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CASE - STUDY

PROMOTION OF DOWNSTREAM PETROCHEMICAL INDUSTRIES

IN DEVELOPING COUNTRIES

1.0 MARKET FOR PLASTIC, SYNTHETIC FIBRE AND RUBBERS IN DEVELOPING COUNTRIES

1.1 The market of the above given materials 1977-78 and 1987-88 is given in Annexure - I & II.

2.0 CURRENT STATUS OF PLASTIC FIBRE AND RUBBER PROCESSING INDUSTRY

2.1 Plastic Processing Industry

Pakistan's plastic processing industry consists of thousands large, medium and small processors. The industry is divided into organized and un-organized sectors. The organized sector consists of those units which are registered with Government agencies. The un-organized sector consists of small processors and backyard operators mainly concentrated in main urban centres of the country. As per data compiled from Monthly Pakistan Central Excise and Sales Tax Bulletin. In 1987-88 around 400 units in organized sector were producing various plastic products and their value of production was estimated to be Rs. 2.500 billion. The present organized and un-organized sectors processing capacity is estimated to be around 270,000 metric tons. The

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estimated shares of major processes employed by the Industry are as follows:

PAKISTAN PLASTIC PROCESSING INDUSTRY

<u>Process</u>	<u>Shares in Total Processing Capacity(%)</u>
- Extrusion	50.0
- Injection/Blow Moulding	30.0
- Calendering & others	20.0
T O T A L	----- 100.0 -----

- Extrusion

The products made by employing extrusion process include packaging film, pipes, wires and cables and woven sack/cloth. Bulk of packaging film processing capacity is in the un-organized sector. The present packaging film production capacity of both organized and un-organized sectors is estimated to be 65,000 metric tons. The PVC pipes are being manufactured by large and small units as well as in un-organized sector. The un-organized sector mainly concentrates on conduit pipes. The industry's annual PVC processing capacity is of the order of 28,000 metric tons. The PVC cables are primarily being manufactured by large/small units in organized sector. The industry's annual processing capacity is estimated to be around 22,000 metric tons. Polypropylene bags/cloth processing industry with an annual capacity of around 20,000 metric tons is mainly concentrated in organized sector.

- Injection/Blow Moulding

The injection and blow moulded products include household articles, automotive/industrial parts, bottles/containers, shoes etc. This component of industry is also divided in organized and un-organized sector. In quality and high value end-products organized sector is dominating while in low quality products un-organized sector has dominance.

The annual processing capacity of PE, PP, PVC and PS based products is as under:

PE based products	35,000 Metric tons
PP based products	15,000 Metric tons
PVC based products	10,000 Metric tons
PS based products	<u>20,000 Metric tons</u>
T o t a l	80,000 Metric tons

- Calendering & Others

The calendering and remaining processing capacity is estimated to be 54,000 metric tons. The end-product of this component of this industry include plastic sheets, PVC tiles, rexine/artificial leather etc.

2.2 Synthetic Fibre Processing Industry

In Pakistan the synthetic fibre processing industry is termed as art silk industry. This industry is structured in small units and produces woven fabrics. The units are concentrated in Karachi, Faisalabad and Gujranwala cities and each units has 30-40 looms. The total capacity (although difficult to estimate) is assessed to be around 150,000 metric tons in 1997-83.

### 2.3 Rubber Processing

Rubber processing capacity is capable of producing motor tyres/tubes and other rubber products. The total industry's capacity of various motor tyres and tubes is estimated to be 1.600 million nos. Significant proportion of tyres/tubes requirements of the country specially automotive vehicles are met from imports.

### 3.0 IMPORTS/EXPORTS OF PLASTICS, FIBRES AND RUBBERS

The Imports/Exports of Plastics, Fibres and Rubbers is given in Annexure - III.

### 4.0 TOTAL CONSUMPTION AND EXPECTED GROWTH TILL 1995

#### o Plastics

The present consumption of various plastic materials and their expected growth till 1995 is presented below:

	<u>Consumption(1987-88)</u> <u>(In 000 Metric Tons)</u>	<u>Expected Growth</u> <u>(% P.A.)</u>
- Polyethylene (PE)	50.00	9.0
- Polypropylene (PP)	30.00	8.0
- Polyvinylchloride (PVC)	35.00	6.0
- Polystyrene (PS)	12.00	5.0
- Others	13.00	5.0
	-----	
	145.00	
	-----	

o Synthetic Fibres

The present consumption of Synthetic Fibres and their expected growth till 1995 is presented below:

	<u>Consumption(1987-88)</u> <u>(In 000 Metric Tons)</u>	<u>Expected Growth</u> <u>(% P.A.)</u>
- Polyester	100.00	7.0
- Acrylic	10.00	5.0
- Others	10.00	5.0
	-----	
	120.00	
	-----	

o Rubber Processing

The consumption of rubber processing (Cycle, Motor tyre/tube) industry and its expected growth rate till 1995 is given below:

	<u>Consumption(1987-88)</u> <u>( In 000 Nos. )</u>	<u>Expected Growth</u> <u>(% P.A.)</u>
- Cycle Tyres	600	7.0
- Motor Tyres/Tubes	800	6.5
	-----	
	1400	
	-----	

**5.0 GOVERNMENT LEGISLATION IN THE AREA OF PETROCHEMICAL PROCESSING INDUSTRIES**

The petrochemical processing has not been given any special treatment or incentives. Since bulk of raw materials of these industries are imported, high import duties on both raw material and processing machinery have been imposed.

## 6.0 GOVERNMENT POLICY FOR THE DEVELOPMENT OF PROCESSING INDUSTRIES

Recently, one of state corporation i.e. Federal Chemical and Ceramics Corporation (FCCCL) has established Plastics Technology Centre. This centre is expected support services to local processors. FCCCL is also planning to set-up synthetic fibres centre.

Almost all the educational institutions imparting education in the area of chemical engineering/technology are equipped to provide specialists in petrochemical processing industry.

## 7.0 ORGANIZATION OF THE INDUSTRY

As stated earlier the petrochemical processing industry consists of organized and un-organized sectors. The organized sector is dominated by private entrepreneurs who are public/private limited companies, partnerships and sole proprietorship. The un-organized sector units are primarily sole proprietorships.

The level of cooperation within the industry is very limited. Various Associations are have been established but their objective is primarily to take joint actions for reduction in duties and taxes. These Associations don't have information/data pertaining industry's production capacity and composition. This is primarily due to the fact that individual members are not prepared to part with their unit's information/data as they think that this information/data can be beneficial to their competitors.

### 8.0 LEVEL OF INTEGRATION OF THE PROCESSING INDUSTRIES

In the area of plastics process the backward integration has not been possible as with the exception of Pakistan PVC no local production facility exists. In Synthetic Fibres i.e. polyester to some extent backward integration has taken place. For example the polyester yarn manufacturers who initially were producing yarn from imported chips have established their own polycondensation facility.

There exists no regional/international cooperation in petrochemical processing industry as there is not a single unit which has been established raw material supplier and local processor. The raw material requirements of the industry are being met by imports undertaken by commercial importers and processors themselves.

### 9.0 OBSTACLES FACING THE PROCESSING INDUSTRY

In the area of financing there is need to take stock of the funds requirements of the industry. The industry badly needs funds for meeting their working capital requirements.

The import duties on both raw material and processing machinery are still very high. It may be pointed that in 1987 the import duty on plastic raw material was reduced from Rs. 13,000 per metric ton to Rs. 7,000 per metric ton. The machinery required for production of plastic products is also subject high rate of custom duties and sales tax. For example a custom duty of 20% and sales tax of 12.5% is levied on injection moulding machines. The



high incidence of custom duty and sales tax on raw material and machinery has hampered the growth of the industry. In view of this situation the plastic products cannot compete with natural products within the country nor they can compete in international market. The plastic products have good market prospects in Middle East. The break through is not possible as our product is priced 30-50% higher than the comparable products supplied from Hong Kong, Taiwan and Singapore.

The industry is not facing problems in the area of implementation or operation. However, the financial institutions should impress upon the entrepreneurs to engage specialized engineering consultants for implementation as well as operation of processing plants.

#### 10.0 APPRAISAL OF THE INDUSTRY FROM VIEWPOINT OF LOCAL PRODUCERS

The processing industry can only flourish when raw materials are produced locally. In this connection efforts should be made to first set-up down stream petrochemical industry jointly with petrochemicals suppliers of Middle East and technology suppliers of developed world. Once this is done then based on feedstock availability and market considerations the production of basic petrochemicals can be started.

As an interim period Government should reduce the import duties being levied on raw materials and processing machinery. Efforts should also be made to explore the export markets for finished products i.e. plastic products or *synthetic fibre based Textiles, Garments etc.*

## PAKISTAN: MARKET FOR PLASTIC MATERIALS

(In Metric Tons)

	1977-78	1987-88	ANNUAL GROWTH 1977-87 (%)
<u>Building Materials</u>			
- Housing	6,000	15,000	10.30
- Infrastructure	4,000	10,000	09.60
<u>Agriculture Materials</u>			
- Piping	1,000	3,000	11.70
- Film	-	3,000	-
- Others	-	-	-
<u>Transportation Materials</u>	3,000	15,000	17.46
<u>Consumer Goods</u>			
- Household Goods	8,000	25,000	12.00
- Bags	7,000	33,000	16.77
- Textiles	6,000	15,000	10.30
<u>Health Care Products</u>	3,000	10,000	13.00
<u>Others</u>	2,000	14,000	21.50
<u>TOTAL</u>	40,000	155,000	13.75

PAKISTAN: MARKET FOR SYNTHETIC FIBRES  
AND SYNTHETIC RUBBER

(In Metric Tons)

	<u>1977-78</u>	<u>1987-88</u>	<u>ANNUAL GROWTH 1977-87 (%)</u>
SYNTHETIC FIBRES	45,000	120,000	10.00
SYNTHETIC RUBBER	4,000	7,000	7.00

REVENUE

DESCRIPTION	FISCAL YEAR 1934		FISCAL YEAR 1935	
	AMOUNT	QUANTITY	AMOUNT	QUANTITY
<b>C. R. RUBBER</b>				
BRICK RUBBER				
BRICKS OF RUBBER	6,265	173	12,100	127
CLAY RUBBER			807	16
CLAY RUBBER				
CLAY RUBBER	316,920	2,551	15,405	102
CLAY RUBBER			4,775	32
CLAY RUBBER	1,560	20	3,712	24
CLAY RUBBER				
CLAY RUBBER			100	4
CLAY RUBBER			672	12
CLAY RUBBER	1,613	47	70,407	1,425
CLAY RUBBER			72,295	2,250
CLAY RUBBER VULCANIZED			10,516	1,007
CLAY RUBBER VULCANIZED			676	14
CLAY RUBBER VULCANIZED	100	6	2,150	225
CLAY RUBBER VULCANIZED				
CLAY RUBBER VULCANIZED	320,406	2,550	50,056	1,757
CLAY RUBBER			10,251	122
CLAY RUBBER	7,325	52	72,751	1,500
CLAY RUBBER	202,773	2,344	2,020,562	26,050
CLAY RUBBER			41,712	525
CLAY RUBBER	16,635	215		
CLAY RUBBER	3,550	23	7,154	772
CLAY RUBBER			27,713	1,453
CLAY RUBBER	273	7	270	17
CLAY RUBBER	450	56	46	21
CLAY RUBBER	1,200	2		
CLAY RUBBER			2,000	56
CLAY RUBBER (NS)	40,857	465	475,510	10,637
<b>TOTAL</b>	<b>927,577</b>	<b>14,506</b>	<b>4,226,262</b>	<b>122,067</b>

## PAKISTAN: IMPORTS/EXPORTS OF PLASTIC, FIBRES &amp; RUBBERS

(1977-78 to 1987-88)

09/01/1988 11:04:00

22/01/1988 10:00:00

12/01/1988

DESCRIPTION	1977-78		1987-88	
	QUANTITY	VALUE	QUANTITY	VALUE
CELLULOSE				
CELLULOSE DERIVATIVES				
CELLULOSE	11,030	576	101,276	5,011
CELLULOSE	154,500	150	22,255	1,105
CELLULOSE	-	-	1,271,119	62,717
CELLULOSE	-	-	301,348	15,117
CELLULOSE	-	-	21,625	1,074
CELLULOSE	-	-	1,474,767	72,919
CELLULOSE	-	-	10,604	527
FIBRE PRODUCTS OF POLYMERIZATION(S)	1,316	196	4,156,170	204,334
MODIFIED NATURAL RUBBERS	055	508	2,291,876	112,756
MODIFIED RUBBER PRODUCTS	10,000	57	12,711,005	632,250
MODIFIED RUBBER (NS)	481	45	201,000	10,000
PLASTIC SHEETS	700	40	1,155,100	58,000
<b>TOTAL</b>	<b>163,387</b>	<b>1,308</b>	<b>20,050,502</b>	<b>109,429</b>

## 10. SYNTHETIC FIBRES

ACRYLIC FIBRE	-	-	102,671	5,041
ACRYLIC FIBRE	-	-	2,715,105	132,055
ACRYLIC FIBRE	-	-	193,119	9,550
ACRYLIC FIBRE	-	-	907	49
ACRYLIC FIBRE (NS)	9,525	2,116	10,632,746	524,234
ACRYLIC FIBRE (NS)	-	-	270,255	13,201
ACRYLIC FIBRE (NS)	-	-	-	-
ACRYLIC FIBRE (NS)	-	-	51,278	2,519
ACRYLIC FIBRE	-	-	15,311	761
ACRYLIC YARN	4,070	336	884,026	43,491
ACRYLIC YARN	577	20	4,735	234
ACRYLIC YARN	7,725	310	142,201,490	695,227
ACRYLIC YARN & THREAD (NS)	800	60	302,908	14,959
<b>TOTAL</b>	<b>22,607</b>	<b>7,100</b>	<b>170,302,825</b>	<b>9,000</b>

QUANTITIES IN POUNDS  
 VALUE IN DOLLARS

1917 1918

PRODUCTS	1917		1918	
	QUANTITIES	VALUE	QUANTITIES	VALUE
<b>G. R. RUBBER</b>				
BOOTS RUBBER				
BRANDLES OF RUBBER	6,265	193	12,400	137
FLATS RUBBER	-	-	907	10
SHOES RUBBER	-	-	-	-
STRIPS RUBBER	215,920	2,551	13,437	102
LATEX RUBBER	-	-	4,395	39
PASTE RUBBER	1,540	20	11,312	34
RINGS RUBBER	-	-	-	-
ROPS RUBBER	-	-	100	4
SCHEMIONS RUBBER	-	-	492	7
THREAD RUBBER	7,613	47	34,402	1,425
VULCANIZED RUBBER	-	-	22,245	2,250
UNVULCANIZED RUBBER	-	-	10,516	1,007
HEAVY RUBBER VULCANIZED	-	-	676	14
HEAVY RUBBER VULCANIZED	100	6	2,150	325
HOSE FITTING RUBBER	-	-	-	-
FITTING RUBBER	320,406	7,550	54,056	1,755
HARDENED RUBBER	-	-	10,751	127
HARDENED RUBBER	7,325	62	77,551	1,590
TRANSMISSION RUBBER BELTS	302,773	7,344	3,020,552	36,050
BRASSER RUBBER	-	-	41,712	520
MATRICES RUBBER	16,625	213	-	-
RUBBER PARTS OF SCIENT. INST.	3,550	23	7,154	752
STOPPER BOTTLE RUBBER	-	-	27,713	1,450
VALVES RUBBER	273	7	270	17
WASHER RUBBER	450	56	46	21
HANDLES RUBBER	1,200	2	-	-
HOOPS RUBBER	-	-	2,000	56
ARTICLES OF HARDENED RUBBER (NS)	40,857	465	425,510	10,405
<b>TOTAL</b>	<b>927,577</b>	<b>14,506</b>	<b>4,235,262</b>	<b>59,860</b>

QUANTITIES IN TONS  
VALUES IN 1000 RLS.

1967 1968

P R O D U C T S	1 9 6 7		1 9 6 8	
	Q U A N T I T Y	V A L U E	Q U A N T I T Y	V A L U E
<b>OTHER PLASTIC MATERIAL</b>				
MODIFIED NATURAL RESINS	-	-	337,343	112,337
PLASTIC MOLDING POWDER	-	-	1,297,021	20,000
PLASTIC MOLDING COMPOUND	-	-	42,731,094	578,444
OTHER HIGH POLYMER'S MATERIAL (NS)	-	-	14,027,031	222,227
POLYMERIZATION PRODUCTS (NS)	10,000	260	657,175	12,000
<b>T O T A L</b>	<b>10,000</b>	<b>260</b>	<b>177,602,664</b>	<b>577,514</b>

**S Y N T H E T I C F I B R E S**

**P O L Y A M I D E S**

POLYAMIDE NOT CARDED COMBED	-	-	2,451,229	47,120
POLYAMIDE CARDED/COMBED	-	-	-	-
YARN OF NYLON FIBRE	-	-	2,034,983	175,944
NYLON THREAD	-	-	56,741	1,227
<b>T O T A L</b>	<b>0</b>	<b>0</b>	<b>4,542,953</b>	<b>197,142</b>

**P O L Y E S T E R**

POLYESTER NOT CARDED COMBED	10,843	5,104	24,077,294	540,250
FILAMENT TOW POLYESTER FIBRE	4,071,072	67,608	29,044	807
POLYESTER CARDED/COMBED	-	-	56,684	2,000
<b>T O T A L</b>	<b>4,081,922</b>	<b>72,712</b>	<b>24,961,022</b>	<b>541,071</b>

**A C R Y L I C**

ACRYLIC NOT CARDED/COMBED	-	-	870,290	27,774
FILAMENT TOW FOR ACRYLIC FIBRE	-	-	41,237	2,000
ACRYLIC TIPS	54,673	4,910	9,134,639	305,024
ACRYLIC CARDED/COMBED (NS)	1,120	41	1,230,574	60,133
<b>T O T A L</b>	<b>56,793</b>	<b>4,951</b>	<b>11,277,462</b>	<b>477,420</b>

SYNTHETIC FIBRE NOT CARDED/COMBED	-	-	15,026,160	391,275
FILAMENT TOW FOR SYNTHETIC FIBRE	209,873	16,409	149,529	6,361
SYNTHETIC FIBRE CARDED/COMBED	-	-	220,070	9,525
REGENERATED FIBRE UN-CARDED	-	-	289,286	7,407
REGENERATED FIBRE CARDED/COMBED	-	-	56,815	247
MONOFIL ETC. OF SYNTHETIC FIBRE	-	-	9,246,927	624,777
YARN OF SYNTHETIC FIBRE (NS)	158,745	23,656	14,423,254	214,625
<b>T O T A L</b>	<b>427,618</b>	<b>40,065</b>	<b>32,662,401</b>	<b>1,962,717</b>

QUANTITIES IN TONS  
 VALUE IN DOLLARS

1942 1941

PRODUCTS	1942		1941	
	QUANTITY	VALUE	QUANTITY	VALUE
<b>RUBBER</b>				
SHEETS OF UN-VULCANIZED RUBBER			11,721	217
ROCKERS OF UN-VULCANIZED RUBBER			481	1
BOARDS OF UN-VULCANIZED RUBBER			1,026	50
LATEX RUBBER			72,612	1,177
RUBBER UN-VULCANIZED (MS)	90	1	31,799	1,021
CURED RUBBER VULCANIZED			19,295	71
PLATES ETC. HARDENED RUBBER			224,711	19,515
PREPARED VULCANIZED RUBBER (MS)			22,951	59
WAL-FITTING RUBBER	192,152	1,127	211,774	5,281
ROCKERS RUBBER			12,447	51
WHEELS, SHOCKS, ETC. HARDENED RUBBER	1,200	50		
RUBBER SCRAP			151,312	550
HARDENED RUBBER (MS)	250	17	5,125	107
<b>TOTAL</b>	<b>91,799</b>	<b>1,825</b>	<b>1,121,690</b>	<b>11,102</b>