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MARKET SURVEY ON PRODUCT DIVERSIFICATION FOR PAKISTAN MACHINE TOOL FACTORY

CONTRACT NO: DP/PAK/84/012

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National Management Consultants (Pvt) Ltd.

MARKET SURVEY ON PRODUCT DIVERSIFICATION FOR PAKISTAN MACHINE TOOL FACTORY
CONTRACT NO: DP/PAK/84/012

FEBRUARY, 1993

SUBMITTED TO:

MR. FAZLUR REHMAN

MANAGING DIRECTOR,
PAKISTAN MACHINE TOOL
FACTORY (PVT) LTD.,
LANDHI, KARACHI.
PAKISTAN.

&

MS. M. LATRECH

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SUBMITTED BY:

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National Management Consultants (Pvt) Ltd.

Mr. Fazlur Rehman,
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Ref : NMC/JA/6592
March 1, 1993

Ms. M. Latrech,
Contracts Officer, Contracts Section,
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P.O. Box No. 300A-1400,
VIENNA-AUSTRIA.

Subject: **FINAL REPORT - MARKET STUDY ON PRODUCT DIVERSIFICATION FOR PAKISTAN MACHINE TOOL FACTORY PROJECT NO. : DP/PAK/84/012 CONTRACT NO. : 91/219/ML**

Dear Sir/Madam,

We are pleased to enclose the Final Report on the aforesaid subject.

The subject Report has been finalised in light of UNIDO's comments received vide their letter No. DP/PAK/84/012 dated 2-11-92, PMTF's comments received vide their letter No. DO-DGM (T & P)-500-123 dated 1-2-93 and our responses to both UNIDO and PMTF sent vide our letters NMC/JA/6478 dated 31-1-93 and NMC/KS/6578 dated 17-2-93 respectively.

As desired, different sections of the Report have been further strengthened. This, inter-alia, include further elaboration of the criteria for product selection, additional information regarding major risks and efforts needed from PMTF to be successful and further elaborations in respect of data accurary level and representativeness of researh findings. Initial estimates for manpower and other costs as desired by UNIDO have also been furnished under relevant sections with regards to requirement of additional work. Furthermore, a writeup on financing posibilities has been provided in the last section besides addition of charts under relevant sections.

Head Office:
Lahore Office:
Islamabad Office:

National Management Consultants (Pvt) Ltd.

We understand that the submission of this Report marks the completion of this assignment.

In the end we would like to thank the managements of PMTF and UNIDO for reposing confidence in us. We look forward to assisting PMTF in undertaking further work for implementing the recommendations of this study.

Assuring you of our best services, we remain,

Yours faithfully,
for NATIONAL MANAGEMENT CONSULTANTS (PVT) LTD.

DR. JUNAID AHMAD
Managing Director.

Encl: Ten Copies of the Report for UNIDO
One Copy of the Report for PMTF

KS/fi

PREFACE

We are grateful to UNIDO and the management of PMTF for giving us an opportunity to undertake this assignment.

The engineering industry or the capital goods industry is the backbone of any economy. It has the capability to reproduce products of its own nature on the one hand, plus has the capability to produce a multitude of consumer goods or consumer durables. The stronger is the capital goods industry of any country the stronger and more broad based is its capability to produce a variety of goods ranging from pins to planes.

Pakistan Machine Tool Factory (PMTF) since its establishment in 1968 has been engaged in the production of capital goods or parts thereof. It is a large manufacturing facility with excellent metallurgical treatment and forming facilities.

Having faced problems of dwindling turnover due to reduced market for its products, PMTF thought it fit to look for diversification of its present product lines which could utilize its production capacity and provide it with the type and quantum of turnover needed to sustain its operations profitably.

This report presents the results of a qualitative survey carried out in this regard and suggests areas where PMTF could further do some exploring to help it out of its current predicaments.

In this context the consultants gratefully acknowledge the help and guidance received from UNIDO, from PMTF's senior management staff particularly its Managing Director, Mr. Fazlur Rehman and its Deputy Managing Director, Mr. Masood Ahmad Khan.

We are grateful to Mr. Mahboobul Hasan, Mr. Anwar Jabbar Khan and Mr. Mohammad Yusuf Khan for their expert opinion and advice on this study.

The consultants also wish to place on record their gratitude to all the public and private sector respondents who willingly provided data and information for this study of National importance.

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MR. JALLEEL BANGASH	Consultant

INDUSTRY EXPERTS

MR. MAHBOOBUL HASAN
MR. ANWAR JABBAR KHAN
MR. MOHAMMAD YUSUF KHAN

FEBRUARY, 1993

EXECUTIVE SUMMARY

Pakistan Machine Tool Factory (PMTF) was established in 1968 with the prime objective of manufacturing machine tools. It later diversified into the manufacture of automotive transmission parts and aluminum die cast components. However, faced with depressed demand and low capacity utilization it approached UNIDO for assistance, who assigned the job of carrying out a market survey for product diversification for PMTF to National Management Consultants (Pvt) Ltd. (NMC). NMC adopted an agreed methodology and scope of work and this report is the outcome of the work done by NMC consulting team on this survey. The report comprises of four chapters as summarized below.

CHAPTER 1

Chapter 1, deals with the background, the objectives and scope of work and the manner in which the whole survey exercise was planned and executed. Research tools used and support material appear as annexures to the report. The qualitative nature of the survey and its limitations have also been dealt with and the methodology flow chart and coverage plan have also been spelled out.

The prime objective of this study is to develop a portfolio of products that PMTF may diversify into based on a qualitative survey of ten selected sectors. The major limitation of this study is that being the first survey of its type for PMTF, the short duration of the study and the qualitative nature of the field survey, the results obtained are also qualitative in nature and do not provide accurate quantitative estimates for the potentially viable products that may be added by PMTF for manufacturing and marketing.

CHAPTER 2

Chapter 2, attempts to overview the engineering goods sector in Pakistan and its growth over the years. It highlights the fact that out of the six sub-sectors, i.e. Basic Metals, Metal Products, Mechanical Machinery & Equipments, Electric Goods, Electronic Goods and Transport Equipment manufactures, the Mechanical Machinery & Equipment sub-sector's growth has taken place at a slower pace. The Chapter also indicates the burden that excessive imports of Engineering Goods place on Pakistan's Economy and pinpoints the Textile sector for highest annual imports of textile machinery parts and quantum jumps recorded in their import trend.

CHAPTER 3

Chapter 3, provides details of the survey results wherein 11 categories of respondents were interviewed indepth. These respondents were either manufacturers or importers of machine tools and hand tools or users of machine tools like surgical & cutlery goods manufacturers, textile industries, auto repair workshops, pumps & valve manufacturers, etc.. The survey results revealed need for balancing and modernization and gaps in production and demand

in certain areas. The low quality of output by smaller manufacturers due to lack of requisite facilities have also been detailed in this Chapter. For each product category surveyed comments and suggestions have been give at the end of each section.

CHAPTER 4

Chapter 4, starts by first listing the criteria which were used for developing the recommendations. The discussion then moves on to identification of products and parts which will provide the necessary diversification avenues and their annual market potential. Short, medium and long range manufacturing and marketing plans have been detailed which indicate the possible additions to PMTF turnover and as shown in Table-1.

TABLE 1

SUMMARY OF RECOMMENDATIONS

S.NO.	TIME SPAN	TURNOVER OF SUGGESTED PRODUCTS/PARTS
1.	Short range 6-12 months with minimal investment	409 million
2.	Medium range 1-3 years with 1-7 million additional investment	372.7 million
3.	Long range 3 years or more with over 7 million additional investment	11 million
	TOTAL	792.7 million

The Chapter also elaborates on additional work required to be done by PMTF to attain the above stated potential in the form of detailed market and technical studies, design and development work, technical collaboration arrangements with reputed foreign manufacturers, re-orientation of company's marketing approach and initial test marketing of selected products.

CONTENTS

CHAPTER 3: SURVEY RESULTS

CHAPTER 4: RECOMMENDATIONS

LIST OF ANNEXURES

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The engineering goods industry in Pakistan produces various types of products. These include vessels and piping, machine tools, hand tools, plant and equipment, various types of pumps and valves, electrical goods, machinery for textile and many other items, automotive parts and the like.

Both organized and unorganized sector units are in operation in the engineering goods industry and the contribution of the unorganized sector is almost as much as that of the organized sector.

Certain large units in the organized sector are very well organized, some of which are in the public sector whereas others are in the private sector.

Pakistan being an agricultural country for the most part the engineering goods related to agriculture are most in demand, these include tractors, motors and pumps and agricultural implements. In turn, engineering goods needed to produce these are demanded. Related to this demand is the demand for domestic appliances like electric fans, refrigerators, airconditioners and transport equipment. Naturally engineering goods required to produce these appliances are also demanded as well.

Machine tools may be termed as basic engineering goods in the sense that no metallic product can be produced without their help. Machine tools include lathes, milling machines, boring machines, shapers, etc.. The machine tools can be of varied designs and specifications depending upon the type of output required from them. The complex types are naturally more costly and can perform more exacting jobs.

Pakistan Machine Tool Factory (PMTF) was established in 1968 with the primary objective of producing high precision machine tools. The built-in high precision required the charging of a high price. On the demand side, however, users of such precision machine tools were found to be limited. Since the Pakistan Machine Tool Factory was established with facilities for die casting, heat treatment, metallurgical testing, etc., it took upon itself the contract manufacture of automotive parts for the production of which its facilities were most suited.

It started the exercise by producing Bedford truck parts. Later Bedford had to close operations and then the Pakistan Machine Tool Factory having acquired the necessary skills contracted and started manufacturing parts for Fiat, Messey Ferguson and Ford tractors. Ford tractors subsequently wound up their operations and Messey Ferguson and Fiat lowered their demand as a result of a depressed market demand for tractors in Pakistan. Side by side Pakistan Machine Tool Factory started manufacturing aluminum die cast parts for motorcycles.

With all the above exercises Pakistan Machine Tool Factory could come at best to 30-40 % of its capacity operation. This resulted in a search for alternative products that could help utilize the idle capacity on the one hand and add profitable products to PMTF's product line on the other.

PMTF sought the assistance of UNIDO who under a contract assigned the job of undertaking a product diversification market survey to National Management Consultants (Pvt) Ltd., with the following objectives and scope of work.

1.2 OBJECTIVES AND SCOPE OF THE STUDY

The study objectives are to make recommendations for a product mix of commercially viable and marketable products for PMTF.

The objectives and scope of work as stated in the TOR are:

- o "To determine the demand for machine tools, textile machinery, leather goods machinery, other specialized machineries, automotive transmission sets, components, and die casting in the last five years in various user industries.
- o To determine imports of various types of above stated machine tools, equipment and automotive components in the last five years.
- o To analyze the obtained data in terms of quality and quantity as well in terms of cause and effects.
- o To determine the estimated future demand of user industries and the trend of imports.
- o To make recommendations to PMTF based on the results of above activities to diversify their product line."

The statement of work included in the contract is shown as Annexure 1.

1.3 RESEARCH DESIGN AND METHODOLOGY

The research design and methodology of the study which NMC adopted consisted of the following activities. A flow chart showing various work stages and activities appears as chart 1.1.

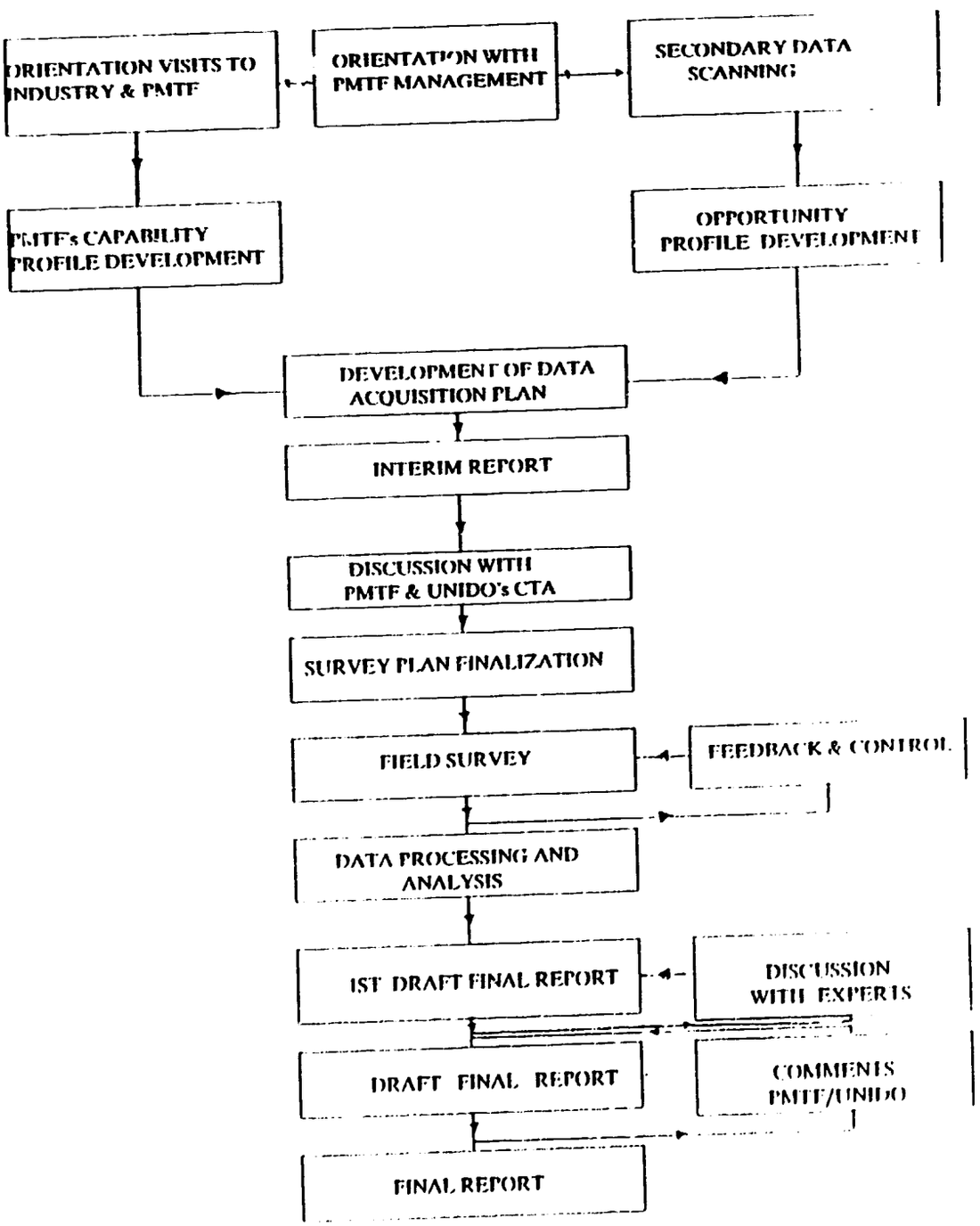
1.3.1 PRE SURVEY WORK

Prior to the start of the study NMC consulting team spent time in orienting itself to PMTF's activities thoroughly. This was thought necessary to get an understanding of the capabilities that PMTF possessed both in terms of skills and equipment. Lists of machinery installed was obtained along with the sales

CHART 1.1

RESEARCH DESIGN AND METHODOLOGY

FLOW CHART



breakup for the last five years. Discussions were held with various senior management officials to acquaint the team with the total functioning of PMTF its departmentation, its facilities and procedures adopted for production, quality assurance and marketing.

In order to broaden the consulting team's perspective on the engineering goods industry, particularly the units manufacturing products similar to PMTF, visits were made to the following units in Karachi:

- o Agriauto Industries Ltd.;
- o Bolan Castings, Ltd.;
- o Naya Daur Motors (Pvt) Ltd.; and
- o M.R. Associates.

At all the above mentioned units the consulting team familiarized itself with the production technologies, the available facilities, the capacity operations and problem areas. Agriauto, Bolan Castings and Naya Daur Motors (Pvt) Ltd., were found to be coming out of their difficulties and carried the hope of turning their operations profitable in 1991-92 period. M.R Associates were faced with problems similar to PMTF and were thinking of product diversification as well.

1.3.2 DEVELOPMENT OF DATA ACQUISITION PLANS

Brain storming sessions were held among team members to develop data acquisition plans both for Primary and Secondary data collection. Available publications and reports ware selected to develop secondary data sources that were most up-to-date and reliable and could be used to highlight and supplement the primary data and information gathered. The survey questionnaires were carefully designed keeping the survey objectives in view. These were discussed thread-bare among the consulting team and the final version was pre-tested to remove any problems that may arise in their actual administration. The pre-tested questionnaires were then presented to PMTF management who approved them without any change.

In order to ensure representativeness of primary data collected through questionnaires, lists of respondents to be covered were carefully prepared. The names were obtained from manufacturers associations, trade directories, Vendor Directory the Special Technical Cell of the Ministry of Production Government of Pakistan and other reliable sources. Respondents not listed were included by the surveyors on the spot. Selection of the respondents was made keeping in view their size, turnover, product mix, type of machinery and equipment, location and their markets. One of the objectives was to cover more of the investment while covering a given number of units within a sector. Accordingly medium and larger size units have mostly been selected.

1.3.3 INTERIM REPORT

An Interim Report was presented both to UNIDO and PMTF two months after initiation of work. The Interim Report spelled out in detail the objectives, background and methodology to be adopted for carrying out the survey. The report included questionnaires, coverage plan, secondary data sources and respondent lists.

The Interim Report was discussed at length with PMTF management and the CTA from UNIDO for this assignment and comments received were incorporated in the final survey plan. An additional respondent category of Automotive Repair Workshops was included at PMTF's request. It was explained to PMTF management that it was a preliminary qualitative survey and further investigations based on the survey results will be required to be undertaken by PMTF. This viewpoint was endorsed by the Chief Technical Advisor of UNIDO who also took part in the discussions as stated above.

1.3.4 FIELD WORK

The survey was carried out with the help of questionnaires and interview guides that were approved by PMTF Management. The questionnaires were pretested before final administration. Separate Questionnaires were designed for each sector. The studied sectors included machine tool manufacturers and importers; hand tool manufacturers and importers; second hand machine tool importers; leather goods machinery manufacturers; pumps and valves manufacturers and users of machine tools like textile, surgical & cutlery goods manufacturers. DFIs and banks were also surveyed to find out their opinion about local machinery financing and the measures that they have taken to increase the share of locally made machinery in any given project financed by them.

In view of the highly technical nature of the assignment and the requirement of reliable and accurate data, NMC deployed its in-house consultants from the engineering and marketing disciplines to undertake the survey. Before the start of the actual face-to-face interviewing exercise all the consultants were thoroughly briefed on the questionnaires and the overall survey design.

The survey was conducted at various locations to ensure proper stratification alongwith obtaining responses in clusters as the various industrial units were located. For example, 90 % of the cutlery and surgical units are located at Sialkot and electrical goods manufacturers are located at Gujrat. Textile units are spread at various locations like Multan, Faisalabad and Karachi. Thus a representative number was visited at each location so as to take out, as far as possible, a representative sample from the total population. Almost all the automotive assemblers are located at Karachi and they were interviewed at this location. Same was the case with DFIs and commercial banks.

At the time of submission of the Interim Report PMTF had requested NMC to additionally include auto repair workshops in the survey. This was done and

some units were visited at Lahore while others were interviewed at Karachi. Subsequently on the request of PMTF, an initial survey of turbine users was also undertaken and the findings have been recorded.

Through-out the survey exercise a system of daily retrieval of questionnaires was followed so that the field work could be closely monitored. This action helped a great deal in ensuring proper filling of the questionnaires and resolution of on-the-spot difficulties thereby maintaining proper quality and accuracy of the data gathered.

The questionnaires were subsequently edited and tabulated. Certain questionnaires were rejected for incomplete or inaccurate data. Data validation was also carried out. All this was done to ensure higher accuracy level of the collected data.

Mock charts and tables were prepared to accurately record the gathered data and to produce meaningful tabulations.

Table 1-1 gives a breakup of questionnaires filled for each category alongwith the location details of coverage.

It also shows the actual number of questionnaires filled excluding those rejected. The number filled in certain categories appears lower then planned since it was felt during the survey that with the number actually filled the required information was already in hand and covering more units meant simply a duplication of work.

1.3.5 DISCUSSIONS WITH EXPERTS

In order to make the Draft Final Report more meaningful, succinct and clear, discussions were held with known experts (names mentioned in the Preface) in the engineering field for their knowledge of the industry and the economy. The experts suggested certain modifications in the contents from various technical angles. They appreciated the fact that though the survey was qualitative in nature the recommendations presented were not only meaningful but were spring boards for PMTF to undertake further immediate in-depth investigations.

1.3.6 PREPARATION OF FIRST DRAFT REPORT

The first draft report was prepared in a painstaking manner and detailed discussions were undertaken among the consulting team to evolve the manner of presentation of the findings and the contents of each chapter. The study limitations were spelled out so that the results could be viewed in the right context. The recommendations were thoroughly probed upon and products /parts which could be easily fitted into the manufacturing capability of PMTF were recommended. Alongside, the potential market for each product/part had been the key for recommendations. Additional activities that PMTF will have to undertake were also defined.

TABLE 1-1

COVERAGE PLAN FOR PMTF SURVEY

CITY	AUTO	VALVES	M/TOOL	ELEGT	CUT/SURG	H/TOOL	TEXTILE	LEATHER	DFI/BANKS	IMPORTER MT/TOOL	IMPORTED 2ND HAND MT/TOOL & OTHER MACHINE	TOTAL
RAWALPINDI	-	-	-	-	-	-	-	-	-	1	-	1
TAXILA	-	-	1	-	-	-	-	-	-	-	-	1
ISLAMABAD	1	1	1	1	-	-	2	1	-	5	-	12
HATTAR	1	-	-	-	-	-	-	-	-	-	-	12
GUJRAT/KASUR	-	-	4	2	5	1	2	3	-	-	-	17
WAZIRABAD	-	-	-	-	2	1	-	-	-	-	-	3
GUJRANWALA	-	4	4	2	-	3	-	-	-	-	-	13
DASKA	-	1	-	1	-	-	-	-	-	-	-	2
SIALKOT	-	-	-	1	13	1	1	2	-	-	-	17
LAHORE	5	5	7	5	3	4	-	3	-	-	-	32
FAISALABAD	-	-	-	-	-	-	8	-	-	-	-	8
SHEIKHUPURA	1	-	-	-	-	-	-	-	-	-	-	1
MULTAN	-	-	-	-	-	-	4	1	-	-	-	5
KARACHI	10	4	-	-	-	5	5	1	-	-	-	37
TOTAL COVERED	18	15	17	12	22	15	22	11	4	10	4	150

An executive summary was added at the beginning of the report to present the findings in a lucid manner.

1.3.7 DISCUSSIONS WITH PMTF MANAGEMENT

The first draft report prepared as above was submitted to PMTF and their views/comments were solicited. Detailed discussions were subsequently held with the senior and top managements of PMTF for this purpose.

1.3.8 PREPARATION OF DRAFT FINAL REPORT

Draft final report was prepared by incorporating PMTF's comments on the first draft report received during the aforesaid discussions.

1.3.9 PREPARATION OF THE FINAL REPORT

The draft final report completed as a result of the aforesaid efforts was sent to UNIDO, Vienna for their comments in September, 1992 Final. Comments from UNIDO on the same were received in January, 1993. Further strengthening of certain areas of the report including incorporation of additional information in the draft final report in the light of comments received from UNIDO was undertaken in order to arrive at this final version of the report. This inter-alia included more explicit recommendations in operational terms with regards to efforts required by PMTF to succeed and the risks involved, further elaboration of the activities identified for undertaking additional work, general improvement in presentation through increased usage of charts and graphs, addition of information on financing possibilities, etc..

1.4 LIMITATIONS OF THE STUDY

The major limitations of this study are briefly discussed below:

- o The survey carried out by the Consultants is the first of its kind ever conducted for PMTF. This survey is basically qualitative in nature and attempts to bring to focus areas or products which will need to be studied in detail both from engineering and marketing stand points before actual solutions could be found in the form of products that PMTF could diversify into.

- o The sample used for collecting the data can at best be called a convenience sample. Respondents were visited in locations where they were clustered. As such the results of the sample cannot be statistically applied with great degree of confidence to the total population within a given category.

- o Comprehensive details on specifications, prices and users could not be obtained in a survey of this nature where the objective basically was to

collect generalized data on products that were considered attractive diversification opportunities. Even then in some cases information has been gathered which may be regarded specific. Engineering goods in themselves are a product group whose development requires both time and effort starting from design to the development of specifications for materials and manufacturing instructions. As such broad specifications given as a result of this survey will need to be made more specific by further studies.

- o The number of respondents contacted for each product group was also small (10-15) in certain areas. This was done to get an idea or a feel about a given product group. The responses are individualized as such, and though such responses have been reported wherever found appropriate a tabulated result would lack credibility.

- o The secondary data sources used were not up-to-date. This could not have been avoided since government publications seldom provide break-up figures of an uptodate nature. Thus though the engineering goods in total could be seen in published data their breakup into the defined sub-sectors could only be estimated. Reliance had therefore to be placed on Expert Working Group Report for 7th Five Year Plan and other reports emanating from independent sources.

- o Demand and supply figures represent estimations. The Census of Manufacturing Industries has not been updated beyond 1985-86. As such projections have been developed in defining sub-sector demand and supply figures. Recommendations finally given provide details of products with potential. Additional investment figures and similar details as desired by PMTF cannot, however, be specified in concrete terms at this stage.

- o It should be noted that this report is reflective only of the survey findings and it does not include any considered opinions, except where it has been expressedly stated.

- o This report as such should be read in the context of it being a preliminary survey, qualitative in nature and the results throwing light on areas that PMTF can start investigating further and could come up with specific positive answers within the next few months time.

CHAPTER 2

OVERVIEWOF ENGINEERING GOODS INDUSTRY IN PAKISTAN

2.1 INTRODUCTION

Before Pakistan came into being in 1947 only primary goods were being traded for manufactured products produced elsewhere. Immediately after independence the Government opted for industrialization. Priority was given to industries processing locally available raw materials. Incentives were provided to encourage private investment in manufacturing. In 1954 PIDC was established to set up manufacturing units considered to be of national importance which private investors were unwilling to establish with the provision of disinvestment once they had become viable. A high proportion of initial investment in the engineering industries represented initiatives taken by PIDC. Investment in engineering sector increased quite markedly in the second half of the 1950s. In 1959/60 the value added in engineering was 15% as compared to 7% in 1954/55.

In the first half of the 1960s, the investment in engineering goods industry increased, facilitated by the ready availability of foreign exchange. The original version of the 3rd Five Year Plan (1965-1970) placed emphasis on developing intermediate and capital goods industries. During late 1960s and early 1970s two heavy engineering units were set up in the public sector with Chinese assistance and the PMTF was set-up with the assistance of the Swiss.

Following the announcement of Economic Reforms Order in 1972, 32 domestically owned industrial enterprises were nationalized which brought a substantial part of the engineering industry under direct state management. Following a change of Government in 1977 the hitherto public sector reserved industries began to be opened up to private investment. Even then in 1984/85 state enterprises accounted for all the domestic production of automobiles, buses, trucks and coke, for nearly 30% of the production of bicycles, 47 percent for the production of tractors and 52 percent of the production of rolled steel products.

By 1980-81 engineering industries accounted for 17% of value added in the manufacturing sector. The Engineering sector had grown rapidly in the previous ten years though there were marked differences in the growth rates of its components; basic metal industries had a growth rate of 11.2% and non-electrical machinery 9.9percent though metal products had a growth rate of only 1.1 percent.

The total output of the engineering goods subsector in 1985/86 was estimated to be Rs. 33,385 million and value added Rs. 5658 million which was 16.9% of the output.

The activities of the engineering subsector are heavily concentrated in small and medium sized establishments. Together they account for 68 percent of the output, value added and material inputs.

In the year 1987/88 the total value-added by the manufacturing subsector added amounted to Rs. 117 billion which means that the engineering sub-sector contributed approximately 20% of the total value added by the manufacturing sub-sector.

The engineering sub-sector basically comprises of the following product groups and classes:

PRODUCT GROUP	PRODUCT CLASS
Basic Metals	Ingots, Billets, Rolled products, Castings, Pipes, Forgings etc..
Metal Products	Knives, cutlery, hand tools, and surgical equipments, Metal Utensils, Fasteners,Other metal products, etc..
Mechanical Machinery and Eqpt.	Transport Components, High speed diesel engines, Metal & Wood working machinery, Textile machinery, other Industrial machinery, Mechanical machinery, etc..
Electrical Equipment	Fans, Switch Gear, Domestic appliances, Transformers, Generator sets and electric motors, other Electrical Equipment.
Electronic Goods	Entertainment equipment, Communication equipment, etc..
Transport and Agricultural Equipment	Motor Vehicle Assembly,Motor-cycles & Auto Rickshaws, Agricultural Tractors, Bicycles, Railway Carriages.

2.2 SECTOR PROFILE OF ENGINEERING INDUSTRY

A detailed review of each of the subsectors mentioned above appears in the following sub-sections:

2.2.1 BASIC METALS

The Census of Manufacturing Industries (CMI) figures show the value of output of iron and steel basic industries and of non-ferrous metal basic industries as having increased from around Rs. 90 million in 1959/60 to slightly over Rs. 385 million in 1969/70. This figure rose to Rs. 3933 million in 1982/83 according to the CMI. One important feature of this product group is reliance on imported raw materials in the form of ores, metals and ships for scrap . Domestic production of basic metals meets only part of the demand. The total imports in 1984/85 were worth Rs. 3810 million and for 1985/86 this figure stood at Rs. 3854 million.

The value of output for 1985-86 was estimated at Rs. 9.9 billion and value added slightly over Rs. 900 million. Small units with 10-100 employees accounted for 66 percent of total output. The activity in this product group is concentrated in Punjab and Sindh provinces.

Basic metals constitute a major portion of the raw material used by the Engineering Goods Industry which include both ferrous and non-ferrous metals. The ferrous metals are basically iron and iron based alloys while non-ferrous metals include aluminum, copper, zinc, tin, lead and their alloys.

Iron and steel industry provides the base for the economy. In fact per capita steel consumption is an indicator of the general growth and development of the country's manufacturing sector.

The Basic Metals sub-sector has forward linkages in terms of production of mild-steel ingots and billets with the rolling industry and backward linkage with Pakistan Steel and the ship breaking industry. In case of rolled products, it has forward linkages with building, construction and fabrication industry and backward linkages with steel production units for raw material. In terms of castings forward linkages are with process industries such as cement, chemical, fertilizer and other engineering industries including automotive and machinery manufacturing industries. In terms of steel pipes and tubes forward linkages are with utilities, mechanical structures and engineering industries. Forged products have forward linkages to slow speed diesel manufacture, general engineering works and agricultural implement's manufacture.

The total supply of any product is the sum of imports including raw materials and local production. The estimated net output of Basic metals for 1987-88 was worth Rs. 12383 million. Imports during 1987-88 inclusive of metal products were Rs. 6764 million.

In the same year the estimated demand for basic metals stood at Rs. 17639 million including an export component of Rs. 826.5 million.

The Export Working Group on the Engineering Goods Sector for the 7th Five Year Plan has indicated a 7.5% growth rate for Basic metals. Projected at this rate the 1991-92 demand estimate for Basic metals works out at Rs. 22451 million, this is expected to rise to Rs. 27891 million in the year 1994-95.

2.2.2 METAL PRODUCTS

The metal products group covers five product classes. The value of output of the group accounts for only 11.2% of the output of the engineering sector. However, many components utilized in the manufacture of mechanical and electrical machinery and equipment are produced by captive facilities within the enterprises.

Most of the surgical equipment and a significant proportion of knives manufactured in Pakistan are exported. All other products in the group are sold on the local market. Over 90 percent of the firms producing these products are small scale and the rest medium scale but producing large volumes. In the Metal Utensils product class the items produced are generally small in size and weight.

Fasteners are a fundamental link to most engineering operations. Approximately half the domestic production is manufactured by 14 major manufacturers who operate well run units with automated machinery.

The largest product class in this group, other metal products covers a diverse range of goods including simple metal structures, stampings and pressings, agricultural hand tools, containers, locks and hardware, wire products and non-electrical house-hold appliances. With the exception of stampings and pressings most production is on small scale basis.

Approximately 50 percent of all materials used by this product group are imported although there are wide variations between the classes. The critical materials imported include stainless steel, high carbon steels, aluminum and tin plate. Method-improvement and limited capital expenditure could further increase potential capacity by upto 50 percent.

Metal products subsector has pronounced linkages with the services sector, construction industry, automobile industry, water, and the energy sector.

Both public and private sectors are at present sharing more or less equally in supply of metal products. However, production of cutlery, utensils, locks and pipes is limited to the private sector while the public sector dominates the supply of metal structures.

Non-availability of raw materials was for more time a major constraint in the progress of metal products. However, this difficulty has been somewhat eased after the steel making plant of Pakistan Steel started functioning.

According to NMC estimates based on the Census of Manufacturing Industries 1984-85 the net output of metal products was Rs. 14420 million in 1987-88, which was 6.2% of the engineering goods sector output. For the same year, the value of imports of basic metals and metal products stood at Rs. 6764.0 million. Thus the total combined supply of basic metals and metal products in 1987-88 stood at Rs. 21184 million.

The estimated total demand for metal products in 1987-88 was Rs. 1729.4 million or 2.86% of total sector demand. The exports of metal products in the same year amounted to Rs. 1220.6 million, contributing to 56.16% of total sector exports. Out of these exports 81.7% were surgical instruments, on this basis the total market for metal products carried a value figure of Rs. 2950 million in 1987-88.

The projected demand of metal products according to NMC estimates based on Expert Working Group Report on Engineering Goods Industry for 7th Five Year Plan, work out at Rs. 2531 million for 1991-92 and Rs. 3368 million for 1994-95. These projections are based on a 10% growth rate for this sub sector as indicated by the Expert Working Group.

2.2.3 MECHANICAL MACHINERY AND EQUIPMENT

The supply of goods from this product group is a critical factor in the development of industrial output. The products include most capital goods necessary for the manufacture together with a number of critical intermediate goods, engines, pumps, compressors, bearings, mechanical power transmission equipment, etc.. In 1985/86 domestic supply covered less than 20% of total demand.

The development of this sector in Pakistan has progressed at a slow pace with the result that reliance on imported equipment and technology continues. However, with the setting-up of engineering units like Karachi Shipyard and Engineering Works, Pakistan Machine Tool Factory, Heavy Mechanical Complex, Heavy Foundry and Forge, potential has been created for manufacture of Capital Goods. There are also a few units in the private sector manufacturing capital goods, their impact, however, is limited as far as high-technology and high value products are concerned.

The classification of mechanical machinery product groups is as follows:

> "1. Diesel engines 2. Metal and Woodworking Machinery 3. Textile machinery 4. Industrial Machinery (excluding Agricultural, Metal and Textile machinery) 5. Other non-electrical machinery and equipment (includes sewing machines as well as agricultural machinery), pumps, compressors, service industry machines, etc. but excludes farm tractors."

The current situation in this product group demands the development of a well planned strategy to promote the sector.

Diesel engines produced in Pakistan are generally outmoded. The products of both metal and wood working machinery manufacturers do not meet international standards in respect of either accuracy or material specifications. Most of the machinery requirement of the textile sector is imported as the textile industry requires an integrated plant and prefers a package deal with one manufacturer.

Industrial machinery produced in Pakistan by many firms is of poor quality due to poor quality of raw material and low capacity utilization prevailing among the manufacturers.

Mechanical machinery and equipment subsector has linkages with wood and wood products industry group, textile, apparel and leather industry group, metal products machinery and equipment industry group, agricultural sector, services sector, water power and gas distribution sector and the automobile industry.

The output of mechanical machinery and equipment for 1987- 88 according to NMC estimates based on the Census of Manufacturing Industry (1985-86) stood at Rs. 2887 million, accounting for 12.4% of the engineering goods sector output. The imports of mechanical machinery and equipment during the same year were of the order of Rs. 19618 million. Thus the total supply figure of this subsector worked out at Rs. 22505 million for the year 1987-88.

The local demand for the same year was estimated at Rs. 22448.6 million accounting for 36.96% of the total sector demand. Including the export figure of Rs. 58.4 million the total demand figure stood at Rs. 22505 million.

The projected future demand according to NMC estimates based on Expert Working Group Report for the 7th Plan for 1991-92 for Mechanical Machinery and Equipment work out at Rs. 30542 million. For 1994-95 the estimated demand projection for this sub-sector has been worked out at Rs. 38474 million at a projected growth rate of 10% per year.

2.2.4 ELECTRICAL EQUIPMENT

The electrical equipment product group was the third largest product group in the engineering sub-sector with an estimated output of Rs. 3814 million in 1985/86 representing 13.8% of the total.

The products manufactured include consumer durables and a range of industrial electrical equipment critical for stand-by power sources, electric motors for a wide variety of machinery, switch gear and transformers used in electricity distribution at national grid and at user levels.

Basic research and development efforts fundamental to the manufacture and marketing of new products, better products and cheaper products are lacking in Pakistan.

The demand for electrical goods as well as domestic appliances largely depends upon the electrification programmes and socio-economic conditions in the Country. Pakistan at the moment has a good industrial base for production of light electrical goods and domestic appliances. So far as heavy electrical equipment like large size power transformers, generators, turbines, etc., Pakistan is at present dependent entirely on imports.

Electrical equipment and machinery subsector has forward linkages with electricity and gas distribution sector and therefore directly affects industrial activity in all manufacturing and non-manufacturing sectors.

Electrical machinery and equipment product groups estimated net out put for 1987/88 was Rs. 2805 million accounting for 12.1% of the engineering goods sector output. The combined imports of electrical goods and electronics goods stood at Rs. 3688 million in the same year.

The estimated domestic demand for 1987-88 for Electrical machinery and equipment was Rs. 4856.6 million, coupled with exports of Rs. 13.4 million the total demand for this product group works out at Rs. 4820 million for the year 1987/88. The NMC estimated demand for the year 1991/92 stands at Rs. 7110 million whereas for 1994/95 NMC estimates place this figure at Rs. 9463 million based on the estimates of the Expert Working on the Engineering Industry for the 7th Five Year Plan.

2.2.5 ELECTRONIC GOODS

The electronics industry is now considered most important for the economic growth of any country. Trends in electronics are of global importance as applications in this field have become forceful tools in building-up the modern information society.

In Pakistan both public and private sectors are engaged in the manufacture of different types of electronic equipment. This industry is characterized by rapid technology changes and short product cycles.

At present the electronics industry in Pakistan is primitive by international standards both in terms of manufacturing as well as product technologies. It manufactures low quality high priced products behind a set of overly protective tariffs.

The main activities in case of manufacturing technologies include forming and pressing, tool making, surface treatment, material handling, assembly inspection and testing, production planning, inventory control and quality assurance.

In case of communications equipment, digital telephone hand-sets are being introduced but all exchanges use electro-mechanical equipment. There is, however, great potential for development in the electronics industry because of the increasing demand both in the domestic and Middle East Markets.

The estimated supply based on the Census of Manufacturing Industries (1985-86) for 1987-88 stood at Rs. 752 million for this product group. The imports figure of Rs. 3688 however, include Electrical goods imports as well.

On the demand side Electronic goods domestic demand was estimated at Rs. 2374.1 million for the year 1987/88, coupled with exports of Rs. 0.9 million the total demand for 1987/88 stood at Rs. 2375 million.

For 1991-92 the estimated demand figure for Electronic Goods stands at Rs. 4152 million, whereas for 1994-95 this estimation goes upto Rs. 5526 million.

2.2.6 TRANSPORT AND AGRICULTURAL EQUIPMENT

The Transport and Agricultural Equipment sector of the Engineering Goods Industry involves the manufacture and production of passenger cars, four wheel drive vehicles, light and mini commercial vehicles, buses and trucks, two and three wheelers, bicycles, tractors, automotive components, earth moving and construction equipment as well as agricultural machinery and implements.

Pakistan has been involved in the assembly and progressive manufacture of cars, commercial vehicles,four wheel drives, trucks, buses, etc. since early 1950s. On an average 30-40% of the automotive parts for these vehicles are produced in the Country. Within the product group output from vehicle assembly of motor cars, trucks and buses accounts for 41 percent of the total value of out-put, tractors production accounts for 38 percent, the balance being provided by the assembly and manufacture of motorcycles (14 percent) bicycles (3 percent) and railway carriages (4%).

Dependence on imported materials is highest for motor vehicles and railway carriages. Bicycles have the lowest import component with some 57% of materials being locally sourced. The main criticism raised about local raw materials concerns the quality of sheet steel from Pakistan Steel and tubing from local manufacturers. The general level of finish is not conducive to a high standard of final finish.

The government's policy requires that manufacture of a number of capital goods and consumer durables can only be undertaken, to begin with, on the basis of assembly arrangements combined with progressive manufacture of components.

The automobile industry is the largest user of sub- contractors. It is currently utilizing the facilities and capabilities of several hundred sub-contractors for procuring components required by original equipment manufacturers in this sector.

The value of local production for the Transport and Agricultural equipment product group for 1987-88 was Rs. 3007 million. Imports in the same year carried a value figure of Rs. 9,564 million. The total supply figure for the product group thus stood at Rs. 12,571 million in 1987-88.

The demand figure including that of exports in the year 1987-88 stood at Rs. 12,571 million. The projected demand for 1991-92 stands at Rs. 18,234 million, whereas for 1994-95 this figure has been estimated at Rs. 24,389 million on the basis of the Expert Working Group Report for the 7th Five Year Plan.

2.3 MECHANICAL MACHINERY & EQUIPMENT

In the following sub-sections a more detailed elaboration of the mechanical machinery and equipment sub-sector is being provided as the machine tools and other machinery which could be made utilizing the capability of PMTF fall under this sub-sector of the engineering goods industry.

Mechanical machinery and equipment is an important segment of the engineering goods sector. It encompasses a wide range of machinery, processing plants and equipment of a basic nature which is essential for the economic development of any country. A self reliant and fast expanding economy can only be generated through the development of its capital goods industry which acts as a catalyst for all growth centres in the economy.

Capital machinery, plant and equipment, machine tools and cutting tools, textile machinery, boilers and pressure vessels, turbines and generators, pumps and compressors, office equipment, leather machinery, paper mill machinery, printing machinery, food processing machinery, road construction machinery, agricultural implements, mining machinery, material handling equipment and a variety of allied industries form a part of this important sub-sector.

The development of this sector in Pakistan has progressed at slow pace. During the second and third five year plans (1960-70) private sector came forward and established a number of units for producing textile machinery, cotton ginning plants, baling presses, machine tools, diesel engines, pumps, farm implements, parts for sugar mill machinery, cold storage and ice plants, flour and rice mills, etc..

The first engineering unit of a major significance the Karachi Shipyard and Engineering Works was set up in 1954. It was followed by Pakistan Machine Tool Factory in 1968 and Heavy Mechanical Complex in 1971. Heavy Foundry and Forge was set-up in 1977 and Pakistan Steel Mills was commissioned in March 1982.

Manpower employed in this sub-sector both in the public and private sector is in excess of 200000.

Details on some of the products included in this product group are given below.

2.3.1 DIESEL ENGINES

The total combined annual production capacity for slow speed diesel engines is estimated to be 14400 units coming from 160 manufacturing units. The demand for slow speed engines is gradually reducing. They are used mostly as stationery prime movers in small industries and agricultural farms. The high speed diesel engines are manufactured by PECO and Bela Engineers Ltd. The product range of slow speed, diesel engines covers from 6 HP to 70 HP. High speed diesel engines are produced with power rating of 5.5, 7.5, 9.7, 12, 16 and 24 HP. The small high speed diesel engines are finding increasing application in the agriculture sector with power rating upto 12 HP.

2.3.2 METAL WORKING MACHINERY

The import of machine tools has increased from Rs. 108 million (1989-90) to Rs. 259 million in 1990-91. Significant imports relate to items such as lathes, drilling machines, grinding machines, etc.. The local industry has a large capacity for producing basic machine tools. Installed capacities are, however, not being utilized fully. Diversification into conventional products such as radial drilling machines, precision, cylindrical and universal grinders, etc. is necessary to meet the diversified market needs.

2.3.3 TEXTILE MACHINERY

The textile industry is the single largest industry in the Country. Good prospects exist for further expansion as Pakistan still exports large quantity of raw cotton, which may be processed and exported for increased returns.

The demand for textile machinery is mainly met from imports. The imported machinery includes that for spinning, weaving, bleaching, dying, carding, hosiery, industrial sewing machines and spare parts for textile mills, etc.. A large section of the present import of textile machinery relates to parts and components.

2.3.4 PUMPS & COMPRESSORS

There are a number of manufacturers of centrifugal pumps with an installed capacity of 80,000 units. These include six big manufacturers of pumps namely, PECO, Climax, Ittefaq, Sultan, Javed and KSB. These units can manufacture pumps with heads upto 25 meters and discharge upto 125 liter per second. The present capacity utilization of this industry is not more than 30 percent, whereas, the demand is more than the production. A large number of pumps are presently imported either because they are for different industrial applications or because they are cheaper. The local industry needs to make an effort to diversify its products to include production of industrial pumps for the chemical, sugar, fertilizer and petrochemical industries.

There are few manufacturers of compressors despite heavy imports of air and gas compressors. The imports of parts of pumps is also substantial, reaching more than Rs. 100 million per year.

2.3.5 TAPS, COCKS AND VALVES

The present production is confined to low pressure valves. The imports are valued at Rs. 420 million for 1990-91 . There is a definite requirement of valves for medium and high pressures.

2.3.6 HYDRAULIC/PNEUMATIC SYSTEMS/COMPONENTS

Hydraulic/pneumatic equipments are the key elements in automation. Even with the latest electronic controls the execution of machine element movements are either hydraulic or pneumatic. This has always been and is still the main means of applying power.

The Expert Working Group report on Engineering Industry for the 7th Five Year Plan advocates linking of production of these systems and components to PMTF because of its precision manufacturing expertise and allied facilities. Hydraulic equipment basically consists of pumps, valves, cylinders, hydraulic motors, auxiliary equipment such as reservoir filters, heat transfer equipment, connectors and accumulators.

Pneumatic equipment consist of compressors, receivers, valves, cylinders and pneumatic motors.

2.3.7 REASONS FOR LOW CAPACITY UTILIZATION

The Expert Working Group report for the 7th Plan gives the following reasons for low capacity utilization in this sub-sector:

- Limited market size denying the benefit of economies of scale in production.
- Dependence on imported raw materials and spares.
- Resource constraint.
- Unfair competition with similar imported goods.
- Fiscal anomalies.
- Dearth of ancillary industries.
- Shortage of skilled manpower and its continued migration to oil rich countries.

- o Fast obsolescence of technology.

- o Import of plant and machinery which can be manufactured locally.

- o Import of light engineering goods under the personal baggage scheme.

The following are the demand projections shown in the EWG report for 7th five year plan for this product group.

2.4 CONTRIBUTION OF THE ENGINEERING INDUSTRY TO PAKISTAN'S ECONOMY

The engineering goods sector produces goods which contribute to gross fixed capital formation in agriculture, industry, services sector and administration. The engineering industry plays a primary role in production of capital goods i.e. machine tools, complete process plants, construction equipment, and public works machinery. It also has a secondary role in the production of intermediate goods i.e. power generation, transmission and distribution equipment, iron and steel, petrochemical plants and a tertiary role in production of consumer goods e.g. foods, textiles, footwear and electrical component industries, etc.

Unless the engineering goods sector is able to play its due role, development of the economy will remain in jeopardy. All manufacturing units depend entirely on the engineering goods industry for their demands of fixed assets. This sector consequently has to be rated as the backbone of future industrialization in the Country. Without self reliance in development of the engineering goods sector, both industrialization and mechanization of agriculture will become elusive goals.

In the year 1987-88, Pakistan's GNP at current factor cost/price stood at Rs. 649 billion approximately and its GDP amounted to Rs. 618 billion approximately.

The manufacturing sector of which the engineering goods sector forms a part contributed Rs. 108 billion i.e. 16.6% of the total GNP and 17.4% of the GDP respectively.

The contribution of the engineering sector to the total GNP was, however, estimated at only 3.3 percent in the same year 1987-88.

The engineering sector is also estimated to provide employment to over 269,000 persons.

The engineering goods sector in Pakistan has not developed adequately and has lagged behind other sectors; consequently heavy reliance is still being placed on imports. The present import of engineering goods is worth Rs. 40

billion for the year 1987-88 which depresses the balance of payments position against Pakistan. Accelerated progress of import substitution and development of engineering goods industry can reduce the current drain on foreign

exchange resources. It is, therefore, essential to achieve as much self-reliance as is possible in the engineering sector.

Total sector imports for the last 5 years are given below in table 2-1 (Chart 2-1) whereas sub sector imports are shown in table 2-2 (Chart 2-2).

TABLE 2-1

TOTAL IMPORTS OF ENGINEERING GOODS

(Rupees Million)

YEAR	VALUE
1988-89	Rs. 26596
1989-90	Rs. 25436
1990-91	Rs. 30193

Source: Federal Bureau of Statistics

TABLE 2-2

IMPORTS OF MACHINERY AND PARTS THEREOF

1986-87 TO 1990-91

PRODUCTS	VALUE (RUPEES MILLION)				
	1986-87	1987-88	1988-89	1989-90	1990-91
MACHINE TOOLS	314	307	423	108	259
PUMPS	261	244	395	309	295
VALVES	284	266	365	326	420
HAND TOOLS	347	297	366	319	378
LEATHER MACHINERY	97	168	136	145	167
SPINNING MACHINERY	340	755	2333	2433	3472
WEAVING MACHINERY	296	686	459	1120	1978
SPINNING MACHINE PARTS	3	24	120	815	809
WEAVING MACHINE PARTS	68	113	176	128	81
ELECTRIC MOTORS/GENERAT	68	463	746	1165	1169

SOURCE : Federal Bureau of Statistics.

CHART 2-1

TOTAL IMPORTS OF ENGINEERING GOODS

1988–89 TO 1990–91

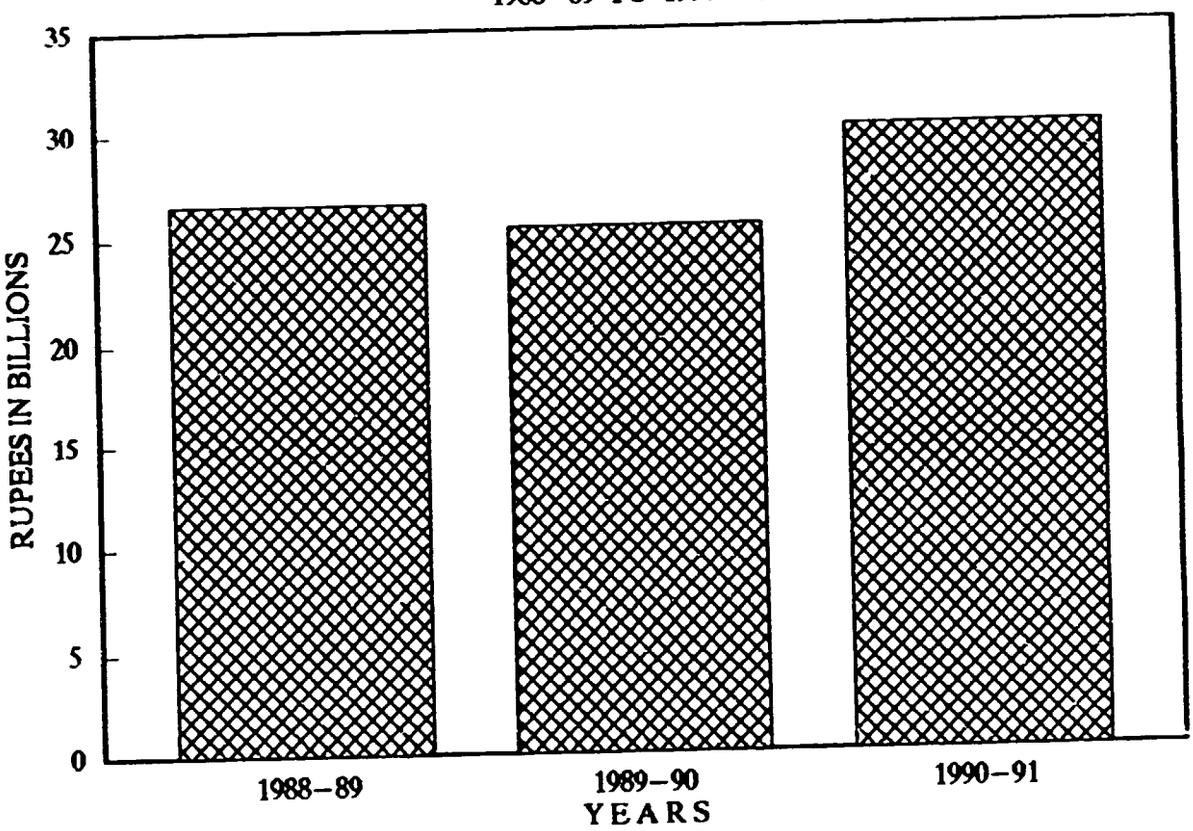
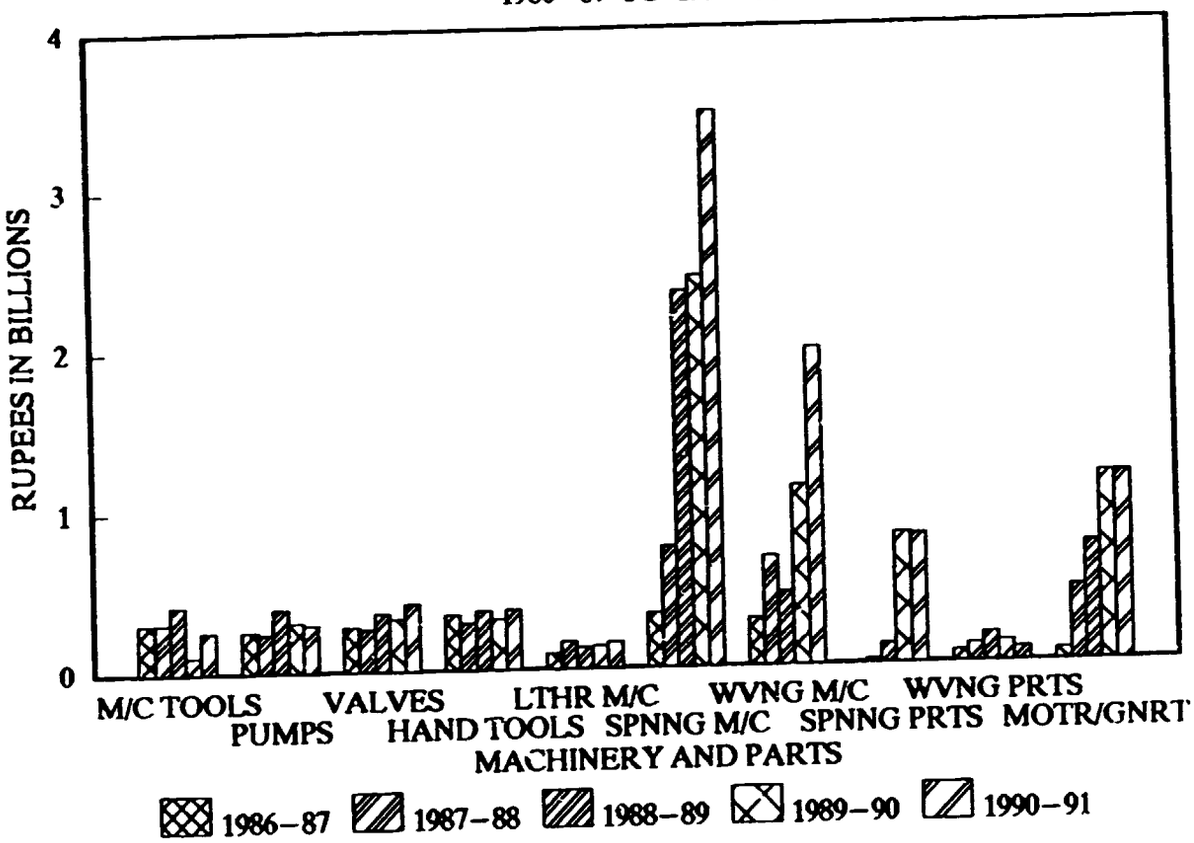


CHART 2-2

IMPORTS OF MACHINERY AND PARTS

1986-87 TO 1990-91



CHAPTER 3

SURVEY RESULTS

3.1 INTRODUCTION

A total of 150 establishments have been covered under this survey. The survey comprised 18 automotive assemblers and auto repair workshops, 15 manufacturers of pumps and valves, 17 manufacturers of machine tools, 12 manufacturers of electrical goods, 22 manufacturers of cutlery and surgical goods, 15 manufacturers and importers of hand tools, 22 textile manufacturing units, 11 manufacturers of leather goods machinery and leather goods, 4 DFIs, 10 importers of new machine tools and 4 importers of secondhand machinery (Chart 3-1). A table showing details of the coverage including city and sector-wise distribution of respondents has already been placed in Chapter - 1 (Table 1-1).

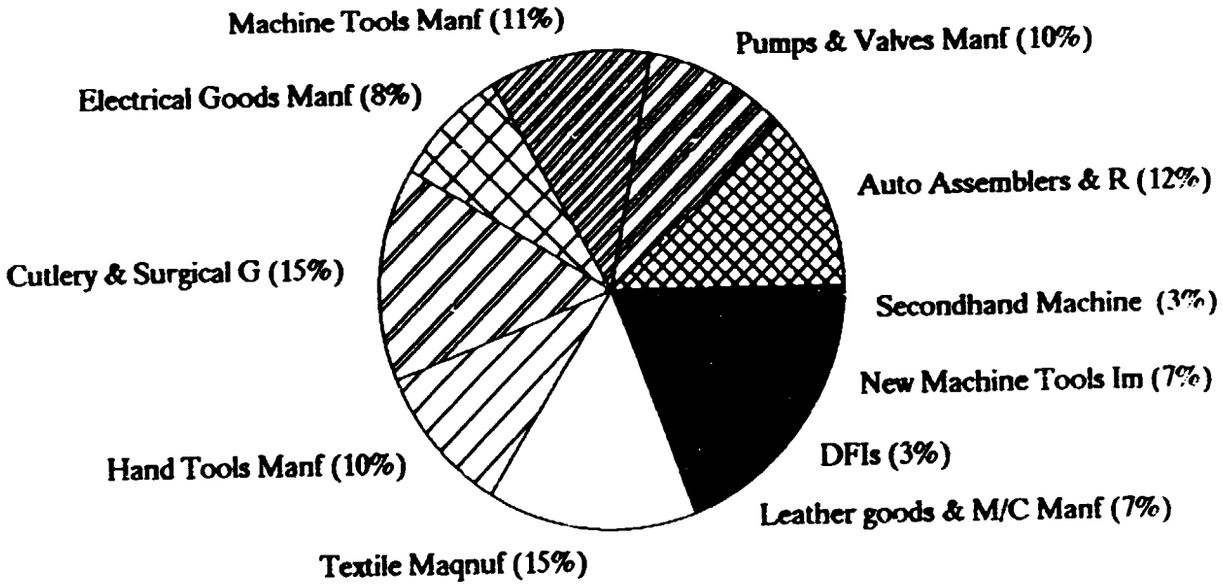
The criteria for selection of respondents and other considerations that were kept in view in this connection have been discussed in detail in Chapter-1 under section 1.3 i.e. Survey Design and Methodology. Some important aspects are again being discussed here for the sake of continuity.

The survey was conducted at various locations to ensure proper stratification alongwith obtaining responses in clusters as the various industrial units were located. A representative number was visited at each location. The establishments selected were mostly medium to large size representative establishments having significant turnover within their respective sub-sectors. Choice of respondents was made through careful selection from lists of manufacturers associations, Special Technical Cell's (Government of Pakistan) vendor directory, trade directories, etc.. In the absence of reliable secondary data providing detailed breakups, the determination of statistical population with reasonable accuracy for various sub-sectors was also not possible. Accordingly, figures given under subsequent sections, indicating percentage of the statistical population covered, have been based on estimates.

In order to ensure accuracy of data gathered, administration of the questionnaire was through face to face interviews which were conducted by NMC through deployment of its in-house consultants from the engineering and marketing disciplines. A system of daily retrieval of questionnaires was observed during the entire field survey to closely monitor the field work. As a result of these and other measures adopted to ensure data accuracy all the data, except for that on production and sales which some of the respondents provided with reluctance, is quite accurate and reliable.

CHART 3-1

COMPOSITION OF SURVEY
RESPONDENTS



3.2 SECTOR-WISE RESULTS

3.2.1 SURVEY OF MANUFACTURERS OF PUMPS

In all 10 units manufacturing pumps were surveyed. Results of the survey are summarized in the following paragraphs. It is estimated that the sample covers 10 to 15% of the installed capacity for manufacture of pumps in the medium to high capacity range. In terms of turnover contribution of the surveyed units may still be higher.

3.2.1.1 MACHINERY INSTALLED

Main machinery being used by the pump manufacturers comprise Capstan Lathes, Centre Lathes, Die Casting Machines, Shot Blasting Machines, CNC Lathe Machines and Drill Machines.

3.2.1.2 TYPES OF PUMPS BEING MANUFACTURED AND ANNUAL PRODUCTION

Pumps of the following types in sizes ranging from 2 inch to 20 inch bore are being manufactured in Pakistan. Total production of the respondents for the last year is given below for each category of pumps.

TABLE 3-1

TYPES & PRODUCTION OF PUMPS BY THE SAMPLE UNITS

Type	Material	Total Annual Production(Unit)
Centrifugal	Cast Iron	34,958
Submersible	Stainless Steel	1,300
Dewelet Turbine	Cast Iron	12,000
Multi Stage Submersible	Cast Iron	301
Gear	Cast Iron	1,050
Piston	Mild Steel	23,926
Injection	Cast Iron	11,297
Mono Block	Cast Iron	619

Source : NMC Survey

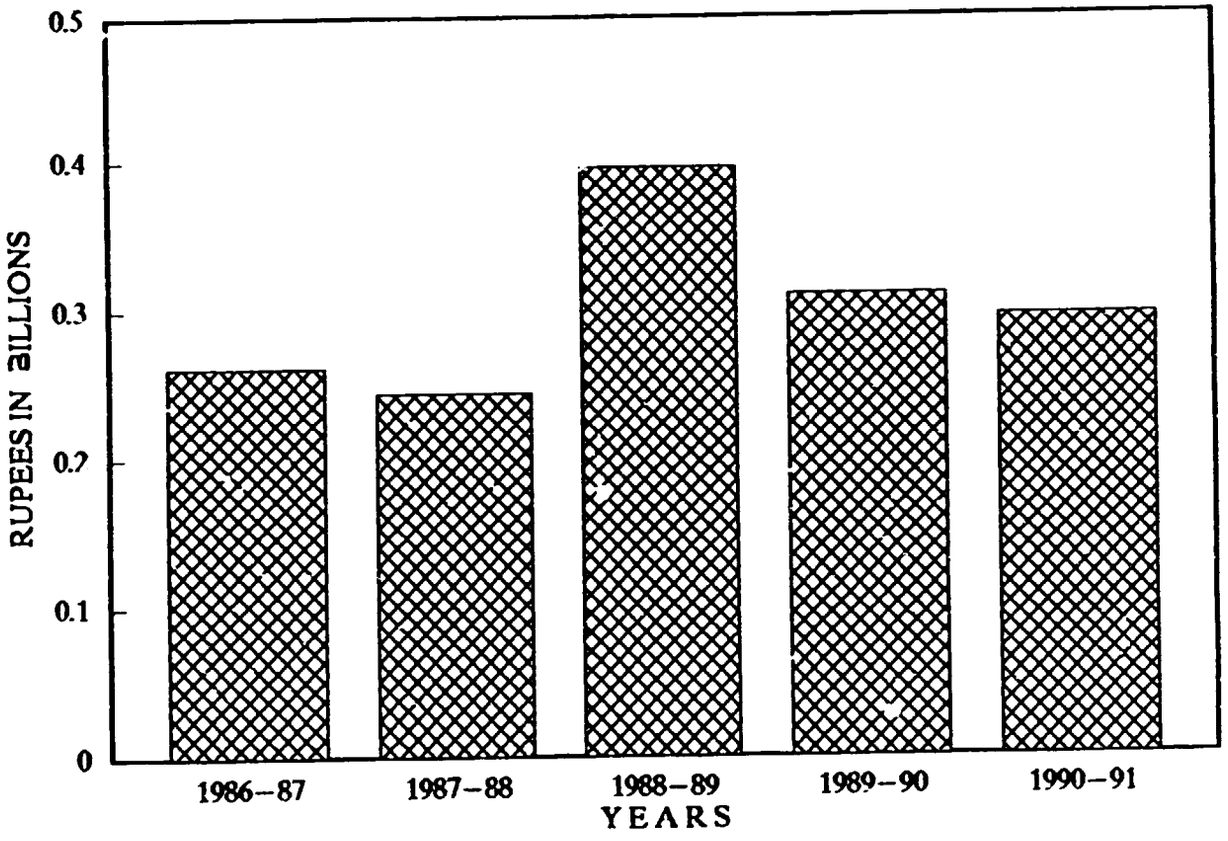
3.2.1.3 IMPORTS

Import of pumps and their parts for the last five years are given at Table 2-2 (Chart 3-2). The average for this period works out at Rs. 301 million per year. During this period the import touched its peak in 1988-89 when the figure was Rs. 395 million. Whereas, it was Rs. 295 million during 1990-91. This shows that there exists substantial scope for local manufacture of pumps even from the point view of import substitution. Pump types imported comprise mainly of centrifugal and rotary pumps. Other types imported include fuel, lubricating/cooling and concrete pumps.

CHART 3-2

IMPORTS OF "PUMPS"

1986-87 TO 1990-91



3.2.1.4 USERS OF PUMPS

On the basis of the survey the average sector-wise distribution of locally manufactured pumps among various users has been determined. Water and power sector with 25% share is the largest user followed by Chemical Sector which has a share of 17%. Cement and sugar industries use 8% of the locally produced pumps, whereas, the share of Oil and Gas Sector is 3%. Another 18% are used by domestic and agricultural sectors while the balance 29% goes to other small sectors (Chart 3-3).

3.2.1.5 COMMENTS AND SUGGESTIONS

The survey shows that current import of pumps is limited to those of specialized design like boiler feed pumps, mainly because of specific metallurgy of these pumps and limited demand.

Sub-contracting of parts to vendors amongst pump manufacturers is limited as they prefer to do it all by themselves, however, parts such as impellers, shafts, rubber parts and simple castings are being sub-contracted.

Imported parts being used are mainly ball bearings and mechanical seals.

Load shedding, labor absenteeism and quality control have been found to be the main problem areas for pump manufacturers.

3.2.1.6 CONCLUSIONS

Centrifugal pumps in 2 to 8 inches size with cast iron volute casing and submersible pumps in 2 to 4 inches size of stainless steel construction have a potential demand which PMTF can meet. The unit prices vary from Rs. 800 to Rs. 10,000 and 5,000 units of centrifugal type and 100 units of the submersible type can be annually marketed by PMTF.

3.2.2 SURVEY OF VALVE MANUFACTURERS

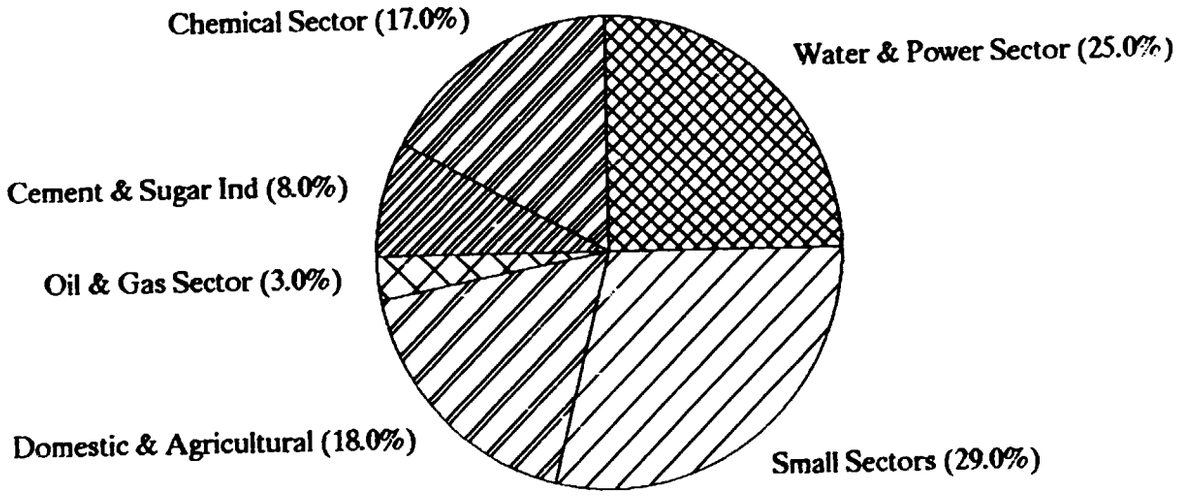
Initially, only manufacturers of valves were covered by the survey. However, since a significant portion of the local demand is being met through imports, the survey was later extended to cover some valve importers also to get a proper idea of the demand being met through imports. A total of 5 manufacturers and 3 importers of valves were surveyed. Of the 5 valve manufacturers, 3 units were also manufacturing pumps. It is estimated that based upon turnover the sample covers 15 to 20% of the locally manufactured valves and 5 to 10% of the imported valves.

3.2.2.1 MACHINERY INSTALLED:

Main machines installed by valve manufacturers include Capstan, Turret and CNC Lathes, Die Casting machines, Shot Blasting machines and Drill machines.

CHART 3-3

SECTOR–WISE DISTYRIBUTION OF LOCALLY MANUFACTURED PUMPS AMOUNG MAJOR USERS



3.2.2.2 TYPES OF VALVES BEING MANUFACTURED:

Valves of the following types in sizes ranging from 2 to 20 inches bore are being manufactured by the respondents in given quantities annually:

TABLE 3-2

TYPES & PRODUCTION OF VALVES BY SAMPLE UNITS

TYPE	MATERIAL	TOTAL ANNUAL PRODUCTION
Gate	Cast Iron	50,000
Ball	Cast Iron Body	80,700
Globe	Special Steel, Cast Body	3,300
Foot	Gun Metal, Bronze	12,500
Check	Gun Metal, Brass	5,000
Flex	Cast Iron	1,300

Source: NMC Survey

3.2.2.3 IMPORTS

Imports of valves for the last five years are given at Table 2-2 (Chart 3-4). The figures show an increasing trend with an average growth rate of around 12%. The average annual import during the period works out at Rs. 332 million. During 1990-91 taps, cocks, and valves worth Rs. 420 million were imported. Significant among these were check valves, pressure reducing valves and gate valves. High import figures are indicative of the fact that local manufacture of valves hitherto not being manufactured in desired quality or specification represents a viable proposition.

3.2.2.4 COMMENTS AND SUGGESTIONS

Half to 2 inches threaded globe valve of Brass and Carbon steel, 2 to 6 inches cast iron ball valve, 2 to 12 inches cast steel gate valves, 1/2 to 24 inches cast iron gate valves and 1/2 to 12 inches globe valves of cast steel and cast iron are the valves mainly being imported for the industrial sector.

According to the survey results the water and power sector is the largest single sector utilizing on the average 20% of the locally manufactured valves. Then comes the chemical sector which utilizes 18% followed by the oil and gas sector which utilizes 12% of the locally produced valves. The share of sugar and cement sector is 9% while the balance 41% are being utilized by various smaller sectors (Chart 3-5).

Locally manufactured valves do not incorporate any major imported parts. Sub-contracting of parts though not very common among the valve manufacturers is being practiced. Parts such as seat, spindle wheel and base are the ones most commonly being sub-contracted.

CHART 3-4

IMPORTS OF "VALVES"

1986-87 TO 1990-91

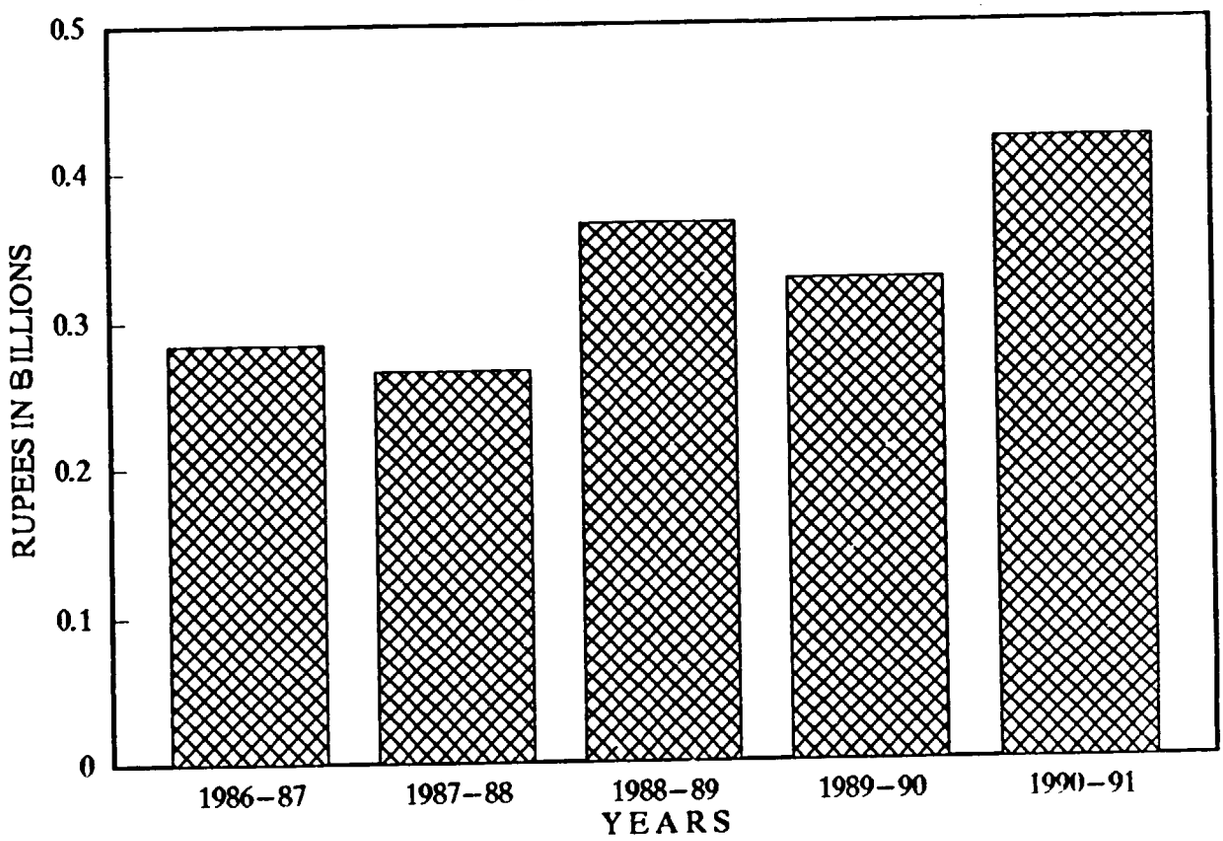
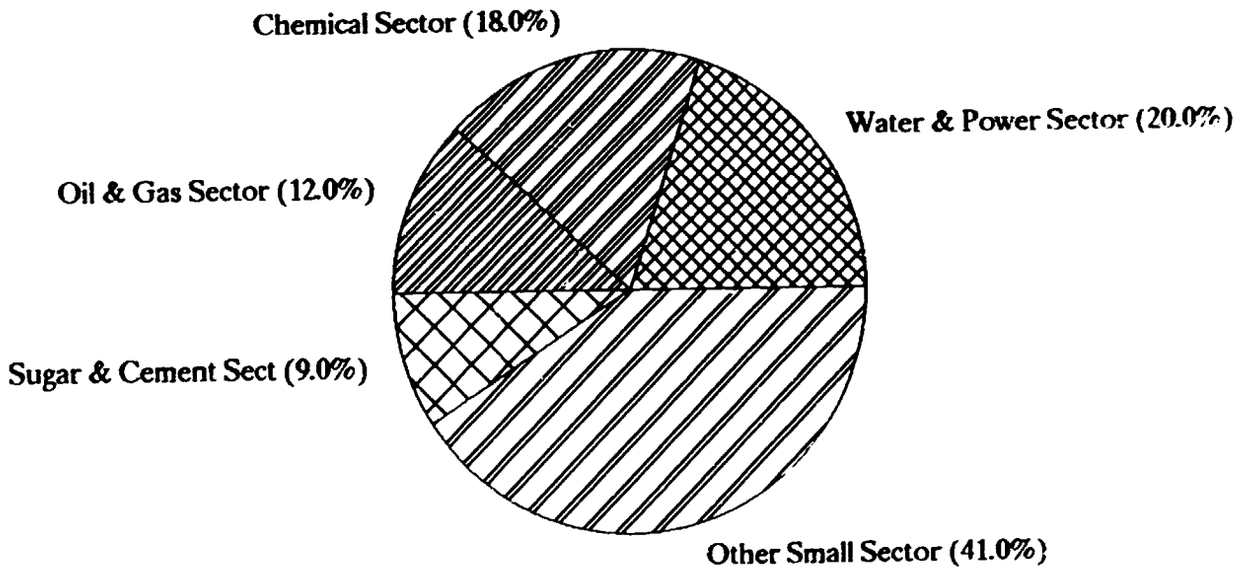


CHART 3-5

SECTOR–WISE DISTRIBUTION OF LOCALLY
MANUFACTURED VALVES AMOUNG MAJOR USERS



3.2.2.5 CONCLUSIONS

Gate/globe valve of cast iron in 2 to 8 inches size, Ball valves of carbon steel in 2 to 8 inches size and Steam Trap valves of carbon steel in 1/2 to 2 inches size can be taken up for manufacture by PMTF. Because of the simple technology and minimal investment requirement the respective annual production figures will be 4000, 6000, 3000 units respectively. Further since all these products can be placed in the open market the marketing will not pose a problem.

3.2.3 SURVEY OF CUTLERY AND SURGICAL GOODS MANUFACTURERS

The cutlery and surgical goods manufacturing sector is an important sector which besides meeting local demand is earning valuable foreign exchange through exports of products. From the point of view of machinery utilization, it is an important sector which makes extensive use of machine tools and other production machinery. A total of 22 manufacturing units were surveyed in this sector which is estimated to cover around 20% of the installed capacity for the sector.

3.2.3.1 MACHINERY INSTALLED

The machinery found to be installed at cutlery and surgical goods manufacturing units comprised Milling machines, Lathes, Friction Screw Presses, Hydraulic Presses, Power/Mechanical Presses, Sand Blasting machines, Copying machines, etc..

A total of 22 manufacturing units were surveyed in the cutlery and surgical goods sectors. A summary of the type of machines together with their source is presented in Table 3-3 (Chart 3-6).

TABLE 3-3

MACHINES INSTALLED AND COUNTRY OF ORIGIN
CUTLERY AND SURGICAL GOODS SECTOR

S.No.	Machines	Total	U.K	Germany	U.S.A	China	Pakistan
1.	Lathe	63	08	01	-	54	-
2.	Milling	173	49	25	37	05	57
3.	Friction Press	20	02	03	-	08	07
4.	Hydraulic Press	20	-	-	-	-	20
5.	Mechanical Press	85	-	10	01	12	62
6.	Sand Blasting m/c	11	06	01	02	-	02
7.	Copying Machine	07	06	01	-	-	-

CHART 3-6

DISTRIBUTION OF MACHINES INSTALLED IN
THE SAMPLE FOR SURGICAL & CUTLERY GOODS

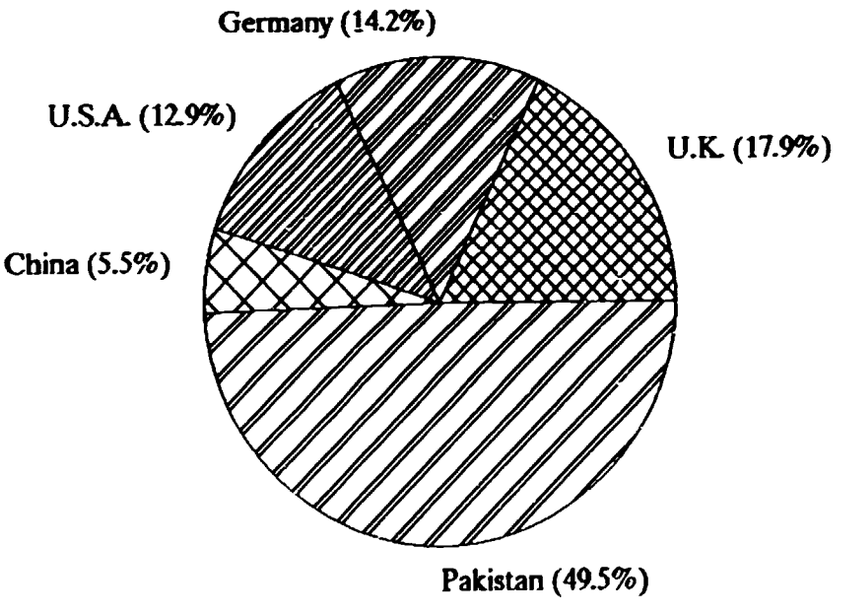


TABLE 3-3

...Continued

S.No.	Machines	Total	U.K	Germany	U.S.A	China	Pakistan
8.	Ultra Sonic m/c	31	-	08	19	-	04
9.	Shaper Machine	17	08	-	-	-	09
10.	Forging Hammers	27	02	16	-	-	09
11.	Shearing Machines	03	01	-	-	-	02
	TOTAL	457	82	65	59	25	226

Source: MMC Survey

Table 3-3 shows that Pakistani machines are the highest in number (226) followed by machines form UK, Germany, USA and China in that order. It also shows that for this sector milling machines are highest in number (173), followed by mechanical presses (85) and Lathe machines (53).

3.2.3.2 SPARE PARTS REQUIREMENT

Spare parts requirement of the cutlery and surgical goods manufacturers is presently being met mostly through imports. Some of these parts such as ball and roller bearings, drill chucks and seals are being sourced locally, whereas, major components such as spares for ultrasonic equipment, quality electronic switches, rolls for cold drawing, thermostats, heater elements, specialized grinding wheels, etc. are being imported. Among the locally manufactured items, gears for variable machines, lathe chucks, air and oil filters and ball bearings are the main items.

3.2.3.3 COMMENTS AND SUGGESTIONS

Manufacturers of cutlery and surgical goods have a feeling that almost all machinery and equipment presently in their use can be manufactured locally. In fact most of the machinery and spares are already being manufactured but their quality is not upto the required standard.

Another problem with the small manufacturers is financing. The manufacturers feel that this sector has great potential and with induction of better technology and some more capital both quality of products and production capacity of the sector can be raised. The manufactures are interested in purchase of machinery on credit.

Machinery/equipment which seem to hold potential for local manufacture for this sector include the following:

- o Rotary Grinding/Polishing Machines;
- o Ultrasonic Cleaning Units; and
- o Vacuum Heat Treatment Unit.

A study may be undertaken to assess viability of local manufacture of the above machinery/equipment. The most demanded machine for this sector, which at present is only available at Medisporex (Pvt.) Ltd., Sialkot, is the

vibratory polishing machine. Two unit of this U.K made machine were purchased in 1990 for 42,000 Pounds (Rs. 2,100,000).

Another suggestion given by the manufacturers in this sector is that local machinery manufacturers should provide training support to machinery users/buyers.

3.2.3.4 CONCLUSIONS

Vibratory polishing machine and ultrasonic cleaning machine can be taken up for manufacture in the medium term manufacturing plan of PMTF. Both machines are regularly required by this sector and 10 to 15 units of each can be readily marketed on an annual basis. This exercise will be of a strategic nature to make other products available to PMTF which will help reduce the burden from established products in time of need.

3.2.4 SURVEY OF MACHINE TOOL MANUFACTURERS

An extensive survey of the machine tool manufacturing industry has been undertaken which covered most machine tool manufacturers of repute. Special attention has been paid to this sector, being the one in which PMTF has a major stake. Few other machines outside the classification of machine tools have also been discussed under this section since they comprise the product mix of machine tool manufacturers in many cases. It is estimated that the selected sample covers 15-20% of the installed capacity for manufacture of machine tools within the country.

3.2.4.1 PRODUCTS BEING MANUFACTURED AND ANNUAL PRODUCTION

A summary of the information on products being manufactured, broad specifications and total production for the year 1991-92 by the machine tool manufactures surveyed is given at Table 3-4. The survey covered 17 medium and large size manufacturing units of machine tools.

TABLE 3-4

TYPE & PRODUCTION OF MACHINE TOOL MANUFACTURERS

S.NO.	PRODUCT	SPECIFICATION	PRODUCTION 1991-92
1.	Lathe Machines	5'-8" to 9' 2"	247
2.	Shapers	---	23
3.	Drill Machines	1/4" to 2" Drill	221
4.	Power Hack Saws	12" to 18" Blade	68
5.	Bench Grinders	6" to 10" Disc	150

TABLE 3-4

...Continued

S.NO.	PRODUCT	SPECIFICATION	PRODUCTION 1991-92
6.	Shearing Machines	2ft to 12ft,3/8" thick	15
7.	Vertical Boring Machines	---	3
8.	Mainline Boring Machines	---	4
9.	Surfacers	---	6
10.	Drum Turning Machines	---	5
11.	Axle Housing Turning Machine	---	1 Set
12.	Mechanical Power Press	1 to 250 Tons	15
13.	Flywheel Bending Hand Press	---	3
14.	Hydraulic Presses	200 lbs to 10,000 lbs	7
15.	Friction Presses	To Cut 1" thick Sheet	6
16.	Crank Grinders	---	12
17.	Wood Working Machines: Planner, Surfacer, Band Saw, Jointer Drill Machine, Combined Thickness & Surface Machine, Thickness Chisel, Sliding Cutter Spindle Molding m/c.	Different Specs	32

Volume-wise the production is largest for lathe machines (247) followed by drill machines (221), bench grinders (150) and power hack saws (68). Other products having significant production are presses, wood working machines, shapers, shearing machines and crank grinders.

3.2.4.2 USERS OF MACHINE TOOLS

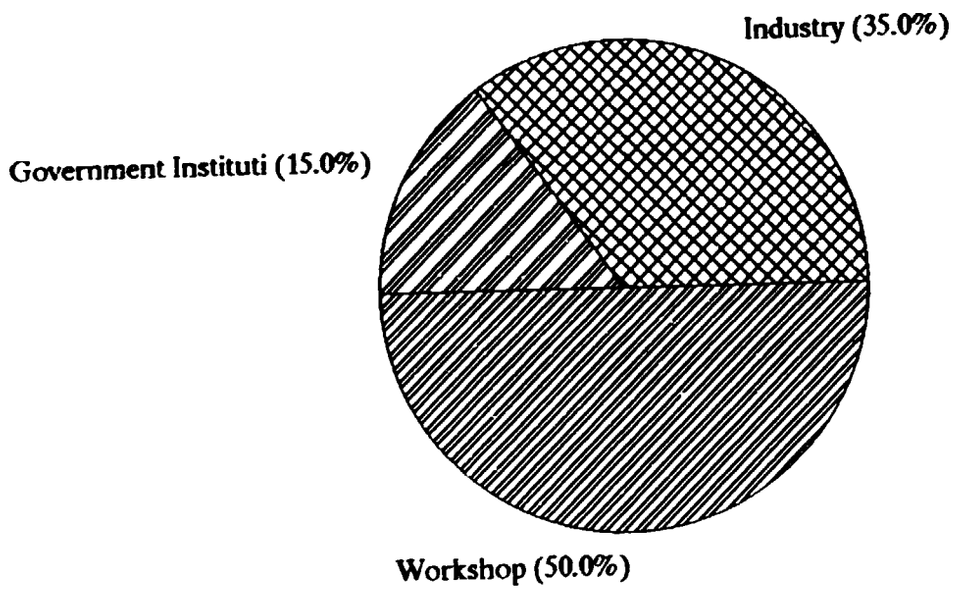
On the average, the buyers of machine tools as it has emerged from the survey are, industry to the extent of 35 %, government institutions 15 % and workshops 50 % (Chart 3-7).

In the case of power presses, bending and shearing machines, the buyers are mainly fan manufacturers, cutlery and surgical goods manufacturers and refrigeration equipment manufacturers.

Buyers for wood working machinery are mainly sports goods and furniture manufacturers and builders/ developers in the housing sector. Buyer for

CHART 3-7

SHARE OF MAJOR BUYER GROUPS FOR LOCALLY MANUFACTURED MACHINE TOOLS



power hack saws are Industry to the extent of 35 %, Workshops 60 % and government agencies 5 %.

3.2.4.3 **PARTS BEING SUB-CONTRACTED**

Sub-contracting of parts is not the normal policy of 50 % of the machine tool manufacturers interviewed. Others were not only getting various parts manufactured through sub-contracting but were also extending all possible assistance to their vendors.

Such Vendor Supplied parts include cast iron frames for lathes, power presses and wood working machines, table tops for wood working machines, 2" to 4" (dia) shafts, spindles, forgings, small castings, gears, bearings & bushes, 3 & 4 way chucks, drill bits, electrical items and flywheels for power presses and machine tools.

On an overall basis, 80 % of the respondents had no plans to subcontract any parts other than what they had already given. The remaining 20 % showed interest in manufacture of gears, piston pins and shaft spindles through sub-contracting.

3.2.4.4 **IN-HOUSE CAPABILITIES**

Most of the machine total manufacturers are making machines to their own designs, accordingly it was not surprising that 90% of the respondents indicated presence of an in-house designing capability. Furthermore 85% of the respondents indicated presence of an in-house machining facility meeting their requirements. Heat treatment facilities were available with 50% of the manufacturers while 44% had an in-house casting facility. Least common was an in-house die- casting facility which was present in case of only 12 % of the respondents.

3.2.4.5 **PROBLEM AREAS**

The average capacity utilization for the selected group of machine tool manufacturers works out to be 69 %. The factors mainly responsible for under utilization of the available capacity as determined from the survey are labor absenteeism, shortage of skilled labor, frequent power breakdowns, load shedding and shortage of funds for working capital.

Marketing related problems also existed in a number of cases which included inadequate product promotion, problems of distribution which was reported by 13 % of the respondents and problems of low margins and stiff price competition reported by 67 % of the respondents.

Another major problem reported was undue and too much interference of the government departments/ functionaries in the day-to-day affairs of manufacturers creating obstacles in their smooth functioning.

3.2.4.6 IMPACT OF IMPORTED USED MACHINE TOOLS

The survey has also tried to make an assessment of the impact that import of used machine tools has on the domestic machine tool manufacturing industry.

It was found that the import of used machine tools, re-conditioned locally before their deployment, has dropped since 1989-90 after problems of repairs and spare parts for these machines became more pronounced. There is a general feeling among the machine tool manufacturers that import of second-hand machine tools had little or no affect on local manufacture of machine tools.

A small section of the respondents was, however, of the view that the import has affected local industry in atleast two ways. Firstly, suppressing local market through satisfying a portion of the demand and secondly, slowing down the development of machine tool industry towards the high-tech end.

Reconditioned imported machines reportedly, as compared to locally manufactured machines are usually cheaper though in some cases they are also equal or even higher in price. However these machines, provided properly re-conditioned, give better quality than locally manufactured machines.

3.2.4.7 EXPORT OF MACHINE TOOLS FORM PAKISTAN

Mainly because most of the respondents comprised upper segment of the industry, results of the survey show that products from 60 % of the respondents have been exported at some point in time. However, in one-third of these cases, export was done by a third party since the manufacturer himself did not have the capability to procure and manage export business. Table 3-5 gives a breakup of the export sales based on products and countries.

Table 3-5

EXPORTS OF MACHINE TOOLS FROM PAKISTAN

S.NO	PRODUCT	EXPORTED TO:
1.	Lathe Machines	Saudi Arabia, Dubai, Oman, Other Middle Eastern Countries
2.	Drill Machines	Middle East
3.	Shaper	Middle East
4.	Power Hack Saws	Gulf, Saudi Arabia
5.	Power Presses	Bangladesh, Saudi Arabia, Abu Dhabi, etc..

TABLE 3-5

...Continued

S.NO	PRODUCT	EXPORTED TO:
6.	Hydraulic Presses	Sri Lanka
7.	Shearing Machines	Abu Dhabi
8.	Spindle Planer	Saudi Arabia
9.	Surface Planer	Saudi Arabia
10.	Milling Machine	Saudi Arabia
11.	Drum Turning Machine	Middle East

Respondents have a feeling that there are bright prospects for export of machine tools from Pakistan to Gulf and Middle Eastern markets besides other less developed countries such as Bangladesh, Sri Lanka and African countries. Following are the problems which have been obstructing exploitation of the export market to a greater extent as stated by the respondents:

- o Lengthy export procedures and local manufacturers lack of knowledge about these.
- o Lack of export marketing know how and facilities.
- o Insufficient information about export markets and their requirements.
- o Financial and capacity constraints.

The limitations as described above can be removed by undertaking a survey of the export markets like Middle East, Bangladesh, Sri Lanka and Africa countries. This will result in more specific information becoming available to PMTF on the basis of which it will be able to export its products on the one hand and side by side derive the advantage of utilizing the export proceeds to support its imports. Since PMTF is manufacturing precision machines other markets like Iran and Turkey can be aggressively pursued for exports. In this connection PMTF can collaborate with the Export Promotion Bureau for single manufacturer exhibitions in the stated markets or take part in specific engineering goods exhibitions in the markets mentioned above.

3.2.4.8 COMMENTS AND SUGGESTIONS

Respondents were asked about their future plans regarding addition of any new products. Only 15 % had such plans and the products being considered were wood working machines and specialized machines such as crank shaft grinders. They were also not in favor of sub-contracting parts to any public sector company which they think besides being more expensive, would cause delays.

It was suggested by the respondents that PMTF may explore the manufacture of pneumatic tools, compressors, drill bits and 3-way chucks for machine tools. It was further suggested that the government may not allow import of used machinery except by an industrial user directly.

Improvement in product quality through more stringent quality control and research/development and a more systematic approach towards marketing and sales, inter-alia, are the needs of this industry deserving higher priority.

3.2.4.9 CONCLUSIONS

PMTF was established to manufacture machine tools primarily as such product diversification should include extension into machine tool line which is diverse from current production. A number of machines which are in demand and being imported like surface grinding, horizontal boring, gear hobbing, radial drilling, broaching, gear grinding, CNC and transfer machines should be manufactured by PMTF because it can meet the quality requirements and produce machines equivalent to the imported ones. PMTF should take pains to retain its name.

3.2.5 SURVEY OF MACHINE TOOL IMPORTERS

Machine tools being imported in the Country can be divided into two broad classes viz those imported in the new (un-used) condition and those imported in second-hand (used) condition. These are being dealt separately in the following sections;

3.2.5.1 PRODUCTS BEING IMPORTED - NEW

A survey of 10 importers of un-used machine tools show that Lathe machines (Italy, Germany, Switzerland), Milling machines (UK, Germany, Switzerland), Drilling machines (Japan, Germany, Switzerland), Grinding machines (Germany, Switzerland) and Spark Erosion machines (EDM) are the machines most commonly being imported.

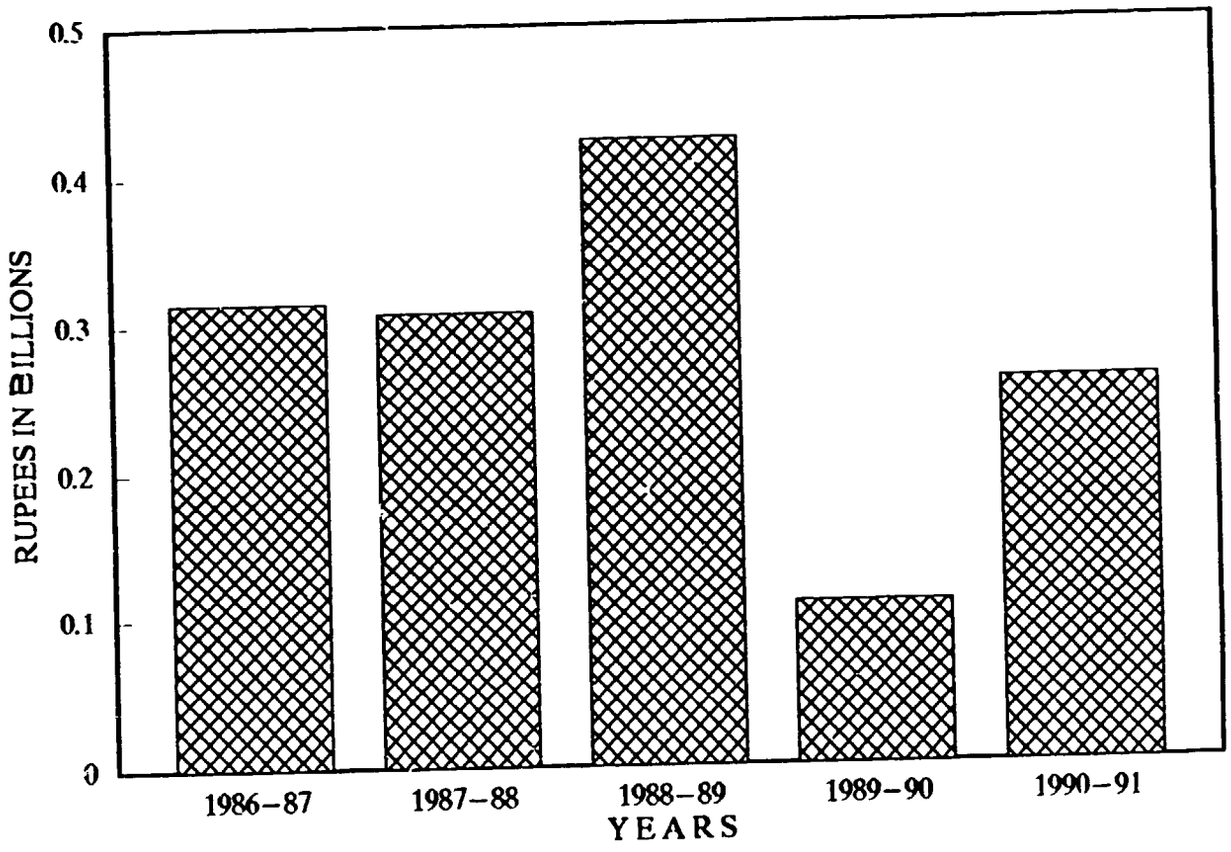
Other machinery and equipment in demand include Generators being imported form Japan, UK and Italy; Diesel and Petrol engines being imported mostly from Japan. Compressors, Leather products making machines and machines for hosiery and garment industries are also being imported from Japan.

Import of machine tools for the last five years are given at Table 2-2 (Chart 3-8). The machines mainly being imported include Lathe machines, Milling machines, Grinding and Surface Grinding machines, Planing and Shaping machines and Boring machines. The import figures show a mixed trend, however, if 1989-90 is disregarded, being an un- representative year where there was an unusual drop, the annual average import works to around Rs. 325 million. This shows that there is still a substantial scope in the local manufacture of machine tools even from the point of import substitution.

CHART 3-8

IMPORTS OF "MACHINE TOOLS"

1986-87 TO 1990-91



3.2.5.2 PRODUCTS BEING IMPORTED - SECOND HAND

Lathe machines (3-32 ft.), Milling machines, Shapers, Hobbing machines, Shear Cutters, Boring machines, Copy Milling machines and Four-in-one Combination Lathe machines (i.e. Lathe, Milling, Shaper and Drill) are being imported in used/secondhand condition. On the basis of our survey 60% of these machines come from UK, 30% from Germany and 10% from Japan.

Total import of the above machines by the 4 importers covered during the survey were 42 Lathes, 13 Milling machines, 16 Shapers, 7 Hobbing machines, 15 Shear Cutters, 13 Boring machines, 3 Combination Lathe machines and 1 Copy Milling machine.

3.2.5.3 USERS OF IMPORTED MACHINE TOOLS

On the basis of our survey it has been found that machine tools imported brand new are being used by the industry to the extent of 55%, by institutions (both private and public) to the extent of 35%, while the balance 10% of the imported machines are being used by the workshops.

Major buyers include SUPARCO, Karachi Shipyard, Pakistan Steel, PIA, PAF, Pakistan Army, HMC, Atomic Energy Commission, Pakistan Ordinance Factories,and other public and private sector industries.

Buyers of used machines are workshops and manufacturing units to the extent of 50% each. Second hand machines are sold on "as is where is" basis and reconditioning is arranged by the buyers themselves.

3.2.5.4 COMMENTS AND SUGGESTIONS:

Importers of machine tools feel that PMTF and PECO are making Pakistan's best machine tools however, the prices of these machines are more than the value they can deliver. These machines are simpler and preferable for average and above average quality work but are not trusted for high quality work for which customers demand imported machines and are willing to pay much higher prices.

Importers of used machine tools held the view that re- conditioned machines are better in quality and cheaper in price than all types of locally manufactured machines.

Some respondents did admit that most of the used machines they import are obsolete and out-dated from European standards. They also believe that the refurbished machines perform to the extent of 40-50% of similar new machines though in some cases the claim was upto 75%.

There is no major problem facing used machinery importers except the longer waiting time in case of few machines of specific design.

Apart from the above stated machines the following machines are also being imported in good quantities:

- o Surface Grinding machines
- o Horizontal Boring machines
- o Gear Hobbing machines
- o Radial Drilling machines
- o Broaching machines
- o Gear Grinding machines
- o Transfer machines
- o CNC Machine Tools

It is the considered opinion of the experts in the filed that the above machines are more suited for production at PMTF since they possess in-house capabilities to undertake all the jobs related to their manufacture. Design and development work will be required, however, this should not consume much time since with a little strengthening of its existing design section PMTF will be able to produce the required designs so as to place these products in the market within a time span of 6-12 months. Simultaneous with design and development, once the production of any of the above machines has been firmed up, a promotion campaign will need to be run to make the prospective consumers aware of the forthcoming production. This will ensure consumer interest and receipt of orders and will help PMTF in balancing its production programme accordingly.

3.2.6 SURVEY OF HAND TOOL MANUFACTURERS & IMPORTERS

The objective to cover hand tools was to study the machinery and equipments being used by the respondents from the point of view of their manufacture at PMTF. A total of 15 establishments were covered of which 8 were manufacturers and the remaining were importers of hand tools. The units covered are estimated to cater for about 15-20% of the locally manufactured hand tools.

3.2.6.1 PRODUCTS BEING MANUFACTURED AND IMPORTED

The hand tools being manufactured locally as gathered from the survey are Tool Kits, Ring Spanners, Open End Spanners, Screw Wrenches, Hammers, Agricultural Equipments, Wheel Wrenches, Plug Spanners, Socket Wrenches, Pliers, Chisels, Planers, Spindle Molders, Bend Saws, Chain Morticers, etc., Total Production of hand tools by the respondents for the years 1990-91 and 1991-92 is given in Table 3-6

TABLE-3-6

TOTAL PRODUCTION OF HAND TOOLS BY RESPONDENTS

ITEM	1991-92	1990-91*
Tools for Lineman (Rs.)	3,50,000	-
Tools for Fitter (Rs.)	6,50,000	3,00,000
Tools for Carpenter (Rs.)	10,90,000	50,45,000
Small Hand Tools (Rs.)	50,00,000	70,00,000
Hammers (Numbers)	10,000	8,000
Wheel Wrench (Numbers)	60,000	50,000
Spark Plug Wrench (Numbers)	90,000	87,000
Socket Wrench (Numbers)	1,98,000	1,50,000
Open End Wrench (Numbers)	50,000	45,000
Combination Pliers(Numbers)	90,000	45,000
Chisel (Kg.)	75,000	45,000
Planers (Numbers)	124	120
Spindle Molders (Numbers)	80	80
Bend Saws (Numbers)	125	125
Chain Morticers (Numbers)	06	04
Sizers (Numbers)	24	20

Source: NMC Survey

* Where nothing else is mentioned figure represent No. of units.

3.2.6.2 IMPORTS

Imports of hand tools for the last five years have been shown at Table 2-2 (Chart 3-9). The average annual import for this period works out to Rs. 341 million while it was at Rs. 378 million for the year 1990-91. Such a large import figure signifies that there exist potential for local manufacture of more and more hand tools, and in turn for manufacture and marketing of machines for this sector.

3.2.6.3 USERS OF HAND TOOLS

Hand tools find a very wide application, this include industries, workshops, garages, government and private sector concerns, etc.. An attempt was made to estimate some sort of a distribution of the product among various types of users, however, from the responses received no clear picture could emerge.

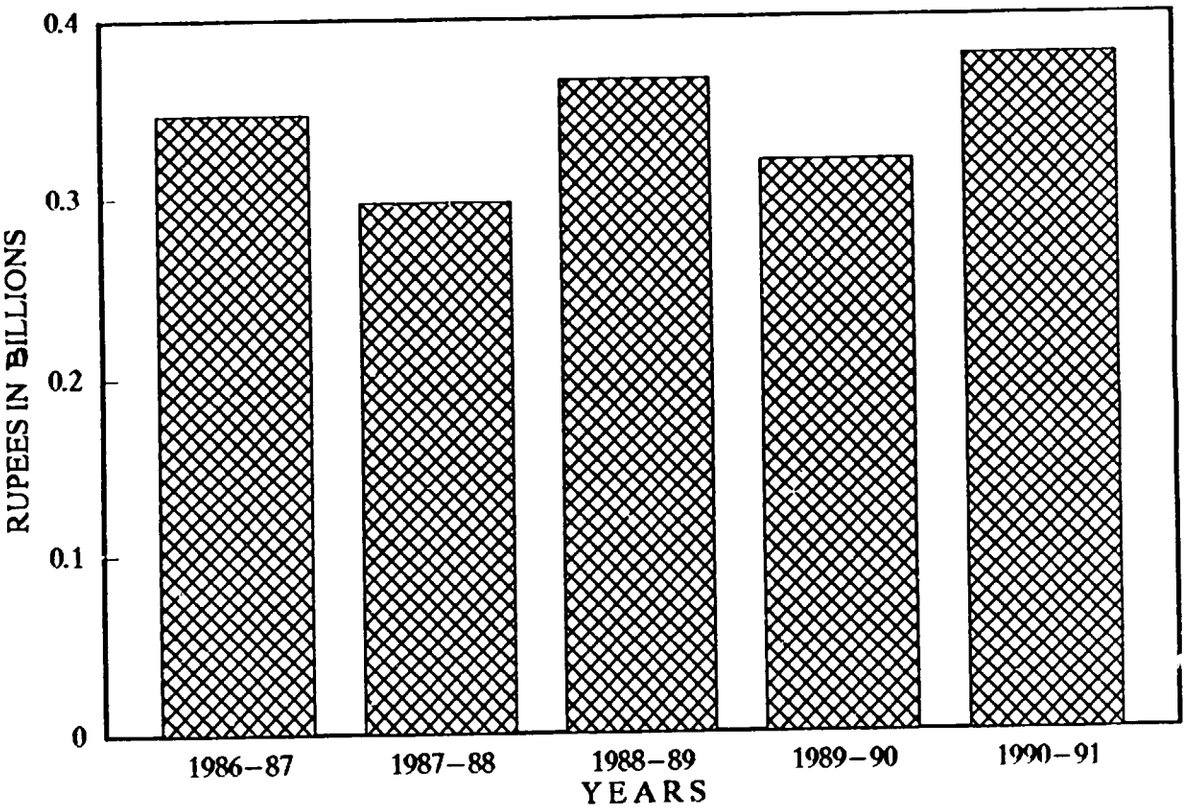
3.2.6.4 MACHINERY INSTALLED

Mainly due to the fact that the products being manufactured by this sector are small and simpler products of average to below average quality, the machines being in use are mainly general purpose machines tools. This included Lathes, Milling machines, Drilling machines, Power and Hydraulic Presses and Forging Hammers. The manufacturers mostly had small setups with an in-house heat treatment facility. Bulk of the machines in use are locally manufactured or imported second-hand machines. Details of the main machines possessed by the 8 manufacturers surveyed comprised 9 Lathes, 12 Milling machines, 16 Mechanical Presses, 3 Hydraulic Presses and 7 Forging Hammers.

CHART 3-9

IMPORTS OF "HAND TOOLS"

1986-87 TO 1990-91



works out to 55%.

Main problems being faced by the manufacturers are in the area of quality and price. The industry is facing stiff competition from imports mainly from China, S. Korea and Taiwan.

Smuggling of goods has further aggravated the problem.

Other problems of the industry are sub-standard raw materials, load shedding, non-supply of Sui Gas and low profit margin.

Some manufacturers have plans to produce electrically operated tools, diesel generators and agricultural equipments.

3.2.6.7 CONCLUSIONS

Hand tools though required in large quantities have a low unit price and the local production has to compete with illegal imports at dumping prices these products are therefore not considered suitable for addition to PMTF's product line. This sector was basically studied to review its machine tool requirements, however, the machine tools found to be in use were mainly the same as have already been discussed in section 3.2.4.

3.2.7 SURVEY OF TEXTILE INDUSTRY:

Survey of the textile sector covered 22 units of which 8 were weaving units, 9 were spinning units and 5 were composites having both spinning and weaving facilities. Total spindles surveyed were 432,000 and total looms surveyed were 2,565. Based on the figures given in the Pakistan Statistical Yearbook, the total number of textile manufacturing units reporting production during 1990-91 have been estimated as 265. The reported working capacity is 5,200,000 spindles and 9,000 looms. As such the selected sample covers around 8% of the existing spinning capacity and around 28% of the existing weaving capacity.

Other machines employed by the industry in substantial number include drilling and boring machines, shearing machines, grinding (bench, surface and cylindrical) machines, milling machines, injection molding and die casting machines, etc. Table 3-12 furnishes a detailed list of the main machines alongwith their numbers for the 12 electrical goods manufacturers surveyed.

TABLE 3-12

SURVEY OF ELECTRICAL GOODS MANUFACTURERS
MAIN PRODUCTION MACHINES EMPLOYED

S.NO.	MACHINE	NUMBER OF UNITS
1.	Lathe Machines	195
2.	Hydraulic Presses	40
3.	Power Presses	136
4.	Eccentric & Friction Presses	84
5.	Drill Machines	155
6.	Boring Machines	12
7.	Shearing Machines	27
8.	Milling Machines	26
9.	Copy Milling Machines	2
10.	Grinding Machines	36
11.	Cylindrical Grinders	15
12.	Shapers	10
13.	Planers	5
14.	Power Hack Saws	6
15.	Pressure Die Casting Machines	15
16.	Plastic Injection Molding Machines	20
17.	Spark Erosion Machines	2

Source: NMC Survey

3.2.9.4 SUB-CONTRACTING

Parts and services sub-contracted or purchased from outside by the surveyed units mainly include ball bearings, capacitors, bushes, guards for fans,

3.2.7.2 SPARE PARTS REQUIREMENT OF THE TEXTILE INDUSTRY

Table 3-7 presents a summary of the spare parts requirement of the weaving units compiled on the basis of responses received from 13 weaving units. The parts along with their prices have been listed in the order of frequency of their requirement. These parts get damaged during normal operations.

TABLE 3-7

WEAVING SPARES COMMONLY REPLACED

PART	NITS/YR/LOOM	AVERAGE PRICE/ NIT (RS)
Heald Wire	720	0.10 to 0.25
Bobbin	60	3.5
Side Lever	10	250
Picker	10	25
Shuttles	9	75 to 125
Picking Stick	5	250
Buffer	4	40
Movable Blade	2	70

Source: NMC Survey

Though all these spares are being manufactured locally the main source is still import from China except for Heald Wire which is also being imported from Italy. Locally manufactured Bobbins, Pickers, Picking Sticks and Buffers are also increasingly being used by the industry as the quality of these items is gradually improving. Use of low quality spares results in greater breakage and in turn in increased down-times. Normal average cost of spares per loom per year as estimated from the survey is Rs.5500 to Rs.6000.

Summary of spare parts requirements for the spinning sector compiled on the basis of responses received from 14 spinning units is presented at Table 3-8. The requirements have been worked out on a 12,500 spindles plant basis.

Respondents have expressed their desire to procure additional production machinery both to expand the production capacity and to add new products. This include injection molding machines, lathes and milling machines, power presses, grinders, CNC and Copy milling machines and automatic winding machines.

Demand for motors for special applications such as submersible pump motors and higher rating motors is presently being met through imports. Local manufacture of these motors is a potential area for PMTF to explore.

3.2.9.6 CONCLUSIONS

The demand for special type electric motors goes hand in hand with the demand for pumps as such the manufacture of KC type horizontal motors and submersible motors coupled with the respective pumps will provide a composite product for the market. Four thousand units of the horizontal motor and 400 units of the submersible motor can be annually produced by PMTF.

3.2.10 SURVEY OF AUTOMOTIVE ASSEMBLERS

Most of the automotive assemblers in the Country producing motorcycles, passenger cars, light commercial vehicles (LCVs), trucks, buses and agricultural tractors have been covered by the survey. The main objective was to determine the existing and potential demand for automotive components keeping in view the deletions already achieved and targets/plans being pursued by the assemblers for the future.

Among the motorcycle assemblers Atlas Honda and Suzuki were covered while National Motors, Ghandhara Nissan and Sindh Engineering were

TABLE 3-8

SPINNING SPARES COMMONLY REPLACED
(12,500 SPINDLES PLANT BASIS)

PARTS	UNITS/YR	AVG.PRICE(Rs.)
1. Steel Spinning Ring	5,000	25 to 75
2. Metallic Card Clothing	9	65000 to 80000
3. Fixed Cutter	5	2600
4. Drum Bush	14	2100
5. Spindle Shaft	14	3000
6. Stud	14	970
7. Cutter Assembly	9	1800
8. Drive Gear	3	1000

Source: NMC Survey

All the spinning spares as mentioned in the above table are being procured from Japan except for the Steel Spinning Rings, the main source for which is China while a secondary source for Metallic Card Clothing is Switzerland. Estimated cost of spares per spindle per year works out to Rs.1200.

Feedback on problems being faced by the textile units with regard to procurement of spares indicate that main problem in procurement of imported spares is high price which was identified by 50% of the respondents. This was followed by the problem of lead time which was identified by 45% of the respondents.

Regarding procurement of locally manufactured spares the main problems were "quality" of the spares which was identified by 72% of the respondents and "design" of the spares identified by 54% of the respondents.

Problems of high price and longer lead time with the imported spares and that of low quality and design with the locally manufactured ones, signifies that there is potential market for locally made spares of good quality and design.

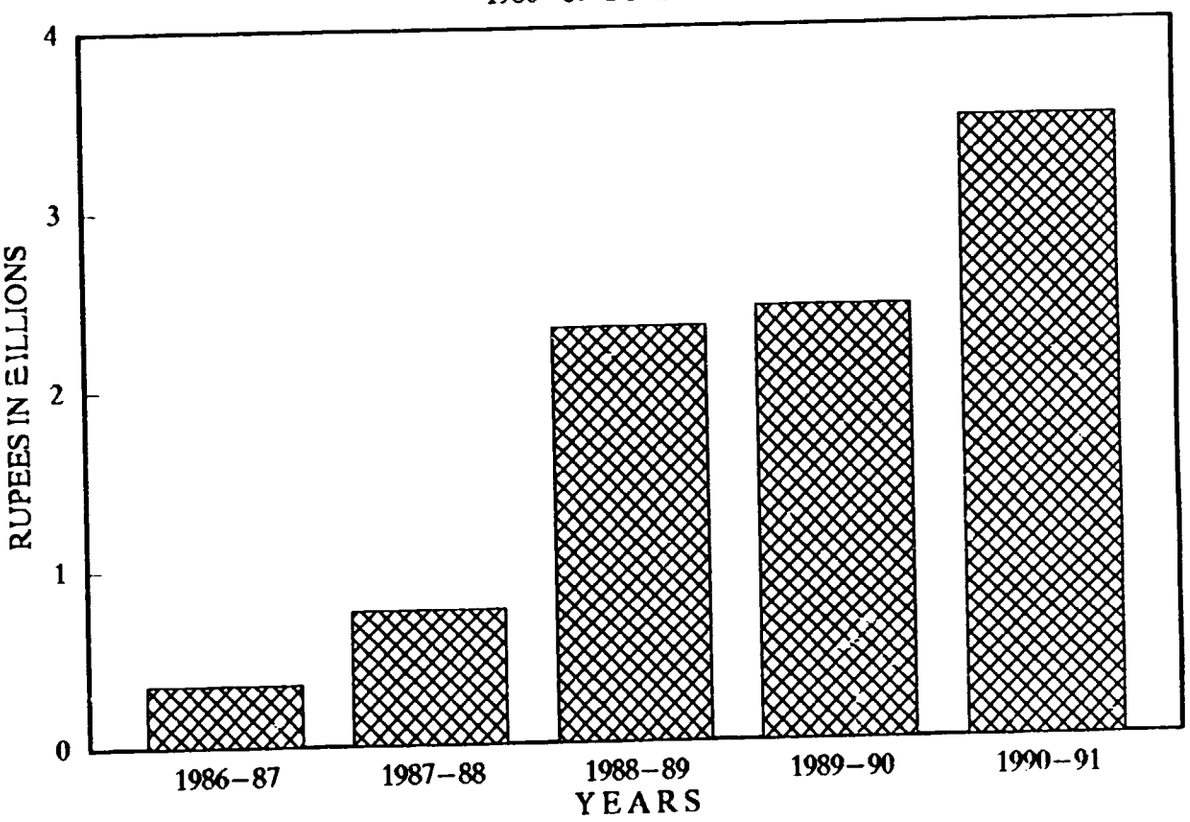
3.2.7.3 **IMPORTS**

Imports of textile machinery and parts for the last five years is given in Table 2-2 (Charts 3-10, 3-11, 3-12, 3-13) separately for spinning machinery, weaving machinery, spinning machine parts and weaving machine parts. The import of spinning machinery in a period of 4 years has increased from Rs. 340 million to Rs. 3472 million in 1990-91 representing an average annual increase of 230%. Similarly the import of weaving machinery from Rs. 296 million has increased to Rs. 1978 million in 1990-91 representing an annual growth rate of 142%. Theses very high growth rates in the import of textile machinery reflects the potential that local manufacture of these machines hold.

On the parts side the import of spinning machine parts, in a span of four years, has increased form Rs. 3 million to Rs. 809 million during the year 1990-91 showing a very high growth rate. While import of weaving machine parts show a mixed trend with import figures going down consistently during

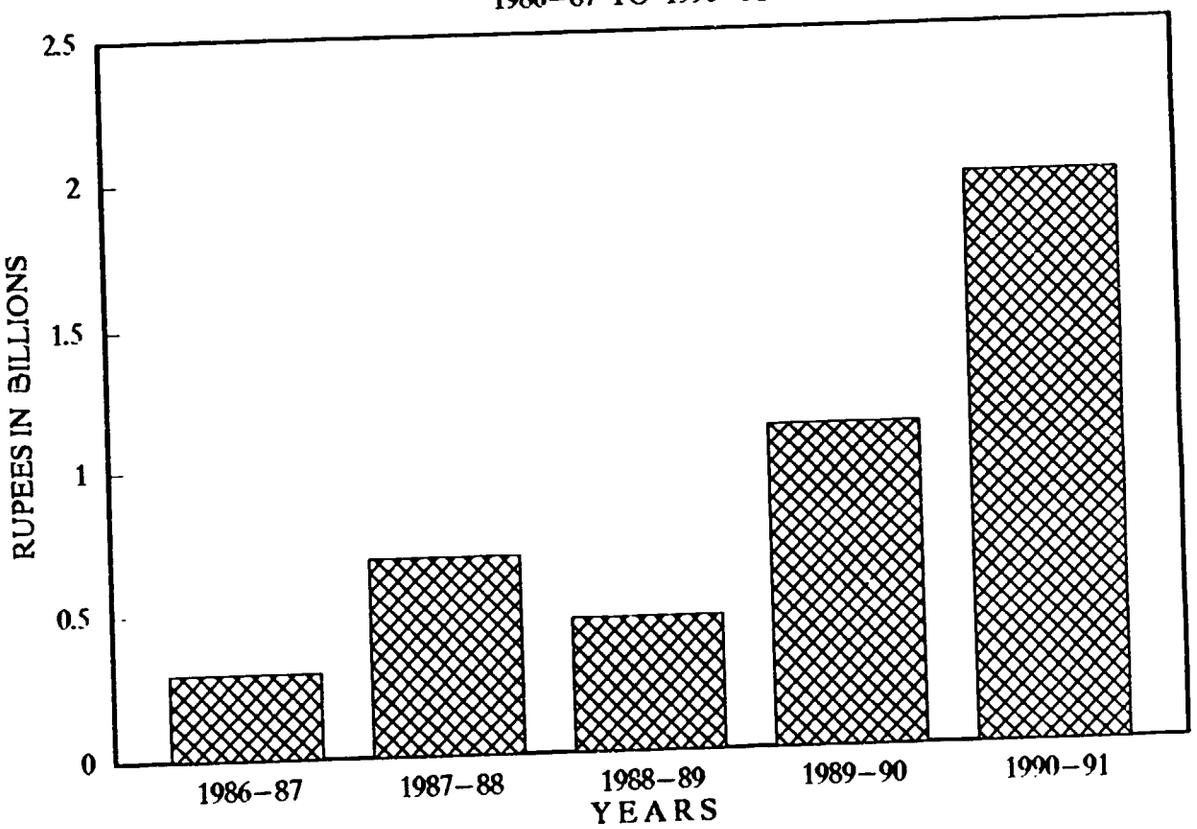
IMPORTS OF "SPINNING MACHINERY"

1986–87 TO 1990–91



IMPORTS OF "WEAVING MACHINERY"

1986–87 TO 1990–91



IMPORTS OF "SPINNING MACHINE PARTS"

1986-87 TO 1990-91

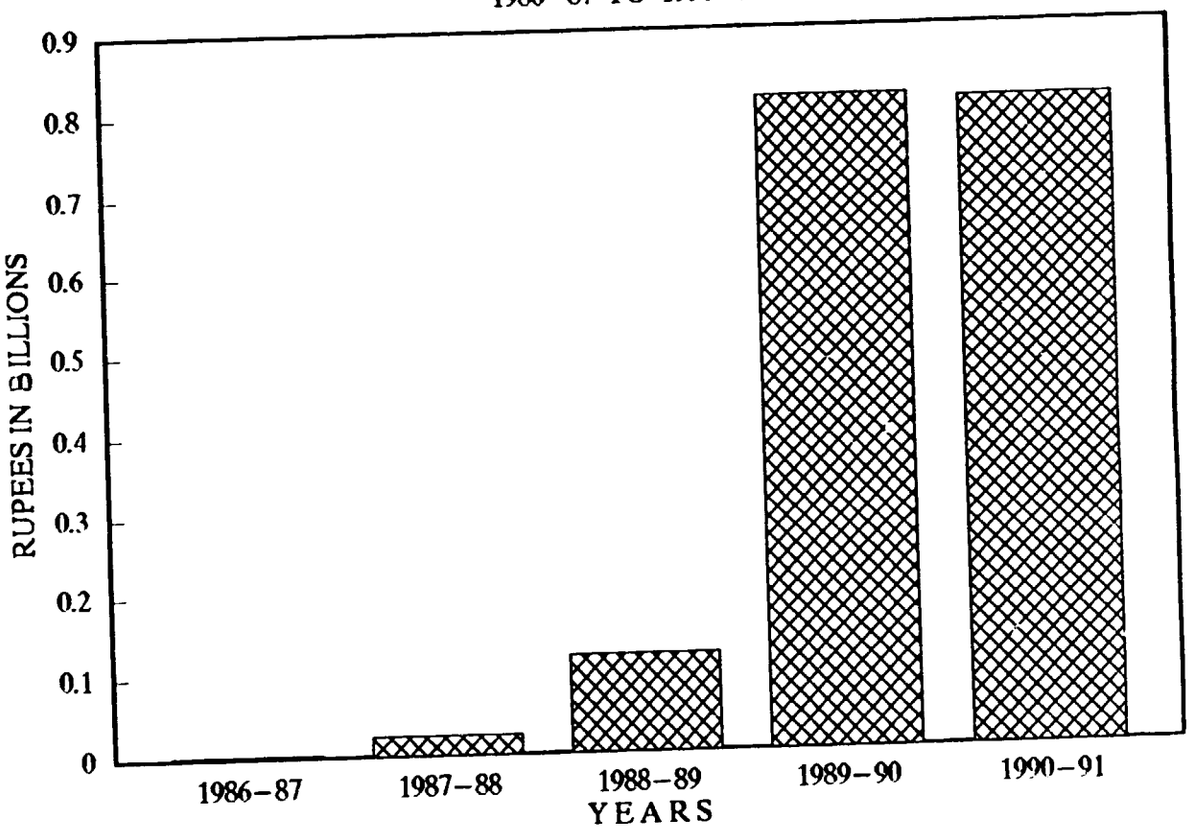
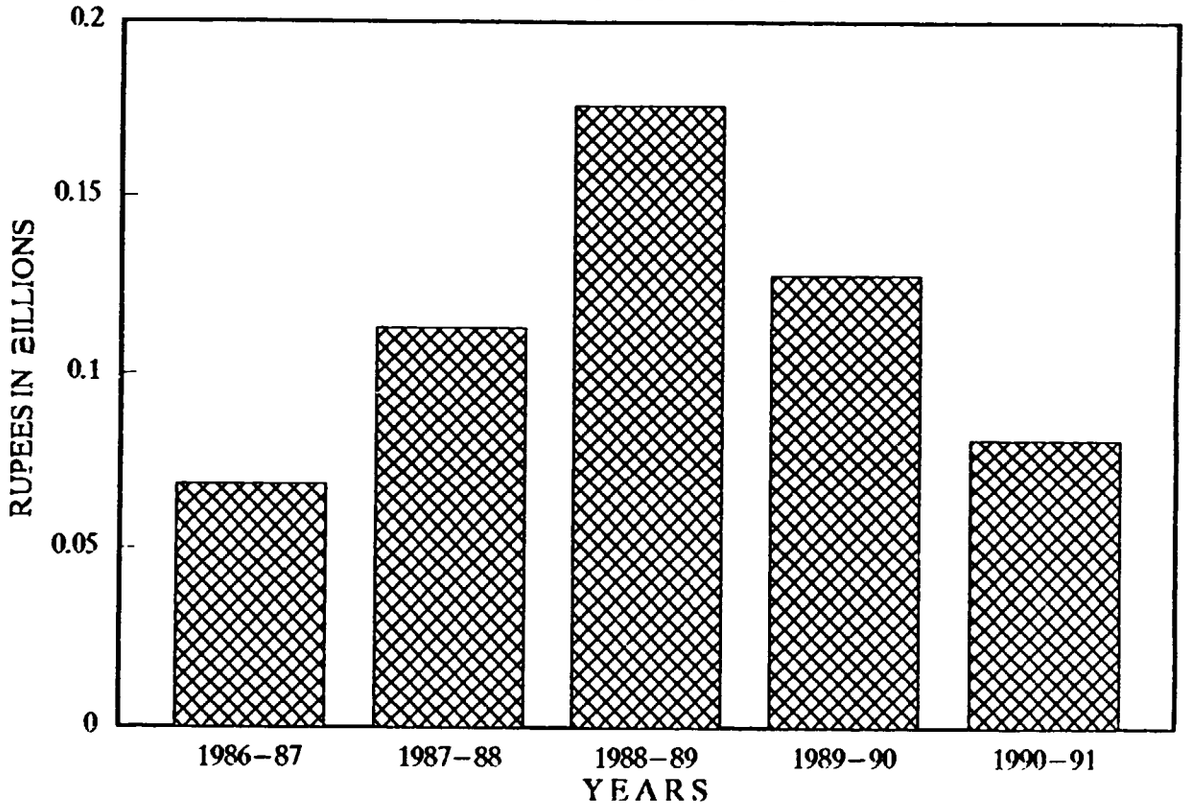


CHART 3-13

IMPORTS OF "WEAVING MACHINE PARTS"

1986-87 TO 1990-91



the last two years. These high import figures are reflective of the potential that local manufacture of textile machinery parts in general and spinning machinery parts in particular, hold.

3.2.7.4 COMMENTS AND SUGGESTIONS

Capacity utilization of the textile production units as determined from the survey are 87.7% for the weaving sector and 95.3% for the spinning sector. There are three main factors affecting capacity utilization, namely breakdowns, load shedding and labor and other problems. The weightages of these factors in the weaving and spinning sectors were found to be different as presented in Table 3-9

TABLE - 3-9

FACTORS AFFECTING CAPACITY UTILIZATION

CAUSE	RELATIVE WEIGHTAGE (%)	
	WEAVING	SPINNING
Breakdowns	40.7	14.9
Load Shedding	16.3	27.7
Labor & Others	43.0	57.4
	100%	100%

Source: NMC Survey

An important conclusion which may be drawn from a comparative analysis of the weaving and spinning sectors is that a comparatively higher capacity utilization in the spinning sector may be attributed to better quality foreign machines employed in greater number by this sector. The conclusion is further strengthened if we see that the contribution of breakdowns to loss of capacity is only 14.9% for the spinning sector as compared to 40.7% for the weaving sector.

It has further been found that 82% of all the textile units visited were having a substantial portion of locally manufactured machinery and equipment. The remaining 18% who were not using local machinery and equipment said that their basis for selection was primarily availability of better quality imported machinery.

Based on responses received, the textile machinery that can be manufactured locally is listed below:

WEAVING MACHINERY

- Power Looms
- Shuttleless Looms
- Warping and Sizing Machines

SPINNING MACHINERY

- o Blowing
- o Drawing
- o Simplex
- o Auto Cone Winder Spinning Frame

Of the above machines, Power Looms, Warping and Sizing Machines and Auto Cone Winder Spinning Frame are being manufactured locally while demand for other machines is being met through imports. However, quality of the locally manufactured machines leaves much to be desired and 90% of the respondents expressed different degree of dissatisfaction with it. While 20% of the respondents said that the design also needs improvement.

A large number of respondents expressed the view that through collaboration with foreign manufacturers of repute all types of textile machinery can be locally manufactured. The two names most commonly forwarded in this connection were Sulzer for weaving and Toyoda for spinning.

3.2.7.5 CONCLUSIONS

Shuttleless looms because of their high output producing quality, a very high unit price and an ever growing demand present an area which will not only be able to add very substantial volume to PMTF's turnover but will also add to its profits. Additionally it will serve to keep a part of production capacity constantly utilized. Technical collaboration arrangement with reputed foreign manufacturers should be expeditiously taken up to quickly tap the potential that this product carries.

3.2.8 SURVEY OF LEATHER GOODS MACHINERY MANUFACTURERS

Leather goods machinery manufacturing sector was surveyed to assess the potential for manufacture of related machinery. Few end-users of the machinery i.e. the manufacturers of leather goods were also surveyed to cover additional aspects such as other machines being utilized, demand and sources for supply of spares, performance of locally manufactured machines, etc..

3.2.8.1 TYPES OF MACHINES BEING MANUFACTURED

Types of machines being manufactured locally along with their broad specifications are given in Table 3-10 In many cases the same machine is being manufactured in a variety of sizes. In such cases the range of sizes observed during the survey has been mentioned.

TABLE - 3-10

LEATHER GOODS MACHINERY BEING MANUFACTURED IN PAKISTAN

S.No.	Machine	Broad Specifications
1.	Tanning Drums	4x4 ft. to 14x14 ft.
2.	Fleshing machines	1500 mm to 3000 mm
3.	Shaving machines	300 mm to 914 mm
4.	Setting-out machines	1500 mm to 3000 mm
5.	Buffing machines	12" to 24"
6.	Chuckrum (Softening) machines	-
7.	Glazing machines	30"
8.	Sole Leather machines	12 ft.
9.	Splitting machines	1500 mm to 2250 mm
10.	Finiflex machines	1800mm
11.	Automatic Spray Plant	-
12.	Measuring Machines (Electronic)	-
13.	Samming Machine	1500mm
14.	Toggel Drier	-
15.	Hydraulic Press	500 Ton

Source: NMC Survey

On the basis of information gathered from the leather goods manufacturers other main machines being used by leather goods industry are Lathe machines, Drill machines, Electrical saws, Grinding machines, Stacking machines and Shaper machines.

3.2.8.2 SPARE PART REQUIREMENTS

For the manufactures of leather goods, the spare parts required are Hydraulic Pumps and Valves, Pneumatic valves, Blades and Knives, Rollers, Felts and Grinding Wheels, parts for Sewing machines, forgings, etc.. Due to simpler nature of parts required, the industry does not have the practice of sub-contracting for manufacture of parts.

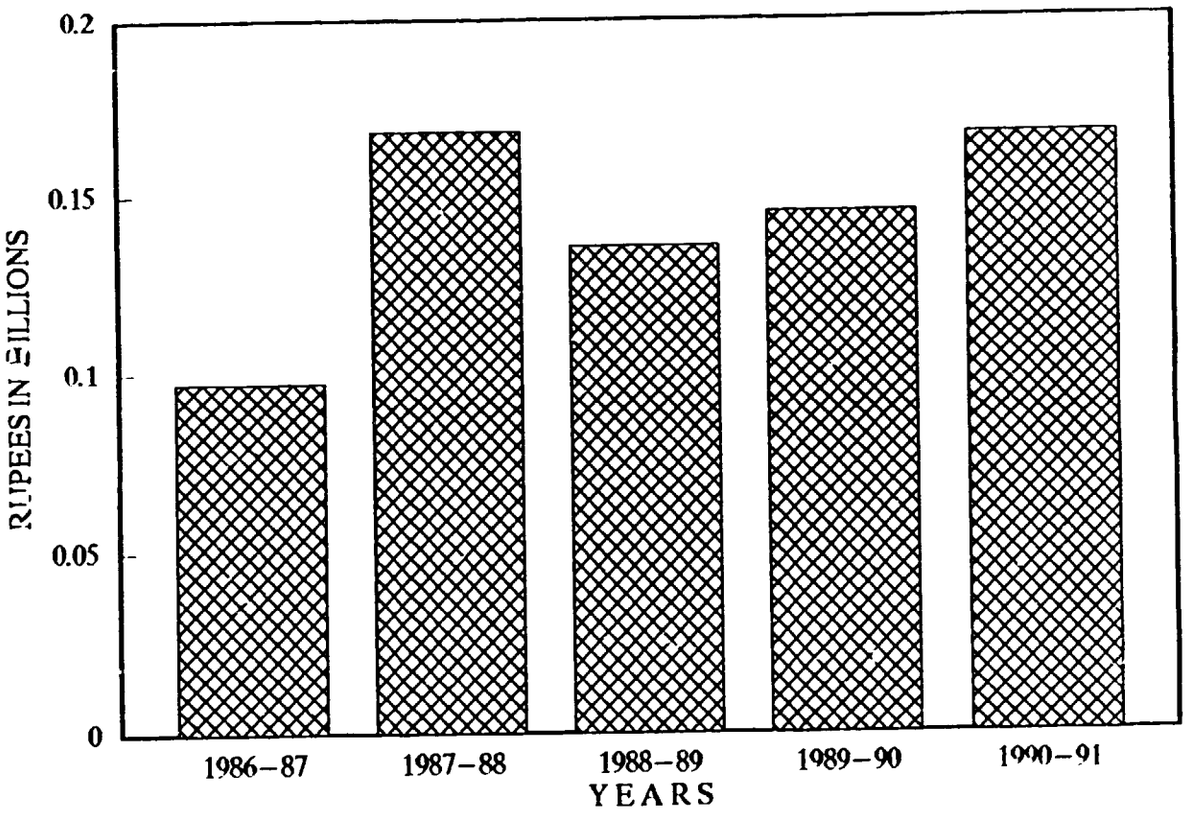
For manufacturers of leather goods machinery, spares mostly required are Bearings, Blades, Electronic Panels, Electric Valves, Spray Guns, etc.. While requirements for Milling and Foundry work, Gears and Shafts, etc. are usually met through sub-contracting.

3.2.8.3 IMPORTS

Figures for leather goods machinery imports are given at Table 2-2 (Chart 3-14). Not taking into account 1986-87, the annual imports for the last four years have remained more or less around Rs. 154 million, the average for this period. Leather goods machinery and parts worth Rs. 167 million were imported during 1990-91. Presence of a stable demand shows that local manufacture of leather goods machinery holds potential.

IMPORTS OF "LEATHER MACHINERY"

1986–87 TO 1990–91



3.2.8.4 COMMENTS AND SUGGESTIONS

The problems being faced by the leather goods machinery manufacturers are the same as common to the industry in general in Pakistan like load shedding, labor problems, lack of capital, supply of technical know-how etc.. There was also a feeling that quality of locally produced leather goods machinery needs improvement, suggested course of action for which was collaboration with a good foreign manufacturer of leather goods machinery.

Machinery and equipment that, in the opinion of leather goods manufacturers can be produced locally comprise cutting presses, conveyers, heating chambers, rubber and P.V sole molds, etc..

3.2.8.5 CONCLUSIONS

Leather shaving machines and leather splitting machines will also serve the purpose of balancing products if added to PMTF's product line. They can be developed in the medium term and 10 to 15 units of each can be annually produced. The advantage will be a better quality compared to other small scale local manufacturers.

3.2.9 SURVEY OF ELECTRICAL GOODS MANUFACTURERS

Manufacturers of electrical goods constitute a very important sector as far as deployment of machine tools is concerned. Main objectives to cover this sector were two fold, to evaluate the potential of this sector from the point of view of machine tool utilization and to explore the prospects whether any of the products from this sector can further be looked into from the point of view of their local manufacture at PMTF. Other secondary objectives were assessment of the spare parts and sub-contracting requirements of the sector. A comparison of the reported production figures shows that the sample on an average covers around 20% of the existing production capacity for this sector.

3.2.9.1 PRODUCTS BEING MANUFACTURED

Before going into the type of machines being employed it would be appropriate to have some idea about the products being manufactured by the 12 electrical goods manufacturing units surveyed. Total production of the respondents for the main items during 1990-91 and 1991- 92 is presented at Table 3-11

TABLE 3-11

TYPE & PRODUCTION OF ELECTRICAL GOODS MANUFACTURED BY RESPONDENTS

S.NO.	PRODUCT	PRODUCTION NOS.	
		1991	1992
1.	Electric Fans	143,793	135,748
2.	Electric Motors	5,920	6,699
3.	Distribution Transformer	862	1,157
4.	Energy Meters	64,827	32,359
5.	Air Conditioners	553	826
6.	Electric Switch Gears	13,000,000	14,000,000
7.	Automatic Pressure Switches	6,000	5,000
8.	Alternators	15,000	15,500
9.	Starters	300,000	300,000
10.	Armatures	3,300,000	3,300,000
11.	Electric Washing Machines	751	1,060
12.	K.C. Type (NEWMANN) Horizontal Motors	4,000	-
13.	Vertical Hollow Shaft Submersible Motors*	400	-

* Chinese motor being assembled locally using imported parts

3.2.9.2 **IMPORTS**

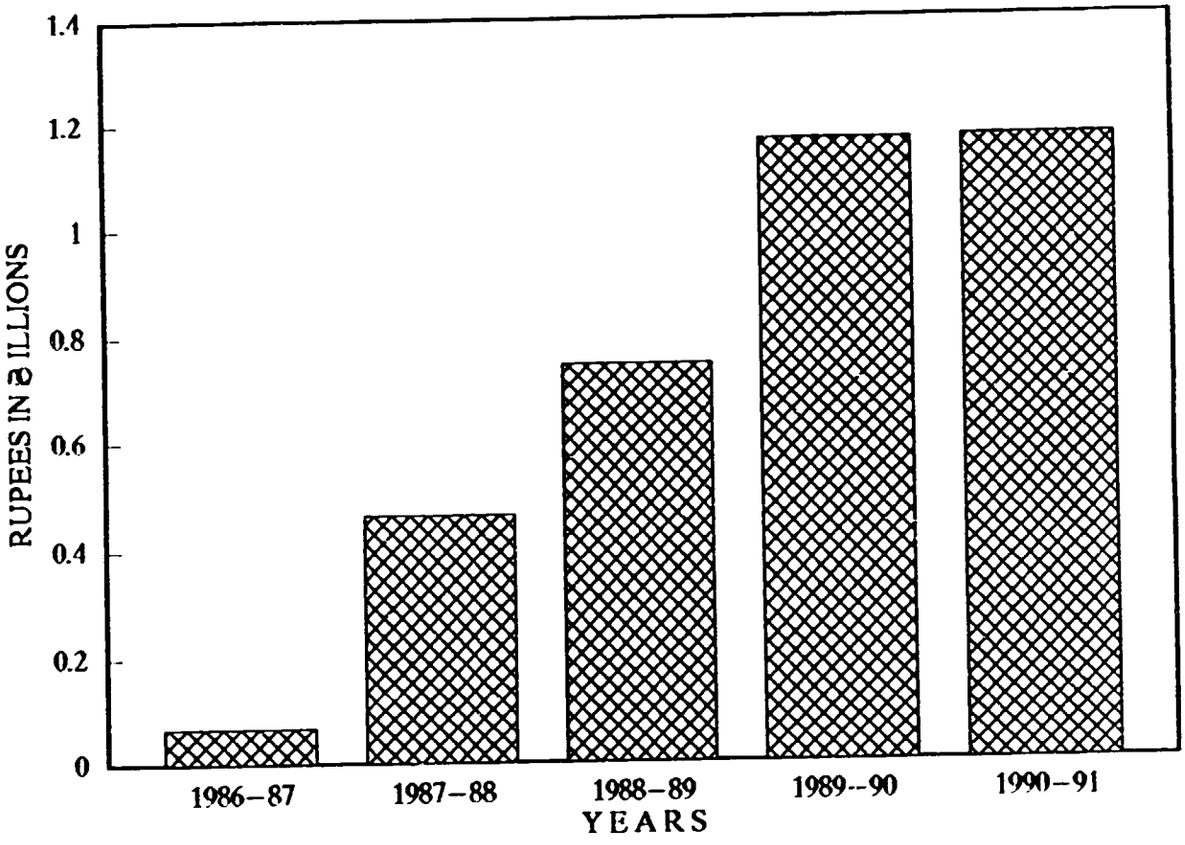
Imports of electric motors and generators for the last five years are shown at Table 2-2 (Chart 3-15). From Rs. 154 million in 1986-87 the imports have increased to Rs. 1169 million in 1990-91. This is indicative of a very high growth in the demand for electric motors and generators and the potential that local manufacture of these items hold.

3.2.9.3 **MACHINERY INSTALLED**

The sector employs a wide variety of production machines extending from simplest to most sophisticated machines. Information gathered on the basis of a sample comprising 12 electrical goods manufacturers show that lathe machines are the most common, these are mostly centre, precision and bench lathes with few capstan and turret lathes. This is followed by presses most of which are power presses, hydraulic presses and eccentric and friction presses.

CHART 3-15

IMPORTS OF "ELECTRIC MOTORS/GENERATORS"
1986–87 TO 1990–91



In the case of trucks and buses the deletion target to be achieved by June 1993 is 50% and an average deletion of 45% has already been achieved by various assemblers in this category. In the case of MF 240 Tractor, 83% deletion has already been achieved against a target of 85%, whereas, for MF 375 Tractor, 51% deletion has already been achieved against a target of 66% by June 1993.

For motorcycles the main components planned for deletion within the next three years are gears, clutch, front fork, regulator rectifier and electrical components.

For upto 1000cc cars, pickups and vans, panel main floor, panel front and rear doors, panel back door, oil pan, engine valves and gaskets, rear axle and camshafts are the main components planned for deletion within the next three years.

For trucks and buses the main components that are to be deleted in the next three years are propeller shaft, glasses, change assembly lever, inlet manifold, axle hub, flywheel housing, pulleys and long members.

For agricultural tractors connecting rods, crankshafts, straddle axle and front support are the main components planned for deletion within the next three year period.

3.2.10.2 SUPPLY OF TECHNOLOGY

As per terms of the technology transfer agreements between foreign principals and various local assemblers the foreign principals are responsible for supplying manufacturing technology only in respect of items of proprietary nature. While for non-proprietary items the principal's would facilitate establishment of contact by local vendors with counterpart overseas vendors serving as vendors to the principals. In case of Honda there is also a restriction that all items of proprietary nature can only be manufactured in-house.

3.2.10.3 VENDORIZATION THROUGH PMTF

Both Honda and Suzuki Motorcycles have said to have already approached PMTF for production of Aluminum die cast parts for motorcycles. Most of these parts have either been developed or are in an advanced stage of development. Both these assemblers also said to have approached PMTF for development of motorcycle gears.

Pak Suzuki has approached PMTF for components such as hub engine cooling fan, pipe water inlet, case distributor, cap water inlet, housing oil seal and rocker arm. Except for rocker arm, the others are all aluminum die cast items. All these items are in advanced stage of development at PMTF and in most cases samples have also been provided to Pak Suzuki.

In case of trucks and buses assemblers have approached PMTF for development of propeller shaft, water body and oil pump body for one make. One assembler expressed the view that PMTF does not entertain low volumes and requires long development time. It was suggested by one assembler that assembly of propeller shaft, transmission and steering gears could be potential areas for PMTF to look into as this would only require some investment in testing facilities and enable PMTF to cater for several makes. The combined OEM demand for each of these assemblies would be in excess of 4000 units per year for various makes.

3.2.10.4 COMMENTS AND SUGGESTIONS

PMTF has a comparative advantage in the area of aluminum die casting. It is already producing such parts for Honda and Suzuki motorcycles /automobiles. PMTF may further explore this area and try to develop more parts specially for Pak Suzuki's range of products and motorcycles where a substantial deletion has yet to be achieved. One such component is transmission housing for Suzuki car, Pickup and Van. The combined volume for this aluminum die cast part is 90,000 pieces for OEM market alone. Besides casting, the machining of this component is another attractive area for PMTF to explore. In fact both these activities are complimentary in nature.

Manufacture of transmission gears for Honda and Suzuki Motorcycles, having a combined demand of 60,000 sets per year for the OEM market alone, is another potential area.

Manufacture of transmission gears for Suzuki range of products (car, pickup, van) is an area where there are so much volumes that it alone can generate substantial business for PMTF. A combined demand of 45,000 per year currently exists for the OEM market alone. A decision on this will of course have to be made keeping in view the element of risk due to privatization of Pak Suzuki, a more liberal approach of the government towards deletion and a relatively high amount of investment required.

Manufacture of clutch assemblies and suspension shock absorbers for motorcycles and automobiles may also be explored by PMTF. These items have a large replacement demand besides the OEM market.

During 1990-91 clutches/clutch parts and suspension shock absorbers worth Rs. 5.84 million and Rs. 4.6 million respectively were imported for the spare parts market alone. the manufacture of these components may however be undertaken only under technology transfer agreements with manufacturers of standing.

3.2.10.5 CONCLUSIONS

As already discussed in section 3.2.10.4 PMTF can keep on exploring the viability of OEM manufacture of the stated parts/assemblies. Since PMTF already possesses the relevant experience, the development of additional

components should not be a problem, however, these developments should be viewed in the long term perspective because of the effect of the government policy.

3.2.11 SURVEY OF AUTO REPAIR WORKSHOPS

The survey was extended to include auto repair workshops after such a request was made by PMTF on July 16, 1992 during presentation of the Interim Report by NMC.

The auto repair workshop sector is sub-divided into two further sub-sectors viz auto maintenance/repair workshops providing general repair/maintenance services such as engine overhaul, wheel balancing/alignment, engine tune-up, servicing, etc., and auto parts repair workshops providing more in-depth engineering services relating to repair/manufacture of parts such as cylinder boring, shaft grinding, valve grinding, etc..

3.2.11.1 MACHINERY INSTALLED

Machinery and equipment employed by auto maintenance/repair workshops mainly comprise engine analyzer, hydraulic and electric lifts, compressors, wheel balancing & alignment equipment, injection pump machine and brake testers. Except for hydraulic lifts rest of the equipment was all imported mostly from Germany, Japan, Italy and France.

For the auto parts repair workshops main machinery installed comprised boring machines, grinding machines (crank shaft, valve and surface grinders) lathe machines, electric welding equipment and drilling machines. Further details in respect of the machinery/equipment are given in table 3-13

TABLE 3-13

AUTO PARTS REPAIR WORKSHOP
MACHINERY/EQUIPMENT INSTALLED

(4 Respondents)

S.NO.	MACHINERY/EQUIPMENT	SOURCE	NOS.
1.	Boring Machines	Pakistan	1
		Japan	2
		China	1
		Hungary	1
		Italy	1
2.	Grinding Machines (crank shaft, valve, surface grinding)	Pakistan	10
		Italy	1
		China	1
		Denmark	1

TABLE 3-13

...Continued

S.NO.	MACHINERY/EQUIPMENT	SOURCE	NOS.
3.	Honing Machines	Czechoslovakia	1
		Japan	1
4.	Lathe Machines (4 to 10 ft)	Pakistan	7
5.	Electric Welding Equipment	England	1
		Czechoslovakia	1
6.	Drilling Machines	Pakistan	1
7.	Hydraulic Presses	Germany	1

3.2.11.2 SPARE PARTS REQUIREMENTS

The spare parts requirement of the auto repair/maintenance workshops comprise mainly of automotive parts frequently replaced. This include brake pads and drums, air and oil filters, clutch accessories, pistons, rings, bearings. etc..

For the auto parts repair workshops, the spare parts required commonly are chucks, bearings, gears and compressor parts such as pistons, crankshafts and valves. Information on sources for these components are given in Table 3-14

TABLE 3-14

AUTO PARTS REPAIR WORKSHOPS
SPARE PARTS REQUIREMENT

S.NO.	PART	SOURCE
1.	Chucks	China/Eastern Block Countries
2.	Bearings	Japan, Australia, England
3.	Gears	Local Market, In-house Manufacture
4.	Compressor Parts	
	Crank	Pakistan
	Pistons	Japan/Korea
	Valves	Imported/Local

3.2.11.3 COMMENTS AND SUGGESTIONS

Of the auto maintenance/repair workshop equipment electric and hydraulic lifts, compressors and injection pumps can be manufactured locally. While all the machinery/equipment being used at the auto parts repair workshops can also be manufactured locally.

3.2.11.4 CONCLUSIONS

This sector represents one of the most suitable users of machine tools manufacture by PMTF because of the high precision machining requirements of this sector. Presently, a major portion of the machinery installed is imported and can be replaced by PMTF manufactured machines. The machines recommended under section 3.2.4 will have a market in the auto repair workshops as well.

3.2.12 SURVEY OF DFIs AND COMMERCIAL BANKS

Development Finance Institutions (DFIs) and commercial banks were included in the survey to get their views on local machinery and opinion about PMTF and its capabilities. Upon interviewing four of the main DFIs (NDFC, Bankers Equity, PICIC and IDBP) it was found that the responses were quite general and more or less similar. Expecting similar responses from the commercial banks the survey was not extended to them.

3.2.12.1 MACHINERY FINANCED IN LOCAL CURRENCY

In the textile and spinning sector; Boilers, Humidification Plants, Electric Panels and Shuttle Looms are mostly locally financed. In the sugar industry only attachments are imported while all the main equipment is local, this includes Crushing Mills, Evaporators, Crystallisers, Centrifuges and Boilers. In the engineering sector locally manufactured machine tools such as Lathes, Milling machines, Grinding machines Shapers and Drilling machines are usually preferred and are generally financed. While in the solvent extraction and ghee (hydrogenated oil) making sector almost 90% of the machinery being utilized is local.

3.2.12.2 MACHINERY FINANCED IN FOREIGN CURRENCY

In the textile and spinning sector, main equipment for blow room, auto winder and air-conditioning plants are financed in foreign currency besides the shutleless looms. For the sugar industry turbines, hydraulic systems and generators are foreign currency financed.

In the engineering sector precision machine tools, CNC machines, spark erosion machines and copy milling machines are the ones most commonly financed in foreign currency. If LMM (Locally Manufactured Machinery) financing is expressed as a percentage of total plant and machinery financing than this ratio is less than 10% for the engineering sector, less than 20% for the textile chemical and petro-chemical sectors and over 70% for the cement, sugar and ghee/solvent oil sectors. These are rough estimates based on responses received from the DFIs.

3.2.12.3 COMMENTS AND SUGGESTIONS

Some DFIs try to keep themselves up-to-date on availability of locally manufactured machinery and equipment and prefer its use by clients wherever local machines can meet project requirements. For example if the cheaper locally manufactured machinery/equipment available in the market seem capable of meeting the project requirements, project sponsors are sometimes asked to justify selection of more costly imported versions. However, this policy varies among the DFIs some of which believe in a policy of non-interference in selection of machinery/equipment so long as the prices are truly reflective. The underlying assumption being that clients would

normally go for locally manufactured machines wherever these can deliver desired quality and use the LMM financing which is heavily subsidized (only 8% verses 14/15% for foreign currency financing)

DFIs hold a good view about PMTF machines which according to them have reasonably good quality and precision. However, the prices are considered quite high. PMTF products are considered by DFIs as free from the evil of over-invoicing. IDBP has so much trust in PMTF that their machines are approved even on single quotation basis.

3.2.12.4 CONCLUSIONS

PMTF should maintain a liaison with DFIs and Commercial Banks to keep them properly informed of its product line since it has been gathered from the survey that some of these institutions are not fully aware of PMTF's capability and potential.

CHAPTER 4

RECOMMENDATIONS

4.1 CRITERIA FOR SELECTION

The criteria for developing recommendations for product diversification for PMTF are based on the potential market and PMTF's capability to manufacture products with minor additions to its tooling or capital equipment.

While recommending additional products for PMTF, the consultants have endeavored to suggest products for end use market rather than intermediate products. Such a strategy would ensure higher profit margin for PMTF.

Recommendations have been developed to specify products for short term, medium term and long term development. This is based on both the time lag required to develop a detailed understanding of the product and investment requirements.

Short term implies a development and marketing time of 6-12 months. Medium term extends this time span to 1-3 years while long term means development time beyond 3 years.

Minimal investment could mean below 1 million rupees. Medium investment implies 1-7 million rupees and substantial investment could be as much as Rs. 7 million or more.

Recommendations have been drawn-up to suggest products which can be placed on the market and which thus shift part of the marketing burden to intermediaries or the distribution channels. This strategy provides the required amount of flexibility in operations since products remain sale-able the year round and the manufacturers dependence on buyer's orders is limited.

Naturally, for the different products recommended the channels of distribution will be different and PMTF may have to create independent marketing sections within its overall marketing setup. In fact the entire marketing department will need to be restructured and geared to a marketing oriented approach. This will be converse of the production oriented approach of marketing as being currently followed.

Products being recommended for the short term may be immediately taken in hand for development of detailed specifications, designs and raw material procurement. Side by side the marketing department may take up the job of

investigating distribution channels best suited to the products. Dealers could be appointed who would be willing to provide deposits against quantities they agree to purchase. This will ease pressure on PMTF's own financial resources and it will be able to invest dealer funds in its manufacturing operations.

The recommendations assume that PMTF will be able to acquire/develop relevant technologies for manufacture from international and local sources. The success of the product diversification exercise will entirely depend on the ultimate quality of products that PMTF will place in the market. In case of parts/machinery currently being imported, PMTF will have to match its production with the specifications of imported products. In case products recommended are currently being manufactured by small producers lacking the multifarious facilities which PMTF possesses, PMTF's production will need to be much better in quality and simultaneously cost effective.

Keeping in view the current situation viz-a-viz overall market conditions, products recommended for manufacture at PMTF and the existing state of PMTF, it would be advisable for PMTF to initially go for product diversification. Market diversification will have to be resorted as soon as the criteria for product quality and price have been met. However, since the transformation will have to be gradual, PMTF will have to follow an appropriate approach to meet the requirements of the selected product mix.

4.2 MACHINERY/EQUIPMENT RECOMMENDED FOR MANUFACTURE

A summary of the machinery and equipment that need to be explored further from the point of view of its manufacture at PMTF is presented at Table 4-1. The products have been identified through the survey on the basis of criteria already discussed in the previous section. A brief writeup on each selected product is given in the following sections.

The details of customs duty and sales tax applicable an import of various products are shown in Table 4-2 alongwith the applicable sales tax on locally produced items. Other import incidentals take up another 30% of the import value of any machinery.

4.2.1 CENTRIFUGAL PUMPS

Centrifugal pumps for industrial applications are currently not being manufactured. The existing manufacturers are mainly catering to the needs of agricultural and domestic sectors. It has been observed that centrifugal pumps in 2 to 8 inches size in cast iron volute casing have a potential demand. The additional investment requirement in plant and machinery will be minimal since casting of volute casing and impeller blades can be sub- contracted. Machining, balancing, final assembly and testing can be undertaken by PMTF.

TABLE 4.1
PRODUCTS RECOMMENDED FOR DIVERSIFICATION

S.NO.	NAME OF ITEM	GENERAL SPECIFICATIONS	APPROX UNIT VALUE	ANNUAL POTENTIAL MKT.	USER SECTOR	WHEN TO MFR.	ADDL. INVEST. REQD.	AVAIL. OF TECH.	REMARKS
	A) MACHINERY/EQUIPMENT								
1.	CENTRIFUGAL PUMPS	2" TO 8" SIZE OF CAST IRON VOLUTE CASING	RS. 800 - 8000	5000	WATER SUPPLY IN CONSUMER/INDUSTRIAL SECTOR	SHORT TERM	FOR IMPELLER BLADE MANUFACTURING MINOR	FAIRLY COMMON	VOLUTE CASING (CASTING) MAY BE SUB CONTRACTED.
2.	SUBMERSIBLE PUMPS (WITH VERTICAL HOLLOW SHAFT MOTOR)	2" TO 4" SIZE OF STAINLESS STEEL	RS. 8000 - 10000	100	WATER SUPPLY AUTHORITIES AREA ZONES	MEDIUM TERM	FOR IMPELLER BLADE MANUFACTURING	AVAILABLE WITH IN PAKISTAN	SHEET METAL PARTS MAY BE SUB CONTRACTED.
3.	GATE/GLOBE VALVE	2" TO 8" SIZE OF CAST IRON (S.S SEAT)	-	4000	WATER SUPPLY CONSUMER/INDUSTRIAL	SHORT TERM	MINOR	FAIRLY COMMON	C.I CASTINGS MY BE SUB CONTRACTED
4.	BALL VALVE	2" TO 8" SIZE OF C.S (HIGH PRESSURE)	-	6000	INDUSTRIAL NON CORROSIVE	SHORT TERM	MINOR FOR TEST EQPT	FAIRLY COMMON	QUALITY OF PRODUCT WILL DETERMINE THE ACCEPTABILITY IN MARKET.
5.	STEAM TRAP VALVE	1/2" TO 2" OF C.S	-	3000	INDUSTRIAL UTILITIES	MID TERM	MINOR	AVAILABLE IN PAKISTAN	QUALITY OF PRODUCT SHOULD BE CLOSE TO EUROPEAN MAKES.
6.	SUB-MERSIBLE MOTOR VERTICAL HOLLOW SHAFT	-	-	400 APPROX	WATER SUPPLY INDUSTRIAL/ CONSUMER	SHORT TERM TO MEDIUM TERM	MEDIUM RANGE	ASSEMBLIES TECHNOLOGY AVAILABE, PARTS TECH PARTIALLY (40%) AVAILABLE	STAINLESS STEEL METAL WORK MAY BE SUB CONTRACTED.
7.	K.C TYPE (NEUMANN) HORIZONTAL MOTOR	HIGER RATING OVER 8-10 H.P		4000	WATER SUPPLY INDUSTRIAL/ PUBLIC SECTOR	MEDIUM TERM	MEDIUM RANGE	AVAILABLE IN PAKISTAN	TO CAPTURE THE HIGHER END OF THE MARKET THEY MAY COLLABORATE WITH ESTABLISHED COMPANIES LIKE (NEUMANN/SIEMENS)
8.	VIBRATORY POLISING MACHINE	-	RS. 1200,000	15	SURGICAL & CUT	SHORT TERM	MEDIUM	LOCAL DEVELOPMENT	T. COLLABORATION
9.	ULTRA SONIC CLEANING MACHINE	-	RS. 600,000	15	SAME	SHORT TERM	YES/MEDIUM	YES/LOCAL	T. COLLABORATION

S.NO.	NAME OF ITEM	GENERAL SPECIFICATIONS	APPROX UNIT VALUE	ANNUAL POTENTIAL REQ.	USER SECTOR	WHEN TO REQ.	ADDL. INVEST. REQD.	AVAIL. OF TECH.	REMARKS
10.	HYDRAULIC FORGING HAMMER	-	RS. 120,000	50	SAME	SHORT TERM	NO	LOCAL	-
11.	SHEAR CUTTING M/C	-	RS. 100,000	50	SAME	SHORT TERM	NO	LOCAL	-
12.	COMBINATION LATHE	LATHE + SHAPER + MILLING + DRILL M/C	RS. 200,000	50	INDUSTRY	SHORT TERM	MINIMAL	LOCAL	PRTF IS CAPABLE OF MANUFACTURING
13.	SHAVING M/C	-	RS. 300,000	20	LEATHER	LONG TERM	MEDIUM	FOREIGN & LOCAL	T. COLLABORATION
14.	SPLITTING MACHINE	-	RS. 250,000	20	LEATHER	LONG TERM	MEDIUM	FOREIGN & LOCAL	T. COLLABORATION
15.	SHUTTLELESS LOOM	-	RS. 2200,000	150	WEAVING	MEDIUM TERM	SUBSTANTIAL	IMPORT TECHNOLOGY	T. COLLABORATION WITH SULZER ETC AND DEVELOP VENDORS.
	B) SPARE PARTS								
1.	STEEL SPINNING RING	-	RS. 75 - 100	2 MILLION	TEXTILE SPINNING	SHORT TERM	MINOR	AVAILABLE IN PAKISTN	COLLABORATE WITH KAMAI, TOYODA OR MURATA OF JAPAN FOR PROGRESSIVE MANUFACTURE REVERSE ENGINEERING MAY ALSO BE PURSUED.
2.	SPINDLE SHAFT	-	RS. 3000	5000	TEXTILE SPINNING	SHORT TERM	MINOR	AVAILABLE IN PAKISTAN	
3.	[illegible] F BOOSTER	-	RS. 2100	5000	TEXTILE SPINNING	SHORT TERM	MINOR	AVAILABLE IN PAKISTAN	
4.	[illegible]	-	RS. 2100	5000	TEXTILE SPINNING	SHORT TERM	MINOR	AVAILABLE IN PAKISTAN	

SHORT TERM = 6 TO 12 MONTHS
MEDIUM = 1 YEAR TO 2 YEAR
MINOR INVESTMENT = 0 TO 1 MILLION OR THEREABOUT
MEDIUM INVESTMENT = 1.0 TO 7.0 MILLION
SUBSTANTIAL INVESTMENT = RS. 7 MILLION OR MORE

TABLE 4-2

DUTIES AND TAXES

PRODUCT	CUSTOMS DUTY (%)	SALES TAX (%)	
		IMPORT	MANUFACTURE
PUMPS			
o Deep Well	90	12.5	12.5
o Sumersible	90	12.5	12.5
o Centrifugal	90	12.5	12.5
o Others	30	12.5	12.5
VALVES			
o Steam Trap For Oil Industry And Check Valves	10	-	-
o Chromium Plated Valves	90	12.5	12.5
o Others	30	12.5	12.5
MACHINE TOOLS			
o Hack Saw With Blade Less Than 45.7 cms	90	12.5	12.5
o Other Hack Saws	10	-	12.5
o Morticing Machines	10	-	12.5
o Shaping, Planing & Slotting Machines	10	12.5	12.5
o Shaping With Stroke Less Than 45 cms	90	12.5	12.5
o Broaching, Gear Cutting	10	-	12.5
o Machining Centres	10	-	12.5
o Lathes Numerically Controlled	10	-	12.5
o Other Lathes	90	12.5	12.5
o Tanning Machinery	30	-	12.5
TEXTILES			
o Shuttles	90	12.5	12.5
o Spindles	50	12.5	12.5
o Spindle Bolsters	50	12.5	12.5
o Spinning Rings & Travellers	30	-	12.5
o Card Clothing	50	-	12.5
o Looms	30	-	12.5
o Spinning Machines	30	-	12.5
ELECTRIC MOTORS & GENERATORS			
o Of An Output Not Exceeding 75 KW	90	12.5	12.5
o Of An output Not Exceeding 375 KW	30	-	12.5

Source: Custom Tariff and SROs.

The possible annual production volume has been estimated at 5000 units. Using an average price of Rs. 3000 per unit this product can yield a revenue of Rs. 15 million per year to PMTF.

Designing and product development with the given facilities at PMTF should not pose a problem and as such this product can be immediately taken-up for detailed investigations to arrive at the final product configurations. The sourcing of high quality castings would require extra efforts from PMTF in terms of locating/developing a reliable source. With the product having a ready market and local competition almost non-existent, the product involves minimum risk.

4.2.2 SUBMERSIBLE PUMPS

Submersible pumps are used for water supply from bore hole of deep wells for agricultural purposes, for water supply installations of cities and rural areas and a great variety of other purposes including air-conditioning systems. The pumping element mainly consists of guided vanes, cast iron bowls and mixed flow impellers made of high quality wear resisting material. These pumps are coupled with vertical hollow shaft motors. The outer casing has stainless steel construction. Since these pumps will require the development of a number of components requiring longer lead time these are being recommended for medium term development (1 to 3 years).

The investment requirement will again be minimal since sheet metal parts can be sub-contracted. Though the market for this product will be limited, its production by PMTF would be an exercise in product diversification to take-off the pressure from other products in case of need.

The present total demand for submersible pumps is around 400 units per year, valued at Rs. 16,000/- per unit, it affords a potential market of Rs. 0.24 million per year for PMTF.

Being a product involving higher level of technology, its production would require some serious design and development effort from PMTF of which it is fully capable. Locating vendors for sheet metal components would not be a problem.

4.2.3 GATE/GLOBE VALVES

The imports of valves in 1987-88 carried a value figure of Rs. 266 million, for 1990-91 this figure stands at Rs. 420 million showing an increase of 58% during a three year period. The average annual growth rate works out at 19%. As such this product category represents a very viable manufacturing and marketing proposition for PMTF.

Gate/Globe valves of 2 to 8 inch sizes used for water supply installations for domestic and industrial purposes are currently not being manufactured in Pakistan. These are made-up of cast iron with a stainless steel seat. The

technology for manufacture is fairly simple and castings can be sub-contracted. Additional investment in plant and machinery will also be minimal, as such PMTF can take up the manufacture of these valves in its short term plan. The price ranges from Rs. 2400 for a 2 inch valve to Rs. 9600 for an 8 inch valve. PMTF can produce 4000 such valves in the first year which will give it an yield of Rs. 16 million.

4.2.4 BALL VALVES

Ball valves have industrial applications and are made from carbon steel to withstand high pressures. The technology for manufacture is simple and quality product will gain ready market acceptability. The only significant investment required will be for some testing equipment. This product, therefore, can also be included in the short term manufacturing plans of PMTF.

Ball valves have a fairly large market and a 25% market share would mean the production of about 6000 valves. This will give an yield of Rs. 36 million which is a substantial volume.

4.2.5 STEAM TRAP VALVES

These valves are mainly used by industrial utility services. Currently these are being imported from certain European countries and local production should conform to their specifications. These valves can be taken on the mid-term manufacturing plan (1 to 3 years) because of the development time required. The potential volume works out at Rs. 12 million per year.

4.2.6 SUBMERSIBLE MOTORS

Vertical hollow shaft submersible motors have both industrial and domestic applications, coupled with pumps they can be sold on the open market.

The manufacture of these motors will require development work. They are as such suitable for medium term manufacturing plans (1 to 3 years). Stainless steel metal work can be subcontracted.

The present total demand for submersible motors is around 400 units per year, valued at Rs. 12000 per unit, this product offers a potential market of Rs. 0.49 million per year for PMTF.

4.2.7 K.C. TYPE HORIZONTAL MOTORS

To capture the higher-end of the market, PMTF may collaborate with Newmann or Siemens to produce these motors. Ratings above 8 to 10 HP are recommended for manufacture. The technology is available in Pakistan but will require additional investment, as such these motors can be included in the medium term manufacturing plans of PMTF. Annual production volume of 5000 units at a price of Rs. 6000 will give an yield of Rs. 30 million.

4.2.8 SHUTTLE-LESS LOOMS

The import value of looms for 1990-91 was worth Rs. 1978 million and for parts of looms this figure stood at Rs. 81.0 million. A jump of Rs. 850 million is visible in import figures of looms if a comparison is made with 1989-90 figures.

Shuttleless looms are gaining popularity over conventional looms because of the much higher output that they can produce. More and more weaving units will thus be candidates for their purchase.

Technical collaboration arrangements will be required to manufacture these. Sulzer of Switzerland is the most popular make. Collaboration with this manufacturer will need to be undertaken. Substantial investment in plant and equipment will be required. This product can, therefore, be included in the medium to long term manufacturing plan.

The unit price of each shuttleless loom is Rs. 2.2 million and the annual requirement is in the vicinity of 150 units. This gives an yield of Rs. 330 million which represents about 44% of the present capacity of PMTF.

With the present glut in the world markets for yarn, pressure from the Government of Pakistan to encourage value-added exports of textiles and to absorb the production of the local spinning industry, more and more weaving units are likely to be established. Furthermore with the tightening of foreign currency credit lines by the international financial institutions like the World Bank and the ADB, the local sponsors of weaving units will be more interested in buying locally manufactured shuttleless looms. PMTF should strive hard to enter this market seriously.

4.2.9 VIBRATORY POLISHING MACHINES

These machines are used by the cutlery and surgical goods manufacturers. At the present moment only two machines were found installed in the entire industry. The machines can be locally developed but technical collaboration arrangement with the U.K. manufacturer would be worth while in view of the 1.2 million unit price for each machine. Annual production of 10 units will provide an yield of Rs. 12 million per year to PMTF. With a large number of units manufacturing cutlery and surgical goods in the country marketing of this vital machine should not be a problem. However, it will require some selling effort from PMTF to capitalise upon the increased appreciation of product quality and technology aspects among local manufacturers of surgical goods.

4.2.10 ULTRASONIC CLEANING MACHINES

These machines are also required by the surgical and cutlery manufacturers. Additional investment requirement is estimated at Rs. 1.5 million and technical collaboration arrangement would ensure precision manufacture.

Each machine costs around Rs. 600,000 and annual production of 15 units will be readily marketable yielding about Rs. 9 million.

4.2.11 HYDRAULIC FORGING HAMMER

This product can be included in the short term manufacturing plan. PMTF already possesses capability for its production. As such the product can be developed quickly and a conservative annual production figure of 50 units would provide an yield of Rs. 5 million to PMTF.

4.2.12 SHEAR CUTTING MACHINES

These machines are also required by the surgical and cutlery goods manufacturers though many other industries can also be the prospective customers. The technology for manufacture is simple and this product can also be included in the short term plans of PMTF. Product development would require little effort from PMTF and a properly priced product of desired quality would find a ready market. Each machine carries a unit price of Rs. 100,000 and 50 units can be planned for production in the first year generating a sales volume of around Rs. 5 million per year.

4.2.13 LEATHER SHAVING MACHINES

These machines will require substantial additional investment and, therefore, can be included in the long term production plan. A technical collaboration arrangement will enable production of the required amount of sophistication. At a unit price of Rs. 300,000 these machines can yield a revenue of Rs. 6 million per year. With more and more interest in this sector to improve the export performance, there is an increasing requirement of good quality machines upon which PMTF can capitalize.

4.2.14 LEATHER SPLITTING MACHINES

These machines also require substantial capital investment and can as such be included in the long term manufacturing plan. The potential yield will be in the vicinity of Rs. 5 million per year.

4.2.15 COMBINATION LATHES

This is a composite production machine combining the functions of a lathe with shaping, milling and drilling capabilities. This product is being currently imported and is finding good acceptance both in the new and re-conditioned forms. Minimal additional investment will be required and the technology is already in house. A conservative annual production of 50 units will yield a revenue of around Rs. 10 million to PMTF.

4.2.16 CNC MACHINES

In its long-term plans, as per opinion expressed by industry experts, PMTF can pursue a policy of automating its present production line of machine tools plus the machines recommended in the survey section of this report. This can be a step by step exercise whereby PMTF should ultimately be able to develop and market CNC machines. It is visualized that five years from now sufficient sophistication would have been developed in the manufacturing sector to absorb the locally produced CNC machines. To start with, control panels and other sophisticated devices can be imported and progressively manufactured with development of the necessary capability. Technical collaboration with a reputed manufacturer from Japan or Europe will be of help in developing the brand image of PMTF manufactured products.

4.3 SPARE PARTS FOR MACHINERY/EQUIPMENT RECOMMENDED FOR MANUFACTURE

Since the textile sector is the single largest component of the manufacturing sector the consumption of parts carries a high value figure in this sub-sector. Starting from an import figure of Rs. 24 million in 1987-88 the import of spinning machinery parts alone has grown to Rs. 809 million in 1990-91. The recommendation for the manufacture of parts have, therefore, been focussed on the utilization of parts by this sub-sector. The parts described in the following sections not only have a good potential volume but also can be made with minimal investment and technology requirement by PMTF.

The details of customs duty and sales tax applicable on import of various products are shown in Table 4-2 alongwith the applicable sales tax on locally produced items. It should be noted that other import incidentals take up another 30% of the import value of any machinery.

4.3.1 STEEL SPINNING RINGS

This is a product which is heavily replaced in the spinning sector of the textile industry. It is being manufactured by certain small manufacturers but the quality is not upto the mark. This product can be manufactured in the short run without any major investment.

The annual replacement volume is around 2 million rings and at a unit price of Rs. 100 per unit the yield works out at Rs. 200 million. The technology seems fairly simple and the product can be marketed through dealers the year round.

4.3.2 SPINDLE SHAFTS

Spindl shafts are also commonly replaced because of the wear and tear they go through. The investment requirement is minimal and technology simple to adopt. Each spindle shaft carries a unit price of Rs. 3000 and an annual production of 5000 spindles will provide additional revenue of Rs. 15 million.

4.3.3 SPINDLE BOOSTERS

Boosters can also be produced in the short run. The annual requirement will be the same as that for spindle shaft with minimal investment requirements in additional plants and equipment. The technology is also simple. A similar yield equivalent to spindle shafts is possible at around Rs. 15 million per year.

4.3.4 DRUM BUSHES

This item is also simple to manufacture and can be made with the use of existing plant and machinery. This is also a replaceable part of the textile spinning machinery. It carries a unit price of Rs. 2100 and annual yield in the vicinity of Rs. 10 million can be obtained.

It may be appreciated that all the above parts recommended for manufacture are such which can be directly placed on the market and dependence on orders from buyers is not necessary. Such products are better from a marketing stand point since PMTF will have the option to use a distribution channel of its liking. The burden of marketing and delivery will thus shift to the market and PMTF will not be required to carry any substantial inventories. The production of these items can take place according to a well thought out market forecast and production and supplies can continue the year round. All the four parts mentioned above will yield an annual revenue of Rs. 240 million and a separate marketing section can be created to handle these.

The machinery recommended for short term manufacture will provide an additional combined yield of Rs. 71.0 million to PMTF.

4.4 MAINTENANCE/SERVICE OF POWER GENERATING EQUIPMENT

Another potential area for PMTF to diversify is maintenance/servicing of power generation equipment the main element of which is the turbine. This would enable PMTF to offer such services also to other sectors using turbines such as oil and gas transmission companies, process industries (fertilizer, cement, sugar, etc.). Currently these services are being provided by foreign companies through their local agents on very high rates. Once PMTF can enter this field it can also tap the opportunity for manufacture of spares for this sector which are presently being imported at high prices. This would, however, require technical collaboration arrangement with a foreign firm since detailed drawings which are required undertake this sort of a job are not normally provided by the foreign manufacturers/suppliers. Before any further step is taken, the avenue will need to be studied in depth with special reference to a suitable source through which technical know-how can be acquired at reasonable costs.

4.5 ADDITIONAL WORK REQUIRED

4.5.1 DETAILED MARKET & TECHNICAL STUDIES

As stated previously, this initial study is based on a qualitative survey of some selected sectors which have identified some machinery, equipment and related spares that may be manufactured and marketed by PMTF. It is suggested that detailed studies be undertaken for each of the recommended products to determine their technical and market viability.

The technical study would identify the various detailed technical specifications of the selected products, their material and design features, manufacturing processes involved and product characteristics, quality and testing requirements, usage, etc..

The detailed market study would enable development of a comprehensive marketing strategy to successfully market the selected product including recommendations for product characteristics, pricing, promotion and distribution channels.

These studies may either be undertaken by PMTF's own staff or by selected outside consultants having required experience and expertise.It is estimated that the costs for undertaking a detailed techno-economic study on the above lines would be Rs. 700,000 to Rs. 1,000,000 for each major item of product.

4.5.2 DESIGN AND DEVELOPMENT

NMC has proposed 8 items for short term manufacture yielding a total sales volume of Rs. 71 million per year. These products should be able to roll out of the production line within 6-8 months time. This means that by April June 93 PMTF should be able to place these products in the market.

The initial immediate work required to be done will be the collection of samples of the stated products. Their detailed design and metallurgical studies and development of PMTF modified versions of specifications. In addition, within this time span PMTF should be in a position to develop prototypes and put them to metallurgical and usage tests. Additional tooling, etc., which may be required may also be produced.

In addition to the eight products mentioned above, 4 parts of textile machinery have also been recommended for manufacture in the short run yielding an annual sales volume of Rs. 240 million. These parts have a large potential volume and as such should be developed on a priority basis. Design and development work or acquisition of additional machinery if required should be taken in hand in a manner that by April June/93 PMTF is in a position to market these parts.

Work on medium term and long term products should commence once the short term products have already been placed in the market. It is estimated that the costs for undertaking in-depth techno-economic studies on the aforesaid lines would be in the range of Rs. 200,000 to Rs. 300,000 per item of product.

Since design and development will be required in case of all manufacturing activities at PMTF, it will need both diversification and strengthening. This is stated from the point of view of PMTF being able to acquire new technologies either by outright purchase or through Japanese or European machine tool manufacturers. This will ensure access to latest developments in the field of machine tools to PMTF. Also PMTF will be able to design and develop other machines by investigating import of machinery into Pakistan.

4.5.3 TECHNICAL COLLABORATION

Technical Collaboration Agreements with reputed manufacturers eg Sulzer etc., for shuttleless looms, Newmann for Electric Motors and Mercier for Leather goods machines will need to be signed. Initial contacts with these manufacturers indicating to them the possible volume, PMTF's capability and available staff skills should be started in the short run. The technical collaboration arrangements will take time to materialize, as such the foreign manufacturers interest should be attempted to be sought at an early date. Barring extremely sophisticated parts PMTF has the capability to produce precision engineered products. In this instance the example of PMTF's association with Oerlikon can be cited and will be helpful. The aforesaid tie-up with a manufacturer of repute is estimated to cost PMTF Rs. 3.5 t Rs. 4.0 million per item of product.

4.5.4 RE-ORIENTATION OF COMPANY'S APPROACH

One reason for the present state of affairs at PMTF is lack of marketing orientation in organizational working. In todays setups no company can hope to withstand competitive and economic onslaughts without a strong marketing arm. All production originates based on ideas or feed back provided by the marketing department. At the moment, the marketing department of PMTF merely works as a supplier of production to parties who have placed orders on PMTF. This attitude has basically resulted from heavy reliance placed on OEM supplies. There is nothing to fall back upon in such a situation if the OEM buyers reduce their orders.

The primary function of the marketing department is to keep looking for new products and profit opportunities, to delete unprofitable or unacceptable products and to replace them with acceptable and profitable ones.

A study will need to be carried out onto the organization, responsibilities and mechanics of operation of the existing marketing setup of PMTF. A revised organizational structure with adequate sub-departmentation and staff skills

will have to be drawn-up keeping in view the products suggested for diversification. It is estimated that such a study will cost PMTF Rs. 200,000 to Rs. 300,000.

4.5.5 TEST MARKETING

To devise proper marketing strategies and plans for the products proposed for diversification and drawing up of sales forecast and advertising and promotional platforms, a detailed exercise will need to be undertaken. This could include test marketing or pilot marketing of the products for a short term period say six months. This task then can be handed over for regular marketing to the PMTF's restructured marketing department. The exercise is estimated to cost PMTF Rs. 200,000 to Rs. 300,000 for each product.

4.6 ANTICIPATED PROBLEMS

Sub-contracting for various jobs like castings may pose problems of quality and on-time delivery. To resolve this PMTF may create a cell or a team to develop exact specifications, ensure procurement and delivery and oversee the casting jobs at whatever places they are being carried out. This will help to minimize rejections through availability of castings of the desired quality.

The consultants have based their time and cost estimates assuming that PMTF will be able to carry out various product diversification activities speedily. This may not be practical for PMTF in some cases and the actual development time may take longer. Similarly the estimates of additional investment might vary when complete details are worked out. The prices of various products currently not being manufactured in the Country are their import prices which can at best be taken as reference prices and local manufacture may need to be priced at a lower level.

4.7 FINANCING POSSIBILITIES

There can be several sources for PMTF to finance its diversification plans. Bank loans would be available at 14% to 17% and can be utilized for financing purchase of imported machinery and equipment. For locally manufactured machines LMM financing at 8% would be the most economical borrowing source. Another source for financing imported machinery/equipment purchases would be suppliers credit which would be available at 7-8% without exchange risk cover facility, while the cost would rise to 14-15% if this facility is also availed.

The above financing possibilities may be explored by PMTF. Needless to say that the availability of financing will be dependent on the bankability of PMTF and the viability of the proposal.

ANNEXURES

ANNEXURE 1

SCOPE OF WORK

STATEMENT OF WORK (SCOPE)

Given the aim of this CONTRACT, the CONTRACTOR shall:

a) "Relate with COUNTERPART's management to fit this study and its results within the overall policies and strategies of COUNTERPART.

b) Discuss and evaluate selection of sources in cooperation with CONTRACTOR's management.

c) Collect relevant data from primary and secondary sources. (sources will cover relevant industry sectors as for instance machine tools, textiles, electrical goods etc.).

d) Evaluate and analyse the results of the data collection.

e) Compose a list of criteria (in terms of quality and quantity) together with a justification for these criteria, in order to assist in the selection of new products for COUNTERPART.

e) Compose a list of criteria (in terms of quality and quantity) together for new products and product ranges for COUNTERPART, in operational terms as for instance product description, expected market results, technical level, price level, support level, etc.

f) Present these results to COUNTERPART's management and discuss them.

g) Indicate explicitly additional activities which are according to CONTRACTORS professional knowledge and experience, needed for the CONTRACT to reach its objective.

h) Report the final results".

ANNEXURE 2

SECONDARY DATA USED

SECONDARY DATA SOURCES

1. Expert working group report on Engineering Goods Industry for 7th five year plan 1988-93 and perspective plan 1988-2003 prepared by planning commission GOP.

2. Survey of Machine Tools 1985 carried out by NDFC.

3. Market survey for Peoples Steel Mill, 1990 done by NMC.

4. Sector profile of Engineering Goods Industry carried out by NMC for PICIC, 1990.

5. Second National Seminar on Indeginisation in the Engineering sector, Ministry of Production, special technical cell, 1988.

6. UCL/IMS/IACP study on Industrial Efficiency improvement and development strategy on Engineering Goods sub sector, 1988.

7. Pakistan statistical year books 1988-1990 published by Federal Bureau of Statistics.

8. Restructuring of Heavy Mechanical complex - Report in 7 volumes - WS Atkins International, 1987.

10. Census of Manufacturing Industries, 1985-86 published by Federal Bureau of Statistics.

ANNEXURE 3

QUESTIONNAIRE FOR PUMPS AND VALVES MANUFACTURERS

National
Management
Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF (PUMPS) AND VALVE MANUFACTURES

NAME OF COMPANY : KSB PUMPS

ADDRESS : DAVIS ROAD
LAHORE

YEAR OF ESTABLISHMENT : 1959

TELEPHONE : 62298

PERSON CONTACTED : MR. ABDUL GHAFFAR

DESIGNATION : MANAGER SALES

INTERVIEWERS NAME : SULTAN TIWANA

DATE : 23-7-92

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FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

SURVEY FOR PUMPS AND VALVE MANUFACTURERS

Q 1. Which of the following products do you manufacture?

Valves only	☐	GO TO SECTION A
Pumps only	☑	GO TO SECTION B
both	☐	SECTION A & B

SECTION A

Q 1. What types of pumps do you manufacture?

SIZE (2" to 20")	TYPE	MATERIAL OF CONSTRUCTION
3" to 8"	CENTRIFUGAL	CAST IRON
4	SUBMERSIBLE	STAIN LESS STEEL
4	DEEP WELL TURBINE	
	MULTI STAGE C.F	CAST IRON
1½ to 2"	CENT. FUGAL (API 610)	FOR PETROL

Q 2. Please provide your last 4 years annual production figures.

UNIT PRODUCED

YEAR	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
1991	30,000	300	12000	50 (qty)	50 (qty)	50 (qty)
1990	4	"	4	"	"	"

Q 3. What is the distribution of your buyers, by industry?

☐	Oil & Gas ___ %	☐	Chemical ___ %
☐	Water & Power 60 %	☐	Sugar & Cement ___ %
☐	Any other 40 %		
☑	Others (Please specify) 60% INCLUDES PUBLIC HEALTH		

Q 4. Which imported parts are being used in your current production?

PRODUCTS	IMPORTED COMPONENTS	ANNUAL QUANTITY
	SHAFT	50,000
	BALL BEARINGS	50,000 Nos.

Q 5. Which parts of your valves are being sub-contracted locally?

PRODUCTS	PARTS
	CASTING (SIMPLE)
	MACHINING (SIMPLE)

Q 6. What catagories of pumps are currently being imported in Pakistan?

All types of pumps are being imp

Q 7a. Why the above mentioned valves are being imported?

Lack of production facility ___ Level of technology ___

Any other (Please specify) LOW PRICE OF CHINESE PUMPS.

Q 7b. Who are the major buyer of such valves and what is their annual consumption?

BUYERS	ANNUAL CONSUMPTION
INDUSTRY	30%
AGRICULTURE	40
PUBLIC HEALTH	30%

Q 8. Would you like to sub-contract any more parts of pumps?

Yes [✓] No [ ] ===> GO TO Q 9

If Yes, which parts and what would be your annual requirements?

PARTS	QUANTITIES REQUIRED ANNUALLY
VARIOUS PARTS	ANY NO. OF QUANTITIES WHICH THEY ARE CAPABLE OF
VOLUTE CASINGS	
SUCTION CASINGS	

Q 9. Which factors do you consider important in selection of sub-contractor?

1- RELIABILITY

2- ENGINEERING CAPABILITY.

3- ADHERENCE TO QUALITY.

Q 10. What problems do you face?

a. In manufacturing.

1- LOAD SHEDDING.

b. In sales.

1- UNDERCUT BY ESTABLISHED MANUFACTURERS (IN CC)

2- LOW PRICED PUMPS OF LOW QUALITY BY BACKYARD WORKERS.

Q 11 Any other comments/suggestions you would like to make.

1- THEY HAVE TRIED HMC FOR CASINGS BUT THEY WERE NOT SATISFIED.

2- IT IS SUGGESTED THAT PUBLIC SECTOR MUST INVOLVE ITSELF IN HIGH TECH / RESEARCH ITEMS

SECTION B

Q 1a. What types of pumps do you manufacture?

	SIZE (2" to 20")	TYPE	MATERIAL OF CONSTRUCTION
1.	2" to 3"	CENTRIFUGAL	CAST IRON
2.	4" to 6"	CENTRIFUGAL	"
3.	8" to 8"	CENTRIFUGAL	"
4.			
5.			
6.			

Q 1b. What type of in-house facilities do you possess?

NIL

Heat treatment ☐ Casting ☑

Die casting ☑ Design ☑

Q 2. Please provide your last 3 years annual production figures.

UNITS PRODUCED

YEARS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
1991-92	6	✓30	2			
1990-91	6	30	2			

Q 3. What is the distribution of your buyers, by industry?

☐ Oil & Gas ___ % ☐ Chemical ___ %

☐ Water & Power ___ %

☐ Any other ___ %

Others (Please specify) Domestic & Agriculture

Q 4. Which imported parts are being used in your current production?

PRODUCTS	IMPORTED COMPONENTS	ANNUAL QUANTITY
NIL	—	

Q 5. Which parts of your pumps are being sub-contracted

PRODUCTS	PARTS
4" to 6"	SHAFT
7" to 8"	SHAFT
ALL TYPE	FORGING

Q 6. Which catagories of pumps are being currently imported

1. _____ 2. _____

3. _____ 4. _____

Q 7. Why the above mentioned pumps are being imported

_____

_____

_____

Q 8. Would you like to sub-contract any more parts of pumps?

Yes [✓] No [ ] ===> GO TO Q 9

If Yes, which parts and what would be your annual requirements?

PARTS	QUANTITIES REQUIRED ANNUALLY
SHAFTS	40

Q 10. Which factors do you consider important in selection of a sub-contractor

1- TECHNICAL EXPERTISE

2- CONDITION OF MACHINE

3- QUALITY OF FORGING IS VERY IMPORTANT AS SALES

Q 10. What problems do you face:

a. In manufacturing:

1- LOAD SHEDDING

2- ABSENTEEISM

3- QUALITY OF FORGING

b. In sales:

Q 11. Any other comments/suggestions you would like to make:

CHANGE OF

QUALITY CONTROL IS NON EXISTENT IT SHOULD

BE IMPROVED

THANK YOU

National Management Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF PUMPS AND VALVE MANUFACTURES

NAME OF COMPANY : AL MUGHAL INDUSTRIES

ADDRESS : 18/19-D, S.I.E
GUJRANWALA

YEAR OF ESTABLISHMENT : 1981

TELEPHONE : 82796

PERSON CONTACTED : MR TARIQ MAH'D MUGHAL

DESIGNATION : OWNER

INTERVIEWERS NAME : Majed Al-Rawwad

DATE : 25/7/92

25/7

==========

FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

SURVEY FOR PUMPS AND VALVE MANUFACTURERS

Q 1. Which of the following products do you manufacture?

Valves only	☑	GO TO SECTION A
Pumps only	☐	GO TO SECTION B
Both	☐	SECTION A & B

SECTION A

Q 1. What types of valves do you manufacture?

	SIZE (2" to 20")	TYPE	MATERIAL OF CONSTRUCTION
Gate valve	1. ½ – 4" GATE VLV.	GATE	BRASS & GUNMETAL
Foot valve	2. ½ 1-6" FOOT VALVE	FOOT VALVES	" "
Check VLV	3. 1 – 2½" CHECK V	CHECK VLV	" "
	4.		
	5.		
	6.		

Q 2. Please provide your last 2 years annual production figures.

UNIT PRODUCED

YEARS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
1991-92	50/DAY	50/DAY	10-20/DAY			
1990-91	40/DAY	45/0	12/DAY			

Q 3. What is the distribution of your buyers, by industry?

☐	Oil & Gas 35 %	☐	Chemical ____ %
☐	Water & Power 45 %	☐	Sugar & Cement ____ %
☐	Any other 50 %		

Others (Please specify) DIFFERENT INDUSTRIES FALLING UNDER MARKET.

Q 4. Which imported parts are being used in your current production?

PRODUCTS	IMPORTED COMPONENTS	ANNUAL QUANTITY
N.A.		

Q 5. Which parts of your valves are being sub-contracted locally?

PRODUCTS	PARTS
N.A	
N.A	

Q 6. What catagories of valves are currently being imported in Pakistan?

GATE VALVE, BALL VALVES, Butterfly Valve

Q 7a. Why the above mentioned valves are being imported:

Lack of production facility ✓ Level of technology ✓

Any other (Please specify) PAKISTANI MAKE IS SUB Standard in quality

Q 7b. Who are the major buyer of such valves and what is their annual consumption?

BUYERS	ANNUAL CONSUMPTION
OPEN MARKET	ALL PRODUCTS.

Q 8. Would you like to sub-contract any more parts of valves?

Yes ☐ . No ☑ ===> GO TO Q #10

If Yes, which parts and what would be your annual requirements?

PARTS	QUANTITIES REQUIRED ANNUALLY

Q 9. Which factors do you consider important in selection of a sub-contractor?

Q 10. What problems do you face?

a. In manufacturing.

1- Labour 2- HIGH PRECISION MACHINES NOT AVAILABLE (CNC LATHE) + ~~CASTING~~,
3- CASTING (OLD PROCESS) 4- FORGING (MACHINES) 5- DIE CASTING

b. In sales.

No

Q 11. Any other comments/suggestions you would like to make.

- DUE TO LACK of ENOUGH FACILITIES WE CAN'T FULFIL THE LOCAL MARKET.
- WE NEED SOPHISTICATED MACHINES.

SECTION B

Q 1a. What types of pumps do you manufacture?

	SIZE (2" to 20")	TYPE	MATERIAL OF CONSTRUCTION
1.			
2.			
3.			
4.			
5.			
6.			

Q 1b. What type of in-house facilities do you possess?

Heat treatment ☐ Casting ☐

Die casting ☐ Design ☐

Q 2. Please provide your last 3 years annual production figures.

UNITS PRODUCED

YEARS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
1991-92						
1990-91						

Q 3. What is the distribution of your buyers, by industry?

☐ Oil & Gas ___ % ☐ Chemical ___%

☐ Water & Power ___ %

☐ Any other ___ %

Others (Please specify) _____

Q 4. Which imported parts are being used in [illegible] current production?

PRODUCTS	IMPORTED COMPONENTS	ANNUAL QUANTITY

Q 5. Which parts of your pumps are being sub-contracted

PRODUCTS	PARTS

Q 6. Which catagories of pumps are being currently imported

1. _____ 2. _____

3. _____ 4. _____

Q 7. Why the above mentioned pumps are being imported

_____

_____

_____

Q 8. Would you like to sub-contract any more parts of pumps?

Yes ☐ No ☐ ===> GO TO Q 9

If Yes, which parts and what would be your annual requirements?

PARTS	QUANTITIES REQUIRED ANNUALLY

9 9. Which factors do you consider important in selection of a sub-contractor?

_____

_____

_____

9 10. What problems do you face?

a. **In manufacturing:**

_____

_____

_____

b. **In sales:**

_____

_____

_____

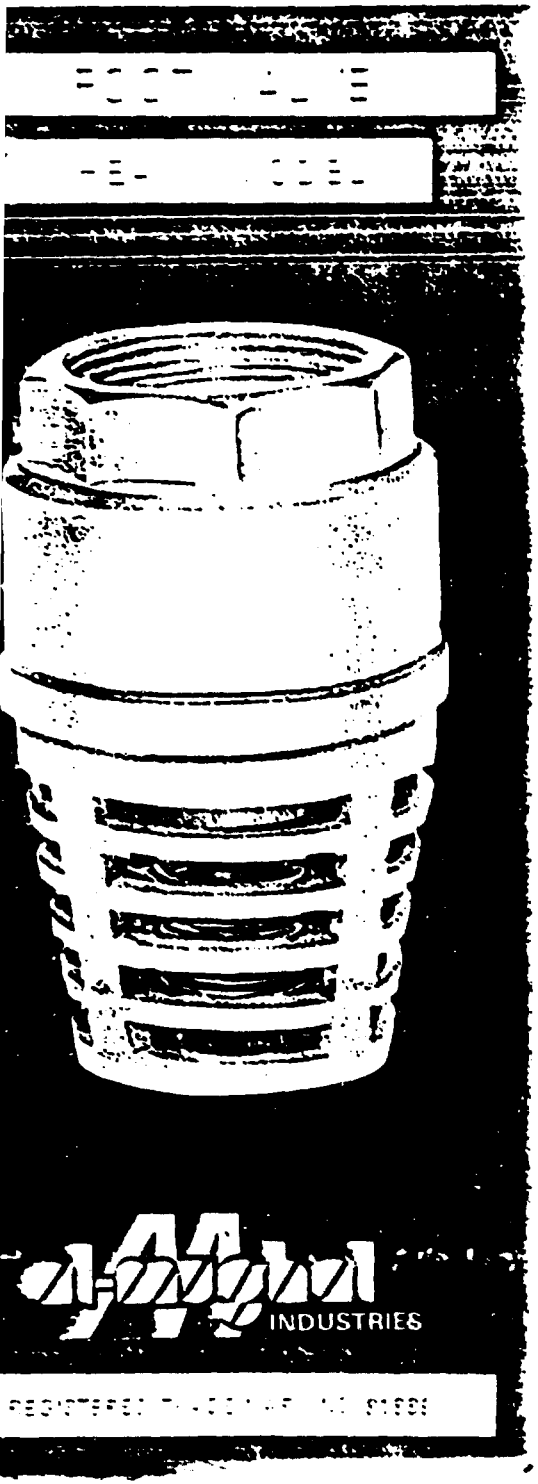
9 11. Any other comments/suggestions you would like to make.

_____

_____

_____

THANK YOU

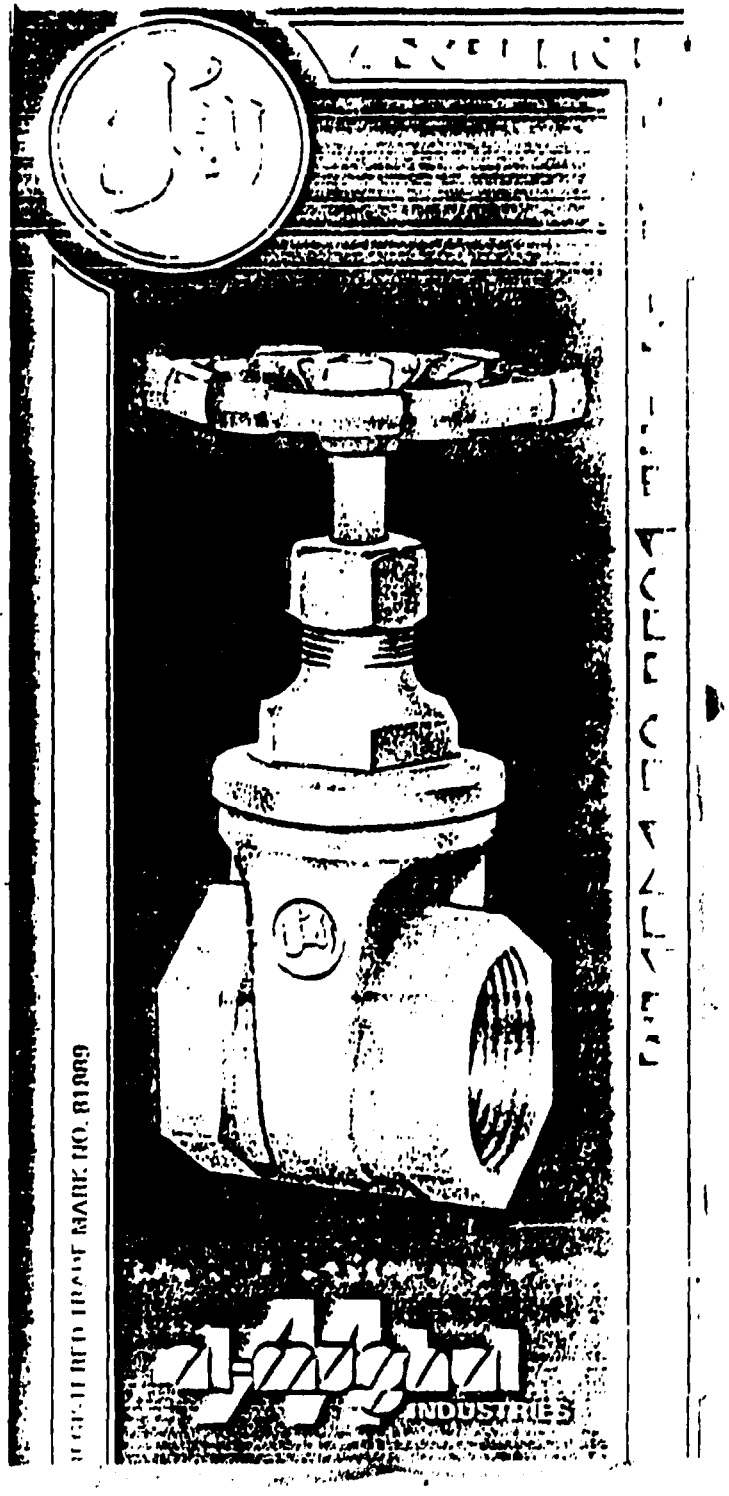


INDUSTRIES

A SUPERIOR QUALITY
PRESENTATION WITH
LOW-PRICED AND DURABLE
VALVES FROM "AL-MUGHALS"

PHONE : 82796

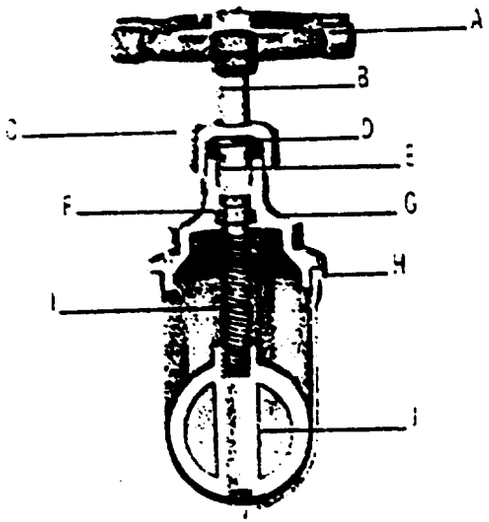
INDUSTRIES
16-19/D, A.W. SMALL INDUSTRIES ESTATE
JINNAH ROAD GUJRANWALA PAKISTAN



INDUSTRIES

INSIDE SCREW NON RISING
STEM WEDGE GATE VALVE

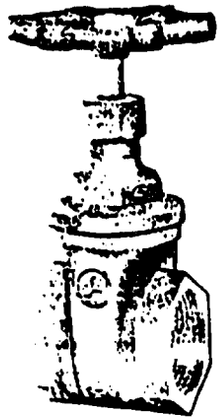
HEAVY MODEL



A:- DIE CASTED HANDLE WHEEL
B:- MAIN SPINDLE
C:- GLAND NUT
D:- GLAND BUSH
E:- GLAND PACKING
F:- SPLIT TYPE LOCK TO SPINDLE
G:- HEAD OF THE BODY
H:- BODY
I:- MAIN SPINDLE WITH DOUBLE START THREAD
J:- GATE FOR OPEN OR STOP THE LIQUID

MATERIALS
HANDLE WHEEL DIE CAST
BODY
OUTER
BODY
MAIN SPINDLE IMPORTED BRASS

GATE VALVE
HEAVY MODEL



THE VALVE GIVES PROPORTIONATE CONTROL OF FLOW AND IS SUITABLE FOR USE ON WATER PIPELINE UPTO 120°C.

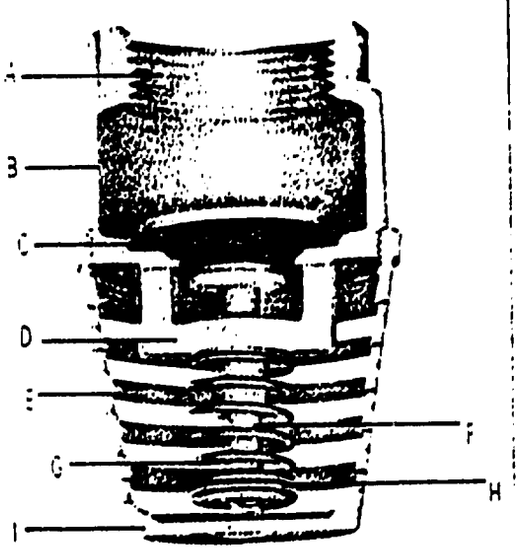
IT IS ALSO SUITABLE FOR ALL THE TYPES OF LIQUIDS. WORKING PRESSURE UPTO 300 LBS. AVAILABLE IN ALL SIZES FROM ½" UPTO 4".

THE VALVE GIVES PROPORTIONATE CONTROL OF FLOW AND IS SUITABLE FOR PUMPING OF WATER DIFFERENT OILS AND ALL OTHER TYPES OF LIQUIDS.

IT CAN BE FIT TO VERTICAL
HORIZONTLE OR ANGULAR POSITION.

FOR HIGH PRESSURE UPTO 300 LBS
WORKING TEMPERATURE 120°C
AVAILABLE IN ALL SIZES FROM

FOOT VALVE
HEAVY MODEL

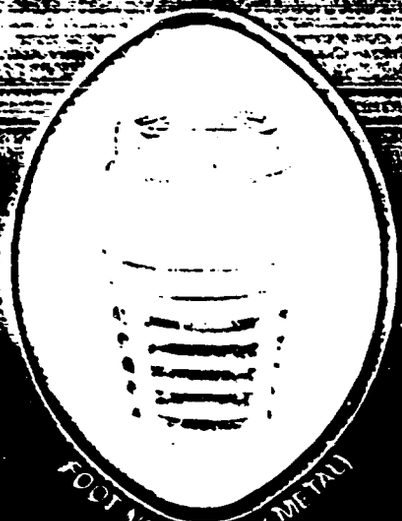


A:- MAIN INNER THREAD
B:- BODY
C:- STEM SEAT
D:- VALVE GUIDE
E:- FILTER
F:- VALVE ROD
G:- SPRING
H:- UPPER WASHER
I:- SPLIT PIN

MATERIALS
BODY AND FILTER SPHERIOD GUNMETAL
SPLIT PIN UPPER WASHER SPRING BRASS
STEM SEAT VULCANIZE SYNTHETIC RUBBER

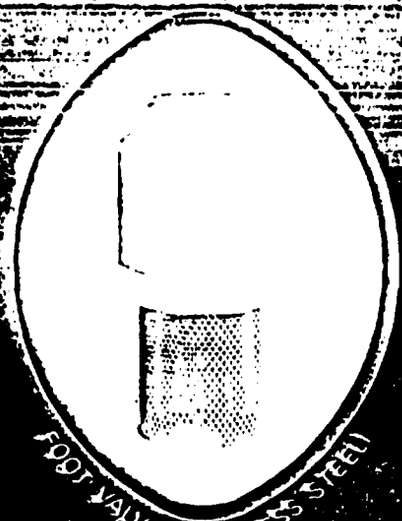
SUPERIOR QUALITY IN THE WORLD OF VALVES

GET THEM BUY YOU WILL BE SATISFIED

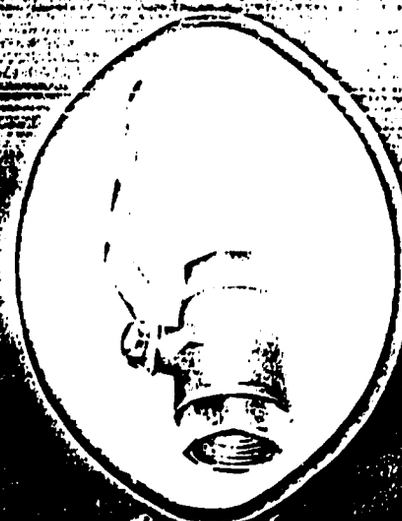


FOOT VALVE (GUN METAL)

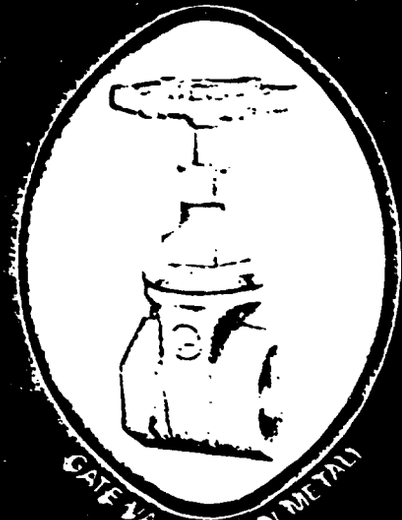
FOOT VALVE (BRASS)



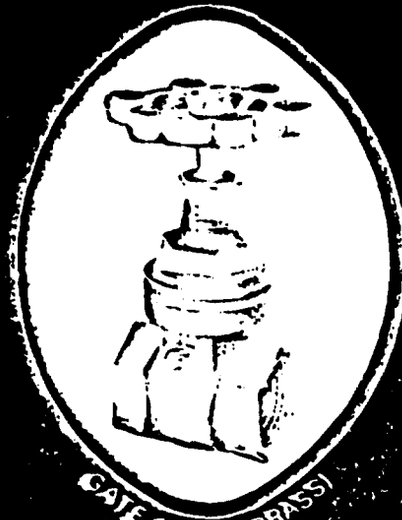
FOOT VALVE (STAINLESS STEEL)



BALL VALVE

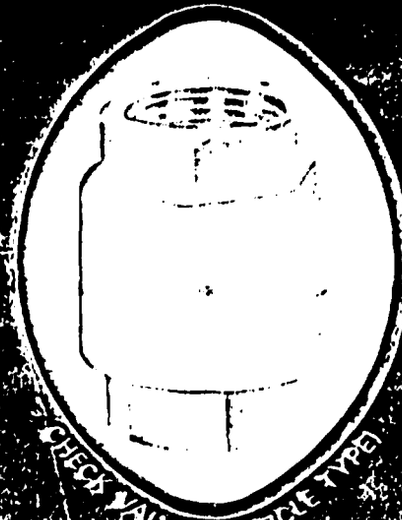


GATE VALVE (GUN METAL)



GATE VALVE (BRASS)

CHECK VALVE (UNION TYPE)



CHECK VALVE (VERTICLE TYPE)

ALL THE VALVES GAVE PROPORTIONATE CONTROL OF FLOW ARE ONE SUITABLE FOR USE ON WATER PIPELINE UPTO 120C THESE ARE ALSO SUITABLE FOR ALL THE TYPES OF LIQUIDS

ALL THE VALVES CAN WORK UPTO 300 LBS PRESSURAL AVAILABLE IN VARIOUS SIZES FROM 1/2 UPTO 6 MATERIAL USED IN THESE VALVES IS MARINE BRASS AND GUNMETAL

BROUCHER

REGD TRADE MARK
81897

AL-MUGHAL
INDUSTRIES

QUALITY AND QUANTITY
PRESENTATION BY
AL-MUGHAL WITH
LOW PRICED AND
DURABILITY

PHONE : 82796

AL-MUGHAL
INDUSTRIES

19-19 D. A.V. SMALL INDUSTRIES ESTATE
JINNAH ROAD GUJRANWALA PAKISTAN

Printed & Designed By : PRINTAD

ANNEXURE 4

QUESTIONNAIRE FOR SURGICAL/ CUTLERY GOODS MANUFACTURERS

National Management Consultants (Pvt) Ltd.

Q.NO. | | | |

UK

SURVEY OF SURGICAL/CUTLERY GOODS MANUFACTURERS

NAME OF COMPANY : HOUSE OF SURGICAL (PVT) LTD

ADDRESS : C21-23, INDUSTRIAL ESTATE, SIALKOT.

YEAR OF ESTABLISHMENT : 1967

TELEPHONE : 67400 - 65172

PERSON CONTACTED : SABIB SALIM

DESIGNATION : MNG. DIRECTOR

INTERVIEWERS NAME :

DATE : 14 July 1992

16/7

FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

SURVEY OF SURGICAL/CUTLERY GOODS MANUFACTURERS

Q 1. Please give the type of machines installed in your factory.

NAME OF MACHINERY	COUNTRY OF ORIGIN	DATE OF INSTALLATION	No. of units / PRICE
Ultrasonic Plants	USA	1984-1988	2 + 2 PAK
Milling Machines	England	1985	4 + 4 PAK
Sand Blasting Unit	England	1987	1
Forging Hammers	Pakistan	1985	5
Polishing Machines	Pakistan	1970-1980	100
ELECTROPLATING	"	1975	2

Q 2. Please provide details of the spare parts that you purchase?

NAME OF PART	SOURCE	ANNUAL QUANTITY	UNIT PRICE
CUTTERS Milling	Germany		
Heaters for Ultrasonic	USA		
Gears	Germany		
Hammer Belts	Germany		

Q 3. Which of the imported machinery installed in your unit can be made locally and by whom?

MACHINE	SPECIFICATIONS	NAME OF MANUFACTURER
Milling Machines		DASKA
Sand Blast Machine		Lahore
Friction Presses (60+100) Tons.	60, 100 Tons.	

Q 4. Which of the imported spare parts can be made locally?

PART	SPECIFICATIONS	NAME OF VENDOR
Almost all of		
Hum but Not		
So good quality		

Q 5. What problems do you face in procuring:

a) Spares No Problem - Because they are always purchased brand new.

b) Machinery To procure Second Hand machinery from abroad is some time a problem to locate the right thing

Q 6. Any other comments/suggestions you would like to make.

We have never been contacted by any representative of Pakistan Machine tool, so we don't have any idea of their prices of or of what machinery they make.

THANK YOU

ANNEXURE 5

QUESTIONNAIRE FOR MACHINE TOOL MANUFACTURERS

National Management Consultants (Pvt) Ltd.

Q.NO.

SURVEY OF MACHINE TOOL MANUFACTURERS

NAME OF COMPANY : BRIGHT ENGG CO

ADDRESS : RAHIM ROAD MISRI [illegible]
LAHORE

YEAR OF ESTABLISHMENT : 1948

TELEPHONE : 275756.

PERSON CONTACTED : Mr. AZIZ AHMED

DESIGNATION : MANAGING PARTNER

INTERVIEWERS NAME : SULTAN TIWANA

DATE : 20/7/92

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EDITING	DATA ENTRY	[illegible]
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

SURVEY FOR MACHINE TOOL MANUFACTURERS

Q 1. Which machine tools do you manufacture?

PRODUCTS	SPECIFICATIONS
CENTRE LATHE	
MILLING	
SHAPER	
VERT. BORING	
MAIN LINE BORING	
SURFACER	

Q 2. Please provide your last two years production figures.

PRODUCTS	1991-92	1990-91
LATHE CENTRE	4	4
CRANK GRINDER	12	10
SHAPER	2	2
SURFACER	6	5
V-BORING	3	4
MAIN LINE Boring	4	4
COMPRESSOR PARTS OF RAILWAY	Various nos	Various nos

Q 3. Who are your buyers (Govt., industry, etc.)?

PRODUCTS	BUYERS
	INDUSTRY 10%
	GOVT 15%
	WORKSHOP 75%

Q 4. Do you sub-contract the manufacture of any parts from other vendors?

Yes ✓ No _____ ====> Go to Q 7.

Q 5. Which parts do you sub-contract?

PARTS	SPECIFICATIONS	ANNUAL QUANTITIES	UNIT PRICE
SHAFT	2" to 4" Dia		Rs 300 to 400
SPINDLES			Rs 50 to 75
GEARS			Rs 150 to 200
FORGING			Rs 12 to 15/kg.
4 SMALL CASTING PISTON PIN			

Q 6. Are you planning to sub-contract any other parts of your products?

Yes [4] No [ ]

Q 6a If yes, please name the products and the parts

PRODUCTS	PARTS	ANTICIPATED ANNUAL QUANTITY
GEAR		
PISTON PINS		
SHAFT		
SPINDLES.		

Q 6b If no, why?

N-A

Q 7. What in-house facilities for manufature do you possess?

1. Heat treatment [✓] 2. Casting [ ]

3. Die casting [ ] 4. Design [ ]

If not, where do you get them from?

1- CRANK FORGINGS THEY GET FROM OUTSIDE

2- PISTON PINS ARE NORMALLY PROCURED FROM SMALL VENDORS ∴ PUBLIC SECTOR (PIPP) WILL DELAY & BE MORE EXPENSIVE.

Q 9. What are your major problems in marketing/sales

Price ☐ Competition ☐

Distribution ☐

Any other (specify) NONE

Q 9. What is the present capacity utilization of your unit.

50%

Q 10. What factors are hindering full capacity utilization

SHORTAGE OF SKILLED/QUALIFIED LABOUR.

Q 11. Who do you think is/are your major competitors

1. NEW WAY 2. PMTF

3. _____ 4. _____

Q 12. How do you compare your machine tools with others in the market?

	IMPORTED	RECONDITIONED	LOCAL
Price:	HIGH	LESS 50%	HIGHER
Quality:	HIGH	LESS 30%	BETTER

Q 13. What are your future production plans?

Continue the same product line ☑

Add new products ☐

Please specify new products _____

Q 14. Has the import of second hand machine tools effected your sales and by what percent?

THE ENGG. CAPABILITY OF PAKISTANI INDUSTRY HAS IMPROVED. THE SCRAP MACHINERY HAS REDUCED THE DEPENDENCY OF MACHINE TOOL MANUFACTURERS

Q 15 How do you propose to overcome the above problems?

ALLOW ONLY THE INDUSTRIAL USER TO IMPORT MACHINERY.

16. Have you tried to enter into any export markets?

If yes, please name the products and export markets.

PRODUCTS	COUNTRY NAME
LATHE	MIDDLE EAST
MILLING	SAUDI ARAB
E.T.C.	EGYPT.

If no, why not.

N-A

17. Any other comments/suggestions you would like to make.

ALLOW ONLY THE INDUSTRIAL USER / WORKSHOP OWNER TO IMPORT SECOND HAND MACHINERY.

THANK YOU

COMPANY PROFILE FORM

Pakistan's Engineering Products

directory of manufacturers and exporters of engineering products

Please fill and return this form by May 20, 1992.

Company [illegible]

Name AZIZ AHMED

Designation [illegible]

Address [illegible], LAHORE (PAKISTAN)

Telephone 275946 275945 Telex 44833 LOOL PK Fax [illegible]

47566 HBL BR PK

Signature Aziz Ahmed

AZIZ AHMED

Please indicate type of business:

- ☐ Manufacturer
- ☑ Manufacturer/ Exporter
- ☐ If other (please specify) _____
- ☐ Exporter
- ☐ Importer

Number of employees: 50 (FIFTY ONLY)

Year established: 50 YEARS

Turnover

Last year's exports in US$ (Jan - Dec 1991): TWO LAC FIFTY THREE THOUSAND [illegible]

Last year's local sales in Rs. (Jan - Dec 1991): SIXTY TWO ONLY.

For further details, please contact:

Shaquddin Siddiqui

or

S. Sabih Ahmad

EXPORT YEAR 1991-92

Please fill the Company Profile and Product Range Form and return to:

PACE

PACE (PVT) LTD
F-50/A, Block 7
Clifton, Karachi-75600
Tel: 569-1477, 569-1478, 570920, 570921
Fax: (92-21) 570 516
Telex: 26431 PACE PK

This Directory is being published by PACE for The Export Promotion Bureau, Government of Pakistan.

Product Range

Please tick the products you export or manufacture

- ☐ 72 IRON AND STEEL — ☐ 72.01 Pig Iron
- ☐ 73 ARTICLES OF IRON AND STEEL — ☐ 73.07 Tube or pipe fittings of iron or steel
  - ☐ 73.10 Tanks, casks, drums, cans, boxes and similar containers
  - ☐ 73.12 Wires, ropes and cables — ☐ 73.23 Household utensils
- ☐ 82 CUTLERY AND HAND TOOLS
  - ☐ 82.01 Tools for use by hand (spades, shovels, axes, forks and rakes etc.)
  - ☐ 82.04 Spanners and wrenches
  - ☐ 82.05 Other hand tools (machine tools, anvils, portable forges etc.)
  - ☐ 82.11 Knives with cutting blades — ☐ 82.12 Razor and razor blades
  - ☐ 82.15 Articles of cutlery (spoons, forks, ladles and similar kitchen or tableware)
- ☐ 84 MACHINERY AND MECHANICAL APPLIANCES
  - ☐ 84.05 Water/ gas generators — ☐ 84.13 Pumps
  - ☐ 84.14 Fans for table, floor, wall or ceiling — ☐ 84.15 Air conditioners
  - ☐ 84.16 Furnace burners for liquid fuel — ☐ 84.18 Refrigerators and freezers
  - ☐ 84.21 Oil or petrol-filters for internal combustion engines
  - ☐ 84.29 Road rollers, bull dozers, etc. — ☐ 84.44-.51 Textile and textile processing machines
  - ☐ 84.52 Sewing machines — ☐ 84.69 Typewriters
- ☐ 85 ELECTRICAL MACHINERY AND EQUIPMENT — ☐ 85.01 Electric motors
  - ☐ 85.04 Transformers — ☐ 85.09 Electrical appliances
  - ☐ 85.11 Spark plugs, starters, etc. — ☐ 85.16 Electric heaters, irons, etc.
  - ☐ 85.35 Electrical apparatus for switching/ switchgear etc
  - ☐ 85.44 Insulated wires or cables of copper or other material
- ☐ 87 ROAD VEHICLES AND AUTO PARTS — ☐ 87.01 Tractors — ☐ 87.02 Buses
  - ☐ 87.04 Trucks — ☐ 87.06 Chassis fitted with engines
  - ☐ 87.07 Bodies including cabs for motor vehicles
  - ☐ 87.08 Auto parts — ☐ 87.11 Motorcycles
  - ☐ 87.12 Bicycles and delivery tricycles — ☐ 87.14 Motorcycle and bicycle parts
- ☐ 89 SHIPS, BOATS AND FLOATING STRUCTURES
- ☐ 90 OPTICAL EQUIPMENT — ☐ 90.04 Spectacles, goggles and fra
- ☐ OTHER (Please Specify) MANUFACTURE OF MACHINE TOOLS & SPARES [illegible]

[illegible], LATHES, DRILL, SHAPER, CRANK GRINDER, GATE VALVE GRINDING [illegible]

[illegible] CENTRE BORING MACHINE, VALVE REFACING MACHINE, [illegible]

[illegible] CENTRE LOCO CYLINDER COCK GRINDER [illegible]

ANNEXURE 6

QUESTIONNAIRE FOR MACHINE TOOL IMPORTERS

National
Management
Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF MACHINE TOOL IMPORTERS

NAME OF COMPANY : M/S ALINTCO

ADDRESS : 303 QAMAR HOUSE, M.A. JINNAH ROAD KARACHI.

YEAR OF ESTABLISHMENT : 1962

TELEPHONE : 200592

PERSON CONTACTED : K. D. KHAN

DESIGNATION : Manger Marketing.

INTERVIEWERS NAME : Zahoor Bangash

DATE : 21/7/92

21/7

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SIGN :
DATE :

SURVEY (MACHINE TOOL IMPORTERS

Q 1. Are you an importer of:

New machines tools [✓] ====> GO TO SECTION A

Second hand machines tools [ ] ====> GO TO SECTION B

Both [ ] ====> SECTION A & B

SECTION A : NEW MACHINES ONLY

Q 2. What products do you import?

	PRODUCTS	COUNTRY OF ORIGIN
1.	Vertical Milling Machines	U.K., Germany
2.	Welding Machines	Italy
3.	Lathes	UK. Germany
4.	Cutting Machines	Italy
5.	Leveling Machines	Italy
6.	Drilling Machines	Japan
7.	Pickling Machines	Germany
8.	Peeling Machines	Germany.

Q 3. Please provide your last two years product wise import figures?

PRODUCT	IMPORTS			
	1991-92		1990-91	
	Q	V	Q	V

N/A

Q 4. Which products are most frequently demanded? (Please give your ranking).

1. Lathes
2. Multi-purpose Milling Machines
3. Welding Machines
4. Cutting Machines
5. Leveling Machines

Q 5. Which of the imported products, in your opinion, can be manufactured locally?

Lathes, Milling Machine, welding Machines.

Q 5a Could you suggest the names of manufacturers who could produce these products?

PAK. SHIPYARD, Central Mechanical Eng., PMTF, PECO.

Q 6. Why in your opinion the above products are not being produced locally?

No research and we don't spend money on [illegible]

Socio economic factors.

Q 7. Who are your buyers?

Workshops	☐	
Institutions	☑	====> GO TO Q 7A
Industries	☐	====> GO TO Q 7B

Q 7a. Which types of institutions and what is the percentage of sales?

NAME OF INSTITUTION	PERCENTAGE
Pak Shipyard	—
Suparco	—
PMTF	2 %
Pak Steel	40 %
HMC	25 %
Others	—

Q 7b. Which industries and what is the percentage of sales?

NAME OF INDUSTRY	PERCENTAGE
Cement (Refractories)	(10-15 Crores of Machine)
Foundaries (")	
Textile Packing Material)	
Soap	

Q 8. What after sales service facility is provided by you/your principal?

Inspection through Mobile Lab.

Q 9. In your opinion, which countries produce [illegible] machine tools?

PRODUCTS	COUNTRY OF ORIGIN
Different product	USA

Q 10. Are any similar machine-tools being manufactured in Pakistan?

Yes ☐ No ☑

If Yes, please give details.

MACHINE TOOL NAME	MANUFACTURER

Q 11. How do you compare the mechines tools manufactured by PMTF with those that you import?

Products	Quality			Price		
	Inferior	Same	Better	Lower	Same	Higher
Lathes	☐	☐	☑	☑	☐	☐
Milling	☐	☐	☐	☐	☐	☐
Welding	☐	☐	☐	☐	☐	☐
Grinding	☐	☐	☐	☐	☐	☐
Shaping	☐	☐	☐	☐	☐	☐
Drilling						

for the local use PMTF machines are good because people do not want to go into complex machines.

For industries taking loans they prefer imported machines.

SECTION B : SECOND HAND MACHINERY

Q 1. What products do you import?

PRODUCTS	COUNTRY OF ORIGIN

Q 2. Please provide your last two years imports figures?

PRODUCT	IMPORTS			
	1991-92		1990-91	
	Q	V	Q	V

Q 4. Which of your products are most frequently [illegible]

Q 5a Do you recondition the imported machines or sell them as such?

☐ Recondition ☐ Built up.

Q 5b. How do you compare your second hand imported machines

With ☐ Similar new machine ☐ PMIF machines

_____ _____

_____ _____

_____ _____

Q 6. Who are your buyers?

Workshops ☐

Institutions ☐ ====> GO TO Q 7A

Industries ☐ ====> GO TO Q 7B

Q 6a. Which types of institutions and what is the pecentage of sales?

NAME OF INSTITUTION	PERCENTAGE
_____	_____
_____	_____
_____	_____

Q 6b. Which industries and what is the percentage of sales?

NAME OF INDUSTRY	PERCENTAGE
_____	_____
_____	_____
_____	_____
_____	_____

Q 7. What problems do you face in imports of machine tools?

_____

_____

Q 8. In your opinion, which countries produce highest quality machine tools?

PRODUCTS	COUNTRY OF ORIGIN

Q 9. Are any good quality machine tools being manufactured in Pakistan?

Yes ☐ No ☐

If Yes, please give details.

MACHINE TOOL NAME	MANUFACTURER

Q 10. Any other comments/suggestions you would like to make?

THANK YOU

ANNEXURE 7

QUESTIONNAIRE FOR HAND TOOL MANUFACTURERS/IMPORTERS

National Management Consultants (Pvt) Ltd.

S.No. [ ] [ ]

SURVEY OF HAND-TOOL MANUFACTURERS

NAME OF COMPANY : M/s Ch.Fazal Din & Sons (Pvt) [illegible]

ADDRESS : 7-A, Valley Road, Westridge-I
Rawalpindi Cantt.

YEAR OF ESTABLISHMENT : 1823.

TELEPHONE : 860001, 860205, [illegible]

PERSON CONTACTED : Mr. Asif Amin

DESIGNATION : Director.

INTERVIEWERS NAME : Mr. Muhammad Azam Khan.

DATE : 30 July 1992.

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DATE :	DATE :	DATE :

SURVEY OF HAND-TOOL MANUFACTURERS

Q 1. Which Hand-tools do you manufacture?

PRODUCTS	SECIFICATIONS	ANNUAL QUANTITY
Hand Tools	BSS	[illegible]
Small Tools	"	4500(illegible)
Tool Kits - Lineman,	"	100(illegible)
Vehicles, Carpenter and Supplementary.	"	36(illegible)

Q 2. Please provide your last two years production figures.

PRODUCTS	1991-92	1990-91
Tools for Lineman	.35	-
Tools for fitters	.65	.30
Tools for Carpenters	1 Million	.50
Hand Tods/Small Tools.	5 Million	7 Million

Q 3. Who are your buyers (Govt., industry, etc.)

PRODUCTS	BUYERS
Tools/Tool Kits Lineman	Govt./Public Sector.
Tools/Tool Kits Fitter/Vehicle Mechanics.	-do-
Tools for Carpenters.	-do-
Masonary Tools.	Public Sector.

Q 4. Do you sub-contract the manufacture of any parts from outside?

Yes Yes. No - ==== Go to Q 7.

Q 5. Which parts do you sub-contract?

PARTS	SPECIFICATIONS	ANNUAL QUANTITIES	UNIT PRICE
Steel Forgings.	As per drgs.	Various	Various
	BSS		
	DIN		

We provide them specified raw materials for forging of components.

Q 6. Would you like any other parts of your products to be made outside?

Yes [Yes] No [ ]

Q 6a If yes, please name the products and the parts?

PRODUCTS	PARTS	
Forging of Components.	Various parts.	These are premature parts. Finish [illegible] are made [illegible] selves.
Castings.		

Q 6b If no, why?

NA

Q 7. What are your major problems in marketing/sales?

Price [ ]

Competition [ ]

Distribution [ ]

Any other (Please specify) Black marketings, smuggling, and Govt's un-necessary [illegible] to export for [illegible].

Q 8. What is the present capacity utilisation of your unit?

Defence. Small. Export.

Q 9. What factors are hindering full capacity utilisation?

Load Shedding and also low voltage problem.

Non-availability of Sui-Gas. Alloy steels availability in the local market and sub-standard raw materials.

Q 10. Who do you think is/are your major competitor(s)?

Importers of foreign goods. Cheaper and sub-standard goods from China, Korea and Taiwan.

Q 11. How do you compare your hand-tools with other competitor(s)?

	IMPORTED	LOCAL
Price:	Less prices.	Prices are a little bit high due to various factors. Use of ASA standard or Din specifications.
Quality:	Fine.	

Q 12. What are your future production plans?

Continue the same product line [Yes]

Add new products [Yes] Establishment of a Join' Venture.

Please specify new products Electric Tools, Deisel Generators and Induction Motors.

Q 13. Any other comments/suggestions you would like to make.

We can manufacture 100% as per International Standard Tools provided sizeable orders. Moreover our market has been jeopardized by the import of sub-standard and low priced tools from China, through smuggling and also from Korea and Taiwan.

THANK YOU

National Management Consultants (Pvt) Ltd.

U.E.D. [ ]

IMPORTERS.

SURVEY OF HAND-TOOL MANUFACTURERS

NAME OF COMPANY : FIDA HUSSAIN Memorial Coin
SERAI ROAD

ADDRESS : KARACHI.

YEAR OF ESTABLISHMENT : 1840 1930

TELEPHONE : 2422502.

PERSON CONTACTED : NAJAM UDDIN.

DESIGNATION : PROPRIETOR.

INTERVIEWERS NAME : SULTAN TIWANA

DATE : 9/8/92.

1/8

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N.R => Not Reply

SURVEY OF HAND-TOOL MANUFACTURERS

Q 1. Which Hand-tools do you manufacture? (MTR)

PRODUCTS	SECIFICATIONS	ANNUAL QUANTITY
PLIER		
SPANNER		
HAMMER		
DRILL CHUCK	Taiwan/German/England	
GRINDERS		
SCREW-DRIVER		

Q 2. Please provide your last two years production figures. (Mkt)

PRODUCTS	1991-92	1990-91
	Not Avbl.	

Q 3. Who are your buyers (Govt., industry, etc.)

PRODUCTS	BUYERS
	1.-WORKSHOP
	3-INDUSTRIES
	2-RETAILERS
	Order of preference wise

N R Q 4. Do you sub-contract the manufacture of any parts from outside? —

Yes _____ No _____

N R Q 5. Which parts do you sub-contract?

PARTS	SPECIFICATIONS	ANNUAL QUANTITIES

? DO NOT WANT TO GIVE FIGURES BECAUSE NOWSHERA & ZULFIQAR WERE NOT COOPERATIVE

ENGLAND GERMANY 25%

Chinese Products 75%

Q 6. Would you like any other parts of your products to be made outside? in Pakistan

Yes ☑ No ☐

Q 6a If yes, please name the products and the parts.

PRODUCTS	PARTS
PLIERS	local manufacturer is in market but not very good quality
SPANNER	

Q 6b If not, what are important factors for marketing of tools
Quality of Material,
Packing.

Q 7. What are your major problems in marketing sales?

Price ☑

Competition ☐

Distribution ☐

Any other (Please specify) _____

N.R Q.8 What is the present capacity utilisation of your unit?

N.R Q.9 What factors are hindering full capacity utilisation?

PRICE of Good Quality Pakistani product should be lower than English & German but equal to Turkish.
Export of local items is very high

Q 10. Who do you think is/are your major competitor(s)?

_____

_____

Q 11. How do you compare your hand-tools with other competitor(s)?

	IMPORTED	LOCAL
Price:	✓	less
Quality:	✓	less.

Q 12. What are your future production plans? (Import)

Continue the same product line [✓] -X

Add new products [ ]

Please specify new products _____

Q 13. Any other comments/suggestions you would like to make.

_____

_____

_____

_____

-X No new plans due to ITP changes (unpaid bill)

THANK YOU

They may help P.M.T.F product dist. if given credit.

(Unpaid Material is on Cash).

Buyer buys after going through the market.

ANNEXURE 8

QUESTIONNAIRE FOR TEXTILE INDUSTRY

National Management Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF TEXTILE INDUSTRIES

NAME OF COMPANY : COLONY TEXTILE MILLS

ADDRESS : MULTAN

YEAR OF ESTABLISHMENT : 1948

TELEPHONE : 30221

PERSON CONTACTED : Mr. PANDAY MR. IJAZ AHMAD

DESIGNATION : GENERAL MANAGER PURCHASE MANAGER

INTERVIEWERS NAME : SULTAN TIWANA

DATE : 14/7/92.

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DATE :	DATE :	DATE :

SURVEY OF TEXTILE INDUSTRIES

Q 1. What type of machinery is installed in your unit ?

MACHINES	NUMBER
Weaving (284 Toyoda + 260 Osaka Mela)	(544) 700 looms → (Shuttle looms / No shuttle looms / Airjets)
Spinning 50,000 spindles	38144 Spindles
Processing	

Q 2. a) What is your present capacity utilization?

Weaving (Sqm)	203,15000 Sq Mtr	137,53000 Sq Mtr	67.7% utl
Spinning (Rotors)	9903000 Kg	7946000 Kg	80.24%

b) What factors are hindering your capacity utilization?

1- Labour

2- Maintenance

Q 3. What spares do you purchase annually ?

NAME OF PART	ANNUAL PURCHASE IN NOs	UNIT PRICE	SOURCE
Bevel gears.	200 nos.		
Shuttle	2000 nos. minm	Rs 400	Local/foreign
Ball bearings/needle bearing	1000 nos. minm.	Rs.30 to Rs.500	foreign Japan/ Germany/ Switz.
V-belts			

Q 4. Which imported parts and machines for the industry can be locally produced ? 17+25 teeth, 17+19 teeth, 13+21 teeth. Pot GR-M.C.Unit

PARTS : Bevel gears. Carding Machine part, Collar Compound shuttle

Ball bearing.

MACHINES: Card Machine (still imported)

Drawing & simplex (")

Drafting System (")

1+1 Engineer + 300 workers in workshop all spares are being made

Q 5. What problems do you face in procuring spares ?

IMPORTED

From original supplier no problems are anticipated

- ☐ Lead time
- ☐ Quality
- ☐ Price
- ☐ Design & Development

Other _____

LOCAL

- ☑ Lead time
- ☑ Quality
- ☐ Price
- ☐ Design & Development

Other _____

Q 6. Have you attempted to use locally produced textile machinery?

YES ☑ NO ☐

Q 6a. If yes what has been your experience?

time problem lack of credibity less quality 5% wastage
BECO & SIDDIQUE BROS LOOMS ARE ACCEPTABLE.

Q 6b. If no why not ?

N-A

Q 7. What specific textile related machinery can be locally manufactured?

Every type of mechanical machinery.

Q 8. What steps, in your opinion, can be taken to make the locally produced textile machinery acceptable to you?

Improvment in design

Delay in development (Reverse engineering) spinning Machinery [illegible]

Q 9. Please name the major type & makes of imported machinery which are most popular in the local textile Industry?

TYPE	MAKE	COUNTRY OF ORIGIN
Drafting System	SKF	German
Card machine		Japan / England
Drying of Simplex	Hara Drawing	Japan
Looms	~~Mezoli~~ Toyota / Whiten	Switzerland. Japan England
Blowroom Loom	Herghel Sulzer	" Switzerland

Q.10 They can make any eff of the continent is there. What they need to do is to become marketing oriented

THANK YOU

MARKETING STAFF TO VISIT.

National Management Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF TEXTILE INDUSTRIES

NAME OF COMPANY : ZAHOOR WEAVING FACTORY. GULAB WEAVING (Small Unit)

ADDRESS : HAJI ABAD SHEIKHUPURA RD FAISALABAD

YEAR OF ESTABLISHMENT : 1985

TELEPHONE : 52435

PERSON CONTACTED : MIAN AZAM

DESIGNATION : PROPRIETOR

INTERVIEWERS NAME : SULTAN TIWANA

DATE : 29/7/92

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DATE :	DATE :	DATE :

SURVEY OF TEXTILE INDUSTRIES

Q 1. What type of machinery is installed in your unit ?

	MACHINES	NUMBER
1	Power Loom 96" (Sidiq Bros)	16
2	"FINE MASTER 96"	16
3	Power Loom 120" (TAUB BROS)	20
4	--WARPING-- CSIL	

Q 2. a) What is your present capacity utilization?

100 % except maintenance

b) What factors are hindering your capacity utilization?

1- Labour shortage 2- Load shedding

3- 15% production loss due to Machine Breakup Model of 1932

Q 3. What spares do you purchase annually ?

NAME OF PART	ANNUAL PURCHASE IN NOs	UNIT PRICE	SOURCE
Two types of spares leather / Metallic			
BUFFER		Rs 50/pcs	PAK
PICKERS		Rs 12/pcs	PAK

Q 4. Which imported parts and machines for the industry can be locally produced

PARTS : ...

MACHINES: COMPLETE LOOM ECO TYPE BUT MORE DEVELOPED LIKE ADVANCED VERSION

* 1 Improve the model & make.
* 2 No training was being done to power loom sector.
* 3 Small Special Investment was done by personal efforts.

Q 5. What problems do you face in procuring spares ?

IMPORTED

- [✓] Lead time
- [✓] Price
- [✓] Quality
- [✓] Design & Development

Other _____

LOCAL

- [ ] Lead time
- [ ] Price
- [✓] Quality
- [✓] Design & Development

Other _____

Q 6. Have you attempted to use locally produced textile machinery?

YES [✓] NO [ ]

Q 6a. If yes what has been your experience?

VERY BAD : No Quality Control : No Material Testing

Q 6b. If no why not ?

N-A

Q 7. What specific textile related machinery can be locally manufactured?

LOOMS / WARPING / SIZING.

Q 8. What steps, in your opinion, can be taken to make the locally produced textile machinery acceptable to you?

Improve the Quality & model change Professionally

make Shuttleless looms

- POWER LOOM (Pvt) 10
- Auto Cop change (11) 14
- Shuttle less. (11) 25

[Ratio of Rate difference in three types of looms]

Q 9. Please name the major type & makes of imported machinery which are most popular in the local textile industry?

TYPE	MAKE	COUNTRY OF ORIGIN
SHUTTLELESS	SULZER	SWITZERLAND
SHUTTLELESS	PICANOL	JAPANESE
"	AIRJET (latest) 2 looms/day	"
"	WATERJET	"

THANK YOU

1- New Sulzer is/R Rs 22 000 000/= Rate is not fixed
2- Approximately 1000 Sulzer looms are presently working in Karachi alone will install
3- High tech knowhow is need for sulzer. Spares would be also a problem.

MIAN AZAM HAS GOT SANCTIONED PROPOSED UNIT OF 84 LOOMS OF (-16", 18 nos MID 109", 66 nos VENDOR SIDDIQ OR TAUB FROM IDBP LINE OF CREDIT.

FOR 76" LOOM Rs 85 000 to 90,000 per loom (SIDDIQ)
" 76"9" " Rs 80,000 to 85,000 " " (TAUB'S
FOR 109" " Rs 115,000 to 125,000 " " (SIDDIQ)
" 109" " Rs 105,000 to 115,000 " " (TAUB'S)

SIDDIQ'S DELIVERY EXPECTED 4-10 Months.
TAUB'S DELIVERY " 11-12 Months.

5

ANNEXURE 9

QUESTIONNAIRE FOR LEATHER GOODS MACHINARY MANUFACTURERS

National
Management
Consultants (Pvt) Ltd.

Q.NO. | | |

SURVEY OF LEATHER GOODS MACHINERY MANUFACTURERS

NAME OF COMPANY : PAKISTAN TANNING WORKS

ADDRESS : G.T ROAD SALAMAT PURA

YEAR OF ESTABLISHMENT : 1977

TELEPHONE : 333120

PERSON CONTACTED : MOHD. SALEEM

DESIGNATION : M.D (SALES) (PVT) FIRM

INTERVIEWERS NAME : SULTAN TIWANA

DATE : 18/1/92

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DATE :	DATE :	DATE :

SURVEY OF LEATHER GOODS MACHINERY MANUFACTURERS

Q 1. What machines do you manufacture (give detailed specifications)?

1- SHAVER 300 to 1600 mm
2. DRUMS 8'x8', 10x10, 10x12
3 FLESHING 1500 to 3000 mm
4- SETTING OUT 1500 to 3000 mm
5- Hydraulic Press 500 tons
6- Finiflex 1800 mm
7- SPLITING MACH 1500 to 2250 mm
8- Measuring Machines (Electronic)
9- AUTOMATIC SPRAY PLANT

Q 2. Please name the parts that you import?

NAME OF THE PART	ANNUAL IMPORT (In Units)	UNIT PRICE
Electronic '	2	
" PANEL	2	Rs 200.00
ELECT. VALVES	20	CF ~~CB~~ Rs 1000
SPRAY GUNS	20	CF ~~CB~~ Rs 8000 (ITALIAN)

Q 3. Which parts are sub-contracted for manufacture by you?

NAME	ANNUAL REQUIREMENT	UNIT PRICE
1/ Milling Requirement	All	
1/ Foundry Requirement	All.	

5

Q 4. What other machinery parts would you like to sub-contract

PARTS	ANNUAL QUANTITY
NIL	

Q 5. Please give No. of machines sold by you during the last two years?

MACHINES	1991-92	1990-91
1- SHAVER	20	18
2- FLESHING	2	0
3- DRUM	20	15
4- SETTING OUT	2	2
5- Hydraulic Press	2	2
6- Fini Flex	Under production	(Just launched)

Q 6. What problems do you face in in-house manufacturing?

1- Lead Shielding.
2- Technical Know how.
3- Machine design & development.

Q 7. What problems do you face in sub-contracting?

NIL

Q 8. What are your future production plans?

- [ ] Continue manufacture at current capacity
- [ ] Expand capacity
- [x] Diversify production (specify details)

Q 9. Who are your major buyers?

NAME OF MACHINE	BUYERS NAME
DRUMS	ROYAL LEATHER (SUKKUR)
DRUMS	EAST PAKISTAN CHROME (DHK)
INTEGRATED UNIT	MIRAN INDUSTRIES (SUKR)
SPLITING MACHINE	HAFIZ KARACHI (KHI)
BUFFING MACHINE	YUSUF TAN (KHAR)

Q 10. Which other firms manufacture machinery for leather industry ?

NAME	MACHINES
UNDAD INT.	ALL TYPES
MADINA TAN	〃
SHALIMAR WORKS	〃

Q 11. In your opinion what other machines can be locally produced?

Name ALL TYPES OF MACHINERY IS BEING MADE ONLY DEVELOPMENT IS REQD.

Q 12. What problems do you face in selling machines in the local market?

1- CREDIT IS ASKED FOR.

2- COMPARISON WITH ITALIAN MACHINERY.

3- SALES PROMOTION.

Q 13. Any other Comments/Suggestions you would like to make?

1- LOAN FOR INVESTMENT IN MACHINERY MANUFACTURE

2. DEVELOPMENT OF MACHINERY TO BE ORGANISED.

THANK YOU

LIST OF PUMPS AND VALVE MANUFACTURERS

1. AMAF TRADERS ,KARACHI
   TEL: 242756

2. INDUSTRIAL EQUIPMENT (LHR,BRANCH ALSO)
   SAFIA BAI BUILDING OPP. SIND MIDRISA,
   KARACHI.

3. UNIVERSAL MILLS STORES
   OPP NAZ CHAMBES, SH,LIAQAT,
   KARACHI.
   TEL: 2428979, 2429438

4. AL-MUGHAL INDUSTRIES
   18/19-D,S-I-E,
   GUJRANWALA.
   TEL: 82796

5. ANWAR GROUP OF INDUSTRIES
   G.T.ROAD, GUJRANWALA,
   PAKISTAN.
   TEL: 52430-35

6. NEW MALIK FOUNDRY & ENGG. WORKS
   NOOR ROAD, BADAMI BAGH,
   LAHORE.
   TEL: 280893,285183

7. NAWAB TUBE-WELLS SERVICE
   74 BRANDRETH ROAD.

8. DAWN ENGG. WORKS
   INSIDE SARAI SULTAN,
   LAHORE.
   TEL: 324852

9. PECO
   MAIN MALL,
   LAHORE,
   TEL: 234905,32022527

10. ANWAR & SONS
    60/D S.I.E,
    GUJRANWALA.
    TEL: 42875

11. TARN TARAN ENGG. COMPANY
INDUSTIAL ESTATE, GUJARANWALA.
PAKISTAN.
TEL: 81407,83563

12. GOLDEN-PUMPS (Pvt) Ltd.
965-G-T. ROAD, GUJRANWALA.
PAKISTAN.
TEL: 82256,43756
FAX; 92-431-84254
TLX: 45365

13. ABID MACHINERY WORKS (STORE)
90 RAILWAY RAOD,
LAHORE.
TEL: 250550

14. SOHAIL PUMPS
99 RAILWAY ROAD,
LAHORE.
TEL: 250782

15. KSP PUMPS
DAVIS ROAD,
LAHORE.
TEL: 62298

LIST OF TEXTILE MANUFACTURERS

1. KOH-E-NOOR TEXTILE MILLS Ltd.
   KOHINOOR NAGAR (SPINNING & WEAVING)
   FAISLABAD.
   TEL: 40211

2. ALTAF TEXTILE MILLS
   PLOT NO, D/4 PHASE-5,
   HATTAR INDUSTRIAL ESTATE,
   TEL: 7391,7392

3. CHAUDRY FABRICS
   PLOT NO,81/2, PHASE 4,
   HATTAR INDUSTRIAL ESTATE.
   TEL: (0595) 7291

4. NOOR ALAM SILK MILLS
   G-T ROAD, RAHIM ABAD,
   SWAT.
   TEL: 4940

5. NASIR SILK FACTORY (SIX UNITS)
   SHEIKHUPURA ROAD.
   P.O NISHATABAD F.B.D.
   TEL: 51735

6. AFROZE TEXTILE INDUSTRIES & Ltd.
   LA 7/1-7 BLOCK 2,
   F.B AREA,
   KARACHI.
   TEL: 682667,686667

7. MUSTAQ TEXTILE INDUSTRIES
   E/10-A S.I.T.E.
   TEL: 291621

8. COLONY TEXTILE MILLS
   MULTAN.
   TEL: 30221

9. JUBLEE TEXTILE MILLS (SPINNING & WEAVING)
   B-28 SITE MANGHO PIR ROAD,
   KARACHI.

10. REHMAN COTTON MILLS
    MALAKAND ROAD,
    TAKHT BAI, DISTT.
    MARDAN.
    TEL: 92214,92253

11. KOHINOOR TEXTILE MILLS Ltd.
    PESHAWAR ROAD,
    RAWALPINDI.
    TEL: 862065,862067

12. DOST MOHAMMAD TEXTILE
SIEMENS CHOWK SITE,
KARACHI.
TEL: 202137

13. ALLAWASAYA TEXTILE
D.C.G CHOWK VEHARI ROAD,
MULTAN.
TEL: 60073

14. HUSSAIN TEXTILE MILLS
SHABAZ CHOWK,
FAZALABAD,
MULTAN.
TEL: 63689

15. REHMANIA TEXTILE MILLS
RTM JHANG ROAD,
FASILABAD.

16. SARDAR PUR TEXTILE MILLS
MK. 46 K.M.
MULTAN ROAD.
FAC.4U ALGALAH BUILDING,THE MALL.
LAHORE.
TEL: 301804-8

17. ROYAL TEXTILE MILLS
PLOT NO PHASE III,
INDUSTRIAL ESTATE,
GADOON.
TEL: 323

18. KHYBER SPINNING MILLS
INDUSTRIAL ESTATE,
GADOON.
TEL: 219

19. SHAFIQ TEXTILE MILLS
LA. 10 BLOCK 22, F.B.AREA,
KARACHI.
TEL: 684309-10

20. SCHON SLPINNING MILLS
S/24 S.I.T.E,
KARACHI.

21. ZAHOOR WEAVING FACTORY
RULAR WEAVING (6 SMALL UNITS)
HAJI ABAD SHEIKHUPURA ROAD,
FAISALABAD.
TEL : 52435

LIST OF SURGICAL/CUTLERY GOODS MANUFACTURERS

1. C.C FACTORIES Ltd.
   S.I.E.
   SIALKOL-4.
   TEL: 0432-6506-51348

2. TECHNIMEN GEMA (PVT) Ltd.
   WAZIRABAD ROAD,
   SIALKOT.
   TEL: 0432-53739-5187652302

3. M/S HIMALAYA TRADING COMPANY (Pvt) Ltd.
   P.O.BOX 59, WAZIRABAD ROAD,
   SIALKOT.
   TEL: (0432) 52249,52251

4. NIA AFAQ TRADING CORPORATION
   HAJIPURA,DASKA ROAD,
   SIALKOT.

5. M/S BASHIR JAMIL & BROS,(PVT) Ltd.
   P.O.BOX NO.7,
   KHADIM ALI ROAD,
   SIALKOT.
   TEL: (0432) 53862,53662

6. DAR CUTLERY WORKS
   10/B.S.I.E.
   SIALKOT.
   TEL: 65931

7. M/S FRANCO SHAHZAD SURGICO (Pvt) Ltd.
   P.O.BOX NO 613,
   SIALKOT.
   TEL: 65381

8. SOLATCH SONS
   P.O-1193,
   SIALKOT CITY.
   TEL: 92-432-54859
   FAX: 92-432-54785

9. METAL INDUSTRIES DEVELOPMENT CENTRE
   ALLAMA IQBAL ROAD,
   SIALKOT CANT.
   TEL: 0432-86143-87157

10. IMPERIAL CUTLERY WORKS
    P.O BOX 9,
    WAZIRABAD.
    TEL: 2274

LIST OF MACHINE TOOL IMPORTERS (SECOND HAND)

1. MOHD. YAMIN QADRI
   SHERSHAH,
   KARACHI.

2. EMPIRE INDUSTRIES
   NISTAR ROAD, NEAR SHOE MARKET,
   KARACHI-3.
   TEL: 724596

3. SECO ENGG. CORPORATION
   ABBASI BUILDING,RAMSWAMI TOWER,
   NISHTAR ROAD,
   KARACHI.
   TEL: 7218981

4. DIN GHULAM RASOOL
   SHERSHAH ROAD,
   D/183, SITE,
   NEAR PANKAH HOTEL,
   KARACHI.

LIST OF ELETRIC GOODS MANUFACTURERS

1. PECO
   MAIN MALL,
   LAHORE.
   TEL: 234335,320225-27

2. PAK APEX INDUSTRIES
   G.T.ROAD,
   GUJRAT.
   TEL: 4303

3. HAMID INTIAZ (PvT) Ltd.
   G..T.ROAD. CLIMAXABAD,
   GUJRANWALA.
   TEL: 82560,82561

4. CLIMAX ENGG. CO Ltd.
   CLIMAXABAD G.T.ROAD,
   GUJRANWALA.
   TEL: (0431) 802 11-15

5. M/S SUPER ASIA MOHAMMAD DIN SONS (Pvt) Ltd.
   NEAR LAHORI CHUNGI, G.T.ROAD,
   GUJRANWALA.
   TEL: (0431) 53000,51408

6. SANCO INDUSTRIES (PAK) (Pvt) Ltd.
   S.I.E.-1 G.T.ROAD,
   GUJRANWALA.
   TEL: 0431-80577/82277

7. FAIZI INDUSTRIES Ltd. COMPANY
   GUJRANWALA.
   TEL: 80251-54

8. DELTA INDUSTRIES
   DELTA.ROAD,
   GUJRANWALA.
   TEL: 81051

9. YOUNAS METAL WORKS (Pvt) Ltd.
   YOUNAS COLONY. G.T.ROAD,
   GUJRAT.
   TEL: 28343,22943,28323

10. S.M. ISMAIL INDUSTRIES
    G.T.ROAD,
    GUJRAT.
    TEL: 4943

11. PAK SOLINGEN CUTLERY
G.T.ROAD, NEAR EID GAH ALAHABAD,
WAZIRABAD, P.O.NO.1711.
TEL: 4080

12. PUNJAB SMALL INDUSTRY
CUTLERY CENTRE, NAZAMABAD,
WAZIRABAD.
TEL: 2129

13. JAPAN DYNAMIC INDUSTRIES
G.T.ROAD,
WAZIRABAD.
TEL: 2576,2279

14. TINOPAL SURGICAL CORPORATION (Pvt) Ltd.
POST OFFICE BOX -518,
SMALL INDUSTRIES ESTATE,
SIALKOT CITY.
TEL: 65354,65454

15. AL-RIAZ & CO (Pvt) Ltd.
A-14 S.I.E,
SIALKOT.
TEL: 66684,50719

16. NADEEM SURGICAL CORPORATION (Pvt) Ltd.
S.I.E
SIALKOT.
TEL: 54247

17. M/S : A.D. SURGICO (Pvt) Ltd.
PLOT C-1,3,5,6,5,8,& 60
SMALL INDUSTIRES ESTATE,
SIALKOT.
TEL: 92-432,65185

18. HILDRO (Pvt) Ltd.
SMALL INDUSTRIES ESTATE,
SIALKOT.
TEL: (432) 6544,54309,50924

19. MEDISPOREX (Pvt) Ltd.
P.O.BOX.600,
SIALKOT.
TEL: 67559,54148,53658

20. G.T. SURGICAL (Pvt) Ltd.
S.I.E.
SIALKOT.
TEL: 54225,54226

21. HOUSE OF SURGICAL (PVT) LTD.
C 21-23,INDUSTRIAL ESTATE,
SIALKOT. TEL: 67400,65172

LIST OF LEATHER GOODS MACHINERY MANUFACTURERS

1. SERVICE INDUSTRIES LTD.
   G.T. ROAD,
   GUJRAT.
   TEL: 25991,25992

2. M.SADAR ALI AKHTAR ALI
   NIAZNAGAR, KASUR.
   TEL: 3306,3413

3. M.H.ENGG. WORKS
   DINGHR KASUR.

4. ARAM TANNERY
   HEAD NARLA ROAD,
   OPP. OLD POLICE STATION.
   TEL: 67177

5. SHAFIQUE TANNERIES
   NIAZNAGHAR,
   KASUR.
   TEL: 3454,3546

6. LAHORE TANNER MACHINERY CO.
   BEHIND SAHIL CINEMA SHALIMARA ROAD,
   LAHORE.
   TEL: 711443,71121

7. JULUNDAR MACHINICAL WORKS
   177 LINK ROAD.
   TEL: 380746

8. MADINA ENGG. WORKS
   SALAMAT PURA.
   LAHORE.
   TEL: 334053

9. IMDAD TANNING MACHINERY
   G.T.ROAD SALAMAT-PURA.
   LAHORE.
   TEL: 335464

10. SHALIMAR MACHINERY WORKS
    G.T. ROAD MOMIU PURA.
    LAHORE.
    TEL: 330913

11. PAKISTAN TANNING WORKS
    G.T. ROAD, SALAMAT PURA, LAHORE.
    TEL: 335120

11. AUTOMOBILE ARMATURE INDUSTRIES
2 K.M. WAZIRABAD ROAD, PAKA GARAH,
SIALKOT.
TEL: 54731,54930

12. SOBY (Pvt) Ltd.
COLLEGE ROAD,
DASKA.
TEL: 0431,2933

13. PAK FAN
WAHID INDUSTRIES
G.T.ROAD,
GUJRAT.
TEL: 28371,28373

LIST OF AUTOMOTIVE ASSEMBLERS/AUTO REPAIR WORKSHOPS

1. ATLAS HONDA LTD.
   SITE,
   KARACHI.
   TEL: 295341-45

2. SUZUKI MOTORCYCLE PAKISTAN LTD.
   SITE,
   KARACHI.
   TEL: 293308-9

3. PAK-SUZUKI MOTOR COMPANY
   WEST WARF,
   KARACHI.
   TEL: 202726-29

4. NATIONAL MOTORS LTD.
   HUB CHAUKI ROAD, SITE.
   P.O.BOX NO 2706.
   KARACHI.
   TEL: 293085-6

5. GHANDARA NISSAN DIESEL LTD.
   102/2, CLIFTON,
   KARACHI.
   TEL: 576051-6

6. NAYADAUR MOTORS LTD.
   F/8 S.I.T.E.
   KARACHI.
   TEL: 292016,270626,29

7. SIND ENGG. LTD.
   WEST WHARF ROAD,
   KARACHI.
   TEL: 202721-5

8. MILLAT TRACTORS LTD.
   8-KM SHEIKHUPURA ROAD,
   LAHORE.
   TEL: 711021-25

9. SALEEM ENGG
   DAUD PUTA ROAD,
   KARACHI.

10. SHAH JEE (AKBAR MECHANICAL WORKS)
    KURSHID MANZIL DR. DAUD POTA ROAD,
    SADDAR,
    KARACHI.

11. SHAHNAWAZ LTD.
    SHAHNAWAZ LTD. MAIN WALTON ROAD,
    TEL: 774900

12. CAVALRY MOTORS
19-CAVALARY GROUND.
LAHORE.
TEL: 373598

13. MODERN MOTORS (PVT) LTD.
20 FEROZPUR.
LAHORE.
TEL: 487630,486394

14. NATIONAL SADAQAT INDUSTRY
WAZIRABAD ROAD,
DASKA.
TEL: 2963,3397

15. NUCHAL INDUSTRY FOUNDRY & WORK-SHOP
WAZIRABAD ROAD.
DASKA.
TEL: 2806

16. PAK-CHINA ENGG. CO.
REST HOUSE CHOWK.
GUJRANWALA ROAD.
DASKA.
TEL: PP 2573

17. PAKSUZUKI MOTOR COMPANY
WEST WHARF,
KARACHI.
TEL: 202726-29

18. PAKISTAN MOTOR WORKS (PVT) LTD.
DR. DAOUD POTA ROAD, SADDAR,
KARACHI-3
TEL: 512259,529309

LIST OF HAND TOOL MANUFACTURERS

1. NOUSHEHRA ENGG. CO.
   INDUSTRIAL AREA,
   ANANGARH.
   TEL: 3739,3731

2. AHMAD & CO.
   5 AHMAD PURA,
   GUJRANWALA.
   TEL: 41265

3. NEW TOP TOOLS INDUSTRY
   DASKA ROAD, FATHA-GARH,
   SIALKOT.
   TEL: 50065,65567

4. BHUTTA ENGG.
   93 RAILWAY ROAD,
   LAHORE.
   TEL: 226206

5. BHUTTA TRADING CO.
   93 RAILWAY ROAD,
   LAHORE.
   TEL: 64768

6. Z G L TOOLS
   LOTIA CHAMBER,
   AIWAN-E-TIJARAT ROAD,
   KARACHI.
   TEL: 2427591,2425083

7. BURHANI TOOLS CENTRE
   WAZIR MANSION,
   KARACHI.
   TEL: 2427025

8. SAICO SUPPLIERS
   RAWALPINDI WALA SERAI ROAD,
   KARACHI.
   TEL: 2420703

9. SYED HUSSAIN MOHD ALI LOTIA
   SERAI ROAD,
   KARACHI.
   TEL: 2422502

10. INDUS TOOL
    MURAD KHAN ROAD, FAZAL CHAMBER,
    KARACHI.

11. PREMIER
KHORI GARDEN MARRIAL ROAD.
KARACHI.

12. INTERNATIONAL TOOLS
KHORI GARDEN.
KARACHI.

13. MOHAMMADI TRADERS
KHORI GARDEN.
KARACHI.
TEL: 2412305

14. S. SHARRIR & CO.
KHORI GARDEN.
KARACHI.

15. M/S CH.FAZAL DIN & SONS (PVT) LTD.
7-A, VALLEY ROAD, WESTRIDGE-I
RAWALPINDI CANTT.
TEL: 860001,860905

LIST OF MACHINE TOOL IMPORTERS (NEW)

1. SAM (Pvt) Ltd.
   2ND FLOOR DAWAR HOUSE,
   KARACHI.
   TEL: 200869

2. ANWAR CORPORATION
   NICOL/FRERE ROAD CROSSING.
   KARACHI.
   TEL: 2420411-12

3. JAHANGIR.SIKANDAR & CO.
   19-SINDH MADRASSA MARKET,
   SHARAH-E-LIAQUAT,
   KARACHI.
   TEL: 2420627,2420705

4. TRADE LINE INT. (Pvt) Ltd.
   5/30 H-YOUSAF CHAMBER,
   KARACHI.
   TEL: 2427931, 219683

5. ASHFAQ BROTHERS
   OPP. P.M.A. BUILDING,
   SHARAH-E-LIAQUAT,
   KARACHI.
   TEL: 2429372,2429801

6. AL-NUKHAIS (Pvt) Ltd.
   NAWAZISH PLAZA,
   BLUE AREA,
   ISLAMABAD.
   TEL: 817786

7. AL-MURTAZA TRADING CO.
   40-B,BANK ROAD,
   RAWALPINDI CANTT.
   TEL: 567754

8. TIME & TUNE (ISMAIL JI & SONS)
   64/8 BANK ROAD,
   RAWALPINDI.
   TEL: 567593, 563798

9. BLOOMING INDUSTRIAL DEVELOPEMENT
   SERVICES (PVT) LTD.
   ISLAMABAD.
   TEL: 213664,213665

10. BRIGHT ENGG.CO.
    RAILWAY ROAD MISRI SHAH,
    LAHORE.
    TEL: 275756

11. ALFATEH
    307 DAWAR HOUSE,M.A. JINNAH ROAD,
    KARACHI.
    TEL: 200572

LIST OF DFI'S & COMMERCIAL BANKS

1. DAWOOD'S EQUITY LTD.
   F.F.C.BUILDING.
   FIRST FLOOR.
   KARACHI.

2. PAKISTAN INDUSTRIAL CREDIT AND INVESTMENT CORPORATION
   STATE LIFE BUILDING NO 1.
   I.I. CHUNDRIGAR ROAD.
   KARACHI.

3. I.D.B.P
   STATE LIFE BUILDING NO 2.
   WALLACE ROAD.
   OFF. I.I. CHUNDRIGAR ROAD.
   KARACHI.

4. NDFC
   FIC BUILDING 2ND FLOOR.
   KARACHI.

LIST MACHINE TOOL MANUFACTURERS

1. PECO
   MAIN MALL ROAD,
   LHORE.
   TEL: 320225-27

2. PECO
   MAIN MALL ROOAD,
   LAHORE.
   TEL: 320225-27

3. HEAVY MACHANICAL COMPLEX
   TEXILA,
   TEL: 584166

4. PECO
   MAIN MALL,
   LAHORE.

5. NAUMAN ENGG. WORKS
   MOHALLAH MOHAMMAD PURA,
   GUJRANWALA.
   TEL : 41172

6. CROWN M/S
   GUJRANWALA.
   TEL: 41172.

7. ITTIFAQ MECHANICAL WORKS
   GUJRANWALA.

8. C.N.SONS (MANUFACTURE/DEALER)
   128 RAILWAY ROAD,
   TEL: 22420

9. NAZIR ENGG
   2 DIL MOHD ROAD,
   LAHORE.
   TEL: 64052

10. AHSAN ENGG. WORKS
    SARGODAH ROAD,
    GUJRAT.
    TEL: 22827

11. HAQUE BROTHERS
    G.T.ROAD,
    GUJRAT.
    TEL: 4133

12. STAR ENGG.
    SARGODAH ROAD,
    GUJRAT.
    TEL : 4616

13. ZAHIDABAD FOUNDRY & WORKSHIYAM NAGAR ROAD,
    BADAMI BAGH.
    TEL : [illegible]

14. EAGLE MACHINERY SERVICE
PUNJ NAGAR ROAD,
BADAMI BAGH,
TEL : 201065

ANNEXURE 10

QUESTIONNAIRE FOR ELECTRICAL GOODS MANUFACTURERS

National Management Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY FOR ELECTRIC GOODS MANUFACTURERS

NAME OF COMPANY : PAK FAN

ADDRESS : WAHID INDUSTRIES G.T. ROAD GUJRAT.

YEAR OF ESTABLISHMENT : 1945

TELEPHONE : 28371-28373

PERSON CONTACTED : SHAFIQ ULLAH

DESIGNATION : BSC. Electrical Engineer.

INTERVIEWERS NAME : Tayid Rawwad

DATE : 20-7-92

2717

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FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

SURVEY FOR ELECTRIC GOODS MANUFACTURERS

Q 1. What are your products. Please provide your production for the last two years

PRODUCTS	1991-92	1990-91
FAN	80,000/year	70,000/year
ENAMELLED COPPER WIRE		

Q 2. What type of machinery is installed in your unit?

MACHINERY	NOs.	COUNTRY OF ORIGIN
INJECTION MOULDING (JET MASTER)	3	HONGKONG
MILLING M/C (Bridge port)	2	U.K
DIE CASTING (KDK)	5	JAPAN

Q 3. Which parts of your products are manufactured in-house?

ALL EXCEPT BEARING, BUSHES, GREECE

Q 4. Which parts are procured from vendors?

Capacitors, GUARDS, KNOBS, NAME PLATES CABLES etc.

Q 5. What other parts you would like to sub-contract?

N.A

Q 6. Would you help in developing the above mentioned parts?

YES

Q 7. Do you intend to purchase additional machine tools. if so. for what reasons?

a. Expansion in production capacity [✓]

b. Replacement of depreciated machine [ ]

c. Adaptability of machine [ ]

Q 8. What additional machine tools do you intend to purchase?

CNC MILLING, NEW MOULDS EITHER PLASTIC OR DIECAST, WINDING M/C,

Q 9. Any other comments/suggestions you would like to make.

I would suggest that Even If Pakistan is established in Good Quality Mould Manufacturing We can save a lot of foreign exchange.

THANK YOU

National Management Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY FOR ELECTRIC GOODS MANUFACTURERS

NAME OF COMPANY : CLIMAX ENGG C. Ltd.

ADDRESS : CLIMAX ABAD G.T.Rd. GUJRANWALA

YEAR OF ESTABLISHMENT : 1941

TELEPHONE : (0431) 8211-15

PERSON CONTACTED : MR. JAVED IQBAL BHUTTO

DESIGNATION : MANAGER ENGG. (MECH)

INTERVIEWERS NAME :

DATE : 25/7.

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FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

SURVEY FOR ELECTRIC GOODS MANUFACTURERS

Q 1. What are your products. Please provide your production for the last two years

PRODUCTS	1991-92	1990-91
DIST TRANSFORMER	2621	1,157
E/EC MOTORS	5,069	3,369
ELECT. FANS	25730	33,274
ENERGY METERS	64,827	32,359
AIR CONDITIONERS	553	826

Q 2. What type of machinery is installed in your unit:

MACHINERY	NOs.	COUNTRY OF ORIGIN
LISTS ATTACHED		

Q 3. Which parts of your products are manufactured in-house?

Allmost Complete Units

Q 4. Which parts are procured from vendors?

Nut, Bolts, Screws etc.

Q 5. What other parts you would like to sub-contract?

NO other than above

Q 6. Would you help in developing the above mentioned parts?

NO

Q 7. Do you intend to purchase additional machine tools. if so. for what reasons?

a. Expansion in production capacity ☐ No

b. Replacement of depreciated machine ☐

c. Adaptability of machine ☐

Q 8. What additional machine tools do you intend to purchase

No

Q 9. Any other comments/suggestions you would like to make.

No

THANK YOU

CLIMAX

LIST OF MACHINERY INSTALLED IN FAN SHOP

S.NO.	DESCRIPTION.	QUANTITY.
1.	Hydraulic Press - 200 Tons	1 No.
2.	Hydraulic Press - 160 Tons	1 No.
3.	Pressure Die Casting Machines (Horizontal-I , Vertical-I)	2 Nos.
4.	Lathe	10 Nos.
5.	Power Press - 40 Tons	8 Nos.
6.	Power Press - 25 Tons	7 Nos.
7.	Power Press - 20 Tons	2 Nos.
8.	Power Press - 15 Tons	6 Nos.
9.	Power Press - 10 Tons	3 Nos.
10.	Power Press - 5 Tons	7 Nos.
11.	Power Press - 4 Tons	4 Nos.
12.	Power Press - 2 Tons	4 Nos.
13.	Vertical Drill Machine 1/2"	18 Nos.
14.	Vertical Drill Machine 1½"	5 Nos.
15.	Rivetting Machine	1 No.
16.	Coil Winding Machine	12 Nos.
17.	Hydraulic Press - 10 Tons	2 Nos.
18.	Cyl Grinding Machine	2 Nos.
19.	Spot Welding Machine	1 No.
20.	Welding Plant	2 Nos.
21.	Double ended Grinder	2 Nos.
22.	Guny Shuttering Machine	1 No.
23.	Shapper Machine	1 No.
24.	Gear Cutting Machine	1 No.
25.	Milling Machine	1 No.

LIST OF MACHINERY INSTALLED IN AIR-CONDITIONER SECTION.

S.NO.	NAME OF MACHINERY.	MAKER.	YEAR OF PURCHASE
1.	Lathe Machine 5' with 1 HP.	LOCAL.	1980
2.	Power Press 60 Tons, 10 HP.	JAPAN.	1982
3.	Bench Drill 1/2" - 2 Nos.	CHINA.	1982
4.	Power Press 15 Tons 2 HP.	LOCAL.	1965
5.	Shearing Machine 6' with 5 HP.	CZECHOSLAVAKIA.	1979
6.	Press Break, 6' wi 5 HP.	ENGLAND.	1983
7.	Vaccum Pumps, 1/2	ENGLAND.	1980
8.	Compressors 10 HP/3000.	AUSTRIA.	1980
9.	Testing Bench.	CLIMAX/LOCAL.	1980
10.	Charging Bench.	AMERICA.	1980
11.	Injection Moulding Machine.	[illegible]	[illegible]
12.	Injection Moulding Machine.	ITALY.	[illegible]
13.	200 Tons Hydraulic Press.	ITALY.	1982
14.	Electro Static Spraying Equipment.	ENGLAND.	[illegible]
15.	Bender Machine.	JAPAN.	1982
16.	Thread Rolling Machine.	JAPAN.	1987
17.	Spot Welding Machine 50 KVA. 1 No.	ENGLAND.	1965
18.	" " " 10 KVA. 2 Nos.	JAPAN.	1980
19.	" " " 5 KVA. 1 No.	CHINA.	1980
20.	FIN Press FIX 12	JAPAN	1986
21.	Accentric Power Press 40 Tons	LOCAL/ COMMERCIAL ENGG: LAHORE	1987
22.	Hydraulic Fork Lifter 1000 Kgs Model SYBC-IT.	CHINA LOCALLY PURCHASED	Feb 1987
23.	Hydraulic Press 300 Tons.	SETCO - ENGLAND (LOCALLY PURCHASED)	23-4-1987
24.	Mechanical Press Double acting 30 Tons for Tube Expanding.	CLIMAX	Nov., 1990.

LOI E(11-2)-X

LIST OF MACHINERY INSTALLED IN TOOL ROOM

S.NO.	DESCRIPTION.	QUANTITY.
1.	Spark Erosion Machine	2 Nos.
2.	Jig Boring Machine	1 No.
3.	Copy Milling Machine	1 No.
4.	Punch Shaping Machine	2 Nos.
5.	Tool Room Surface Grinder	1 No.
6.	Cylindrical Grinder	2 Nos.
7.	Surface Grinder Machine	2 Nos.
8.	Profile Projector	1 No.
9.	Horizontal Milling Machine	3 Nos.
10.	Bridge Port Milling Machine	1 No.
11.	Shaper Machine	2 Nos.
12.	Lathe Machine	7 Nos.
13.	Bench Drill Machine	3 Nos.
14.	Planner	2 Nos.
15.	Horizontal Boring Machine	1 No.
16.	Radial Drill Machine	2 Nos.
17.	Double Ended Tool Grinder	1 No.
18.	Slotting Machine	1 No.

CLV-01

LIST OF MACHINERY INSTALLED IN METEP SECTION

S.NO.	D E S C R I P T I O N.	QUANTITY.
1.	Voltage Coil Winding Machine	8 Nos.
2.	Megnetising Machine	1 No.
3.	Bench Drill Machine 1/2"	9 Nos.
4.	Tapping Machine	6 Nos.
5.	Gear Hobbing	1 No.
6.	Spot Welding	5 Nos.
7.	Lathe Machine 5'	1 No.
8.	Capstan Lathe	6 Nos.
9.	Automatic Lathe	2 Nos.
10.	Double Ended Tool Grinder	1 No.
11.	Heavy Duty Automatic Press 200 Tons	1 No.
12.	Accenteric Press	16 Nos.
13.	Hydraulic Press 200 Tons	1 No.
14.	" " 100 Tons	1 No.
15.	" " 50 Tons	1 No.
16.	Heat Seal Strapping Machine	1 No.
17.	Horizontal Drilling Machine	1 No.
18.	Disc Balancer	1 No.
19.	Stamping Press	1 No.
20.	Notching Press	7 Nos.

P.T.O.

S.NO.	D E S C R I P T I O N.	QUANTIT
21.	Electrostatic Powder Spray Paint Equipment	1 Set.

TESTING EQUITMENTS

1.	Meter Test Bench for Single Phase Meter	1 Set.
2.	" " " for Three Phase Meter	1 Set.

LIST OF MACHINERY INSTALLED IN TRANSFORMER SHOP

S.NO.	D E S C R I P T I O N.	QUANTITY.
1.	Accentric Power Press	22 Nos.
2.	Shearing Machine	8 Nos.
3.	Gang Slitting Machine	2 Nos.
4.	Piller Drill Machine	6 Nos.
5.	Lathe	12 Nos.
6.	Double Ended Tool Grinder	3 Nos.
7.	Bench Drill Machine 1/2"	7 Nos.
8.	Welding Plant	32 Nos.
9.	Hand Press	2 Nos.
10.	Coil Winding Machine	18 Nos.
11.	Corogation Machine	1 No.
12.	Shapper Machine	1 No.
13.	Hacksaw	4 Nos.
14.	Pipe Bending Mschine	2 Nos.
15.	Notching Press	1 No.
16.	Sheet Rolling Machine	3 Nos.
17.	Bending Brake	4 Nos.
18.	Cropping Machine	5 Nos.
19.	Oil Dehydrating Plant	3 Nos.
20.	Drying Oven	4 Nos.
21.	Annealing Furnace	1 No.
22.	Sand Blasting	1 No.
23.	Welding Generator	5 Nos.

S.NO.	DESCRIPTION.	QUANTITY.
24.	Electrostatic Liquid Spray Paint System	1 Set.
25.	Slitting Saw	1 No.
26.	Paper Folding Machine	1 No.

TESTING EQUIPMENTS

1.	High Voltage Transformer	1 No.
2.	Motor Generator Set	2 Nos.
3.	Impulse Testing Equipment	1 No.

LIST OF MACHINERY INSTALLED IN MOTOR SHOP

S.NO.	DESCRIPTION.	QUANTITY.
1.	Boring Mill 36"	2 Nos.
2.	Turret Lathe	4 Nos.
3.	Cylindrical Grinder	2 Nos.
4.	Milling Machines	2 Nos.
5.	Shaper	2 Nos.
6.	Lathe 5'	9 Nos.
7.	Lathe 8'	3 Nos.
8.	Power Hacksaw	1 No.
9.	Bench Drill 1/2"	9 Nos.
10.	Piller Drill Machine	3 Nos.
11.	Hydraulic Press	3 Nos.
12.	Accentric Press 15 Tons	2 Nos.
13.	" " 10 Tons	1 No.
14.	" " 5 Tons	5 Nos.
15.	" " 65 Tons	2 Nos.
16.	" " 165 Tons	1 No.
17.	" " 85 Tons	1 No.
18.	" " 110 Tons	2 Nos.
19.	" " 20 Tons	3 Nos.
20.	" " 35 Tons	3 Nos.
21.	" " 12 Tons	1 No.
22.	Notching Press	23 Nos.
23.	Gang Slitting Machine	1 No.
24.	Shearing Machine	1 No.

S.NO.	DESCRIPTION.	QUANTITY.
25.	Key Way Making Machine	1 No.
26.	Double Ended Grinder	1 No.
27.	Baking Oven	1 No.
28.	Welding Plants	2 Nos.
29.	Gas Welding Equipment	1 No.
30.	Lamination De-Burring Machine	2 Nos.

LIST OF TESTING EQUIPMENTS IN MOTOR SHOP

1.	Surface Balancing Machine	1 No.
2.	Vertical Mounted Generator	1 No.
3.	Motor Generator Set	1 No.
4.	Horizontal Balancing Machine	1 No.
5.	H/P Testing Machine	3 Nos.

LIST OF MACHINERY INSTALLED IN WHEAT THREASHER SHOP

S.NO.	DESCRIPTION.	QUANTITY.
1.	Power Hacksaw	1 No.
2.	Ring Rolling	1 No.
3.	Piller Drill Machine	2 Nos.
4.	Bench Drill 1/2"	1 No.
5.	Lathe 8'	1 No.
6.	Double Ended Tool Grinder	1 No.
7.	Nibbling Machine	1 No.
8.	Welding Transformers	3 Nos.
9.	Hand Press	1 No.
10.	Shaper Machine	1 No.

LIST OF MACHINERY INSTALLED IN OPERATION SHOP

S.NO.	D E S C R I P T I O N.	QUANTITY.
1.	Lathe 10'	1 No.
2.	Lathe 12' Turret	2 Nos.
3.	Lathe 16'	1 No.
4.	Boring Mill 48"	1 No.
5.	Power Hacksaw	1 No.
6.	Bench Drill 1/2"	2 Nos.
7.	Double Ended Tool Grinder	1 No.
8.	Automatic Gas Cutting Machine	1 No.
9.	Welding Plants	4 Nos.

LIST OF MACHINERY INSTALLED IN PUMP SHOP

S.NO.	DESCRIPTION.	QUANTITY.
1.	Radial Drill	2 Nos.
2.	Bench Drill	1 No.
3.	Lathe	2 Nos.
4.	Planner	1 No.

ANNEXURE 11

QUESTIONNAIRE FOR AUTOMOTIVE ASSEMBLERS

National
Management
Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF AUTOMOTIVE ASSEMBLERS

NAME OF COMPANY : PAKSUZUKI MOTOR COMPANY

ADDRESS : WEST WHARF KARACHI

YEAR OF ESTABLISHMENT : 1984

TELEPHONE : 202726-29

PERSON CONTACTED : MR. F.C VACHHA / MR. S.M. YAQUB

DESIGNATION : GENERAL MGR (PMD) / MGR (PMD)

INTERVIEWERS NAME : KAMAL SHAHRYAR

DATE : 5-8-92

FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

Q 1. What are the major sub-assemblies deleted last year ?

INSTRUMENT PANEL (ST-308R/V) SWITCH SET IGNITION (SB-308/ST-308R
BUMPERS (SB-308/ST-308R&V) CLEANER ASSY AIR (SF-410)
PANEL CABIN BACK (ST-308R) SEAT ASSY (SF-410)
STEERING WHEEL (SF-410)

Q 2. What are the major sub-assemblies that you plan to delete in the next three years ?

PANEL MAIN FLOOR (SB-308) OIL PAN (SB-308)
PANEL FRONT & REAR DOORS (SB-308) ENGINE VALVES / GASKETS
PANEL BACK DOOR (SB-308) REAR AXLE / CAM SHAFT

Q 3. What is the sub-assemblies deletion target ?

PAK SUZUKI PRODUCT MIX CONSISTS OF 10 MODELS (STD/DLX)
AND 6 DIFFERENT VEHICLES (3 CARS & 3 COMMERCIAL VEHICLES)

Q 4. Will the principal supply the manufacturing technology for parts & sub-assemblies planned for deletion ?

☑ Yes ☐ No

If no then how do you propose to achieve your deletion target ?

Q 5. Does the transfer of technology agreement include proprietry and non-propreitry items ?

☑ Yes ☐ No

Q 6. Is there any penalty clause for not meeting the deletion target ?

Please elaborate ?

YES, AS PER GOVERNMENT OF PAKISTAN RULES / REGULATIONS.

Q 7. Has any penalty been paid for not being able to achieve the deletion target ? NO

Please elaborate ?

Q 8. Have you approached FMTF for manufacturing any sub assemblies of your product(s)?

☑ Yes ☐ No

If yes, please name the sub-assemblies.

① HUB ENGINE COOLING FAN ② PIPE WATER INLET ③ CASE DISTRIBUTOR
④ CAP WATER INLET ⑤ SHAFT ROCKER ARM
⑥ HOUSING OIL SEAL

If no, please elaborate on reasons

THANK YOU

ANNEXURE 12

QUESTIONNAIRE FOR AUTO REPAIR WORKSHOP

National
Management
Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF AUTO REPAIR WORKSHOPS.

NAME OF COMPANY : PAKISTAN MOTOR WORKS (PVT) LTD

ADDRESS : DR. DAOUD POTA ROAD, SADDAR KARACHI NO.3

YEAR OF ESTABLISHMENT : 1946

TELEPHONE : 512258, 529308

PERSON CONTACTED : MR DAVID CHRISTIE

DESIGNATION : MANAGER WORKS

INTERVIEWERS NAME : MAJED RAWWAD / SULTAN TIWANA

DATE : 4-8-92

FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

Q 1. Please give the type of machinery installed in your factory.

NAME OF MACHINERY	COUNTRY OF ORIGIN	DATE OF INSTALLATION	No.	PURCHASE PRICE
Horizontal Boring	PAK	1985	1	Rs 150,000
Crankshaft-grinder	(1) ITALIAN, (2) PAK	1977, 1944 / 1977	5	Rs 60,000 Average These days's
Surface grinder	Pak	1981	1	Rs 50,000
Cylinder boring (Portable)	JAPAN, CHINA	1980, 1983	1+1	Rs 65000, Rs 40,000
Vertical Boring	ITALY	1962	1	Rs 12,000
VALVES GRINDING	CZECHSLOVAKIA	1964	1	Rs 2500

Q 2. Please provide details of the spare parts that you purchase?

NAME OF PART	SOURCE	ANNUAL QUANTITY	UNIT PRICE
CHUCKS	CHIN/E-Block	6	Rs 1200-Rs 1500
BEARING	JAP, AUST ENG.	45	
GRINDING STL		18	Rs 2200
GEARS	DWN	18-	Rs 700-800
HYD. PUMPS (GRMTS)	OWN		

Q 3. Which of the imported machinery installed in your unit can be made locally and by whom?

MACHINE	SPECIFICATIONS	NAME OF MANUFACTURER
ALL		Bright Engg. LHR
		NEW WAY IPS LHR
		PMTF

Q 4. Which of the imported spare parts can be made locally?

PART	SPECIFICATIONS	NAME OF VENDOR
GRINDING Wheels		
CHUCKS		

* THERE IS ONE COMPANY "GRIND WHEEL" AT S.I.T.E WHICH MANUFACTURE SMALL

Q 5. What problems do you face in procuring: NO PROBLEM

a) Spares _____

b) Machinery TIME CONSUMPTION.

Q 6. Any other comments/suggestions you would like to make.

- THE ALM MACHINES SHOULD BE MANUFACTURED HERE
- HYDRAULIC PRESSES (750 lbs) (500 lbs) for straightening shafts.
- PISTON FINISHING MACHINES.
- TURN HEAD BORING MACHINE " CON-ROD BORING MACHINE.

THANK YOU

ANNEXURE 13

QUESTIONNAIRE FOR DFIs AND COMMERCIAL BANKS

National Management Consultants (Pvt) Ltd.

Q.NO. | | | |

SURVEY OF DFI's AND COMMERCIAL BANKS

NAME OF THE INSTITUTION : NDFC

ADDRESS : FTC Building 2nd Floor Karachi.

NAME OF RESPONDENT : Mrs. Azimuddin

DESIGNATION : SVP

INTERVIEWER'S NAME : Kamal Shahryar

DATE : 6-8-92

9/6

FOR OFFICE USE ONLY

EDITING	DATA ENTRY	DUMP CHECK
SIGN :	SIGN :	SIGN :
DATE :	DATE :	DATE :

SURVEY OF DFI'S AND COMMERICAL BANKS

Q 1. For which major types of machinery do you advance loans in local and foreign currency?

Type of machinery financed in local currency:

Cement : 40% local

Sugar :

Chemical

~~Textile~~ Oil & Veg Ghee

Type of machinery financed in foreign currency:

Cement : 60% imported

Sugar

Chemicals

~~Textile~~ Oil drilling

Q 2. Which sectors in your opinion have a good pay back record? (Please give your ranking) It depends on changing

(3) 1. Textile _____ (4) 2. Sugar _____

(1) 3. Cement _____ 4. Engineering Least Payback

(5) 5. Chemicals _____ (2) 6. Transport Suzuki

7. Others (Please specify) _____

Q 3. Out of the total plant & machinery financing, what is the ratio of LHH finance?

FINANCE RATIO	SECTORS
1. Less than 10%	Engineering,
2. Less than 20%	Transport
3. Over 20%	Cement, Sugar, Textile ?

Q 4. What have you done to promote use of locally made machine tools and mechanical machinery?

Wherever local machinery is fit it is preferred

Q 5. What has been your experience in this regard?

Quality of local machinery is not good.

6. Who are the good suppliers of machine tools and other mechanical machinery?

MACHINE TOOLS HFF, PMTF, PECO, Modern (Lahore) etc.
For imported machine tools there can be a very long list.

OTHER MECHANICAL MACHINERY

Seamens (generators), HMC (cement Plant, Boilers), Alsons (precision engineering), PECO (pumps, Diesel engines, HFF (cement, Climax (furnaces, transformers, DG sets)

7. What is your opinion about Pakistan Machine Tools Factory (PMTF)?

Quality is good but price is higher
No over invoicing

8. What do you suggest for PMTF's product diversification?

No Suggestion

THANK YE.

ANNEXURE 14

LISTS OF RESPONDENTS