organized (modern) mill sector and the unorganized (informal) power loom and small industry sector.

- Mill Sector: Little doubt can be cast on the factual investigation carried out by Werner International in 1977/78. In depth visits to three representative large mills confirm their findings as to the inadequacy of the technology employed. This survey is not concerned with the mechanics of up-dating mill sector technology, but the SSI sector has a legitimate interest in the health of the mill sector because it depends entirely on the spinning mills for its lifeblood - cotton yarn, representing 70 - 80 % of its manufacturing cost.

SSI requires constant supplies of cheap, coarse yarn of quality suited to exports of hosiery, garments, towels, canvas and other grey fabrics. To satisfy the modest requirements of small textile units the mill sector should:

- . insist on better cotton ginning
- . insist on better cotton research and development
- . equip its mills to produce a full range of standard yarns of cotton and blends
- . ensure that yarns are clean, regular and strong in accordance with accepted world standards
- . produce such yarns under controlled conditions without excess wastage of material
- . deliver grey bleached and dyed yarns in required twists, automatically wound on cones, which have been cleared for faults.

The future prospects for exports of textiles from the SSI sector (and the mill sector) will depend directly on the adoption of adequate technology by the mill sector, i. e. it must be equal to that of its competitors in the outside world. There is no place for intermediate technology in the mill sector.

- Small Industry Sector: There is no logical reason for adopting advanced technology in the small industry sector. The past success of the industry was based on cheap raw material, low overheads, docile labour and operating simplicity, i. e. the simplest possible technology. The scale of SSI will not support the cost and complications of advanced technology. Industries require to develop into medium and larger sized units before sophisticated production methods can be made to pay.

4.3.2 Plant, Machinery, Production

The bulk of textile small industries are located in unsuitable buildings on expensive land in city centres such as Faisalabad. Machinery consists of obsolete imported and locally made knitting or weaving units with basic plants and equipment. They are dependent on small and rudimentary sizing plants and relatively large, moderately well equipped commission finishing plants; sizing and finishing are service operations.

Buildings are crammed and unsanitary, as well as poorly lit and ventilated.

Units in the old centres are not easily accessible, have poor services, irregular power supply, little running water and open drains.

The plant and machinery of the really small hosiery section is also primitive and obsolete, but larger units are beginning to install the best imported machines.

The garment industry is recent and the level of plant and machinery is adequate for simple clothing.

The towel industry is primitive and obsolete by modern standards.

The canvas industry has plant and machinery which is adequate for the simple process involved.

4.3.3 Raw Materials and Components

Cotton yarn is only obtainable from the mill sector. It is difficult for SSI units to secure supplies; credit is not available; quality is unreliable, which has a direct bearing on SSI fabric exports.

Components for garment industry, e. g. buttons, zip fasteners, are sub-standard. Good quality sewing thread is available locally.

4.3.4 Labour and Management

Ample labour is available; good results are obtained from direct incentive systems, e. g. by piecework linked with quality of production.

Management is in the hands of the proprietor or partners. The quality of business management was more than adequate for small industry operation. However, the weakness is to be found in lack of industrial experience and lack of technical knowledge.

4.3.5 Financing

Lack of adequate finance is the major constraint for small industry. In the textile sector the mills have to buy raw material for cash and to sell their finished goods on 1 - 3 months' credit. This is excessively difficult because raw material represents at least 67 % of total manufacturing cost.

Finance for balancing and modernization is specially necessary to upgrade mills which can achieve exports.

5. Recommendations

5.1. Specific Recommendations

5.1.1 Production

- Hosiery: The minimum scale required for the majority of hosiery units needs so large an investment that it is unsuitable for SSI; e.g. the world market for such a simple product as circular knitted underwear would need 1 winding machine, 14 Interlock machines, with Processing and Finishing, costing RS15,000,000 today.

A very small general purpose knitting mill with 5 assorted circular machines, a rectilinear machine and 18 sewing machines for exportable products would require a total investment between RS3,000,000 based on local machines and RS5,000,000 when imported. The possibility of increasing the total investment for SSI purposes to 4 or 5 million Rupees requires immediate study for all textile sectors excepting plain weaving by powerlooms.

Sock-making is overcrowded and unprofitable in both the national and international markets. It is restricted by the lack of fine high quality mercerised cotton yarns.

- Garments: The investment required for viable garment industries in the early stage of development is approximately RS3 million. It is recommended that the ceiling for SSI purposes should be increased to RS 5 million so as to encourage this labour intensive industry, to enable it to be equipped and organised for export, because the plant and machinery requires to be on a higher level of technology and is therefore more expensive.
- Towels: The minimum economic size of a complete plant to make terry towels for export with imported looms is so much greater than the SSI limit that it cannot be recommended. However, the production of suitable terry towel looms in Pakistan should be encouraged in order to reduce total investment to the new level suggested as acceptable for SSI, i.e. RS 5 million.

- Canvas The optimal size of canvas units is not greater than 16 looms, therefore the capital investment based on locally made machinery is acceptable for SSI.

Production techniques should be simple and the level of technology should be strictly appropriate for the different requirements of the domestic and export markets.

At the present time there is sufficient demand in both local and domestic markets to warrant the consideration of further SSI investment based on the best locally made automatic looms. The relatively small investment compared with advanced technology looms and the competitiveness of wages as well as low overheads should make export of standard fabrics viable, in spite of the much higher productivity of the latest air-jet looms.

5.1.2 Technical Assistance

Technical assistance and advisory services were only interesting to the more advanced SSI entrepreneurs, who wish to escape from backward conditions and technology. Fullest support is recommended in order to improve existing institutional arrangements; in addition it is recommended that Service Centres should be set up in textile districts. The promotional effects of the proposed Service Centre are compiled in table 5.1. A reliable cost estimation for such a Service Centre would require a separate feasibility study, which could not have been performed within the scope of this study. To start with a Service Centre should be established at the main Centre of SI textile industries at Faisalbad. After gaining sufficient experience about the development effect of such an institution on the target group and after evaluation of the project one or two more Centres may be setup in accordance to requirements and expected development effects.

- Fullest support is recommended for the initiation of industrial estates as part of a campaign to improve production of textiles for export. The Service Centres should be located on such estates to give practical assistance in production and general management.
- Specific requirements for quality improvements should include testing departments with technical instructors at each Service Centre.
- Capital equipment should be locally made whenever possible. The best and most appropriate imported machines should serve as models for production on licence basis.
- Training for small industry technicians and management should be based on the proposed Service Centres.
- Financial assistance is recommended for selected SSI units in suitable premises on the new decentralized industrial estates. Long-term credit is recommended for the purchase of the best locally made machinery with the objective of exporting standardized quality-controlled fabrics and garments.

Table 5.1: Promotional Effects of Typical Proposed Service Centre

Function	Common Deficiencies in SSI	Promotional Possibilities	Facilities Needed in Service Centre
Planning	Lack of effective project planning, e.g. location, layout Organization of production Allocation of work Product mix Product development	Practical advice based on demonstration by experienced technicians in Service Centre. Advice on sub-contracting and basic designing.	Pilot plant plus access to GOP service departments and friendly textile finishing plants. Small scale production facilities to be used for demonstrating alternative products and designs.
Production	Obsolete machinery Improper machinery Lack of special machinery Maintenance Quality control Technology	Financial aid Advice by demonstration Common facilities Training Testing equipment Seminars illustrated by latest brochures etc.	Credit programme Pilot plant Common facilities Training courses Common facilities in training courses Auxiliary machines for demonstration
Personnel	Qualification	Training of technicians and apprentices	Courses
Administration	Management techniques, e. g. Cost accounting Work study Marketing Finance	Training advice Demonstration training Practical teaching Advice: seminars Financial aid sources	Courses Courses Courses Samples + designs Credit programme
General	Raw material + components Sales	Samples + prices Seminars Selling techniques	Bulk buying techniques Import procedures Bulk selling methods with practical aid to cooperative action

5.1.3 Materials

- Fullest support for cotton development work is recommended because of cotton's importance to Pakistan.
- The import of man-made fibres such as rayon should be discouraged if they conflict with cotton.
- The import of special synthetic raw materials which are not obtainable locally should be made easier especially when required for re-export. (See Case Study No. 2 Annex II) e.g. Certain modern knitting machines can only run on special Texturised Knotless Polyester Filament.

5.1.4. Manpower, Management and Organization

Although entrepreneurs were found to have great business ability their knowledge of modern management techniques was very weak in most SSI. It is strongly recommended that Service Centres should be set up in main centres of SSI activity with a view to improving the quality of manpower e.g.

- A list of many promotional effects (page 48) describes a series of activities which should be undertaken to upgrade Planning, Production, Personnel, Administration and General.
- Improvement of technical capabilities in Planning, Production and Personnel deployment would be made possible to SSI by demonstration through the pilot plant and by training on prototype machines.
- The recommended Service Centres would provide training facilities within easy reach of SSI industrial plants.
- The handling of Personnel would be improved by information regarding the application of labour incentives which should be linked wherever possible to productivity and quality. Group incentive schemes are also recommended based on work study to be learnt in the Service Centre in order to motivate the whole work force.
- The SSI industry proprietors would have an opportunity to broaden their technical and management skills as well as their administrative methods.
- The Service Centres should give guidance on how to improve cooperative action generally, and could explain bulk buying and bulk selling techniques as well as import and export procedures, especially in the fields of Hosiery, Garments, Canvas and Power Looms.

5.1.5 Marketing (Domestic and Export)

SSI owners/managers paid great attention to selling especially in the domestic market, but they had little knowledge of marketing, especially in the case of export markets. The following recommendations therefore refer primarily to the export market:

- Small industries are recommended to form their own associations to facilitate more direct sales to retailers in the domestic market and to encourage exports to foreign buyers without intermediaries. Warehouse and showroom facilities are recommended in at least 4 foreign centres of world textile trade in Europe and USA.
- Promotion of export capacities should be based on methodical investigation of real requirements in styling and finishing in the importing markets and to the improvement of physical production whereby standard acceptable textiles are offered.
- Pricing should be market oriented and SSI entrepreneurs should be alerted as to the importance of cost efficiency by the Service Centres.
- Local SSI associations should cooperate to form a National Association; it is recommended that GOPA should support the marketing investigations abroad of such SSI textile National Association which should secure up-to-date information for the practical use of members. Such an association should restrict its membership to manufacturing companies only, within the definition of small scale industries. It should represent the interest of SSI entrepreneurs only and operate congruently to the APTMA.

5.1.6 Financial Management

Most recommendations require capital investment; financing is thus an essential of SSI's development.

- It is recommended that requirements for expansion, modernization and replacement should be directed towards SSI units with successful export experience or with proven export potential.
- Concentration on improving the financial structure of export oriented units is recommended; indiscriminate alleviation of the financial difficulties of obsolete units producing for the domestic market would result in the increase of the numbers of such units, which is undesirable.
- The development and commercial banks are recommended to facilitate finance to SSI units which have been selected mainly for export potential, because of suitable establishments and outstanding management.

Ways and means of channelling the savings of expatriates through commercial banks and development institutions should be investigated and directed to proper investments.

- Institutional and commercial banks are recommended to take into account the special nature and needs of small industries. Appraisal by SSI corporations should be as swift and simple as the disbursement procedures by banks for selected clients. Security should be based principally on integrity. The general lending procedure should be streamlined.

5.2 General

Overall Recommendations

The role and importance of small scale industry is recognized by GOP for the socio-economic development of the country. This SSI textile sub-sector study purports to show its potential contribution to growth and thus to structural change. The sub-sector is complicated by the radically different methods of production:

- Hosiery consists of eight distinct industries.
- The garment industry is a separate trade that consumes textile products as raw material.
- The towel and canvas industries are small components of the immense power loom sub-sector based on cotton weaving.

Priority is recommended for the garment industry based on export potential for indigenous cotton fabrics with high value added. It is a labour intensive activity which depends on groups of sewing machines; the simpler models are produced locally; there is a huge reservoir of practiced sewing machine operators in the tailoring trade; very large but highly competitive markets are available for low cost good quality garments.

The industry is so recent in Pakistan that it has neither acquired bad habits nor obsolete production bases. Its development for export urgently requires the assistance of specialized consultants for both production and marketing.

The SSI hosiery, towel, canvas and power loom sub-sectors are vulnerable because of poor location, deficient infra-structure, out-of-date plant and machinery, and lack of working capital. But they have clever owners, willing workers, simple procedures and low overheads. They grew dynamically in times of high demand by the domestic market; the better units have succeeded in exporting simple fabrics based on home-grown cotton.

The recommended policy is to decentralize from valuable sites in city centres to purpose built and accessible industrial estates; this policy has been seen to be viable in Peshawar.

Production should be based on improved locally made machinery from the light industry sub-sector, which is already producing the kind of automatic looms that can weave standardized coarse fabrics for export.

It is recommended that the level of investment acceptable for SSI textile sub-sector should be raised from RS3 million to RS5 million, so that small industries will be capable of handling export products that require greater investment and a higher general level of productivity and quality.

Several medium scale industries had grown out of SSI¹⁾ owing to the entrepreneurial skill of their proprietors. They had become outstanding exporters and should not be penalized because of size.

The importance of SSI units forming associations chiefly for bulk buying and direct selling cannot be overstressed. Two recently formed associations visited were dynamic and positive; such associations deserve fullest support and a sub-sector national association representing all textile small industries should be encouraged²⁾.

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- 1) Examples of medium scale industries which have grown from SSI:
Case study No. 1: An Export Knitwear Factory, Annex II
Case study No. 2: A Hosiery Mill, Annex II
Case study No. 5: A Garment Industry, Annex II
Case study No. 9: A Canvas and Tentmaking Company, Annex II.

- 2) Recently formed associations:
The Power Loom Association, Peshawar
The Weavers and Power Loom Cooperative Society, Hyderabad, see Interview No. 6, Annex.

6. SUB-SECTOR PROFILES

6. Sub-Sector Profiles

As part of the results of the study, typical sub-sector profiles have been prepared in order to facilitate institutional, financial and technical support. The profiles contain the following criteria:

- production programme
- technology and production facilities
- raw materials
- manpower and management
- investment
- cost structure
- financial ratios.

The actual situation of each product line or type of industry (labour intensive, mechanized, export oriented) has been drawn up. It reflects the target group units' specific pattern with respect to structure and ranges of the above criteria.

Based on the experience and know-how of the sector, a profile for a typical new company has been elaborated. This profile contains the estimated structural data and ratios for a model unit, with sub-sector specific

- technology and machinery
- personnel outfit
- investment and cost-structure.

The financial ratios represent estimates and may fluctuate in both directions.

A detailed proposal for such a "pilot unit" will require a thorough analysis within the framework of a comprehensive feasibility study.

SUBSECTOR:

CATEGORY:

Page 1: ACTUAL SITUATION

Textile

Canvas

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:		on % Capacity	
	Major Products:	Units:	Rs.:		
	Canvas for Tents, Awnings and Taraulins	480,000 yds	5,290,000	80 %	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:		Imported	
	Pinwinding Weaving	Obsolete manual Pinwinders Obsolete non-automatic Looms (16)		✓ ✓	
	Land and Buildings: Buildings: Value / sam. Land: Value / sam.	average: <input type="text" value="100"/> average: <input type="text" value="57"/>	Building Area/ Employee average: <input type="text" value="29"/>		
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Quality:
	10/2 and 10/3 Carded Cotton Yarn	480,000	10/ lb.	4,800,000 local	medium
4	MANPOWER AND MANAGEMENT:				
	Management: Staff: Skilled Workers: Semi-Skilled Workers: Unskilled Workers: TOTAL:	average: 1 4 20 10 5 40	Entrepreneurial Background of Owner /Owner: Business Man External Technical Cooperation necessary? Yes, for Quality Control		
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels/Marketing:		
	Domestic: ---	Exports: 100 %	Domestic: ---	Exports: Direct Sales to User	
6	INVESTMENT:				
	Fixed Assets: (Rs. 1000): Land: Buildings: Machinery/Equipment: Miscellaneous: TOTAL:	average: 160 900 000 1,000	Working Capital: (Rs. 1000): average: <input type="text" value="300"/>		
7	COST STRUCTURE:				
	Raw Materials: Manpower: Depreciation/Interest: Other: Profit:	average: 70 3 --- 2 ---	Remarks: High Number of workers 40 for Small Production Fully Depreciated Maintenance		
8	FINANCIAL RATIOS: (Rs. 1000)				
	Turnover/Employee: Turnover/Machinery and Equipment: Machinery and Equipment/Employee: Total Investment/Employee: a) Building owned b) Building rented Fixed Assets/Working Capital: Profit/Investment: Debt/Total Capital:	average: 130.0 1.5 13.0 47.0 --- 3.0 0.0 ---	Remarks:		

Textile

Canvas

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:		on % Capacity	
Major Products:		Units:	Rs.:		
Canvas for Tents, Awnings and Taraulins		1,920,000 yds	21,120,000	30 %	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery Equipment:		Imported	
Pirmwinding		New Pirmwinder (1)		v	
Weaving		Automatic Looms (48), new.		v	
Land and Buildings:		Building Area/ Employee			
Buildings: Value / sam.		average:	100		
Land: Value / sam.		average:	37		
3	RAW MATERIALS:				
Type:	Quantity:	Price/Unit:	Imported/Local:	Import Duties:	Quality:
10.2 + 10.3 Carded Cotton Yarn	1,927,000	10/ lb. local	19,270,000 local	--	medium
4	MANPOWER AND MANAGEMENT:				
		average:	Entrepreneurial Background of Share /Owner:		
Management:	1	Preferably Foreman with long Experience			
Staff:	6				
Skilled Workers:	12				
Semi-skilled Workers:	12	Extremal Technical Cooperation necessary?			
Unskilled Workers:	10	Yes, for Quality Control			
TOTAL:	41				
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:		Marketing Channels (Ranking):			
Domestic:	Export:	Domestic:	Export:		
--	100 %	--	Direct Sales to Endusers abroad		
6	INVESTMENT:				
Fixed Assets: Rs. 1000		average:	Working Capital: Rs. 1000		
Land:	320	average: 1,200			
Buildings:	1,300				
Machinery equipment:	1,000				
Miscellaneous:					
TOTAL:	3,620				
7	COST STRUCTURE:				
		average:	Remarks:		
Raw Materials:	70				
Manpower:	3				
Depreciation/Interest:	4				
Others:					
Profit:	13	The Profits derived from Savings in Manpower			
8	FINANCIAL RATIOS: Rs. 1000				
		average:	Remarks:		
Turnover: EMP base	3.20				
Turnover: Machinery and Equipment	2.10				
Machinery and Equipment/ EMP base	40.00				
Total Investment/ Employee:	125.00				
a) Building value					
b) Building rental					
Fixed Assets/ Working Capital	3.00				
Profit/ Investment	0.10				
Loan/ Total Capital	0.00	Assuming Loan of 1,300 for New Machinery			

SUBSECTOR:
Textile

CATEGORY:
Hosiery

PRODUCTION PROGRAMME:					
Type of Products:	Annual Average Output:		on % Capacity		
Major Products:	Units:	Rs.:			
Underwear and T-Shirts	15,000 lbs.	220,000	25 %		

TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:	Major Machinery/Equipment:		Imported	Local
Circular Knitting	2 Mvuki Machines	obsolete	✓	
	1 Small Diameter Machine	obsolete	✓	
Sewing Machines	5 Local Copies of Japanese Machines, obsolete			✓

Land and Buildings:				
Buildings: Value / sam.	average:	1,200	Building Area/ Employee	average:
Land: Value / sam.	average:	600		16

RAW MATERIALS:					
Type:	Quantity:	Price/Unit:	Imported/Local:	Import Duties:	Quality:
Cotton Yarn, Carded	10,000 lbs 20/1 5,000 lbs 32/1	11.00 /lb. 13.00/lb.	local	---	low

MANPOWER AND MANAGEMENT:			Entrepreneurial Background of <u>Owner/Owner</u> : Worker in Hosiery Industry External Technical Cooperation necessary? Not too small and antiquated
	average:		
Management:	1		
Staff:			
Skilled Workers:	4		
Semi-Skilled Workers:			
Unskilled Workers:			
TOTAL:	5		

MARKET DEMAND AND MARKETING:			
Market Potential and Development Prospects:		Marketing Channels (Ranking):	
Domestic:	Export:	Domestic:	Export:
100 %	---	Wholesalers	---

INVESTMENT:			Working Capital: (Rs. 1000): average: 50
Fixed Assets: (Rs. 1000)	average:		
Land:	50		
Buildings:	100		
Machinery/Equipment:	150		
Other:	---		
TOTAL:	300		

COSTS (Rs. 1000):		Remarks:
	average:	
Raw Materials:	70	
Manpower:	10	
Depreciation/Interest:	1	
Others:	4	
Profit:	15	

FINANCIAL RATIOS: (Rs. 1000)		Remarks:
	average:	
Turnover: Employee	44.00	
Turnover: Machinery and Equipment	1.10	
Machinery and Equipment: Employee	22.00	
Total Investment: Employee	10.00	
Land: Building/land	---	
Fixed Assets: Working Capital	6.00	
Profit: Investment	5.00	
Land: Land: Land	---	

SUBSECTOR:

CATEGORY:

ACTUAL SITUATION

Textile General Purpose Hosiery Factory

PRODUCTION PROGRAMME:		Annual Average Output:		on % Capacity
Type of Products:	Units:	Rs.:		
Underwear and T-Shirts	378,000	3,783,000	75% 2 shifts	

TECHNOLOGY AND PRODUCTION FACILITIES:		Imported	Age
Process commonly applied:	Major Machinery/Equipments:		
Circular Knitting (Recilinear Machines)	5 Imported, new	✓	
Auxiliary Winding and Processing Sewing Machines	Various new 18 Assorted, new	✓ ✓	

Land and Buildings:		Building Area/ Employee	
Buildings: Value / sam.	min.: max.: average: 11,250		
Land: Value / sam.	min.: max.: average: 500	min.: max.: average:	

RAW MATERIALS:					
Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:	Quality:
Cotton Yarn Combed 32/1	175	13/lb.Rs.	local	---	Best Local
Cotton Yarn Combed 32/1	175	16/lb.Rs.	local	---	Best Local
Cotton Yarn Combed 40/1	30	20/lb.Rs.	local	---	Best Local
Unit: 1,000's Lbs.					

MANPOWER AND MANAGEMENT:				Entrepreneurial Background of Sponsor/Owner: Academic with wide technical, Management and Marketing Experience External Technical Cooperation necessary? Yes, complete Cooperation essential
	min.:	max.:	average:	
Management:			1	
Staff:			6	
Skilled Workers:			25	
Semi-Skilled workers:			13	
Unskilled Workers:			6	
TOTAL:			51	

MARKET DEMAND AND MARKETING:			
Market Potential and Development Prospects:		Marketing Channels (Ranking):	
Domestic:	Exports:	Domestic:	Exports:
15%	75%	Wholesalers	Direct to Exporters abroad

INVESTMENT:					Working Capital: Rs. 1,000	
Fixed Assets: Rs. 1,000	min.:	max.:	average:			
Land:			500	min.:		
Buildings:			700	max.:		
Machinery/Equipment:			3,000	average:		
Miscellaneous: Working Capital:			1,000			
TOTAL:			5,200			

COST STRUCTURE:				Remarks:
	min. Rs.	max. Rs.	average Rs.	
Raw Material:			30	
Manpower:			10	
Depreciation (straight):			10	
Energy:			10	

FINANCING REQUIREMENTS:				Remarks: It is assumed that loans including 1,000 for working capital will amount to 3,000. Total capital is 5,000. The ratio of loans to total capital would be 60% which is not ideal. The reason for this figure is that modern machinery/equipment is imported and expensive.
Rs. 1,000	min.:	max.:	average:	
Working Capital:			100	
Plant and Equipment:			2,000	
Land and Buildings:			1,200	
Total Investment: 5,000			3,300	
Working Capital:			100	
Plant and Equipment:			2,000	
Land and Buildings:			1,200	
TOTAL:			3,300	

SUBSECTOR:

Textiles

CATEGORY:

Towels

Page 1 - ACTUAL SITUATION

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Outputs:		on Its Capacity	
	Major Products:	Units:	Rs.:		
	Finished medium-low Quality Terry Towels	1,300,000 Towels	1,500,000	80%	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly adopted:	Major Machinery/Equipment:		Imported	
	Winding and Seaming	Obsolete Winding and Marling		✓	
	Pinwinding	Obsolete Pinwinding		✓	
Weaving	Obsolete Looms 44"		✓		
Land and Buildings:		average:	Building Area/ Employee		
Buildings: Value / sam.		355			
Land: Value / sam.		233	average: 30		
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Quality:
	10/1, 16-1 and 20-2 Carded Cotton Yarn		16.7/lb. this Price is very high	810,000 local	medium, from family spinning mill
4	MANPOWER AND MANAGEMENT:				
		average:	Entrepreneurial Background of owner /Owner:		
	Management:	1	Academic		
	Staff:	10	External Technical Cooperation necessary?		
Semi-Skilled Workers:	22				
Semi-Skilled Workers:	25				
Unskilled Workers:	7				
TOTAL:	45				
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels ranking:		
	Domestic:	Exports:	Domestic:	Exports:	
25%	75%	Wholesalers	Direct to Employer abroad		
6	INVESTMENT:				
	Fixed Assets: Rs. '000	average:	Working Capital: Rs. '000		
	Land:	700			
	Buildings:	1,500	average: 500		
	Machinery/Equipment:	1,700			
Miscellaneous:					
TOTAL:	3,900				
7	COST STRUCTURE:				
		average:	Remarks:		
	Raw Materials:	54			
	Manpower:	1			
	Depreciation/Interest:	1			
	Others:	5			
Total:	61				
8	FINANCIAL RATIOS: Rs. '000				
	Fixed Assets/Equity	average:	Remarks:		
	Turnover: Machinery and Equipment	2.00			
	Turnover: Machinery and Equipment/Employee	3.00			
	Fixed Investment/Employee	2.00			
	Land/Building owned	0.00			
	Land/Building rented	0.00			
	Fixed Assets/Working Capital	3.00			
	Fixed Investment	2.00			
	Loans/Total Capital	0.00			

SUBSECTOR:

CATEGORY:

Page 2: NEW COMPANY

Textile

Towels

1	PRODUCTION PROGRAMME:				
Type of Products:		Annual Average Output:			
Major Products:		Units:	Rs.:		
Finished Medium Quality Terry Towels		4,320,000 Towels	3,600,000		
		on % Capacity			
		83 %			
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
Process commonly applied:		Major Machinery/Equipment:			
Winding and Beaming		New Winding and Warping			
Pimwinding		New Pimwinding			
Weaving		New Looms (48)			
		Imported	Local		
			✓		
			✓		
			✓		
Land and Buildings:		Building Area/ Employee			
Buildings: Value / sqm.		average: 350			
Land: Value / sqm.		average: 233	average: 30		
3	RAW MATERIALS:				
Type:		Quantity:	Price/Unit:	Imported/Local:	Quality:
1a/1, 16/1 and 2a/2 Carded Cotton Yarn		2,200,000	average 15.0 / lb.	3,300,000 local	medium soft twist special yarn
4	MANPOWER AND MANAGEMENT:				
		average:			
Management:		1		Entrepreneurial Background of Owner Owner:	
Staff:		10		Preferably experienced in Towel Industry	
Skilled Workers:		12			
Semi-Skilled Workers:		12		External Technical Cooperation necessary?	
Unskilled Workers:		0		Yes, for Quality Control:	
TOTAL:		41			
5	MARKET DEMAND AND MARKETING:				
Market Potential and Development Prospects:			Marketing Channels (Ranking):		
Domestic:		Exports:		Domestic:	
---		100 %		---	
				Direct to Enduser abroad	
6	INVESTMENT:				
Fixed Assets: (Rs. 1000)		average:		Working Capital (Rs. 1000)	
Land:		700			
Buildings:		1,000			
Machinery/Equipment:		2,400		average: 1,250	
Miscellaneous:					
TOTAL:		4,100			
7	COST STRUCTURE:				
		average:		Remarks:	
Raw Materials:		48		High Depreciation Interest on new Machinery	
Manpower:		6			
Depreciation / Interest:		4			
Others:		3			
Profit:		10			
8	FINANCIAL RATIOS: (Rs. 1000)				
		average:		Remarks:	
Turnover / Employee		28.0		Assuming Loan of 1,800 for new Machinery	
Turnover / Machinery and Equipment		11.0			
Machinery and Equipment / Employee		59.0			
Total Investment / Employee		100.0			
a. Building owned					
b. Building rented					
Fixed Assets / Working Capital		3.00			
Profit / Investment		0.20			
Loans / Total Capital		0.27			

SUSSECTOR:
Textiles

CATEGORY:
Garments

Page 1: **ACTUAL SITUATION**

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:		as % Capacity	
	Major Products:	Units:	Rs.:		
	Trousers of Denim and Corduroy	72,000	4,200,000	50	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:		Imported	Local
	Cut, Make and Trim (CMT)	18 Pfaff Sewing Machines 1 Press 2 Cutters		✓ ✓ ✓	
	Land and Buildings: Buildings: Value / sam. Land: Value / sam.	average:	100 50	Building Area/ Employee average: 27	
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/Local:	Quality:
	Cotton, Denim and Corduroy 1st Quality Broadcloth (sq")	72,000/sqyds	58.3/sqyd	local	best local
4	MANPOWER AND MANAGEMENT:				
		average:			
	Management:	1	Entrepreneurial Background of 90% Owner:		
	Staff:	3	Trained in Garment Industry		
	Skilled Workers:	10	External Technical Cooperation necessary?		
	Semi-Skilled Workers:	5	Desirable but not essential		
	Unskilled Workers:	1			
	TOTAL:	22			
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (Ranking):		
	Domestic:	Export:	Domestic:	Export:	
	100%	-	Wholesalers	-	
6	INVESTMENT:				
	Fixed Assets: (Rs. 1000)	average:	Working Capital (Rs. 1000)		
	Land:	66			
	Buildings:	250			
	Machinery/Equipment:	700	average: 300		
	Miscellaneous:				
	TOTAL:	1,016			
7	COST STRUCTURE:				
		average:	Remarks:		
	Raw Material:	64			
	Manpower:	5			
	Depreciation / Interest:	3			
	Others:	1			
	Profit:	7			
8	FINANCIAL RATIOS: (Rs. 1000)				
		average:	Remarks:		
	Turnover / Employee	101.0			
	Turnover / Machinery and Equipment	5.0			
	Machinery and Equipment / Employee	30.0			
	Total Investment / Employee	60.0			
	a. Building owned				
	b. Building rented				
	Fixed Assets / Working Capital	3.4			
	Profit / Investment	0.25			
	Land / Total Capital	0.30			

SUBSECTOR:
Textiles

CATEGORY:
Garments

Page 2: NEW COMPANY

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:		as % Capacity	
	Major Products:	Units:	Rs.:		
	Trousers of Denim, Corduroy and Polyester/Cotton Blends	360,000	21,000,000	67	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:		Imported	Loc.
	Cut, Make and Trim (CMT)	90 modern Sewing Machines 2 Presses 3 Cutters		✓ ✓ ✓	
	<u>Land and Buildings:</u>		Building Area/ Employee		
	Buildings: Value / sam.	average:	100		
	Land: Value / sam.	average:	50	average: 30	
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties: Quality:
	Cotton, Denim and Corduroy and Polyester/Cotton 1st Quality Brandcloth (sq")	360,000	55.0 /sq yd	local	- best local
4	MANPOWER AND MANAGEMENT:				
		<u>average:</u>			
	Management:	1	Entrepreneurial Background of Sponsor/Owner: Trained in Garment Industry at Home and Abroad (esp. in USA) External Technical Cooperation necessary? Yes, especially for Design, Sizing and Quality Control		
	Staff:	6			
	Skilled Workers:	50			
	Semi-Skilled Workers:	25			
	Unskilled Workers:	5			
	TOTAL:	87			
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (ranking):		
	Domestic:	Export:	Domestic:	Export:	
	25 %	75 %	Wholesalers	Direct to Endusers abroad	
6	INVESTMENT:				
	Fixed Assets: (Rs. 1000)	<u>average:</u>			
	Land:	165	Working Capital (Rs. 1000)		
	Buildings:	625			
	Machinery/Equipment:	3,200			
	Miscellaneous:	1			
	TOTAL:	4,290				average: 1,500
7	COST STRUCTURE:				
		<u>average:</u>			
	Raw Materials:	82	Remarks:		
	Manpower:	4			
	Depreciation / Interest:	3			
	Others:	1			
	Profit:	10			
8	FINANCIAL RATIOS: (Rs. 1000)				
		<u>average:</u>			
	Turnover / Employee	241.00	Remarks:		
	Turnover / Machinery and Equipment	5.0			
	Machinery and Equipment / Employee	49.0			
	Total Investment / Employee	57.0			
	a) Building owned				
	b) Building rented				
	Fixed Assets / Working Capital	2.7	Due to Increased Volume the Profit Investment Ratio Improves from 0.21 to 0.36 i.e. the Percentage Profit on Investment Improves from 21% to 36% Assuming Loan of 1,000 for new Machinery		
	Profit / Investment	0.06			
	Debt / Total Capital	0.00			

SUBSECTOR:

CATEGORY:

Page 1: ACTUAL SITUATION

Textile

Others (Power-Loom)

1	PRODUCTION PROGRAMME:				
	Type of Products:	Annual Average Output:		on % Capacity	
	Major Products:	Units: yds	Rs.:		
	Crey Sheeting Printcloth	100,000 60,000 160,000	675,000 350,000 1,035,000	80 %	
2	TECHNOLOGY AND PRODUCTION FACILITIES:				
	Process commonly applied:	Major Machinery/Equipment:		Imported local	
	Yarn Sizing + Beaming Pirmwinding Weaving	Sizing and Warming (Sized by GOP mill) Simple Pirmwinders Automatic Looms (8 units)		 ✓ ✓ ✓	
	Land and Buildings: Buildings: Value / sam. Land: Value / sam.	average: 625 31	Building Area/ Employee average: 33		
3	RAW MATERIALS:				
	Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties: Quality:
	20/1 Carded Cotton Yarn	500,000 lbs/p.a.	Rs. 11/ lb.	local	--- low
4	MANPOWER AND MANAGEMENT:				
	Management:	average: 1	Entrepreneurial Background of 560000 Owner: Ex-Foreman Sizing Factory		
	Staffs:		External Technical Cooperation necessary? Yes, especially for Quality Control		
	Skilled Workers: Semi-Skilled Workers: Unskilled Workers: TOTAL:	4 4 9			
5	MARKET DEMAND AND MARKETING:				
	Market Potential and Development Prospects:		Marketing Channels (ranking):		
	Domestic: Export:	100 % , Expected Growth: 33 % p.a.	Domestic: Export:	Sells through Export Commission Agency	
6	INVESTMENT:				
	Fixed Assets: (Rs. 1000)	average:	Working Capital (Rs. 1000)		
	Land: Buildings: Machinery/Equipment: Miscellaneous: TOTAL:	30 300 204 534	average: 200		
7	COST STRUCTURE:				
	Raw Materials:	average: 62	Remarks:		
	Manpower:	2			
	Depreciation / Interest:	5			
	Others:	5			
8	FINANCIAL RATIOS: (Rs. 1000)				
	Turnover / Employee	average: 110.0	Remarks:		
	Turnover / Machinery and Equipment	4.0			
	Machinery and Equipment / Employee	29.0			
	Total Investment / Employee	68.0			
	a) Building owned b) Building rented				
	Fixed Assets / Working Capital	3.0			
	Profit / Investment	0.25			
Loans / Total Capital	0.00				

Textile

Others (Power Loom)

1	PRODUCTION PROGRAMME:					
Type of Products:		Annual Average Output:		on % Capacity		
Major Products:		Units:	Rs.:			
Grey Sheeting Printcloth		600,000 360,000 960,000	4,050,000 2,160,000 6,210,000	80 %		
2	TECHNOLOGY AND PRODUCTION FACILITIES:					
Process commonly applied:		Major Machinery/Equipment:		Imported	Local	
Yarn Sizing and Beaming		Sizing and Warping (by GOP mill)			✓	
Pirmwinding		Simple Pirmwinders			✓	
Weaving		Automatic Looms (42 Units)			✓	
Land and Buildings:			Building Area/ Employee sq/mt			
Buildings: Value / sam.		average:	625			
Land: Value / sam.		average:	31	average: 50		
3	RAW MATERIALS:					
Type:	Quantity:	Price/Unit:	Imported/local:	Import Duties:	Quality:	
20/1 carded Cotton Yarn	2,150,000 lbs.	Rs. 11/lb.	local	---	low	
30/1 carded Cotton Yarn	1,000,000 lbs.	Rs. 12.5/lb.	local	---	medium	
4	MANPOWER AND MANAGEMENT:					
		average:		Entrepreneurial Background of Sponsor/Owner:		
Management:	1			Ex-Foreman in Textile Mill.		
Staff:	2					
Skilled Workers:	3			External Technical Cooperation necessary?		
Semi-Skilled Workers:	8			Yes, especially for Quality Control		
Unskilled Workers:	2					
TOTAL:	21					
5	MARKET DEMAND AND MARKETING:					
Market Potential and Development Prospects:			Marketing Channels (rankings):			
Domestic:		Export:	Domestic:		Export:	
---		100 % Expected Growth: 33 % p.a.	---		Through Commission Agent or Export Cooperative, direct.	
6	INVESTMENT:					
Fixed Assets: Rs. 1000		average:		Working Capital (Rs. 1000)		
Land:		30				
Buildings:		900				
Machinery/Equipment:		140		average: 1,000		
Miscellaneous:						
TOTAL:		2070				
7	COST STRUCTURE:					
		average:		Remarks:		
Raw Materials:		58				
Manpower:		4				
Depreciation & Interest:		3				
Others:		3				
Profit:		22				
8	FINANCIAL RATIOS: Rs. 1000					
		average:		Remarks:		
Turnover / Employee		40.0				
Turnover / Machinery and Equipment		2.0				
Machinery and Equipment / Employee		25.0				
Total Investment / Employee		100.0				
a. Building own						
a. Building rental						
Fixed Assets / Working Capital		2.0				
Profit / Investment		31.0				
Loans / Total Capital		3.00				

BASIC DATA AND RATIOS
of
UNITS INTERVIEWED

LEGEND FOR BASIC DATA AND RATIOS

- 1) Sales figures 1979
(estimates of yearly sales volume)
- 2) 1 = Wholesaler
2 = Commission agent
3 = Retailers
4 = Job order
5 = direct sales to end user
6 = Exporters
- 3) g = good
f = fair
b = bad
- 4) TTD = Traditional Technology Developing Countries
UTD = Upgraded Technology Developing Countries
ATI = Adapted Technology Industrialized Countries
UTI = Unchanged Technology Industrialized Countries
- 5) Staff = administrative and management personnel
- 6) % of total raw material (in terms of value)
- 7) Turnover/value of machinery and equipment
- 8) Value of machinery and equipment/employees
- 9) Cost-to-sales ratio (%)

Province	Unit No.	Production Program	Year of establishment	Sales Marketing				Land			Buildings			Machine Equipment
				Sales (Rs 1,000)	Domestic (%)	Export (%)	Channels	Area (m ²)	Total value Rs (1,000)	Value per m ² (Rs 1,000)	Covered area (m ²)	Total investment (Rs 1,000)	Value (Rs 1,000)	Value (Rs 1,000)
P	1	Warp + circular knitting	79	3,060	100	-	1,2	360	230	0.64	230	incl. land	-	500
P	2	Double knitting and weaving	80	3,096	100	-	1	450	80	0.18	360	-	200	600
P	3	Knitting socks	70	1,000	95	5	1	100	50	0.50	100	incl. land	-	250
P	4	Knitting underwear	50	15,000	100	-	1,3	6,750	600	0.09	3,150	-	1,000	1,500
NWFP	5	Knitting T-Shirts	78	13,000	75	25	1	5,000	4,000	0.80	2,000	incl. land	-	8,500
S	6	Knitting General	61	20,000	50	50	1,5	6,750	600	0.09	3,500	-	2,250	7,000
NWFP	7	Knitting Socks	51	2,350	100	-	3	380	120	0.32	300	incl. land	-	300
S	8	Knitting und. T-Shirts	54	180	100	-	1	100	150	1.50	100	incl. land	-	60
S	9	Knitting und. T-Shirts	53	220	100	-	1	80	150	1.90	80	incl. land	-	200
P	10	Garments	77	4,750	-	100	4	975	80	0.01	460	-	460	720
P	11	Garments	78	4,200	100	-	1	-	66	-	-	-	250	700
P	12	Garments	70	5,000	50	50	1,5	3,600	1,000	0.08	600	-	600	1,500
S	13	Garments	71	240	100	-	2	-	100	-	-	incl. land	-	150
S	14	Garments	75	2,325	100	-	3,5	2,000	1,500	-	1,000	incl. land	-	1,000
P	15	Towels Knitgoods	74	8,150	T 5 K 100	95	5	3,600	800	0.22	2,820	-	1,700	5,456
P	16	Towels	66	1,500	21	79	1,5	3,000	700	0.23	1,800	-	1,000	1,760
S	17	Towels	71	650	-	100	2	900	90	0.10	500	-	100	650
S	18	Towels	73	400	-	100	2	600	60	0.10	400	-	80	350
NWFP	19	Towels	78	4,500	-	100	1	60,000	4,000	0.07	15,000	incl. land	-	16,000
P	20	Canvas	77	2,880	-	100	6	975	80	0.08	540	-	450	300

Sl. No.	Buildings		Machinery + Equipment		Technology				Manpower in numbers					Raw material import %	Investment		Utilization of loans		Turnover No. of employees	Turnover total investment	Turnover machinery investment
	incl. land	Value (Rs 1,000)	Value (Rs 1,000)	Average age (Years)	TD	UTD	AT	UTI	Capacity utilization %	Total	Skilled workers	Semi-skilled workers	Staff		Fixed assets (Rs 1,000)	Working capital (Rs 1,000)	Fixed assets %	Working capital %			
30	incl. land	-	500	12 f					40	19	5	10	4	100	730	11,500	-	-	161,000	0.3	6.1
60	-	200	600	7 g					50	15	6	6	3	50	880	120	-	-	206,000	3.1	5.2
90	incl. land	-	250	8 f					50	30	10	17	3	100	300	350	-	-	33,000	1.5	4.0
50	-	1,000	1,500	15 fb					75	166	100	51	15	-	3,100	750	-	-	90,000	3.9	10.0
00	incl. land	-	8,500	1 g					50	100	50	35	15	-	12,500	-	-	-	130,000	1.0	1.5
00	-	2,250	7,000	5 g					70	350	150	150	30	30	9,850	3,150	63	37	57,000	1.5	2.9
00	incl. land	-	300	5 f					60	9	7	-	2	-	420	500	-	-	260,000	2.6	7.8
00	incl. land	-	60	20 f					0	5	4	-	1	-	210	100	-	-	36,000	0.6	3.0
80	incl. land	-	200	25 fb					25	5	4	-	1	-	300	50	-	-	44,000	0.6	1.1
60	-	460	720	3 g					25	52	36	10	6	5	1,260	500	100	-	91,000	2.7	6.0
	-	250	700	2 g					60	22	10	6	6	-	1,016	300	100	-	191,000	3.2	6.0
00	-	600	1,500	7 g					30	35	15	2	12	-	1,600	200	100	-	143,000	2.8	3.3
	incl. land	-	150	9 f					85	12	9	2	1	-	250	-	-	-	20,600	1.0	1.0
00	incl. land	-	1,000	3 g					80	100	60	36	4	-	2,500	500	-	-	23,000	0.8	2.3
20	-	1,700	5,456	7 f					68 50	78	35	35	8	-	7,956	775	-	100	104,000	0.9	1.0
00	-	1,000	1,760	16 f					83	60	22	27	11	-	3,460	560	-	-	25,000	0.4	0.9
00	-	100	650	8 f					82	25	20	2	3	-	840	100	-	100	26,000	0.7	1.0
00	-	80	350	5 f					75	16	14	-	2	-	490	50	-	-	25,000	0.7	1.1
00	incl. land	-	16,000	1 g					50	90	50	27	13	-	20,000	800	100	-	50,000	0.2	0.3
40	-	450	300	3 g					80	25	16	5	4	-	830	200	100	-	115,000	2.8	9.0

SECTION 2

Province	Unit No.	Production Program	Year of establishment	Sales Marketing			Land			Buildings			Machine Equipment	
				Sales (Rs 1,000)	Domestic (Rs 1,000)	Exports (Rs 1,000)	Clearable	Area (m ²)	Total value (Rs 1,000)	Value per m ² (Rs 1,000)	Covered area (m ²)	Total value (Rs 1,000)	Value per m ² (Rs 1,000)	Value (Rs 1,000)
NWFP	21	Cotton Cloth Grey	78	525	100	-	2	1,300	42.5	0.33	490	-	300	500
NWFP	22	Cotton Sheeting Grey	77	1,519	-	100	6	960	31	0.32	480	-	300	375
NWFP	23	Cotton Print Cloth Grey	78	1,035	-	100	6	960	30	0.31	480	-	300	264
P	24	Canvas	70	5,280	-	100	5	1,800	160	0.89	900	-	900	600
S	25	Canvas + Tents	54	18,000	-	100	5	15,000	6,000	0.40	8,000	-	6,000	7,000
P	26	Textile Finishing	79	4,875	100	-	4	1,687	400	0.24	1,100	-	1,000	2,600
P	27	Textile Finishing	75	2,000	100	-	4	3,600	800	0.22	1,800	-	1,000	
NWFP	28	Warping + Sizing Service Centre	75	1,100	100	-	4.5	2,200	GOP nomin. value		GOP 1,760	nom. value	-	1,800
Ba	29	Carpet Yarn	72	1,800	100	-	4	8,050	535	-	2,680	incl. land	-	1,618
Ba	30	Carpet Yarn	69	2,500	100	-	5	20,000	GOP nomin. value		5,000	GOP nominal value		free
Ba	31	Embroidery Mill	74	500	100	-	3		free			free		free
Ba	32	Hand Embroidery	57	200	100	-	5	90			90			

Buildings		Machinery + Equipment		Technology				Manpower				Raw material imports (%)	Investment		Utilization of		Turnover No. of times/year	Turnover total investment	Turnover machinery + equipment
Total value (Rs 1,000)	Value (Rs 1,000)	Value (Rs 1,000)	Average life (years)	Capacity utilization (%)	Total	Skilled workers	Semi-skilled workers	Staff	Fixed assets (Rs 1,000)	Working capital (Rs 1,000)	Fixed assets (%)		Working capital						
-	300	500	2 g	80	17	8	5	4	-	842	100	100	-	31,000	0.6	1.1			
-	300	375	3 g	80	12	5	4	2	-	706	240	100	-	127,000	1.6	4.1			
-	300	264	2 g	80	9	4	4	1	-	594	200	100	-	115,000	1.3	3.9			
-	900	600	15 f	80	40	20	15	5	-	1,660	300	-	-	132,000	2.7	8.8			
-	6,000	7,000	10 g f	75	400	300	80	20	-	22,000	3,000	-	-	45,000	0.7	2.6			
-	1,000	2,600	8 g f	40	49	8	29	12	80	4,000	850	100	-	99,000	1.0	1.9			
-	1,000		7 g	25	48	5	31	12	70	6,300	650	-	-	42,000	0.3	1.2			
nom. value	-	1,800	5 f	20	20	8	8	4		1,800	GOP investment			55,000	0.7	0.6			
incl. land	-	1,618	7 g	40	55	10	36	9		2,153	-	100	100	33,000	0.8	1.1			
GOP nominal value	free	free	19 f b	51	141	118	5	18		free	free			18,000					
free		free			10	5	-	5		free				50,000					
			5 f		5	2	-	3						40,000					

SECTION 2

Fixed assets £1000	Working capital	Turnover No. of employees	Productivity						Cost Structure %						Remarks	
			Turnover total investment	Turnover/machinery equipment	Turnover/ working capital	Total investment employees	Machinery and equipment employees	Fixed assets working capital	Loans total capital	Raw material	Manpower	Direct interest	Maintenance	Others		Profit
100	-	37,000	0.6	1.1	5.2	55,000	29,000	8.4	53	-	23	20	5	13	39	Weaving on commission
100	-	127,000	1.6	4.1	6.3	79,000	31,000	2.9	40	66	6	4	1	5	18	
100	-	115,000	1.3	3.9	5.2	88,000	29,000	3.0	31	63	6	6	5	5	20	
-	-	132,000	2.7	8.8	17.6	49,000	15,000	5.5	-	90	8	-	-	-	-	
-	-	45,000	0.7	2.6	6.0	55,000	17,000	7.3	-	-	-	-	-	78	22	A small industry grown into a medium industry
100	-	99,000	1.0	1.9	5.7	99,000	53,000	4.7	33	46	9	10	4	10	21	Small textile finishing mill
-	-	42,000	0.3	1.2	3.1	145,000	94,000	9.7	-	30	7	22	3	28	10	"", working on commission
OP investment		55,000	0.7	0.6												GOP service mill for social reasons
100	100	33,000	0.8	1.1	-	39,000	29,000	-	300	-	27	41	7	28	loss 3	Important loss-making carpet yarn mill
		18,000														GOP wool spinning centre for carpets
		50,000														GOP social project
		40,000								50	20	-	-	20	10	High quality trad. embroidery

INTERVIEWS AND CASE STUDIES

INTERVIEWS AND CASE STUDIES

A. INTERVIEWS

1. Textile Commissioner's Office, Karachi
2. Goat of Pakistan, Islamabad, Threadline Centre, Cottage Industry
3. SIDB, Textile Training Centre, Peshawar
4. SIDB, Peshawar
5. Training for Cottage Industry
SIDB, Embroidery and Knitting Centre, (Nowshera), Peshawar
6. Jamiat-il-Ansar, Weavers and Power Loom Cooperative Society,
Hyderabad

B. CASE STUDIES

1. An Export Kuitwear Factory, Karachi
2. A Hoisery Mill, Private Family Ltd. Company, Karachi
3. A Garment Industry in Lahore
4. Large-Scale Mill with New Garment Section, Karachi
5. Garment Industry, Karachi
6. 53 Garment Industries, Ghadialy Building, Karachi
7. A New Towel Industry, Peshawar
8. A Small Towel Industry, Karachi
9. Canvas and Tent-Making Company, Karachi
10. Vertically Integrated Textile Mill, Islamabad
11. Large Integrated Textile Mill, Nowshera, near Peshawar

INTERVIEW No. 1Textile Commissioner's Office, Karachi

Received by Mr. G.N. Khan - Textile Commissioner
Mr. Idrees - Deputy Director

The T.C. is a Federal Government Agency to formulate policy and to advise provincial governments on textiles.

Besides the Commissioner there are 3 Deputy Directors, 6 Assistant D.D.'s and many extension officers - 40 persons, who are all professionally trained people.

The T.C. advises top government re-investment, e.g. sanctioning new units, balancing old ones, up-dating quality and productivity.

The T.C. endeavours to remove anomalies from government regulations, to eliminate disincentives, to attend mill executives regarding day to day difficulties and to reorganize the non-mill sector.

The government had appointed a committee to study the SI power loom sub-sector. Government policy is to encourage the industry to decentralize, i.e. to remove power looms from city centres such as Faisalabad where land is expensive, thus generating capital for operation on new industrial estates outside city limits. Services such as warping and sizing, repair and maintenance workshops to be provided as well as free land, also training centres for management and workers.

Groups of SI weaving will be organized for bulk buying of yarn, process materials and spares.

A marketing service station will be provided to advise on quotas, bulk selling linked to quality control, and transport to export markets. Warehousing will be set up on industrial estates and in selected export markets e.g. Frankfurt, Amsterdam, London and New York.

All Government agencies will be instructed to buy woven fabrics from Small Industry Corporations of which the biggest sector is textiles.

The dynamic SI power loom sector is seen to complement the static, declining mill weaving sector. The overall strategy is to export cloth instead of cotton or yarn and to encourage the garment industry so as to increase the value added, i.e. towels, knitgoods and canvas tents as well as ready made garments.

Resume of SI Power Loom Sub-Sector Study

The investigation covers:

- the number of looms installed
- methods of organization for better operation
- question of friction with the mill sector.

The terms of reference:

1. To examine present state of power loom SI
2. To give policy guidelines for future growth
3. To suggest ways and means of avoiding competition between power looms and mill sector as requested by the SI power loom people.
4. Any other suggestions.

Re 1:

There are said to be 50,000 power looms:

- 46,000 in Punjab
- 3,500 in Sind
- remainder in NWFP.

A start has been made in Peshawar by providing IDPB loans for 300 fully automatic looms to be installed in industrial estates supported by central warping and sizing. The cost of locally made looms is from Rs 5,000 - 12,000, for fully automatic models. Heavier canvas looms cost up to Rs 18,000 in 72" width.

Re. 2:

Government policy is not to discourage SI power loom enterprise. On the contrary, infrastructure is to be encouraged by strengthened support based on deployment to industrial estates. Better quality locally produced fully automatic looms would be welcome by means of joint ventures with international loom makers.

Re. 3:

It is recognized that it is not possible to avoid friction with the mill section. But SI power looms can produce basic fabrics for 3 - 5 Rs/yd whereas the mill sector should concentrate on denser and better quality cloths up to Rs 15 - 20 per yard. The SI power loom sector cloth is being finished by local finishers who are said to have ample spare capacity for simple finishing.

Re. 4:

There are 3 kinds of power loom units:

- Owned and operated by proprietor and family.
- Owned by small investors and operated by hired labour. Such units were mainly installed in the boom period.
- Large units owned indirectly by mill sector in order to avoid the provisions of the labour act and thereby to reduce overheads. Such units of power looms can amount to 200 - 300 machines operating with the support of large mills and under their control.

Priority Areas

1. Canvas

Total looms = 4,000 including 3 or 4 very good units in the mill sector (esp. tents)
2,368 of these looms are in Punjab as independent small industries. They are selling for export through local canvas exporters to M.E. markets and UK. Their main difficulties are supply of good quality coarse yarn at reasonable prices, lack of working capital, marketing difficulties, especially those caused by market fluctuations.

It has been recommended that GOP should make its official purchases of canvas fabric from the SSI power loom sector.

Canvas is an important export industry which brings in US \$ 6 million. It is a quick and easy way to convert raw material into an exportable finished product. (See Case Study 9, Appendix, Canvas and Tentmaking for comparison with large-scale tentmaking industry.

2. Terry Towels

Total looms = 2,500 in 159 units = 16 looms/unit.

90 % of production is exported, worth Rs 398 million in 1976/77. Yet the industry is said to be working only at 50 % capacity. Most small units are equipped with old imported Japanese looms or converted locally made machines. They usually only weave low quality terry cloth which is bleached and dyed outside. Slitting, hemming and stitching is usually done by outside firms, who work according to export specifications.

3. Hosiery, i.e. Knitting Industry

3,200 knitting machines (of which 2,000 more than 15 yrs old), 20 % work for export and 80 % for local market.

The chief problem areas are:

- Lack of working capital.
- Obsolete machinery and inferior local copies of antiquated foreign originals.
- Lack of suitable soft spun, lubricated, special yarns. Import difficulties and delays.
- Domestic and export markets are saturated with low quality products.

The export refinancing scheme whereby L/C orders can be discounted at 3 % p.a. is effective for units which have sufficient quality production.

Modern knitting machines may be imported free of duty but suitable yarn is unavailable locally.

4. Garment Industry

The ready-made garment industry is the most promising priority area for export but it is very weak still because the domestic market is geared to household and small tailoring.

GOP urgently wishes to motivate the SI garment industry for export but only the better organized 3 or 4 medium sized plants have succeeded.

GOP is advised to strengthen the industry by channelling army requirements to it as well as encouraging industry to place orders for workclothes. They wish to encourage fashion garments based on traditional designs especially from the hand loom sub-sector, for sale through boutiques abroad.

There is thought to be great potential for children's garments, ladies' garments and sleepwear. The Government garment industry is not successful. The Government therefore intends to divest itself of their industry by turning it over the private sector.

GOPA would like to encourage joint ventures, preferably located in special duty free areas for import of cloth and export of garments.

INTERVIEW No. 2Goat of Pakistan, Islamabad, Threadline Centre, Cottage Industry

In the absence of Mr. Nobat Khan, Director, Mr. Niasi, Joint Director, gave the following information:

1. GOP is giving little help to cottage industries, except to carpet training centres which are mostly closed or inoperative. (9 - 10 are closed in Pindi). Small weaving in Pindi is very poor.

Skills exist in cottage industry which is different from SI sector. All require additional working capital of about Rs 1,000 per household worker.

2. Finance is required for immovable property for small weavers in Pindi - suitable sheds are not available for small group operation.
3. Assistance is urgently required in design, especially in adaptation and development of traditional designs. A full - fledged design centre is required for the state - he suggested that new centres were needed in Hyderabad, Quetta and Peshawar - and that the Lahore showroom centre needs upgrading.
4. Marketing facilities required at home and abroad. Middlemen control everything today. Warehouses are required in centres such as New York, Frankfurt, London and Amsterdam, with showrooms.

A special organization is required in Pakistan to promote, develop and market the output of cottage industries, e.g. handicrafts.

5. A buying organization for the sector is needed, with credit facilities on basis of integrity and experience of cottage industry entrepreneurs. If appraised and approved by SIDB there should be no losses - or almost none.
6. Warehouses and galleries abroad should be run on business lines. The Threadline Gallery in Islamabad was very attractive and orderly and it shows what can be done.
7. Pakistan requires finance for both buying and selling, e.g. advances require to be made to cottage industries if they are to expand and prosper.

Comment

Mr. Nobat Khan and Mr. Niasi are men of the highest reputation for integrity and motivation.

INTERVIEW No. 3SIDB, Textile Training Centre, Peshawar

Interviewed Mr. Habib Rahman, Chief - trained textile expert (Blackburn Tech. UK)

There are 8 textile training centres in the province:

- 4 mainly wool weaving
- 4 cotton
- plus 3 separate units for knitting
- 20 carpet training centres which include Afghan refugees (not all are operative).

Cotton weaving school has primitive warping, primitive wood fires jigger for dyeing, bleaching and weaving on wooden handlooms. Pupils work in centre on piece rates after receiving diploma or start working on handlooms at home: 25 % in centre, 75 % at home.

Articles: Bedspreads, bedsheets, towels, muslin for students e.g. "Khaddar" made from natural beige colour, short staple cotton costing Rs 8.0 per lb, used for headdress, shirt and trousers of Pathan traditional style - often embroidered by and for ladies and for export. Many handlooms and 4 old powerlooms installed without stop motions.

Also make "Patti" woolen fabric and said to be capable of supporting large family with 1 - 2 handlooms.

Minimum capital required to set up is:

loom	1,000
material	1,000
	<hr style="width: 100%;"/>
Rs	2,000

The loom shed was cluttered crowded and dark and is below the minimum which is required for human cottage activity, let alone industrial production.

3 pit looms which need more space and light were seen, they were supporting 3 large families who lived in a small but homely dwelling round a courtyard.

The centre was excessively basic and urgently needs upgrading by a small injection of cash and by motivating the trainees, e.g. by providing minimum capital required for start-up, without burdensome formalities. Additional teacher training is required and more teachers for extension work.

INTERVIEW No. 4SIDB, Peshawar

Two interviews with Mr. Shah Wali Khan, District General Manager, and Mr. Mohammad Shahid Khattak, Assistant Director (and counterpart in Peshawar).

Mr. Shah Wali Khan stressed five special problems of SSI:

- marketing
- raw material
- spare parts
- finance
- training.

1. The loom production is sold mainly in Karachi to specialized agents for export. As the small units are chronically short of cash they are forced to unload woven grey fabric at any price, thus placing the wholesale agents in a commanding position. The solution is for organized marketing by groups of weavers, who are capable of exporting direct in substantial yardages - with or without local agents, i.e. there are ample markets in OPEC countries where standard quality grey cloth in 20 x 20, 60 x 56 construction can be placed.
2. To export successfully, long term, the weavers must have assured sources of supply of standard coarse carded yarn. Actually spinning is a large scale operation where priority is given to yarn export, own cloth production for export and domestic market, and if there is any yarn surplus it is channelled to the domestic market through wholesalers who give priority naturally to the stronger and bigger medium scale plants.

If GOP wishes SI weavers to export successfully the spinners should be instructed to reserve suitable quantities of yarn for them. GOP would be well advised to restrict export of grey cloth to production by fully automatic looms (e.g. Siddiqui local make); loom makers should receive incentives to improve quality and hence productivity of SSI units and quality of fabric for export. Very small units of 4 looms upwards in Punjab which utilize obsolete local looms without stop motions should not receive quotas of yarn for export as they are giving Pakistan a bad name abroad.

3. Mr. Shah Wali Khan complained of the high price of locally made spare parts from Punjab.
4. He stated that banks were not cooperating in finance for SI although SIDB takes 50% share of the credit risk?

His view that the proper credit qualifications should be experienced and integrity rather than traditional and shackling banking procedures based on mortgages and personal guarantees.

He stated that Government Banking Council central organizations should allocate more credit lines to SI based on appraisal by SIDB followed by speedy approval if reasonable by banks with swifter disbursement. The actual system for approval and disbursement is cumbersome and takes one year or more (the first request for financing a small garment industry is still pending).

His idea is that a quota should be established for each province and that local branches of banks should be authorized fully to proceed without further reference to far away Head Offices.

He wanted the cooperative banking system to be extended to cover handicrafts/home industries.

5. He wishes help and financial assistance to upgrade existing service centres, to get better training for senior staff at home and abroad, with extra staff for extension services.

It was obvious that Mr. Shah Wali Khan was a dedicated and constructive DGM and that Mr. Mohammad Shahid Kattak was a good assistant director who would profit from training abroad.

INTERVIEW No. 5Training for Cottage IndustrySIDB, Embroidery and Knitting Centre, (Nowshera), Peshawar (Established 1972)

Interviewed Mrs. Naneda Akhtar and Mrs. Zadyal Kakasahits, supervisors.

Located in a remote hillside village, with very old buildings and no facilities and no living quarters. 10 girls receive Rs 100,- monthly each stipend and are kept strictly in Purdah. Bare but pleasant place.

Hand knitting, hand embroidery.

Equipment: Several domestic sewing machines and 1 memomatic flat bed Singer machine. After receiving diplomas (1 year course) they either join government service or set up as cottage industries, usually as hand embroiderers because machines cost Rs 800 - 2,725, average = Rs 1,500. Raw material is bought from bazaar, say Rs 1,000 to start up and Rs 1,000 for food.

Machine	Rs 1,500
Raw material	Rs 1,000
Start up	Rs 1,000

Rs 3,500 required investment.

This unit could use 20 - 30 machines and they could be made to pay. Girls leaving do sub-contract work for traders.

Centre requires more teachers to do extension work - paid \pm Rs 800./month by government and usual fringe benefits.

Teachers need help from desired regional service centres and would like housing as the journey from Peshawar costs Rs 10.- daily and is disagreeable, by crowded country bus.

Need training in Service Centre in Lahore for designing.

To be effective this SIDB centre requires upgrading, by proper equipment. The two supervisors were dedicated and had good ideas.

With minimum finance independent cottage industries could be augmented - security could be based on the machine and the minimum of red-tape is called for. Motivation and incentive is urgently required.

INTERVIEW No. 6Jamiat-il-Ansar, Weavers and Power Loom Cooperative Society, Hyderabad

This very active society in Hyderabad old city has 63 units of 4 looms = 252 looms. It covers 50 % of the SI power looms in Hyderabad since starting operations in 1976.

IDBP has granted a revolving loan of Rs 1,265,000 for 14 months at 13.5 % to finance bulk buying of yarn direct from the mill sector. (In practice the chairman was being harassed by two income tax inspectors and a bank inspector; he was worried that the first repayment was due 2 months after date of loan contract.)

The cooperative could fix the price of yarn upon payment of a deposit, whereafter the mill allowed 10 - 12 days for full payment.

Actual prices	10 lbs of 20/1 = Rs 100
	10 lbs of 32/1 = Rs 124
Combined output	300,000 yds monthly for export via Karachi agents
	<u>450,000 yds monthly for domestic use</u>
	350,000 yds monthly total.

The cooperative has rudimentary warping, sizing, bleaching and dyeing for its members by very primitive inexact methods.

It arose from a group of pitloom and handloom weavers who bought locally made power looms from 1956 onwards. The present loom cost is Rs 4,500 - 10,000 and they are fully aware of the need to instal wider fully automatic machines. Present widths are 36,45 and 50"; 72" is now needed for export of suiting-width fabric.

The chairman wants to export through a government agency; he wishes to receive an export re-financing loan at 3 % p.a. after L/C has been opened.

At present the cooperative is selling through wholesalers at 2 - 3 months credit; even so they have 45,000 yds unsold.

Main Problem Areas

- Marketing
- Power cuts
- Spares for imported looms
- Finance
- Raw material supply
- Lack of nearby banks

CASE STUDY No. 1An Export Knitwear Factory, Karachi

The managing partner is proud of his cotton knitwear plant which is working exclusively for export. He is the biggest exporter of high quality knitted T.-shirts to Sweden and Denmark worth US \$ 2,000,000 p.a.

In spite of cramped city premises and old imported circular knitting machines he achieves quality accepted by two of the most exigent European markets. As a result of good management and high wages, e.g. Rs 2,500 monthly plus fringe benefits and 1 1/2 months bonus, he has no labour problems.

The firm has dyeing and finishing equipment in a nearby plant and also has an interest in a spinning plant near Karachi.

Their main problem, however, is suitable yarn for knitting. The only two mills making suitable soft clean yarns have a monopoly and even he has no guarantee of yarn supply. He either pays cash or 15 days payment in advance; there is a premium for such yarns which cost Rs 1.15/lb for 32/1 and Rs 1.35/lb for 40/1. Additional mills for hosiery and towel yarns are urgently required.

Electric power fails twice daily and telephone connections are bad.

In spite of everything he is successful at exporting, making use of cheap financing at 3 % p.a. on the basis of firm orders with irrevocable Letters of Credit.

He has plans for a most modern knitting and finishing mill costing US \$ 3,500,000. The partners travel constantly to their export markets and produce against agreed samples. They receive regular orders whereby they can organize the production without stoppages. The firm has its own resources as well as bank overdraft facilities.

Apart from complaining about GOP bureaucratic delays and raw material problems they were satisfied and optimistic. This sort of serious, hard working entrepreneur would merit full support for expansion after balancing their existing plant.

CASE STUDY No. 2A Hosiery Mill, Private Family Ltd. Company, Karachi

The main proprietor and chief executive, complained bitterly that there was no spinning mill making yarn to the correct specifications. The big spinners are all occupied with dumping warp twist yarn into export markets. "Hosiery" or knitting yarns require 25 % less twist than yarn for weaving; it should be clean, regular and free from knots and lumps. It must not develop streaks due to oil and grease at spinning; bleaching and dyeing faults are unacceptable. He said that there is no package dyeing of acceptable standard, i.e. first-class dyed/bleached yarn on automatically wound and cleared cones is unobtainable. First quality combed yarn is unavailable; blends of polyester/cotton are of poor quality and insufficient volume. Modern high bulk acrylic yarns and acrylic/cotton blends must be imported. The supply of raw material is their major problem.

The mill was started in 1954 by a family from Bombay. They had six imported circular interlock machines and two manual flat V. bed machines. This very small industry was expanded to medium scale by 1960 by the addition of 17 more simple circular knitting machines from FRG, UK and Japan, and 14 hand operated flat V. bed machines for sweaters and rib trimmings.

As usual in the knitting industry they diversified into interlock underwear, sweaters and simple T-shirts, i.e. they set up a garment making section mostly with cheap Japanese sewing machines in primitive buildings.

By 1975 they had assets of less than Rs 3,000,000, but by ploughing back profits and arranging bank loans they became an important industry by 1977.

They reorganized the mill buildings, machinery and equipment from 1977 onwards with the following results:

	1977/78	1978/79	1979/80	1980/81 (est.)
Gross Profit before Tax	150,000	900,000	1,500,000	?
Turnover	7,000,000	13,000,000	19,000,000	25,000,000

Until last year they increased their turnover by giving sub-contracts to commission knitters, who supplied large quantities of grey knitted cloth, whereby the output of the garment side was augmented, with the inexpensive addition of more modern sewing machines.

In 1978/79 they secured a loan of Rs 3 million from IDBP on mortgage of fixed assets, for import of 9 high production circular knitting machines of advanced design, and high output of special fabrics, including terry and velour, special rib machines for underwear and one outstanding full jacquard machine for fancy sweaters. Rs 5 million was borrowed for extra working capital at 3 % for export or 14 % for domestic sales.

Locally made boiler, kier, jiggers and winches have been successfully utilized, but the fabric drying (Pegg UK) had to be imported in the absence of locally made equipment. All other machines for knitting and sewing are new high speed productive imported makes.

Main Problem Areas

The sophisticated high production circular knitting machines were imported in 1978/79 when yarn was on the free list. But on 1.7.80 the Government banned import of yarn except for 500 kg p.a. per power loom or 6,000 lbs p.a. per knitting machine which was taken to be equivalent to 12 power looms.

5,000 lbs p.a. x 9 machines installed = 54,000 p.a., whereas the minimum requirements are 108,000 lbs p.a. on two shifts. Moreover, the G.O.P basis for yarn value is US \$ 4.00 per kg whilst the special yarns required are said to average US \$ 6.00 when heat set, dyed and put up on cones in knot-free condition.

Consequently their machines were idle at the time of visit.

He stated that the licencing authorities are using a criterion book dated 1965 for assessing import authoritisation; he should use such machines on 3 shifts for 24 hours daily on 6 days weekly, or 7 days continuous operation, in order to amortize the high investment cost.

He said that licences to import yarn should be restricted to industrial users, in order to avoid middlemen and corruption; the best solution would be to allow unrestricted import by reputable mills who would be prepared to provide proof of the production capacity of their machines based on information supplied by international machinery makers. He gave credit to the present Government for its assistance to industry generally and was sure that the licencing disincentives would be corrected eventually.

Note that this advanced and brilliant entrepreneur urgently requests the service of a technical support centre in Karachi. He claims to be uneducated himself (which is untrue!) but his younger brother was trained abroad by machinery makers and by attending a school of technology - he in turn is training a yet younger brother so that he can run the mill in his absence - and this young man will soon be sent abroad.

The entrepreneur is full of ideas for future expansion and balancing, which he recognizes to be a continuous process in future.

He wishes to branch out into:

1. Special infant clothing (made from brushed acrylic-viscose blends for softness).
2. High quality underwear for export, based on the latest 1 x 1 rib high production machines to overcome shrinkage problems.
3. Special P/C, P/A and acrylic/cotton blends, raised and brushed for jogging suits and tops.
4. Export quality T-shirts with high quality rib collar and finish for sleeves, pocket, emblem and with ability to supply striped material. Mainly from P/C 65/35 blend, or P 50/C 50 blend.

He estimates that Rs 7.5 million is the minimum further investment for this programme.

This case study illustrates the progress of a successful entrepreneur from very small to medium scale in the knitting subsector. This company is flourishing in spite of mis-applied Government control of yarn imports.

CASE STUDY No. 3

A Garment Industry in Lahore

The principal and chief executive, a retired wing commander has had bitter experiences in the garment industry during 10 years:

In spite of a fine location on ample land with excellent buildings and the finest imported machinery the mill is stopped for lack of orders and lack of working capital. This ideal factory should be exporting 150,000 garments p.a. because it has almost everything in its favour. What it lacks is cash, luck and professional management.

The factory started to produce for the domestic market in 1970 and then switched to export as soon as workers had been trained. A power shortage in 1971 was followed by the Pakistan/Bangladesh troubles.

In 1972 they accepted a large order for cotton bags at a fixed price and lost Rs 25,000, because the cost of raw material went up.

They next worked on small export orders through intermediaries at low capacity and incurred further losses.

They worked on export to a UK company without success and finally had to accept claims for 10 % of the value of shirts, blouses and trousers because of wrong sizing and design troubles.

He next discovered a very big department store chain in Italy which took his whole production and eventually went bankrupt, causing loss of the remainder of his working capital.

He next decided to guarantee the quality of raw material supplies by purchasing for cash from one of the best large mills, the Kohinoor plant belonging to the huge Saigol group. Once again disaster overtook them as the cloth was refused by exporters and they received no satisfaction from the suppliers.

Since 1974 they have been working at 35 % capacity for the domestic market. The principal owns a retail shop which sells a very wide range of garments. This has led to production problems and further losses.

The principal attributes much of his bad situation to a German DM loan for machinery and equipment which was equivalent to Rs 200,000 in 1970. Owing to changes in exchange rates this loan, which is in arrears, would need Rs 1,100,000 for its repayment. It is hoped by the principal that the loan will be cancelled!

He thinks that there is GOP bias against small industries. He also blames imports of used clothing and contraband for his failure. He now thinks that he take orders on CMT basis so that the mill can continue operating. He does not realise that the main trouble lies in his own lack of knowledge of a highly competitive and difficult industry.

A joint venture with a sound foreign company would appear to be the only viable solution; in this case the factory would require to be in the hands of competent professional management.

CASE STUDY No. 4

Large - Scale Mill with New Garment Section, Karachi

The new garment section was well installed on the same site as the vertical intergrated mill (which was not visited).

The garment section was located in good, well lighted, clean, orderly premises, with long cutting tables, band saw and hand cutters, Juki imported lockstitch, buttonholing and buttoning machines, and double overstitch hemmers.

The product seen was sophisticated printed and raised shirting material made for the US market.

The company has its own production of fabric, which is cut and sewn in one department and assembled in another, where it is also inspected and packed for export.

The designing is based on direct support from USA.

This standard of garment industry is ideal for export to the most advanced countries; it is unattainable by small industry concerns.

CASE STUDY No. 5

The proprietor has started the most fashionable garment industry business in Karachi within the last few years from nothing. He is a young socialite belonging to a very rich family; this brilliant entrepreneur failed academically but he had a flair for marketing, fashion, design and people.

He was the innovator in the manufacture of high quality ready made garments, which everyone said would fail because of the strength of small tailoring businesses and household sewing.

He finds the market very dynamic; demand for this boutique style range is increasing at least 20 % p.a.

He considers the garment industry of Pakistan to be in its infancy and very weak. It has enormous export and domestic potential and should develop very fast if it receives enlightened support from GOP backed up by IBRD/UNIDO and ITC.

He suggested that GOP should set up a special cell for made-up textiles which should use the best world garment industry consultants.

This agency should study the loans and incentives required; the best manufacturers should be selected for long term support and practical encouragement. Land and buildings should be furnished by GOP at low interest rates.

He withdrew from exporting in 1976. Although he discovered good customers, the mechanics of exporting boutique garments were too difficult and re-financing was too complicated for his small personally managed firm. In theory 80 % of the value of L/C could be borrowed at 3 % p.a., but small firms are unable to cope with documentation.

The garment industry requires little investment for fixed assets, but needs massive working capital to cushion production from the problems of securing suitable fabrics. Banks are dilatory, autocratic and inflexible. Their main interest is to get watertight security, preferably first and sole mortgages on fixed assets worth many times the amount of the loan.

There are thousands of suitable entrepreneurs who could make a success of exporting, but they need government loans at preferential rates of interest. If they are well chosen, and properly supported, the number of failures should be minimal.

He suggested that GOP should make a practical study to find out how and why Taiwan, S.Korea and Honkong have been so successful.

He expected that they had achieved world dominance in garment making by a fruitful collaboration between government, raw material suppliers, and garment industry entrepreneurs. In many cases joint ventures had accelerated the pace and variety of development.

Showrooms and warehouses in centres like New York, Frankfurt, Amsterdam, London and Paris would be very helpful.

He said government policies were often very sound, but execution was too bureaucratic; in his opinion it would pay GOP to restructure the whole basis for incentives to the textile and garment industries, granting little or nothing for raw cotton and yarn, modest incentives for cotton fabrics, and much larger incentives for garment industry.

CASE STUDY No. 653 Garment Industries, Ghadialy Building, Karachi

53 small tailoring and garment industries were visited in one building near the commercial centre of Karachi. Interviews took place with the proprietor of one. Garment industry and four other entrepreneurs varying from 3 - 100 sewing machines. The majority were small tailors working in one small crowded room with 4 - 5 employees sitting around the work area. Such typical enterprises specialized in formal shirts, or T-shirts, or trousers. They buy what raw material they can find from large mills for cash; they have to give 2 - 3 months credit to wholesalers because of market saturation by over-production. Although quality of sewing was surprisingly high the small scale of operation was unsuited to exporting, and costs were too high because of excessively high prices for locally produced fabric.

Most proprietors complained about labour problems; workers drift from one shop to another in order to get increased wages.

All garment makers complained about financial problems, both for fixed assets and for working capital, i.e. cash purchases of cloth and sales of garments on credit. Many were being forced to do cut, make and trim work for converters owing to lack of money for raw material.

The proprietor of the garment industry said faster and better equipment was required for export work although he admitted that locally made sewing machines were suitable for small tailors.

He suggested custom built factories to be built on industrial estates with service centres for technical support, training and marketing of export goods. Direct sales to chosen foreign markets are required instead of dealing through local agents.

In his opinion the ideal scale would be 100 sewing machines with 150 workers, including preparing, cutting, sewings, assembling and packaging. The output should be 1,000 shirts daily in 8 hours and the estimated capital would be Rs 2,000,000.

Another larger entrepreneur was interested in a loan to put up a factory of 200 sewing machines on an industrial estate for export preferably as a joint venture with a foreign concern which could furnish the fabric, i.e. to work on C.M.T. basis only.

The conclusion is that about 50 of the small tailoring concerns were unsuitable for export owing to smallness of scale. But at least 3 of the larger entrepreneurs have the ability to branch out into export production, provided they can secure the necessary loans and facilities.

CASE STUDY No. 7A New Towel Industry, Peshawar

This by world standards very small-scale modern terry towel industry has an investment of Rs 20,000,000 in fixed assets and Rs 800,000 for working capital.

It is based on 16 Saurer Terrymatic high speed looms of which 4 are fitted with jacquard motions. The smallest economic unit is 24 - 36 looms because a smaller scale is inadequate to support the ancillary plant and the technical management required.

The small production unit is housed in 4 acres of massive buildings on a 15 acre industrial site in a huge new estate, which is 10 miles away from the city and on which there is no medium scale industry. There is no other high quality towel maker in the province and there is no accommodation for workers in the vicinity.

The choice of looms and process machinery is ideal for an export oriented project; but 25 % of looms are already stopped for lack of spares and absence of technical skill, and the remainder will also stop unless action is taken in time. The erector from Switzerland was only present for one month, when he was exclusively occupied in setting up machinery. The usual delays connected with import licences will make it difficult to secure the electrical spares, loom spares and punched cards without which the factory cannot operate.

The managing director was away in Germany for marketing. In the meantime the 4 jacquard machines produce towelling which is unmarketable because of its defects and its high prices. It was a mistake to commence production with jacquard designs which are too complicated for a new factory.

The financial structure appears to be unsound as there are loans of Rs 13,000,000 compared with equity of Rs 7,700,000. The working capital of Rs 800,000 is totally inadequate for a company which must buy yarn for cash, and which needs Rs 2,000,000 to finance the two months minimum stock required. In any case, losses of Rs 2,500,000 to date would have extinguished their working capital.

This case study of a terry towel factory requiring an investment of Rs 22,800,000 for a small scale industry indicates:

1. The danger of choosing capital intensive advanced imported machinery without the knowledge and experience required to run it.
2. The need of fully trained management preferably by association with established foreign terry towel specialists.
3. The inescapable requirement of professional project studies to establish the scale and investment needed for a viable unit.

4. The need to arrange sound finance including ample working capital and sufficient imported spare parts for several years.
5. The choice of a suitable location with accomodation for staff and worker . .
6. The desireability of having a properly equipped service centre before attempting to start unknown technologies in decentralized areas such as the North West Frontier Province.

CASE STUDY No. 8A Small Towel Industry, Karachi

The proprietor and his partner came to Karachi from Bangladesh in 1973. Both are university educated and they are managing a small towel plant of 14 Dobby looms of local manufacture, costing Rs 20,000 to Rs 30,000 per loom.

Only 10 % of 2nd grade towelling is sold locally and 90 % is exported regularly to UK, Canada, Australia and New Zealand.

Yarn is bought for Rs 10.50/lb from one mill through an agent.

Their main problem is export quota to EEC which has been fixed at only 45,000 yds p.a. Lack of finance is an equally acute problem:

1. They have no facilities with banks.
2. Credit for yarn purchases costs 3 % per month.
3. They need working capital to increase exports by 25 %.

This case study clearly illustrates the problem of insufficient finance which is strangling exports. The partners are competent and credit worthy.

CASE STUDY No. 9Canvas and Tentmaking Company, Karachi

The engineering director said that there had been a slump in canvas for several years which had hit SSI plants of 10 - 16 looms, many of which had shut. This explained several abortive visits to SSI units, which were closed. Meantime the instability in ME and the 1 million refugees from Afghanistan had stimulated trade; there had also been a world increase in the demand for camping equipment. The industry is now working flat out.

The mill sector has been afraid of Government interference and unionisation; they have therefore stopped many looms and sold some off. The way is open for SSI canvas makers but the tent making industry is not suitable for very small units. Such firms are vulnerable to pressure from the mill sector; only a few large mills make satisfactory coarse twisted yarn for canvas. It is a bulk industry which needs high working capital and assured outlets. Marketing is a major problem for SSI units because canvas is a specialized field which suffers from severe fluctuations.

It is a mature industry of small or medium scale by world standards. Even they would welcome credit for investment purposes, e.g. modern 2 for 1 twisting at low interest would strengthen their manufacture by reducing cost and improving quality.

Imported looms are too expensive; locally made looms are of poor quality; but they cost Rs 18,000 for a heavy duty 72" model whereas a picanot conventional automatic loom costs Rs 125,000. Local looms require ungrading.

He has an advanced line of production for sales to Western countries and a very labour intensive second line for exports to Middle East countries.

He welcomed the idea of joint ventures for technical support and marketing stability. Such joint ventures were impossible for SSI people unless larger units might work on a CMT basis in special port areas for overseas tent makers. Such arrangements could not be based on the haphazard production methods of SSI units especially if they did not have steady sources of supply of quality yarn.

CASE STUDY No. 1oVertically Integrated Textile Mill, Islamabad

Large scale spinning, weaving and finishing Ltd. company which also supplies yarn to small industries.

Interviewed by chief personnel officer, with chief managers, both technical and financial.

This very large mill in immense property is well installed by 195o standards in all respects.

Machinery: Basically Toyoda 1951 Spinning with 5o,ooo spindles. 75o Sakamoto 36" looms changed locally to 72" reed space for export. One section is being modernized at spinning with imported 197o technology Japanese machines. Hergeth Opening (fair). Finishing machinery is about 196o technology with few modern machines.

Wage structure: In addition to Government controlled wage of Rs 55o monthly a 8 loom weaver gets:

- Free housing or allowance of	Rs	55
- Attendance allowance	Rs	4o
- 4 months bonus + 1 month holiday = $55o \times 5/12$	Rs	23o
- 14o yds subsidized cloth = equivalent 1oo m : 12 x 6	Rs	2oo
- Price-controlled sugar, subsidized flour, pulses, tea., soap at cost. 5 % incentive bonus est. \pm	Rs	1oo
- Basic wage	Rs	55o
		<hr/>
- Take home pay equivalent		Rs 1,175 p.m.
		<hr/>

Overall cost structure from accountant:

- Wages	2o - 25 %	Note very high % includes 7 % social security Rs 1oo education p.a., 5 % old age pension, 6 % provident fund
- Administration	1o %	
- Raw material	4o %	
- Dyes + Chemicals	4 %	
- Stores, power	11 %	
- General	1o %	
	<hr/>	
	1oo %	
	<hr/>	

Market: Yarn	7o % exported	3o % local (4o days credit to dealer)
Grey cloth	6o % "	4o % "

Loom allocations: 4 - 6 or 8 looms/operative, average 6. 65 % efficiency.

The technical manager complained about lack of marketing although he has developed many interesting original cloths, e.g. towels, gabardines, denims (poor), checks with different blends:

Raw material prices:

- Domestic cotton Rs 430/maund (82 lbs) = 524/100 lbs (1980)
- Domestic cotton Rs 400/maund (82 lbs) = 488/100 lbs (1979)
- Export cotton Rs 500/maund (82 lbs) = 610/100 lbs (1979)
- Imported polyester cif 1 1/2 den. 1 1/2" = 780/100 lbs (1979)

Has no yarn stock today.

Output: 9.6 million yds. p.a. + yarn from 5,840 spindles ± 1 million lbs = 3.2 million lbs yarn from 19,160 spindles.

Working 3 shifts 6 days but will work 7 days soon with 4 group system as prospects and orders are improving.

General information: 172 mills in country of which domestic market only needs 50%.
1" staple average cotton available because crop estimate is 4.4 million bales and mills consume 2.5 million.

1 million lbs yarn available for export and local market including SSI who get any surplus.

Workers: Ample supply, but best going to Arab countries for salaries 10 times Pakistan rates.
Has trained excellent upper and middle management.

Full yarn and cotton testing, weaker cloth testing.

Exporting yarn to Hongkong and Europe, cloth to UK, Australia, Canada, US, Japan, Iran.
(Khaki drill).

Is No. 1 mill in NWFP by training and motivation although machinery is not most recent.

Siddiqui fully automatic looms \pm have bobbin change, weft stop and crankshaft weaknesses.
4 looms per operative - but might give 6.

Comment: A well managed 1954/1970 type mill.

CASE STUDY No. 11Large Integrated Textile Mill, Nowshera, near Peshawar

Supplier of yarn to SSI.

Supplier of surplus yarn to SSI sector through wholesalers.

interviewed by Technical General Manager and staff.

Large vertically integrated cotton spinning, weaving and finishing plant on ample space. Fair, and also recent beautiful brick buildings for offices.

Founded 1954 - bought by a local family in 1962. Present chairman received a whole bank, money and this mill as his share of the family interests. Brothers have even greater industrial and commercial interests.

Machinery: 25,000 spindles 2,300 workers
428 automatic looms (328 only running, so as to release cotton yarn for export and domestic use.)

Well designed and reasonably modern finishing. Uses cotton and polyester/cotton blends. 1 1/2 denier, 1 1/2" staple. Spinning mainly Howa Japanese 1950 type opening and carding, plus one modern line, Howa 1972. 4 major cleaning point opening, crosrol card conversions, but with only medium diameter cans.

2 Yersamatic Drawframes, old Rieter Combers \pm , 4 Rovematic Rovings and Howa Ringframes with SKF PK 220 Drafting and some Scao Lowell with Magnedarft, not functioning well on coarse counts.

Average count about 24 because of 30's combed and 42's P/C blends. 65/35, but manager prefers 50/50.

Murata obsolete winding, reels (locally made)

Hacoba " "

Huge inefficient Barber Colman machine \pm 450 spindles for 1 knotter.

Obsolete warping.

Obsolete but acceptable sizing, heavy size application over 12 % to counteract poor atmospheric control at weaving. 308 Sakamoto automatic 1954 looms and 120 Siddiqui 72" looms fully automatic 145 picks per minute. Overall efficiency 70 % with 87 % relative humidity. Very sticky.

Many stripes and some colour woven box motions.

1964 finishing, old Vollenweider Shearing - after inspection of all cloth.

Open width Stork Bruckner with washing, shrinking, drying.

Mercerising - old Kleinewerfers. Stenters, baking/developing.

Sulphur stock dyeing for traditional Malatio black cloth used by shoos and low income villagers.

Raw material: Mainly local cotton financed by banks at 14 % + 1 % charges.

Testing: Have full yarn and cotton testing, some cloth testing.

Union: Very fiendly and cooperative. Good workers.

Opinion: Local makers could copy Picanol loom for † US \$ 4,000
Siddiqui are making automatic loom for † US \$ 3,500

Comment: SSI weavers receive whatever yarn is surplus to requirements through wholesalers.



