No.

Toward a Vision 2030:
Direction of Industrial Development in Pakistan

Final Report

November 2006

Japan International Cooperation Agency

International Development Center of Japan

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PREFACE

In 2005, the government of Pakistan formulated a five-year plan entitled, "Medium-Term Development Framework 2005-10" and also established a target called "Vision 2030,",aimed at realizing industrialization by 2030. To achieve the target, Pakistan must strengthen its economic competitiveness, even though its current major manufacturing products - food, cigarettes, and fiber - are made from agricultural materials. To improve its economic competitiveness, it is necessary to analyze which of Pakistan's industries have a comparative advantage considering the state of clusters in domestic and regional markets, and the prospects for competition and integration with neighboring Asian countries, including China. Identifying these leading industries and allocating domestic resources to these industries are also key steps to enhance competition.

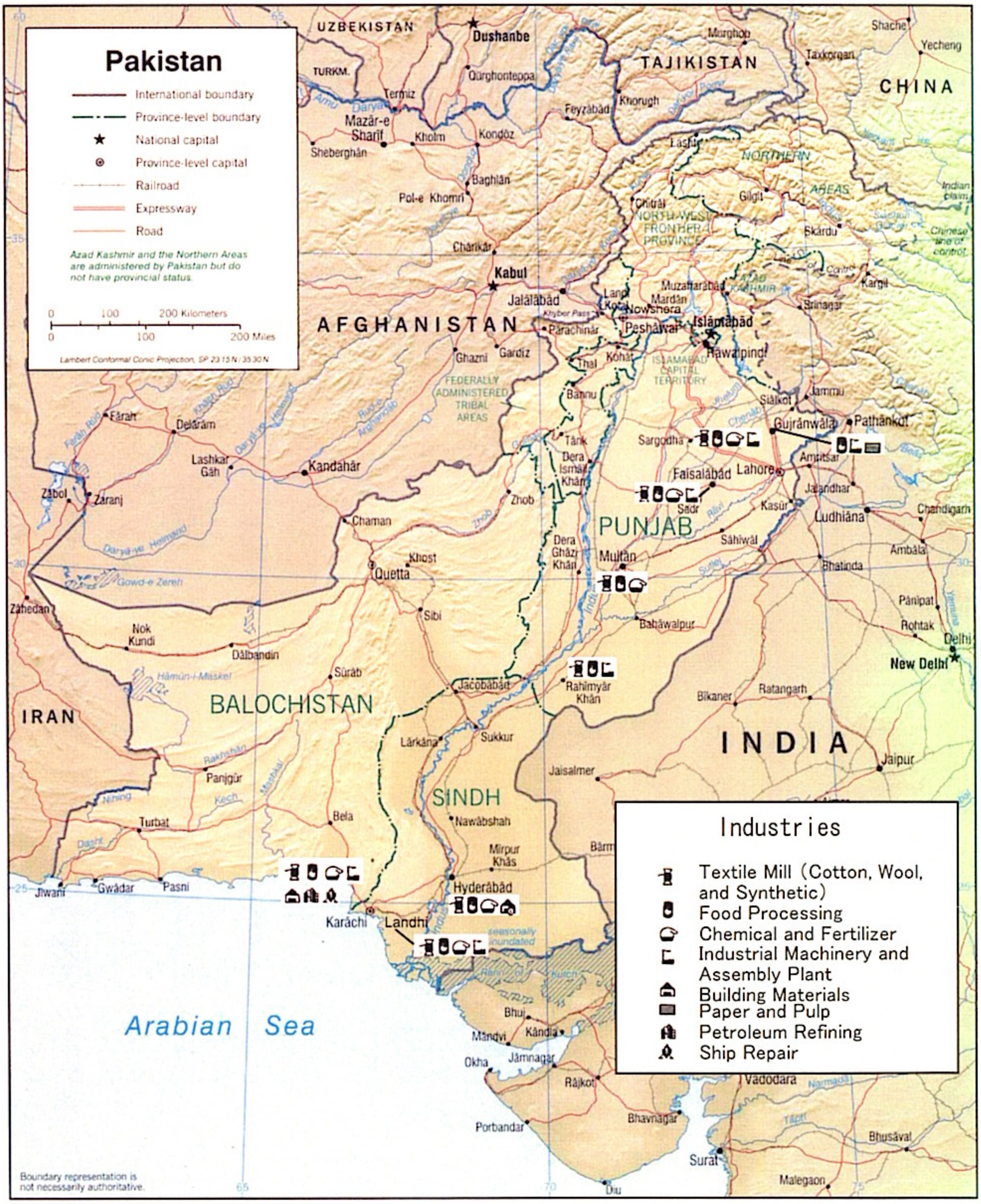
To ensure Pakistan's economic stability and growth, JICA has provided the technical support in the fields of mold technology and customs administration. JICA will strengthen its Program Approach to support to secure a sound market economy and a diversified industrial structure.

Under these circumstances, this project study was implemented to understand the current situation and problems in Pakistan's industrial development, and to reinforce Japan's policy support and programs that would further Pakistan's industrial development.

This study, conducted by the International Development Center of Japan and commissioned by JICA, is expected to be used as a reference by JICA in its future development assistance policies. Accordingly, the contents of the report do not necessarily reflect the official views and opinions of JICA.

I would like to extend my deep appreciation to all the people and institutions that provided generous support and cooperation.

Hiroyo Sasaki, Director General, Economic Development Department, JICA


Pakistan
International boundary
Province-level boundary
National capital
Province-level capital
Railroad
Expressway
Road
Azad Kashmir and the Northern Areas are administered by Pakistan but do not have provincial status.
0 100 200 Kilometers
0 100 200 Miles
Lambert Conformal Conic Projection, SP 23 15 N / 35 30 N
Industries
Textile Mill (Cotton, Wool, and Synthetic)
Food Processing
Chemical and Fertilizer
Industrial Machinery and Assembly Plant
Building Materials
Paper and Pulp
Petroleum Refining
Ship Repair
UZBEKISTAN
TAJIKISTAN
CHINA
AFGHANISTAN
IRAN
INDIA
PUNJAB
SINDH
BALOCHISTAN
NORTHERN AREAS
NORTH-WEST FRONTIER PROVINCE
FEDERALLY ADMINISTERED TRIBAL AREAS
ISLAMABAD CAPITAL TERRITORY
AZAD KASHMIR
Arabian Sea
Dushanbe
Kabul
Islāmābād
New Delhi
Karāchi
Lahore
Peshāwar
Quetta
Rawalpindi
Faisalābād
Multān
Hyderābād
Gujrānwāla
Sargodha
Sialkot
Landhi
Sukkur
Bahāwalpur
Rahīmyār Khān
Boundary representation is not necessarily authoritative.

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Abbreviation

ADB: Asia Development Bank
APTMA: All Pakistan Textile Mills Association
AT&TC: Automotive Testing and Training Center
BOI: Board of Investment
CAD/CAM: Computer-Aided Design/ Computer-Aided Manufacturing
CBR: Central Board of Revenue
CDA: Cluster Development Agency
CDNS: Central Directorate of National Savings
CEO: Chief Executive Officer
CKD: Complete Knocked-Down
CCoP: Cabinet Commerce of Privatization
DB: Database
DCO: District Coordination Officer
DFID: Department for International Development
EDB: Engineering Development Board
EDF: Export Development Fund
EPB: Export Promotion Bureau
EPZA: Export Processing Zones Authority
ESCO: Energy Saving Company
FDI: Foreign Direct Investment
FMM: Federation of Malaysian Manufacturers
FPCCI: Federation of Pakistan Chambers of Commerce and Industry
GDP: Gross Domestic Product
GSP: Generalized System of Preferences
IFC: International Finance Corporation
IIN: Industrial Information Network
IMF: International Monetary Fund
IMP: Industrial Master Plan
ISDP: Industry Specific Deletion Program
ISO: International Organization for Standardization
IPP: Independent Power Producer
ISIC: International Standard Industrial Classification
IT: Information Technology
JETRO: Japan External Trade Organization
JEXSA: JETRO Expert Service Abroad for Improving Business Environments
KESC: Karachi Electric Supply Corporation
M&A: Merger and Acquisition
MATRADE: Malaysia External Trade Development Corporation
MFA: Multi Fiber Agreement
MIDA: Malaysia Industrial Development Agency
MITI: Ministry of International Trade and Industry
MTDF: Medium Term Development Framework
NAVTEC: National Vocational and Technical Education Commission
NBFI: Non Bank Financial Institution
NEPRA: National Electric Power Regulatory Authority
NIPDMC: National Industrial Parks Development & Management Company
NSS: National Saving Scheme
NISTE: National Institute of Science and Technical Education
NPO: Non Profit Organization
NTDC: National Transmission and Dispatch Company
ODA: Official Development Assistance

PAAPAM: Pakistan Association of Automotive Parts and Accessories Manufacturers
PAMA: Pakistan Automobile Manufacturers Association
PBEA: Pakistan Bedwear Exporters Association
PEPCO: Pakistan Electric Power Company
PCSIR: Pakistan Council of Scientific & Industrial Research
PIDC: Pakistan Industrial Development Corporation
PIEDMC: Punjab Industrial Estate Development Management Company
PITAC: Pakistan Industrial Technical Assistance Center
PPP: Public-Private-Partnership
PPSB: Punjab Prices and Supplies Board
PSEB: Pakistan Software Export Board
PSFD: Pakistan School of Fashion Design
PQA: Port Qasim Authority
PQIA: Port Qasim Industrial Area
PSIC: Punjab Small Industries Corporation
PTA: Pakistan Tanners Association
R&D: Research and Development
RCA: Revealed Comparative Advantage
SAFTA: South Asia Free Trade Agreement
SAPTA: South Asia Preferential Trade Agreement
SEC: Security Exchange Commission
SDC: Skill Development Council
SME: Small and Medium Enterprises
SMEDA: Small and Medium Enterprises Development Authority
SMENG: Small and Medium Enterprises Networking Group
SMIDEC: Small and Medium Industries Development Corporation（マレーシア中小企業開発公社）
STI: Staff Training Institute
SV: Senior Volunteer
TDAP: Trade Development Authority of Pakistan
TEVTA: Technical Education and Vocational Training Authority
TDM: Tools, Dies and Moulds
TRIMS : Trade-Related Investment Measures
TUSDEC: Technology Upgradation and Skill Development Company
TVET: Technical Education and Vocational Training
UNCTAD: United Nations Conference on Trade and Development
UNIDO: United Nations Industrial Development Organization
USAID: United States Agency for International Development
VAT: Value Added Tax
WAPDA: Water and Power Development Authority
WTO: World Trade Organization

Exchange Rate

Note: Exchange Rate for US dollars to Pakistani Rupee in October 2006 is the following for the reference.

1US Dollar= 60.6 Pakistani Rupee (Rs.)

Source: State Bank of Pakistan

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Preface

Introduction

Introduction

(1) Background and Objectives of the Study

At the time of independence, mainly producing cotton and wheat, and supplying them to industrial regions in India, Pakistan was plagued by underdeveloped industrial structure. Besides, because political power has been occupied by a handful of elites, mainly land owners, whose rent-seeking attitudes have distorted the country's economic structure, the development strategy has been inconsistent, and as a result, full use of economic potentials and human resources have been hampered. Meanwhile, because of perpetuated protection of industrial sectors with vested interest, nationalization made from time to time and continued prevalence of underground economies; the economy has been diversified and industrialized only very slowly.

Pakistan needs to find out ways to promote expansion of the dynamic market economy. This Study attempted to present ways to promote industries, specifically in order to achieve "well-directed economic development" to be broken down into: upgrading of industrial structure, control of the underground economy and proper development of economic infrastructure. In addition, in relation to "building economic clusters, unique to its locality", concrete recommendations should be presented for the purpose of "well-directed regional development". By means of these achievements, "the private sector would be vitalized", "industries would be upgraded", and "the dynamic market economy would be expanded". Through simultaneous "acceleration of fostering of social sector", "the middle class would be strengthened", which in turn would "build and strengthen monitoring capabilities of society", and enable people to watch and control behaviors of the ruling elites, in concert with "guaranteed equal opportunities" and "maintained law and order as well as consistently continued such policy". The final goal, "to develop sustainable society", would be thus reached.

The Study had the following two objectives:

(1) reveal the current state of the Pakistani industrial structure and of industrial policy, and identify future tasks in this regard; and
(2) to consider and recommend future courses of Japan's support, in the light of the findings mentioned above as well as consultations with Pakistani authorities and the ODA Task Force stationed in Pakistan, concerning the Research Team's draft proposals on the country's industrial structure and industrial policy to be pursued in future.

(2) The Study Methods

The Study was conducted both in Japan and in Pakistan. Before starting field study in Pakistan, the Study team formulated hypotheses, which were further discussed with JICA Headquarters Office and the ODA Task Force Team in Pakistan on 15 May 2006. Taking into account of the discussion, the Study team made fieldwork in Pakistan from 17 May to 22 September 2006, in close contact with JICA Headquarters Office and the ODA Task Force Team in Pakistan. In addition, the Study team subcontracted a Pakistani consulting company to conduct an establishment survey. The Study covered a whole country with emphasis on four cities, namely, Lahore, Karachi, Peshawar and Quetta.

Working Hypotheses of the Study

Since Pakistan is geographically more than twice as large as Japan, and is populated by 160 million people, the Study would not be able to cover the entire country to come up with useful recommendations in a short period of time, while the tasks ranged from industrial policy formulation based on analyses of existing industrial structure and necessary policy tasks to Japan's ODA policy formulation. Without clear concepts and purposeful operations, the Study would simply end up with repeating what was already said in other studies. In order to produce any enlightening, appreciable outcomes of practical value, sufficient preparation would be required to identify clearly focused objectives and set up valid working hypotheses, so that the time and resources of the Study Team would be effectively concentrated on tests and proof of the hypotheses.

The concept, which was to constitute a basis of the Study, was clearly spelled out in the Country Assistance Program (2005) and the Country Study (2003). Namely, the ultimate goal of the country's development is "to develop sustainable society". The Study therefore attempted to find out ways to achieve the goal specifically by "promoting industries for vitalizing private sectors", which is essential to achieve the ultimate goal cited in the preceding sentence. In the light of the country's history of development and of the current states of its industrial structure, promotion of higher value added products and diversification of internationally competitive industries were judged the prerequisite for sustainable growth of manufacturing. The Study's focus was on this concept as a matter of working hypothesis.

Tasks for Each Sector and Each Region

The Study selected seven industrial sectors that were indicated by JICA—textile, food processing, automobile, electronic & electrical, chemical, housing related and IT industries --, and looked into their current situations to know future prospects of growth, and identified things to be done for development. The sectors supporting these industries including subcontractors and vendors were also looked at through the establishment survey so that the recommendations would be valid respecting each of the entire sectors. The Study also tried to elaborate ways to build local centers for the purpose of industrial promotion to be spearheaded by vitalized private sectors, in the context of current status and future tasks of each State.

Definition of Leading Industries and Methods for Their Selection

At present, the Pakistani Government is preparing "the Medium Term Development Framework: 2010-2030". The Study was expected to choose Leading Industries, which were expected to lead the country's economic growth during the plan period so that the plan will incorporate the result. Because there are numerous schools of thoughts on how to define the Leading Industry, depending on an objective, a beneficiary or any other viewpoints to be chosen. The Study avoided making unilateral judgment but took a careful approach on the basis of collection and analyses of opinions of a variety of groups in the country.

Close Information Sharing

The Study team recorded interviews with visited manufacturing establishments and organizations and reported to JICA Headquarters Office and the ODA Task Force Team members once a week in order to share information and to exchange opinions among different stakeholders. Moreover, the study results were

explained to stakeholders of the Pakistani Government foe exchange of opinions.

(3) Manufacturing Establishment Survey

For this Study, an enterprise survey was made by collecting questionnaires through the subcontracted Pakistani consulting firm in order to select hopeful sectors and formulate recommendable industrial policy. The Study Team drafted the questionnaire and, before its finalization, took into account interviews with Pakistani enterprises conducted in Karachi and Lahore on a trial basis and opinions of the subcontracted Pakistani consultant. In addition, the experimental enterprise survey was conducted in early June, 2006, respecting three textile makers, one foreign affiliated auto maker, one auto parts maker and one foreign-affiliated chemicals maker. After the questionnaire was completed, training was provided in Karachi for surveyors (interviewers) and their supervisors. About 30 persons came to the training session. They had been chosen out of those who lived in NWFP, Punjab and Sindh and were experienced in similar interviews. The list held by the Social Exchange Commission was used as the database of the population for sampling enterprises to be surveyed. The stratified random sampling method was applied so that the samples would properly represent enterprises belonging to the seven sectors, all the Provinces and major cities. The seven sectors were: textiles & clothing, food processing, automobiles & parts, electronics, chemicals, housing-related industries and information technology; while the Provinces and major cities were: Lahore, Faisalbad, Sialkot, Gujranwala, Daska, Wazirabad and Sargodha in Punjab Province; Karachi and Hyderabad in Sindh Province; NWFP and Peshawar. For the sampling procedures, a Pakistani statistician was hired. Out of the population, 500 firms were randomly sampled and handed over to the subcontracting consultant.

As a rule, the interview was made with the CEO of the surveyed firm. Due to delay in getting the list of manufacturing enterprises, sampling was not completed in time. In addition, because of prolonged heavy rain starting in late July, and of impeded road traffic caused by a flood, considerable difficulties had to be overcome, but finally necessary information was obtained from 500 firms as had been targeted initially. Subsequently, from late July to late August, a follow-up survey was made respecting firms located in the vicinity of Lahore and in Karachi, with which the initial interview had been completed.

The questionnaire consists of the following. In addition, the questionnaire that had been used for survey is attached to Annex.

Section1: General information
- Operation year and the background of the founder of establishment
- Sales in 2005
- The major product

Section2: Business association
- Member of some of local business association or not/ the name of local association
- Service from the business association
- Service expected from business association

Section3: Linkage to foreign market

- Export ratio and the major exporting country
- Experience of receiving official export assistance
- Service expected of official export support

Section4: Linkage to foreign technology

- Delivery result to domestic foreign firm
- Received technical assistance from foreign firm or not
- Result of import hardware over the past 2 years

Section5: Learning through research & development

- Have some research and development (R&D) department
- The number of R&D and budget
- Experience of reception from official R&D organization
- Evaluation of official R&D organization

Section6: Learning through training

- Composition of academic background of staff member
- The number of recruitment and retirement in 2005
- Numbers of Professional, Skilled, Unskilled workers
- The method and standards of recruitment of staff member
- Have technical support for staff member or not and the matter
- Past results of utilization of official vocational training organization, and evaluation to the organization
- Past results of technical support in foreign countries

Section7: Linking to local economy

- Effectiveness of forward linkage to other sectors of the economy
- Effectiveness of backward linkage to other sectors of the economy

Section8: Competition and competitiveness

- Main competitors and evaluation of competitor of in - house product
- The influential factor to competitive products
- External factor of disturb of competitive products
- Evaluation of competition severity

Section9: Capacity utilization and finance

- Capacity utilization past over 2 years
- Plan of capacity investment in 2 years
- Have borrowing or not and from which and the purpose and guaranty
- The problem of financing
- The influence of earthquake disaster of north on October 2005

In addition, definitely, when the firm that was able to obtain data is categorized by industrial classification and city, it is as shown in table below. In order to represent the Pakistani industrial composition, textile group and food process group account for over one-half of total firm. By geographical distribution, Karachi has 205 firms, 40% of total, followed by Lahore, 147 firms. The result analysis is indicated circumstantially, in ‘3.4 Selection

of leading industries in light of manufacturing establishments' survey through the industry study' but is mentioned depending on issue in the chapter2, 3.

Table: The Composition of Surveyed Firms by Cities and Industrial Sectors

	Daska	Faisalbad	Gujranwala	Hyderabad	Karachi	Lahore	Peshawar	Sargodha	Wazirabad	All cities
Textile Clothing	0	37	19	10	91	47	4	2	1	211
Food Processing	2	3	0	7	20	16	13	7	3	71
Automobile & Parts	2	0	2	0	21	14	0	0	0	39
Electronics	0	0	2	0	6	5	1	0	0	14
Chemicals	0	0	0	1	28	19	8	1	0	57
Housing related	0	0	2	5	35	39	14	1	6	102
Information Techno	0	1	0	0	3	0	2	0	0	6
Others	0	0	0	0	1	7	0	0	0	8
All sectors	4	41	25	23	205	147	42	11	10	508

(4) Composition of the Report

The report consists of five chapters. Chapter 1 explains the characteristics of the industrial sector in Pakistan and structural constraints for further industrial development. Chapter 2 analyzes the government policy. Firstly, the team analyzes investment and trade promotion policy in terms of investment climates and trade promotion policy. Secondly, the current situation and constraints of human resource development is discussed taking the private sectors' views into consideration. Then strategies for industrial human resource development are considered. Thirdly, present situation and constraints of infrastructure, in particular, electricity, is analyzed. Infrastructure, which supports the development of cluster, is considered as well. Chapter 3 analyzed major industrial sectors and regions. First current status and issues for industrial development framework is discussed. Then current status and issues for selected seven groups of industry are discussed. Taking these analyses, current status and issues for area economic development through clusters are discussed. Based on these analyses Chapter 4 proposes industrial development strategy and policy options. Finally, Chapter 5 presents possible direction of Japanese assistance so as to realize the policy options. The questionnaire used for the manufacturing establishment survey was attached in the Annex.

Chapter 1

The Present Situation of the Pakistani Industrial Sectors

Chapter1 The Present Situation of the Pakistani Industrial Sectors

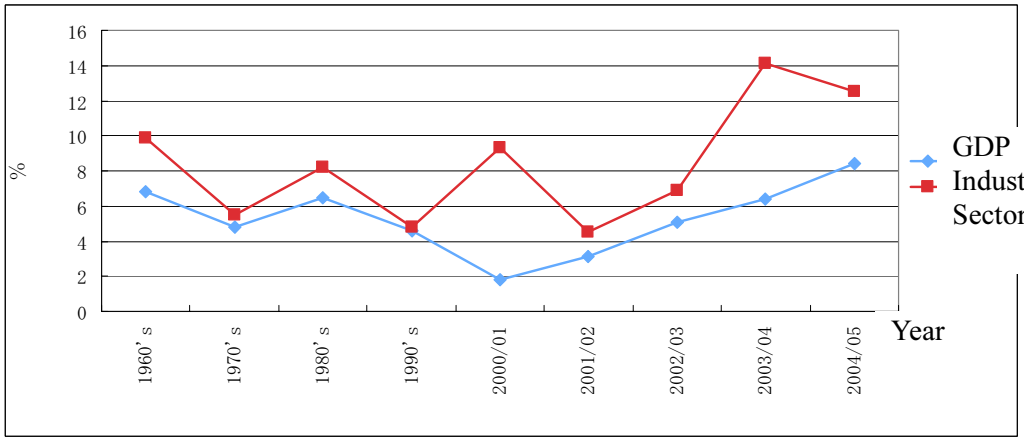
1.1 The Present Situation of Pakistani Economic and Social Development

In 2005-06, the services sector accounted for over 52.3 per cent of GDP, and manufacturing is the second largest sector of the Pakistan's economy accounting for 18.2 per cent of GDP. The growth rates of manufacturing sector were remarkable during the last several years, 14.0 per cent in 2003/04, 12.6 per cent in 2004/05 and 8.6 per cent in 2005/06 respectively. The manufacturing sector and industrial sectors development are the government policy with overriding priority.

1.1.1 The Present Situation of the Pakistani Industrial Sectors

(1) Trend of Industrial Sectors Growth

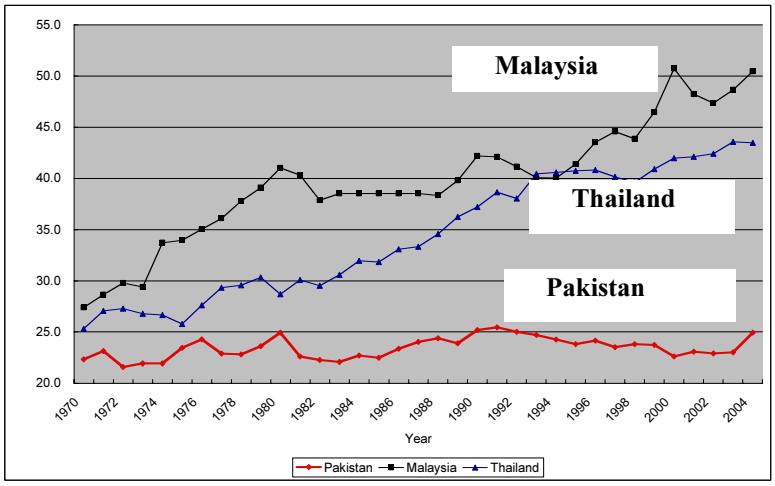
Figure1-1 shows the growth rates of Pakistani industrial sectors since 1960. The growth rate fluctuates year after year. In the 1960s and 1980s, the country achieved high growth rates, which dropped in the next decades respectively. The fluctuation hampered the sustainable growth of the country. The growth rate of GDP showed the similar trend as that of industrial sectors up to 1990s. The growth rate of industrial sectors showed high trend after 2000, except for the US invasion of Afghanistan in 2001/2002.



Source：Government of Pakistan, Economic Survey 2004/05

Figure1-1 Growth Rates of Pakistani GDP and Industrial Sectors

Figure1-2 compares the Pakistan's rate of industrial value added to GDP with those of Malaysia and Thailand. In the beginning of the 1970s, the rates of all the three countries were in the range of 20 %. However, Malaysia increased the rate from 27.4 % to 50.4 % from 1970 to 2004, and 25.3% to 43.5% in the case of Thailand. On the other hand, Pakistan increased the rate slightly from 22.3% to 25.5 % in the same period. This confirmed what we saw in the previous section that the Pakistan economy could not achieve sustainable growth during the period. In this way, it is rather difficult to say that the Pakistan's industrial sectors have achieved sustainable growth compared with other Asian countries such as Malaysia and Thailand.



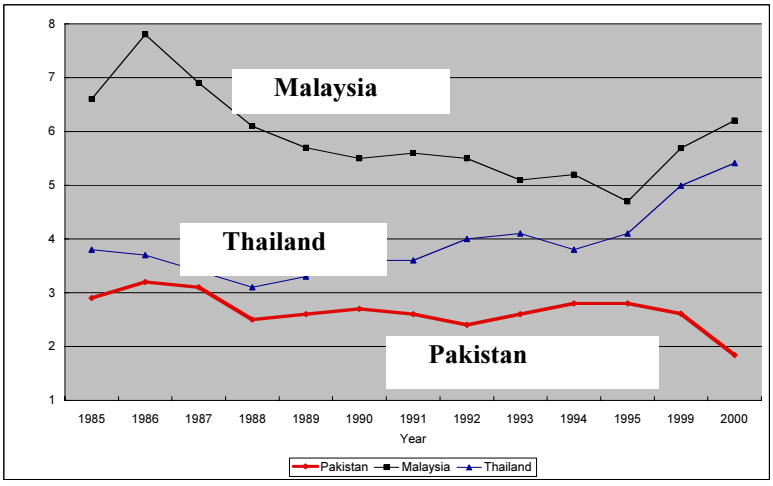
Source：The World Bank、World Development Indicators

Figure1-2　Industrial Value Added to GDP in Pakistan, Malaysia and Thailand

Many reasons are considered to explain the low growth rate of Pakistan and the higher growth rates of Malaysia and Thailand. Here, the Study team shows one aspect that is likely to explain the difference: namely, human resource development.

1.1.2 Human Resource Development

Figure1-3 shows government expenditure on education as percentage of GNP. The rates of Malaysia and Thailand are as high as three to four time that of Pakistan. This shows the strong commitment of the governments of the two countries on human resource development.



Source：UNESCO Institute for Statistics

Figure 1-3　Government Expenditure on Education as Percentage of GNP (%)

Table1-1 shows key factors of human resource development of Pakistan, Malaysia and Thailand. Compared with Malaysia and Thailand, the government of Pakistan spends less for education, health and R&D activities.

Table1-1 Key Factors of Human Resource Development

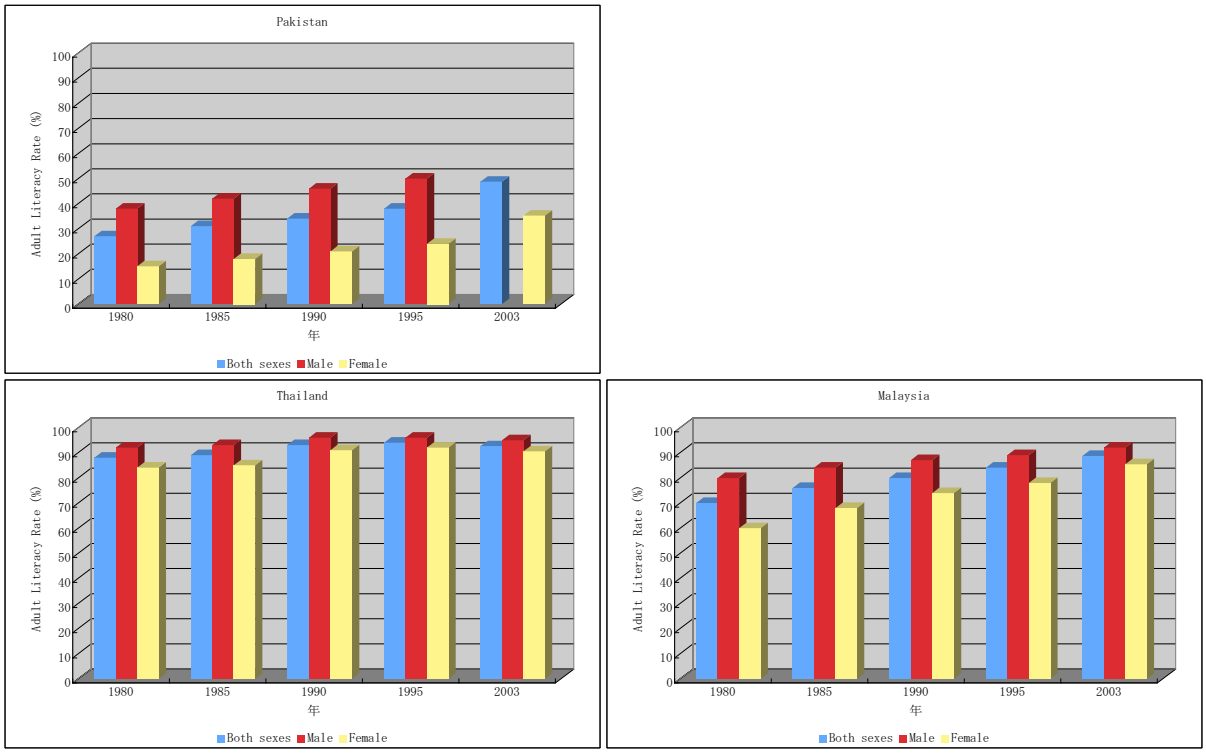
Country	Expenditure on Education as percentage of GDP (%)	Expenditure on Health as percentage of GDP (%)	Numbers of people engaged in Research and Development (1000) (Note 1)	R&D Expenditure as percentage of GDP (%) (Note 2)
Pakistan	1.60	0.70	16.20	0.20
Malaysia	7.13	2.22	23.26	0.82
Thailand	4.03	1.59	-	0.12

Note1: Malaysia and Pakistan (2000), Thailand (1996).

Note 2: Pakistan and Malaysia (2000), Thailand (1999)

Source：APO (2003)

Figure1-4 shows adult literacy rates of Pakistan, Malaysia and Thailand. The difference in government commitment for human resource development is also shown in the low adult literacy rate of Pakistan, compared with Malaysia and Thailand, which achieved high industrial development.



Source: UNESCO Institute for Statistics

Figure 1-4 Adult Literacy of Pakistan, Thailand and Malaysia

In the next section, we show the characteristics of industrial sectors in Pakistan.

(2) Characteristics of the Pakistan's Industrial Sectors

Fixed Shares of Industrial Production Items

The first thing we should point out is that the share of industrial sectors has rather fixed in the past several decades. Table1-2 shows that traditional products such as food and textile still dominate the industrial sector. Food and Fiber System that consists of food including tobacco and textile is the

main industry and its share did not change so much from 43.2% in 43.7% in a decade from1985/86 to 1995/96. The share is still dominant in the whole industrial sectors.
Group of industry, which procures the majority of raw materials from the domestic market, accounts for three fifth of the total industrial value added. However, the share has decreased year after year. On the other hand, the share of the chemical industry including pharmaceutical 21.2 % in 2004/05. The chemical industry would be new rival against the Food and Fiber System, however, it cannot achieve the economies of scale because most raw materials for the chemical industry in Pakistan are imported and high costs. The chemical industry also has low absorptive capacity of labor such as 8.9 % of the total labor force due the capital-intensive nature. It is likely that the sector is affected by the smuggling.

Table1-2 Share of Major Industrial sectors in terms of Value Added

Group of Industry	1985/86	1995/96
Textile	15. 50%	22. 30%
Food	17.60%	15.20%
Tobacco	10.10%	6.20%
Industrial Chemical	8.30%	8.50%
Non-metal product	7.40%	7.70%
Electrical Machinery	3.40%	7.70%
Pharmaceutical products	4.30%	4.80%
Iron and Steel	4.00%	4.20%
Automobile	2.50%	3.50%
Petroleum refining	7.50%	3.10%

43. 2%

43. 7%

Source：Government of Pakistan, Economic Survey 2000-2001.

Export Structure: Concentrated in Few Items

Food and Fiber System has dominated the export market as well. Cotton manufacturers, leather, rice and synthetic textile account for 71.8 % of the total exports in 2004/05 as is shown in Table1-3. Out of which, cotton manufacturer accounts for 57.4 %.

Table1-3 Pakistan's Major Exports (Percentage Share)

Commodity	92-93	94-95	96-97	98-99	99-00	00-01	01-02	01-03	03-04	04-05	05-06*
Cotton Manufacturers	59.8	58.7	61.3	59.1	61	58.9	59.4	63.3	62.3	57.4	58.4
Leather	9.3	8	7.7	6.9	6.3	7.5	6.8	6.2	5.4	5.8	6.1
Rice	4.7	5.6	5.6	6.9	6.3	5.7	4.9	5	5.2	6.5	6.9
Synthetic Textiles	7.4	7.1	6.1	5.1	5.3	5.9	4.5	5.1	3.8	2.1	1.2
Sports Goods	1.9	3.2	3.7	3.3	3.3	2.9	3.3	3	2.6	2.1	1.9
Sub-Total	83.1	82.6	84.4	81.3	82.2	80.9	78.9	82.6	79.3	73.9	74.5
Others	16.9	17.4	15.6	18.7	17.8	19.1	21.1	17.4	20.7	26.1	25.5
Total	100	100	100	100	100	100	100	100	100	100	100

Note: * July-March (Provisional) Source: Ministry of Commerce & FBS (Government of Pakistan, Economic Survey 2005-2006)

In the international market, cotton yarn, cotton cloth and leather products belong to a group of industries whose growth rates are the lowest. Even a country, which has experienced the rapid export growth of such products in the past, will easily loose its share in the market once the labor costs increase compared with other competitive countries. Furthermore, the fact that types of cotton fiver are limited in short and medium staple length in Pakistan and downstream of the woven cloth chain has not been well developed yet, the country mainly exports low value added and low quality cotton yarn, instead of high value added cotton products.

Low Growth Rate of Labor Productivity

Labor productivity growth rate of Pakistan's industrial sector from 1992 to 2001 remained 1.48%, which is far less than those of other Asian countries such as India, Sri Lanka, Bangladesh, Malaysia, Taiwan and South Korea as is shown in Table1-4. Labor productivity growth rate of Pakistan's Manufacturing sector from 1992 to 2001 is 2.23 %, which is higher than those of Bangladesh and India, but less than those of Sri Lanka, Taiwan and South Korea. The main reasons of low rate of labor productivity in Pakistan can be derived from low rate of capital spending and low rate of human resource development including lack of education and training.

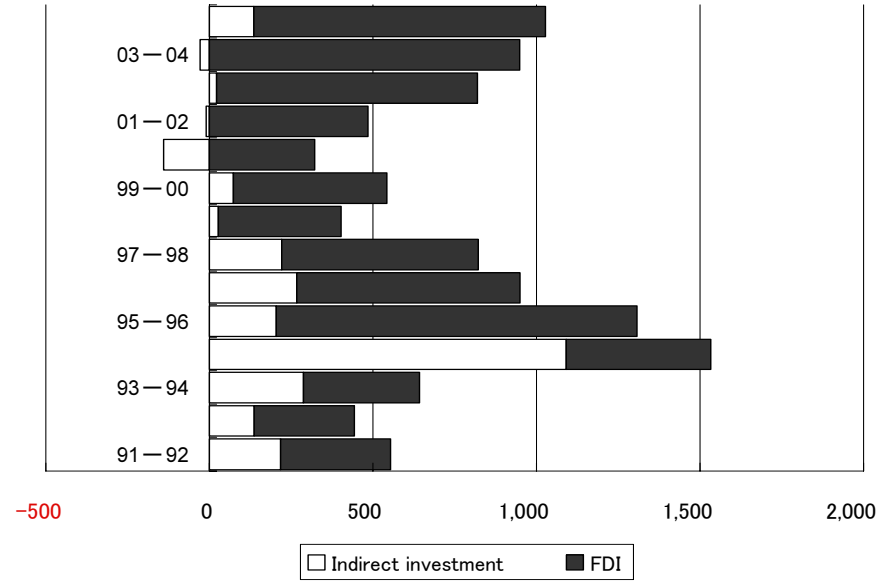
Table 1-4 Average Labor Productivity Growth Rates (1992-2001)

Country	Industrial Sector	Manufacturing
Pakistan	1.48%	2.23%
Bangladesh	1.52%	1.98%
Sri Lanka	2.34%	2.68%
India	5.05%	1.56%
Taiwan	3.95%	3.99%
Malaysia	4.12%	3.37%
South Korea	4.56%	7.55%

Source：APO, Asian Productivity Data & Analysis 2003, Asian Productivity Organization, Tokyo

1.1.3 Investment

Vital investment is crucial for transforming the industrial structure from the agriculture based to the industrial based so that the industry can be a driving force to the stable development of the country. However, since fixed investment has been provided mainly to the sluggish industrial sector, it is highly likely that the composition of the sector is fixed and production structure has not been transformed yet. Foreign direct investment, which played a very important role in the economic development of East Asia countries, has been too little to promote the transformation of the industrial sector in Pakistan.



Note: data from 2004-05 is estimated preliminary figure from July to March.

Source: State Bank of Pakistan, Annual Report 2005.

Figure 1-5 Trend of Foreign Investment to Pakistan

During the period from 1991 to 2005, foreign direct investment reached the highest in the middle of the 1990s when the partial privatization of PTCL took place and investment related to IPP caused

massive capital inflows from abroad. However, it decreased at the end of the 1990s and then again increased after 2000/01, as is shown in Figure1- 5. Many reasons seem to attribute to the decrease: the economic recession after the nuclear test in May 1998; the delayed solution of the dispute over the IPP contract after the change of the administration remarkably made the investors be reluctant to invest; and enterprises could not formulate long-term investment plans under the frequently alternated administration.

The present Musharraf administration has proceeded with the liberalization of the economy and the economic reform including the privatization of the state owned enterprises. These attempts, together with the increase of geopolitical importance of Pakistan after the terrorist's attacks upon the United States in September 2001, gradually made investors trust the country and increased foreign direct investment. Share prices shows an increasing trend after 2002 and indirect investment increased as well. According to World Development Indicator of 2005, the share of foreign direct
Investment to GDP was 0.7% in 2003.

Table1-5 shows the direction of foreign direct investment. While significant capital inflows are observed in mining, oil and gas explorations, Transport, storage and telecommunication and financial business, those invested in manufacturing sector is still limited.

Table1-5 Direction of Foreign Direct Investment（US$ Million）

Items	2001-02	2002-03	2003-04	2004-05*
Power	36.4	32.8	-14.2	61.8
Chemicals, Pharmaceutical and Pesticides	17.8	92.4	28.5	68.9
Construction	12.8	17.6	32.0	33.8
Mining, Oil and Gas explorations	274.8	188.2	203.5	165.9
Petroleum refining	5.0	3.0	72.4	11.6
Food, beverages and Tobacco	-5.1	7.0	4.5	15
Textile	18.4	26.1	35.4	27.4
Transport, storage and telecommunication	35.2	114.1	230.7	124.3
Non electronic equipment	0.1	0.4	0.7	1.3
Electronic equipment	15.9	6.7	7.5	8.2
Electrical Machinery	10.5	10.5	8.7	3.0
Financial business	3.5	207.5	242.1	206.1
Trade	34.2	39.1	35.6	42.1
Tourism, Paper manufacture and pulp	0.8	1.5	1.8	-
Cement and sugar	0.5	1.3	2.3	4.7
Others	23.9	49.8	57.9	117.4
Total	484.7	798.0	949.4	891.5

*：Estimated (July to April

Source：State Bank of Pakistan, Annual Report 2005.

After the terrorists attacks upon the United States in September 2001 the illegal foreign currency remittance was strictly controlled which made the remittance go to the formal banking systems. In addition, many of the overseas Pakistani remitted their money to Pakistan, fearing of their assets to be frozen abroad. These capital inflows are unfortunately flown to stock markets and real estates, as inadequate investment opportunities exist in the domestic markets. In other words, it becomes possible to invite the capital inflows to industrial sector if the sector can propose profitable investment opportunities.

The Pakistani government formulated "Medium Term Development Framework 2005-10" in 2005 and proposed the realization of industrialization by 2030 in the "Vision 2030". Since the domestic economy is flourishing and foreign direct investment is increasing, it is high time to formulate an

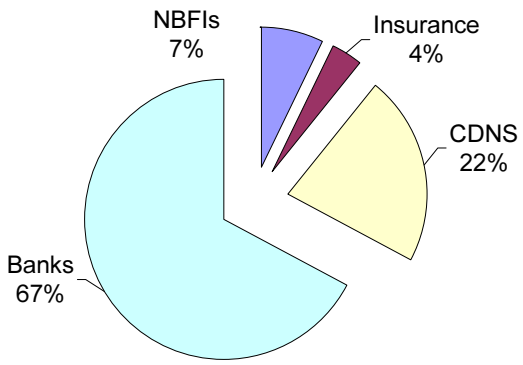
industrial development strategy, which transforms the industry from low valued added to high value added.

1.1.4 Finance

(1) Financial Sector in Pakistan

The scale of financial sector in terms of assets reached to Rp.4.5 trillion in 2004, which is equivalent to provisional GDP of Rs.4.8 trillion in 2004/2005. The stable economic growth and increased remittance from abroad after 2001 are considered to contribute to the rapid expansion of financial assets.

The government of Pakistan changed its policy on underserved from providing direct financial support to make private sectors supply at the end of the 1990s. Financial liberalization has been preceded and former state development financial institutions ceased operation due to corruption, mismanagement and the inefficiency of operation. Some of them were privatized and the share of private financial institutions including banks and trust funds accounted for more than fifty percent of the total financial institutions in 2004. Figure 1-6 shows the shares of different financial institutions in terms of assets. Banks come to the top followed by NSS, insurance companies and non banks. The roles of providing financial services to consumers, housing, SME and agriculture transferred from the former state banks to various private financial institutions.



Note 1：NBFIs=Non bank Financial Institutions (development financial institutions、investment banks、leasing、Modaraba Companies、housing finance、trust fund、discount house、venture capital)

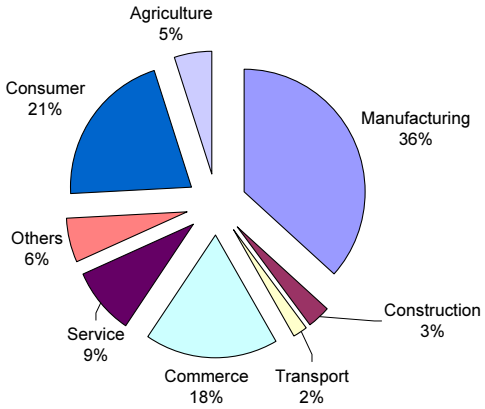
Note 2：CDNS=Central Directorate of National Savings。National Savings Schemes(NSS)

Source：Central Bank of Pakistan、Financial Sector Assessment 2004, p.14 Table 1.1.

Figure 1-6 The shares of different financial institutions in terms of assets

(2) Major Clients of Financial Institutions

Figure 1-7 shows major clients of financial institutions according to industries during July-November 2005. Manufacturing industry is the largest borrowers followed by textile industry, cement industry and fertilizer industry.



Source：State Bank of Pakistan, Monetary Policy Statement, January-June 2006、p.9

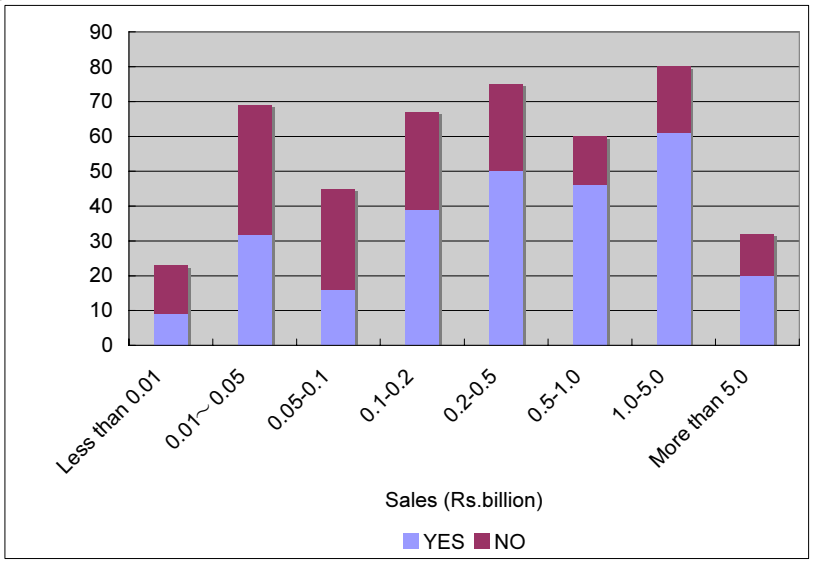
Figure 1-7 Analysis of Borrowers by Industries

(3) Manufacturing Establishments' Access to Financial Services

Based on the results obtained from "the Manufacturing Establishment Survey 2006", the present situation of private establishments' access to financial services is examined in this section.

The Accessing Situation Differ According to the Size of Establishments

It is said that while large-scale establishments have little problems with accessing to financial services, small and medium scale establishments (SMEs) face severe constrains when they access to financial services. This is because SMEs' low profitability compared with large scale ones, inadequate collaterals SMEs can offer and high transaction costs for financial institutions. The Manufacturing Establishments Survey confirms this to a certain extent. Figure 1-8 shows a tendency that the more the sales values are, the more the establishments borrow money from financial institutions, taking "sales" as a proxy for "scale of establishments".

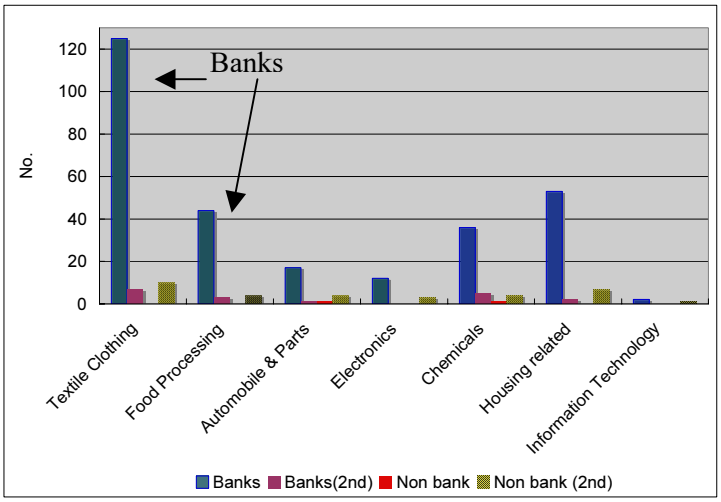


Source: JICA Study Team

Figure 1-8 Sales Values and Borrowing

Financing Sources

Banks are the main source of financing for manufacturing establishments, which borrowed money for the last two years. There are some establishments, which listed non banks followed banks, but the numbers are limited as Figure 1-9 shows.



Source: JICA Study Team

Figure 1-9 Source of Financing

There are very few establishments, which selected other financing methods such as informal credit and issuing bonds and stocks. It is considered that the dominance of banks in the loan markets occurred due to the followings: banks need to find borrowers which they used not to lend because of the huge influx of capital from abroad after 2001; and the change in banking regulation that enables banks to lend money which is below Rs. 100,000 without any collaterals, hence small establishments have a chance to access to banks. 207 establishments did not borrow money from external financial sources. Majority of the establishments (188 establishments) utilized retained earnings and 18 of them borrowed from relatives and friends and 1 of them utilized advance payments.

Purposes and Duration of Financing

Purposes of financing are summarized in Table 1-6. Capital investments and working capitals are the two main purposes.

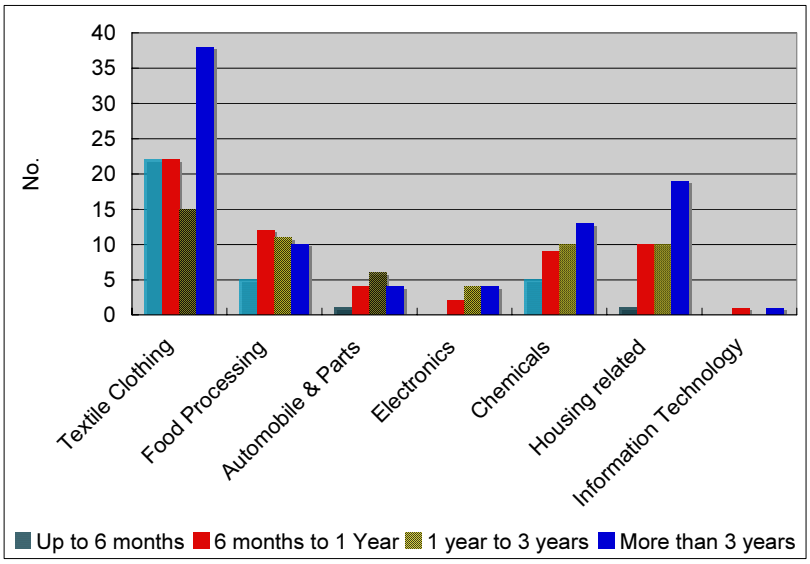
Table 1-6 Purposes of Financing (Multiple Choices)

(Unit: Numbers of Establishments)

	Capital Investment	Capital Investment and Working Capital	Working Capital	Others
Automobile and parts	1	13	9	Restoration 1 Hypothecation 1
Chemical	9	6	22	Restoration 1 Hypothecation 1
Housing related	18	21	27	Restoration 1
Electric and Electronics	1	9	4	Restoration 1
Food Processing	17	9	17	Hypothication1
IT	31	2	1	
Textile	35	53	57	Restoration1 Hypothecation 1
Total	112	113	137	9

Source: JICA Study Team

Figure 1-10 shows lending periods. It is noteworthy that lending periods, which are more than 3 years, are observed in all the seven industries, in particular, Textile industry, Chemical Industry and Housing related industry. This shows real demand for capital investment exists. On the other hand, some establishments might repeat short term borrowings as they can not access to long term loans on time, as loans whose lending periods are less than one year are quite high in all sectors as well.



Source: JICA Study Team

Figure 1-10 Lending Periods

Problems Associated With Accessing Financial Services

Table 1-7 summarizes the two most important problems associated with accessing to financial services that are raised by the establishments. In all the seven industries, "high interest rates" and "heavy collateral burden" get the highest answers. "Not timely lending" ranks higher in Automobile and parts industry, Chemical industry, Electric and Electronics industry and Textile industry. These industries are considered to respond customers' requests as soon as possible, therefore, they regard "timely lending" is very important. There are some establishments which have no problems, summarized in the forth column.

Table 1-7 Problems Associated With Accessing Financial Services

Industry	Important Problem No.1	Important Problem No.2	No Problems No./Total
Automobile and parts	***High interest rates** Not timely lending Complicated procedures Heavy collateral burden	***Heavy collateral burden** Not timely lending Complicated procedures Strong pressure to repayment	9/39
Chemical	***High interest rates** Not timely lending No institution(s) lend money Heavy collateral burden Inadequate lending amount	***Heavy collateral burden** Not timely lending Strong pressure to repayment Inadequate lending amount High interest rates	20/57
Housing related	***High interest rates** Strong pressure to repayment Heavy collateral burden No institution(s) lend money Complicated procedures	***Heavy collateral burden** Strong pressure to repayment Complicated procedures Inadequate lending amount	17/39
Electric and Electronics	***High interest rates** Not timely lending Strong pressure to repayment	***Heavy collateral burden** Strong pressure to repayment Not timely lending Inadequate lending amount	4/17
Food Processing	***High interest rates** Strong pressure to repayment No institution(s) lend money Inadequate lending amount Heavy collateral burden	***Heavy collateral burden** Complicated procedures Not timely lending Inadequate lending amount Strong pressure to repayment	27/71
Textile	***High interest rates** Not timely lending No institution(s) lend money Strong pressure to repayment Inadequate lending amount Heavy collateral burden Complicated procedures	***Heavy collateral burden** Strong pressure to repayment Not timely lending No institution(s) lend money Complicated procedures Inadequate lending amount High interest rates	5/211
IT	***High interest rates** Inadequate lending amount	***Heavy collateral burden** Strong pressure to repayment	1/6

Note: Note: Each item is listed according to the numbers of answers.

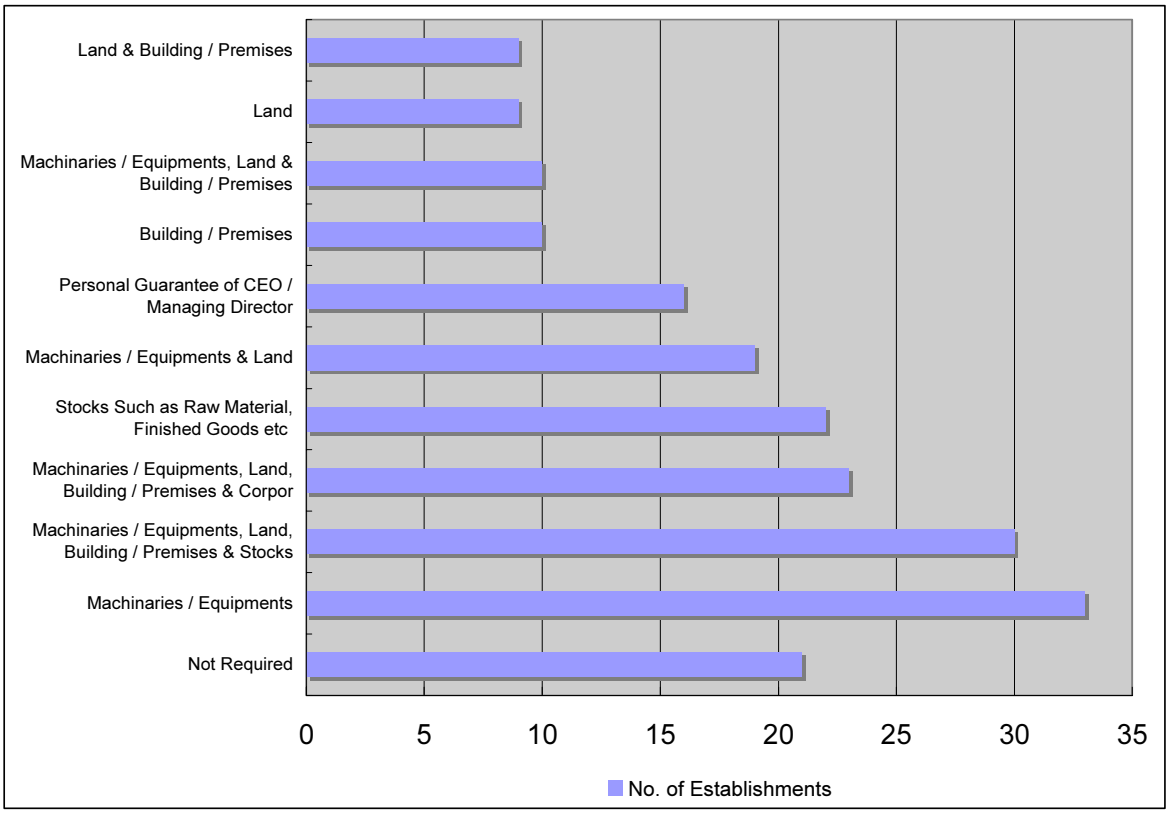
Source: JICA Study Team

Collaterals

Types of collaterals are shown in Figure 1-11 based on the responses of 301 establishments. Several types of collaterals are listed such as machinery and equipment, land, building & premises, corporate guarantee and personal guarantee, and stocks such as raw materials and finished goods. There is a clear tendency that borrowers offered multiple collaterals rather than one collateral such as land, which coincides with what establishments pointed out “heavy collateral burden” is one of the most important problems of accessing financial services. Reasons why banks take multiple collaterals might be: 1) inadequately developed land market based on an accurate evaluation system of land prevents them from relying only on land; and 2) execution process of disposing the offered collaterals takes long time therefore, banks tries to take several collaterals so that they can hedge risks of not collecting debts by disposing of the offered collaterals.

It is worth noting that mobile assets such as machinery and equipment or even stocks such as raw materials and finished goods are regarded as “collaterals” by “banks”, which is not so common in Japan. Compared with immobile assets such as land and buildings, mobile assets are easily to be disposed of therefore they are not regarded as suitable collaterals, and furthermore, well developed secondary markets for these mobile assets are prerequisite for taking these as collaterals.

Twenty one establishments are not required "collaterals". They belong to different industries and their sales are ranged from Rs. 10 million to Rs.25 billion. The lending periods differ from less than 6 months to more than three years. Majority of them utilized the borrowed money for "working capital". It is likely that either the borrowed money was less than Rs. 100,000, which banks can lend without taking any collateral, or borrowers have good transaction records with banks.



Source: JICA Study Team

Figure 1-11 Types of Collaterals

1.2 Importance and Direction of the Pakistani Manufacturing Industry

1.2.1 Importance of Manufacturing Industry to Realize Vision 2030

At the National Economic Council on the 27th May 2005, the following statement of Vision 2030 was accepted. It was also approved that the Planning Commission would prepare to draft a long-term plan to realize this vision.

> Vision 2030
>
> Developed, industrialized, just and prosperous Pakistan through rapid and sustainable development in a resource constrained economy by developing knowledge inputs

The presentation of such Vision statement is not limited to Pakistan as the long-term development scenario of the country. Malaysia, for instance, also has Vision 2020, which was presented by the former Prime Minister. This Vision 2020 became the basis of the following development policies of the government (see Box 1-1).

(1) Quantitative Target of Vision 2030 and the Growth of Manufacturing Industry

In February 2006, the Planning Commission presented the Approach Paper to show the orientation of economic development to achieve Vision 2030[1]. This paper sets specific quantitative targets as follows:
"Pakistan per capita GDP (at constant market prices of 2004/5[2]) is expected to near quadruple by 2030, advancing from Rs. 43,000 (US$742) in 2005 to Rs.164,000 (US$ 3,000) in 2030. This is based on average annual growth rates of 7% and 1.4% in GDP and population respectively."

The annual GDP growth rate of the country was 5.37% on average for three decades from 1971 to 2000 (see Table 1-8). In order to achieve these quantitative targets, the annual growth rate needs to be increased further by more than 1.5% from this long-term trend of GDP growth. If population grows at a higher rate[3], the country is required to realize much higher economic growth.

Approach Paper points out that the share of manufacturing industry in GDP shall be increased from 17.9% in 2005 to 30% by 2030. If the annual GDP growth rate shall remain 7% as expected in the paper, the amount of GDP reaches Rs.24,841 billion (at factor prices of 1999/00). Then the value added of the manufacturing industry would be Rs. 7,452 billion, which is 30% of the GDP. Given the annual GDP growth rate of 7% and annual population growth rate of 1.4%, the manufacturing industry needs to grow by 9.24% every year from 2005 to 2030, in order to reach the target of 30% share in GDP. This rate is similar to the annual growth rate of 9.25% from 2000 to 2006, when the manufacturing industry enjoyed significant growth. Considering the fact that the average annual growth rate of manufacturing industry from 1971 to 2000 was 6.32%, the target of 9.24% growth rate seems very ambitious.

For three decades from 1971 to 2000, the annual growth rates of the agriculture and services sectors are 3.89% and 5.82% respectively. If the two sectors continue to have comparable growth rates, the industrial sector, which includes the manufacturing sector, should grow by 9.83% per year to achieve the target of 7.0% annual growth rate of GDP until 2030. This rate is similar to the figure obtained from the previous estimation. In any cases, the manufacturing industry should keep growing by near

[1] *Approach Paper: Strategic Directions to Achieve Vision 2030*, Government of Pakistan, Planning Commission, Islamabad, February 2006.
[2] Pakistan's fiscal year starts on 1st July and ends on 30th June the following year.
[3] The annual growth population rate between 1981 and 1998 was 2.68%, based on the results of the current population census in the respective year. For the period of 2000-2005, based on data of *Economic Survey*, it came down to 1.95%.

10% a year on average in order to achieve the quantitative targets, highlighting the important role of manufacturing industry for the realization of Vision 2030.

Table 1-8 Growth Rates of GDP and Sectoral GDP in Pakistan

Period	GDP (%)	Agriculture (%)	Manufacturing (%)	Service (%)
1971-2000	5.37	3.89	6.32	5.82
2000-2006	5.39	2.25	9.25	5.93

Source: Estimated form *Economic Survey*

(2) Necessity to Promote High Valued Manufacturing Industry

Currently, Pakistani manufacturing industry is internationally competitive in low-tech and generally low value added products such as textile and food. This is clearly shown in the composition of exports of the country. The share of Pakistani export in the world export was 0.2% in 2005 (see Table 1-9). For the last two decades, the expansion of the Pakistani share in the world export remained modest. Concerning the composition of exports, low-tech products such as textile consist of 72.7%[4] of the total Pakistani export. The share of medium and high-tech exports remains only 8.15% of the total (see Table 1-10). On the other hand, the share of medium and high-tech exports is 54.7% of the total in the world. Out of the top 10 export items (SITC Rev.2: 3 digits), as much as 7 items are based on medium or hi-tech technology (see Table 1-11). In this analysis, the definition of technological classification is based on Lall, S. (2001). Lall classifies products into five categories: Primary products (PP), Resource-based(RB) products, Low-technology(LT) products, Medium-technology(MT) products, and High-technology(HT) products. RB products are further divided into two sub-groups: agriculture-based products (RB1) and others (RB2); LT products into textile, garment, footwear ('fashion') cluster (LT1), and other low-technology products (LT2); MT into automotive products (MT1), process industries (MT2), and engineering products (MT3); HT into electronic and electrical products (HT1) and others (HT2).

Table 1-9 Share of Pakistani Export in the World

Year	Pakistani export (mil. US$)	Total world export (bil. US$)	Share of Pakistani export in the world export (%)
1985	2,738.7	1,686.6	0.162%
1995	8,157.9	4,853.8	0.168%
2005	16,050.2	8,035.1	0.200%

Source: UN Comtrade Database

[4] In this analysis, the definition of technological classification is based on Lall, S. (2001), "Developing country manufactured exports, 1985-1998," in S. Lall (ed.), *Competitiveness, Technology and Skills*, Edward Elgar, UK.

Table 1-10 Composition of Export by Technological Classification

Technology Level	Pakistan		World
	Share in 1985 (%)	Share in 2005 (%)	Share in 2005 (%)
Raw Materials (PP)	33.06	10.99	8.86
Resource-based (RB)	4.09	8	14.05
Low-tech (LT)	52.98	72.7	13.88
Medium-tech (MT)	8.57	6.94	32.27
High-tech (HT)	0.3	1.21	22.43
Others	0.99	0.13	8.51

Source: UN Comtrade, Lall (2001)

Table 1-11 Size, Share and Technological Classification in the World Export Market

Product	SITC code 3 digits	Share in the world export in 2005 (%)	Ranking in share in 1995	Changes in the shares 1995－05 (%)	technological level
1 Automobile	781	5.31	1	0.532	MT1
2 Telecom products and parts	764	3.88	6	1.468	HT1
3 Transistor etc.	776	3.67	2	-0.029	HT1
4 Special products	931	3.52	4	0.939	n.a.
5 Pharmaceutical products	541	3.02	13	1.544	HT2
6 Petrol chemical	334	2.79	9	1.174	RB2
7 Data processing machinery	752	2.77	5	0.224	HT1
8 Automobile components	784	2.42	7	0.135	MT1
9 Crude oil	333	2.32	3	-0.445	PP
10 Office equipments and parts	759	2.02	8	0.140	HT1

Source: UN Comtrade, Lall (2001)

Top twenty export products of Pakistan (SITC Rev.2: 3 digits), their RCAs (Revealed Comparative Advantage), share of each export in the world export and the changes in their shares from 1995 to 2004 are shown in Table 1-12. The share of these top twenty products in the Pakistani export is 84.12%. Positive RCA values suggest that these products are internationally competitive. As previously pointed out, these competitive products are mostly low-tech. These low-tech products have declining share in the world export market, and their size of the market is smaller than those products listed in Table 1-9. Most of the products, which have large and expanding market shares, are medium or high-tech products.

Table 1-12 Technological Classification and the Global Market Size for the Pakistani Top 20 Exports

	Item	SITC code 3 digits	Share in Pakistani export(%)	Technological level	RCA	Share in the world export in 2005 (%)	Changes in the shares 1995−05 (%)
1	Other textile products	658	19.05	LT1	69.04	0.272	0.011
2	Cotton products	652	13.02	LT1	42.61	0.299	−0.143
3	Yarn	651	7.83	LT1	20.05	0.372	−0.287
4	Rice	42	6.85	PP	92.57	0.073	−0.062
5	Knitwear	846	5.49	LT1	12.54	0.406	−0.081
6	Men's clothing (excl. knitwear)	842	4.25	LT1	9.28	0.414	−0.166
7	Other clothing parts	848	4.04	LT1	17.12	0.223	−0.042
8	Petrol products	334	4.00	RB2	0.43	2.791	1.174
9	Clothing	845	3.59	LT1	4.37	0.668	−0.025
10	Women's clothing (excl. knitwear)	843	2.35	LT1	2.65	0.645	−0.145
11	Other textile parts	847	2.07	LT1	14.41	0.135	−0.024
12	Leather products	611	1.91	LT1	9.15	0.188	−0.113
13	Floor carpet	659	1.80	LT1	17.46	0.097	−0.088
14	Toys, sport goods	894	1.79	LT2	1.45	0.731	−0.070
15	Chemical fibre	653	1.62	MT2	3.99	0.325	−0.364
16	Surgical equipment	872	1.11	MT3	1.03	0.547	0.172
17	Shoes	851	0.94	LT1	0.64	0.575	−0.251
18	Underwear (excl. knitwear)	844	0.83	LT1	6.77	0.107	−0.118
19	Raw cotton	263	0.81	PP	9.86	0.075	−0.091
20	Plastic products	893	0.75	LT2	−0.18	0.922	0.054

Source: UN Comtrade, Lall (2001)

Pakistan's highly competitive export products, mostly textile items and low-tech, still lead the domestic manufacturing. Due to their low-tech feature, however, foreign countries can easily enter into the market, and the price rather than the quality of the products determine the competitiveness in the market. Pakistani textile industry would remain competitive in the future by keeping and improving the competitiveness of products. However, if the manufacturing industry should grow by 10% a year, it is imperative to promote more high-tech, high valued manufacturing, which could expect increasing demand in the world market.

One of the examples of such high-tech and high valued products should be automobile. According to the world export data of 2005, automobile (Passenger vehicle: SITC Rev.2 code 781) has the largest share in the world export, and this share has increased since 1995 (see Table 1-11). Thus, automobile should be a dynamic industry, with the largest and increasing share in the export market in the world. Furthermore, automobile manufacturing requires a number of parts and components, which suggests that automobile industry needs a wide variety of supporting industries, and that it has large spillover effects to the other segments of the industry. Table 1-13 shows the estimated effects of backward linkage of several manufacturing industries of Japan, South Korea and Thailand. In this table, the backward linkage indicates the total value of direct and indirect production, when the demand for one final product is additionally generated. It is clear from this table that automobile industry has the largest effect of backward linkage in all of the three countries in comparison with the values generated by general machinery, electrical machinery and all manufacturing industry.

Table 1-13 Estimation of Backward Linkage of Various Industries in Japan, South Korea and Thailand

	All manufacturing			General machinery		
	Japan	S Korea	Thailand	Japan	S Korea	Thailand
1985	2.544	3.013	2.463	2.421	3.079	2.602
1995	2.322	2.702	2.712	2.291	2.781	3.052
	Electrical machinery			Automobile		
	Japan	S Korea	Thailand	Japan	S Korea	Thailand
1985	2.603	2.846	2.501	3.024	3.041	2.775
1995	2.458	2.789	2.757	3.033	2.912	3.055

Source: Uchida (2002)

(3) Importance of Manufacturing Industry to Generate Employment

Because of the emphasis on knowledge economy in Vision 2030, Approach Paper envisages employment generation in the services sector. The manufacturing sector is also equally important in this regard. In the past, the agriculture sector has been the main source of employment; however, as shown in Table 1-14, the employment elasticity of agriculture to economic growth displays a declining tendency. The elasticity was reduced from 0.864 in 1970s to only 0.273 in 2000-04[5].

While the employment elasticity of the agriculture sector is declining, that of the manufacturing sector was 0.921 for 2000-2004. This high figure highlights the important role of manufacturing sector in employment generation in addition to its role in economic growth as already discussed. The declining employment elasticity of the agricultural sector, however, does not mean that the role of agriculture in employment is not important. The sector still employs more than 40% of total employed labor forces and in particular it employs more than 60% of rural labor forces.

From the viewpoint of employment generation, the promotion of labor-intensive manufacturing should deserve a bigger attention than that of capital-intensive process industry. As previously mentioned, automobile industry needs a number of supporting industries, many of which require a variety of labor-intensive manufacturing. Therefore, the promotion of automobile industry could have a large effect on employment generation.

Table 1-14 Employment Generation and Economic Growth in Pakistan

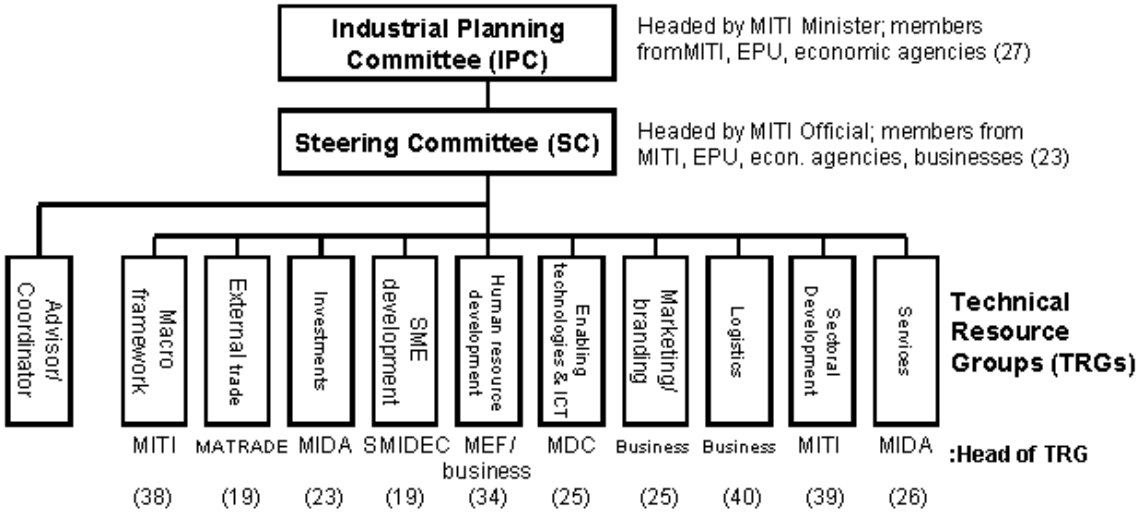
	Annual growth rate of GDP by sector (%)		Annual growth rate of employment by sector (%)		Employment elasticity to economic growth by sector	
	Agriculture	Manufacturing	Agriculture	Manufacturing	Agriculture	Manufacturing
1970s	2.81	5.97	2.42	2.53	0.864	0.423
1980s	3.33	6.79	2.28	1.36	0.685	0.200
1990s	3.42	4.20	1.43	1.00	0.420	0.238
2000/2004	1.10	8.61	0.30	7.93	0.273	0.921

Source: Kurosaki (2003), Economic Survey

[5] Figures in 1970s are obtained from Kurosaki (2003). Kurosaki, T (2003) "Economic Growth, Poverty and Employment." Chapter 4-2, Part 2, *Country Study for Japan's Official Development Assistance to the Islamic Republic of Pakistan*. Japan International Cooperation Agency.

BOX1-1: Vision Malaysian 2020 and Industrial Master Plan (IMP)

The "Vision Malaysian 2020" was proposed by former Prime Minister Mahathir in 1991. The target to be going to make Malaysia a fully developed the country by 2020 is set there. The nine of 'National unity' 'confidence' 'democracy' 'moral and ethics' 'tolerance' 'science' 'science and technology' 'caring culture' 'economic justice' 'prosperity' are specified as central strategic challenges. It did not describe concrete numerical target and means and courses for fulfillment in Vision 2020 in itself. The contents are overall. The concrete means is showed by policy documents such as Malaysian Plans, Outline Perspective Plans Industrial Master Plan (IMF). The vision 2020 indicated the route such as 'The position of Malaysia is here, and we would like to reach this position by 2020. To fulfill it, we have to reach to here in IMP1, to here in IMP2, to here in IMP3'. Thanks to the vision 2002, the making of other policies were promoted. And it seems that it was important to show a big vision to the nation.



Source: MITI website.
Note: Numbers in parentheses indicate the number of members in each committee or group.

Industrial Master Plan (IMF) is one of policy documents to reach of the vision. The first (IMP1:1986-1995) and the second (IMP2:1996-2005) had already made, and the third (IMP3:2006-2020) was announced by prime minister in August 2 of 2006. The making preparations for IMP were started beginning in 2004 and it spent 2 years and half by completion. The IMP was made by the following mechanism. The first, the structure of three levels 'Industrial Planning Committee (ITP)' 'Steering Committee (SC)' 'Technical Resource Group (TRGs)' was formed. The making out a draft is composed TRGs from the field of 10 and with a government representative, a private representative was always included it. Especially, two heads of TRGs (Logistics and Marketing/branding) were served by private association representatives. About more than 400 who included public and private affected drafting of IMP.

By comparison, the head of TRG of External Trade is Malaysia trade public corporation (MATRADE), but the members of 19 are mixed with public and private. The others of 6 in the Ministry of international trade and industry, the one of Malaysia industry development public and private (MIDA) are a lot of representatives of a private group and a private enterprise, not only Malaysian but also Japanese who represents a foreign company (Matsushita Electrics industrial) worked in head. The TRG of Investment is similar, too, except of 3 from MIDA work in head, one from Ministry of International Trade and Industry, 2 from Finance Ministry, 2 from Economy Development Programs, a lot of representatives of a private group and a private enterprise work in member of head. The representative of United Nation (UNCTAD) is also member of it. A meeting of TRG was held frequently, and the mutual interest was coordinated through a daily contact. For example, in the case of the In the case of TRG of medium and small-sized business development, the first drafting was started in July of 2004, and it was completed for eight months. In the meantime, the member of it attended at meeting of every month and they repeated discussion from every viewpoint

such as marketing side, a technical aspect, and financial side. In September of 2005, all the members concerned with TRG gather, and they discussed for brainstorming for a week. The 400 people in total attended it. A head of each TRG had presentation and question and answer session.
The IMP3 was announced and, the after implementation phase, it is planned to switch each TGO to taskforce of monitoring. The member of taskforce of public and private is to monitor a thing such as ` Is not there a hindrance in an enforcement stage of a policy?' or 'is it originally expected result given?'
The IMP3, announced in August of 2006, was named as 'Malaysia-Toward Global Competition' ,and was aimed at enhancement of competitive power of three sections of manufacturing industry, a service industry, a agriculture. The manufacturing industry mature more by 2020, and a service industry is innovative, and competitive, and agriculture is modern and dynamic are expected. It aims for economic growth of 6.5% by yearly average for 15 years until 2010 and joining developed countries. For that purpose, the productivity of the manufacturing industry, the service industry, the agriculture need to increase, and to have high added value, and to change it to knowledge-intensive industries. On the other hands, it is emphasized on balance between social development and economic development. It is proposed that the prosperity in inequity is not only unfair, it is not long-term durability. In IMP3, 12 types of industry are evaluated as strategic industry. The criterion are 'high added value', 'the skill level', 'exportation', 'knowledge content', 'multiplier and spin-off effects', 'potential on our side with local and global economy'. The 6 types of industry out of 12 types were based on type of non-resource such as 'electronic hard ware', 'medical instrument', 'fabric and apparel', 'machinery and equipment ', 'metal', 'transport machine'. The other 6 are based on resource such as 'petrochemistry', 'drugs', 'wood procession', 'rubber processing', 'palm oil connection'. The manufacturing industry is expected an annual rate of 5.6% growth in the period, and they are anticipated that the GDP share reach 28.5% in 2020. In addition, 8 types of industry from the service sector are evaluated as strategic. In that, 'ICT', 'construction', 'education and training', 'medical service', 'tourism' are included. It is almost covered over the whole area even if it says a strategic type of industry. The growth rate of a service sector is anticipated an annual rate of 7.5%, and the GDP share is going to be 59.7% in 2020. About the employment, an annual rate of 1.9% increase is anticipated. The service industry is the greatest employment absorption source, and it is thought that 52.2% engage in the service industry in 2020.
Through a making process of such IMP, concrete strategy and tactics for fulfillment of the vision 2020 by former ministry are going to have something in common.

1.2.2 Direction of Promoting Manufacturing Industry to Achieve Vision 2030

(1) Requirements for "Leading Industries"

This study is expected to specify "leading industries", which could lead the economic growth of the country to achieve the target of Vision 2030. From the viewpoint of leading the economic growth for a long period, the leading industries should have some specific requirements. Based on the analysis of the previous section, we consider that the leading industries of the country should meet the following requirements.

- Higher value added
- Larger possibility for technological progress
- Once established, others cannot easily catch up
- Various spillover effects in other industries, creating much employment
- Large domestic demand

From the viewpoint of technological progress and quality improvement, the partnership with foreign firms in industrialized countries is the most effective. Therefore, the industry, which has already established intimate partnership with sophisticated foreign industries, or the industry, which are highly export oriented, can be candidates of the leading industries. Therefore, the local manufacturing establishments survey, which is currently on progress, asks various questions focusing on the following three aspects.

Linking: how manufacturers link with foreign capital or overseas markets
Learning: how manufacturers introduce new technology from foreign partners, promote R&D and train employees
Leveraging: how spillover effects are observed in other industries

(2) Orientation Toward the Integral Manufacturing

In the trend of globalization, it is unavoidable that the Pakistani economy becomes increasingly integrated into the world economy. The country should examine the types of industry, which might have comparative advantage. Then, a long-term strategy should be developed about the way to promote these potentially competitive types of industry in the future.

Equipped with immense industrial power and cheap labor force, Chinese products are currently coming to every segment of the Pakistani market. These Chinese products are often looked down, as low quality and imitated products, but domestic consumers tend to be attracted to them because of their low prices. Hence, the Chinese products are driving Pakistani products out of the domestic market. Some Pakistani manufacturers imitate the Chinese competitors and start producing lower priced, lower quality or imitated products. However, these Pakistani manufactures have no chance of winning against the Chinese competitors. It is appropriate for the Pakistani manufactures to avoid direct competition with the Chinese, and to look for the other way to differentiate their products by making higher valued and higher quality goods, for instance.

In considering the possibility of higher valued, higher quality, differentiated manufacturing, one viewpoint is obtained from the Business Architecture Theory, which is proposed by Professor Takahiro Fujimoto of the University of Tokyo. It was thought that there are two basic types of product-process architecture: (1) "Integral architecture" with complex interdependence between product functions and product structures (such as automobiles, etc.); (2) "Modular architecture" in which the relationship between a product's functional and structural elements have a simple and clear one-to-one correspondence (such as personal computers, etc.)[6].

[6] "Architecture-based Comparative Advantage in Japan and Asia", August 2006, Takahiro Fujimoto, MMRC.

The characteristic of the modular-type products is that the relationship between the function and the component (module) is simple and close to one to one. Each component has it self-contained module, which has a rather independent function. Therefore, the exchange of signals among components is not often required, which means that the interface of production is relatively straightforward. In case one product has ten sets of functions, it is possible to manufacture the product by combining ten self-contained components, corresponding to the ten sets of functions. The designers of each module (component) do not worry about the designing of the other components and freely design their own products, so long as they understand the rule of designing upon the interface. The typical module-type products include personal computers, package software and bicycles. For instance, we can produce a good bicycle, if we just combine components made by various independent producers. In fact, the gear produced by SHIMANO is widely used by many bicycle manufactures in the world. Automobiles or motorbikes, on the other hand, hardly have such kind of common components. Nobody equips the TOYOTA cars with the NISSAN engine[7].

On the other hand, integral type products are not so simple. The relationship between functions and components is highly intricate. Each component affects each other and determines the quality of final products. Automobile is a typical example. One of the important functions of the automobile is concerned with ride quality, such as noise or vibration. However, no specific components are designed for ride quality. Mutual and very subtle coordination among various components, such as tires, suspension, shock absorbers, chassis, bodies, engines and transmissions, etc. affects the ride quality. Moreover, one module usually has many functions in the automobile. The body, for example, has multiple functions of safety, dwelling ability, designing, and aero-dynamical stability. This means that the relationship between the function and the component is not one to one but many to many. Therefore, the designers of each module (component) need to make subtle coordination and frequent cooperation. This is how the integral manufacturing works. When consumers want "product integrity" in the manufactured goods, or the competitiveness of the products depends on their compactness or weightlessness, the integral manufacturing is more appropriate[8]. The institutional requirements for the integral manufacturing include 'subtle coordination of component designing', 'consistent control of production process', 'intimate coordination among sections in the company', 'close communication with customers', 'solid and stable interaction with customers', and 'support of multi skilled workers' (see Table 1-15). Japanese firms are relatively familiar with these requirements.

Table 1-15 Modular and Integral Manufacturing

	Modular manufacturing	Integral manufacturing
Interface among components	Components are common, any models can use them.	Each model needs components specifically designed for the model
Merit	Flexibility, quick results	Higher quality
Demerit	Difficult to differentiate. Over entry, low price, low profit, lack of R&D	Long time and effort are needed to make the result
Institutional requirements	Openness. Quick decision making, Flexible outsourcing	Long term relationship among members. Internalisation of know-how and knowledge

Source: VDF〔2006〕

Japan has an advantage in integral manufacturing, so their automobiles and motorbikes are much competitive internationally, while the US has an advantage in module manufacturing, so their personal computers have sweeping competitiveness in the world market. China is relatively good at modular type manufacturing, and the Chinese manufacturers are producing labor-intensive modular products by mobilizing cheap labor force. In fact, China is becoming the production base of personal computers.

[7] Page 5,, "Business Architecture (in Japanese)", 2001, Takahiro Fujimoto, etc., Yuhikakku, Tokyo.
[8] Page 11, "Business Architecture (in Japanese)", 2001, Takahiro Fujimoto, etc., Yuhikakku, Tokyo.

China has rapidly expanded the production of automobiles and motorbikes as well. However, many of these products are made up with a variety of counterfeit and unoriginal components, without intimate and frequent coordination among component designers. Therefore, the quality of these products cannot be very high. In India, on the other hand, these counterfeit automobiles and motorbikes are not likely to be accepted in the market. Several homegrown manufacturers of automobiles have developed indigenous products with intimate and frequent coordination among stakeholders. Integral manufacturing seems to be suitable for the country.

If Pakistani manufacturers follow the Chinese competitors, and introduce the modular type manufacturing, the Pakistani will not have much chance to win in the market. East Asian countries, such as Thailand or Malaysia, carefully avoided direct competition with China, and introduced the integral type manufacturing from Japan. This is one of the reasons why they have become highly industrialized in the last few decades. In considering the fierce competition with China, and the successful experience of the East Asian industrialization, Pakistan might better look for the possibility to strengthen integral type manufacturing as the strategy of its industrialization.

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Chapter 2

Analysis of Policy and Institution

Chapter 2 Analysis of Policy and Institution

2.1 Investment and Trade Promotion Policy

2.1.1 Investment Climate in Pakistan

In this section, the views of the international investors over investment climate in Pakistan are summarized.

(1) Present Status of FDI - "Domestic Market Oriented Investment"

FDI has increased due to the sell-off of the state owned enterprises (assets):
BOI reported that FDI into Pakistan has been quickly increasing in recent years. In FY2002/3, total amount of FDI was US$798 million. In FY2005/6, it expanded to US$2225 million. This increase in FDI was made possible by increase in domestic consumption driven by several major factors including, substantial reductions in customs and duties by a trade liberalization program after 1997, an improved relationship with the US, an increase in ODA funds, arrangements for debt-relief, inflows of Pakistani money that had been kept in foreign bank accounts.

Table 2-1 Trends in FDI to Pakistan (US$ millions)

SECTOR	2002/3	2003/4	2004/5	2005/6*	4 Years Total	
					Amount	Share
Communications	24.3	221.9	517.6	1035.6	1799.4	32.7%
Financial Business	207.6	242.1	269.4	265.5	984.5	17.9%
Oil & Gas Explorations	186.8	202.4	193.8	216.9	799.9	14.6%
Power	32.8	(14.2)	73.3	304.0	395.9	7.2%
Other Services	109.5	25.2	38.9	55.0	228.5	4.2%
Trade	39.1	35.6	52.1	81.9	208.7	3.8%
Chemicals & Chemical Products	92.4	28.6	93.6	(35.1)	179.5	3.3%
Textiles & Leathers	27.3	38.9	45.8	35.5	147.5	2.7%
Construction	17.6	32.0	42.7	54.4	146.8	2.7%
Engineering	18.4	21.6	51.7	43.8	135.5	2.5%
Petroleum Refining & Petro-chemicals	3.0	72.4	24.8	24.0	124.1	2.3%
Food Products	7.9	4.1	27.0	58.8	97.9	1.8%
Materials	1.2	3.7	13.9	37.0	55.8	1.0%
Other Mining	1.4	1.1	0.5	4.6	7.6	0.1%
Others	28.8	33.2	78.9	42.8	183.6	3.3%
Total	798.0	948.5	1524.0	2224.7	5495.2	100.0%

Source: BOI data

It should be noted that a large portion of total amount of FDI came from the sell-off of the state owned enterprises (assets), and oil-gas explorations. For example, US$ 1340 million of FDI in FY2005/6 categorized in communications and power is mostly generated by the sell-off of the state owned enterprises in respective sectors.

Inflows of foreign capitals through privatization have positive effects on Pakistani economy. Introduction of new management of foreign companies often improves efficiency and makes enterprises more active and profit conscious. Recent revitalization of telecommunication sector is a good example of these positive effects. It is also technically appropriate to include such inflows of the sell-off of the sate assets as part of FDI according to definition made by IMF. It is, however, important to take note of the fact that more than a half of total FDI is from the sell-offs of the state enterprises, and thus "green field" investments that generate net additional fixed capital formation or consumption are limited to the level of US$9 million. Those incomes from privatization of large

state-owned enterprises are one-time only. Oil-gas explorations have considerable share in FDI with the amount of US$2 million every year. Once oil or gas is found, economic impacts will be very large. These activities of oil-gas explorations themselves, however, do not either generate significant economic linkages within Pakistani economy or depend on economic climate.

It is therefore difficult to say that the recent increase in FDI is due 100% to improvement of investment climate. It is true that economic conditions have been improved in comparison with those in 1990s. In the end of 1990s, FDI was only US$ 4 million. BOI is right to say that FDI has remarkably increased. The present situation, however, is still in the stage of recovering from what was lost in the 1990s. It is still unclear that how Pakistan can use this long waited upward economic trends effectively to diversify its industrial sector, especially to establish new exporting industries.

Long-Term Relationship Is Not Yet Established

There are many choices of locations for international investors to their business. It is the amount of FDI stock that represents how deeply and continuously international investors are involved with a certain country. In that sense, Pakistan is still in the level of "startup". By comparison with Thailand, it is clear that things do not happen over night. In 1980, the amount of FDI stock in Thailand was only 1.4 times as much as the one in Pakistan. Ten years later, in 1990, Thailand's stock of FDI reached US$ 8,242 million 4.4 times that was as much as Pakistan. Fourteen years later, in 2004, FDI in Thailand had been piled up to US$ 48,600 million that was the level of 6.4 times as much as the one in Pakistan.

Table 2-2 Changes in FDI Stocks (in US$ millions)

	1980	1990	2000	2004
Pakistan	691	1,892	6,919	7,596
Thailand	981	8,242	29,915	48,598
Malaysia	5,169	10,318	52,747	46,291

Source : UNCTAD, World Investment Report 2005, to make data internationally comparable a time series is different from the one used by BOI

Table 2-3 Trends of FDI (in US$ millions)

	1981-1990 average	1991-2000 Average	2001	2002	2003	2004
Pakistan	120	503	383	823	534	952
Thailand	726	2,167	3,886	947	1,952	1,064

Source：UNCTAD, World Investment Report 2005, to make data internationally comparable a time series is different from the one used by BOI

An investment in manufacturing sector should be a continuous event that often takes longer than a decade. Stability or consistency is very important. The level of FDI stocks Pakistan clearly shows the fact that there is still a very long way to go. The present reforms in Pakistan are very encouraging. Many international investors, however, still remember vividly the facts that changes of regimes in Pakistan in the past often resulted in big policy changes, which gave them very difficult time. Especially, those investors put more importance in the long-term development are not yet optimistic about how lasting the present reforms can be. Give such critical eyes of the international investors with long-term perspectives, they want to see a more concrete and convincing "road map" of the reforms and see them keep going consistently for at least 3 years. Otherwise, they cannot justify their long-term investments in Pakistan.

Domestic Market Oriented Investment：

FDIs to Pakistan are dominated by those targeting at domestic market. The investments in service sector that can expect sufficient returns in rather short periods of time have a very large share. This is consistent with what we learned from interviews with top management people from the Japanese

companies in Pakistan. They said "we only see domestic market for now". There are three major reasons to make them think that way.

Domestic market is large: Pakistan has a large population and so is a market (or at least has a good potential). The recent increase in consumption made Pakistan more attractive in that sense. Pakistan has a relatively better chance to attract automotive companies that often prefer to locate their assembling factories closer to the market.

Cost is too high for export oriented industries: Labor costs are higher in Pakistan if we look at the levels of wages of workers that most export oriented companies are looking for. Lack of good infrastructure often makes production higher as well. Those export oriented industries looking for locations for their global production hubs, such as electronics industry, may not prefer Pakistan where import and export efficiency is not comparable to Southeast Asian countries.

Doubt in stability and consistency in policy: Many investors see Pakistani policy is not either consistent or concrete enough for them to have a clear picture of where Pakistan wants to go or how they want to be in longer terms. They still remember what happened in the past, and these industries of material or intermediary goods, such as automotive parts industries, tend to hesitate to come to Pakistan. Service sector looks better with lower risks and quick returns.

(2) Issues in Investment Climate and Policy (The Views of Investors)

According to what we learned from interviews with top management people of the Japanese companies working in Pakistan, they have some common views on issues that degrade investment climates including the following points.

In comparison with the other alternative locations, higher labor costs and lack of good infrastructure in Pakistan prevent cost-sensitive and export oriented industries may not come.

Doing business is often not easy due to high transaction costs. Paying tax, enforcing contract, permissions and other things for trading, and land acquisitions are all too often take too much cost and time.
Supporting industry is very weak and cannot expect high-quality parts for manufacturing industries.

The following tables are summaries of comparative investment cost items based upon a survey study with samples of the Japanese companies in 5 different countries. Although it is not easy to compare different settings in a simple manner, there are some points that are consistent with what we found through interviews in Pakistan. Firstly, labor costs are found to be higher in Pakistan. Despite the fact that per capita income levels are much higher in Southeast Asia countries than in Pakistan, there is no substantial difference in wage levels of workers. In cases of wage levels of engineers or middle managers, it is not rare to see the cases where companies should pay more in Pakistan than in Southeast Asia. Secondly, electricity in Pakistan is almost twice as expensive as in those Southeast Asian countries. Given instability in supply in case of Pakistan, it makes electricity felt more costly for how much they pay.

Table 2-4 Summaries of Comparative Investment Cost Items (1)

Cost Items		Pakistan (Karachi)	India (Bangalore)	Malaysia (Kuala Lumpur)	Thailand (Bangkok)	Indonesia (Jakarta)
Basic Data 2005	GDP(current price US$ billion)	110.7	727.8	130.8	176.6	272.5
	GDP per capita (current US$)	769	714	5,040	2,577	1,259
	National Population (million persons)	152.5 (in 2004)	1,037 (2001)	24.5 (2002)	63.4 (2004)	216.4 (2004)
Wage (US$)	1.Factory Worker	118～228/month	159～234/month	205/month	146/month	131/month
	2.Engineer (middle level)	216～739/month	339～648/month	790/month	316/month	270/month
	3.Mid-manager (section chief)	557～1,256/month	660～1,320/month	1,643/month	584/month	618/month
	4.Minimum wage	50.16/month	54.68/month	—	4.40/day	82.16/month
	5.Bonus (in terms of monthly salary)	4～7 months	—	1.8 months	2.6 months	2～2.5 months
Land/ Rent (/month)	8.Industrial Estate(purchase $/m2)	8.26	40.63～88.73	5.3～10.6	54.71	35～40
	9. Industrial Estate (Rent $/m2)	0.009	3.79～5.92	—	4.86	3.60～4.10
	10.Office Rent($/m2)	8.36～22.30	9.49～14.23	9.96～14.21	11.67	22.00～26.00
	11.Housing Rent ($/month)	585～5,017	1,534～2,631	924～1,056	1,581	1,800～2,500
Utility	18.Electricity($/K Wh)	Monthly Charge：1.51/kW kWh：0.09	Monthly Charge3.95/kW kWh：0.08(first 100MWh), 0.09(additional)	Monthly Charge：4.57/kW kWh：0.05	Monthly Charge：4.27～5.39/kW kWh：0.041～0.042	Monthly Charge：2.71/kVA kWh：0.04
	20.Water($/m3)	Monthly Charge none m3：0.41	Monthly Charge：7.89 m3：1.32	Monthly Charge none m3：0.48	Monthly Charge none m3：0.24～0.51	Monthly Charge：43.09 m3：0.98
Transportation	24.Container ($/40ft box) (1) Cost to Japan (Yokohama) (2) Cost to USA (LA)	(1)1,600 (2)4,800	(1)900 (2)3,150	(1)820 (2)3,200	(1)1,340 (2)3,913	(1)1,055 (2)3,225
	25.Regular Gasoline ($/liter)	0.94	1.11	0.43	0.61	0.45
	26.Diesel ($/liter)	0.52	0.76	0.34	0.54	0.43

Source：JETRO Database (based on a survey November 2005)

Table 2-5 Summaries of Comparative Investment Cost Items (2)

Cost Items		Pakistan (Karachi)	India (Bangalore)	Malaysia (Kuala Lumpur)	Thailand (Bangkok)	Indonesia (Jakarta)
Tax	28.Corporate Income Tax(%)	State Owned: 35% Private: 37% Financial: 38% (Effective tax rate)	33.66% (Effective tax rate)	28% (Effective tax rate)	30% (Effective tax rate)	0～50 million Rupia: 10% 50～1000 million : 15% MT 1000 million: 30%
	29.Individual Income Tax(%)	US$ 0～1,965 /year (fixed)＋0～35%	33.66% (max)	28%(max)	37%(max)	35%(max)
	30.VAT(%)	15%(General Sales Tax)	12.5%(VAT)	Sales Tax: 5～25% Service Tax: 5%	7% (GST)	10%(Federal Tax)
	31.Tax on remittance of interests to Japan(%)	30%	Bank interests: 10% Other: 15% (Max rate)	10% (Max rate)	15% (Max rate)	10% (Max rate)
	32. Tax on remittance of dividends to Japan (%)	10%	12.8125% (Max rate)	none	10% (Max rate)	Share 25%+: 10% Share LT25%: 15% (Max rate)
	33. Tax on remittance of royalties to Japan (%)	30%	10.46% (Max rate)	10% (Max rate)	15% (Max rate)	10% (Max rate)

Source：JETRO Database (based on a survey November 2005)

Issues in Doing Business - Benchmarking Business Regulations

Many people working for the Japanese companies said that there is not much difference in written regulations at the entry point of investment in comparison with the other countries. Rather, they agree that there are more issues after they have come to do business in practice.

According to the results of "Doing Business - Benchmarking Business Regulations, 2005" by the World Bank, Pakistan's overall ranking was 60th position out of 155 countries in the world. Thailand, Malaysia, and Japan were ranked 20th, 21st, and 10th respectively. It is clear what private companies found difficult when we take a look at each item. There are three distinctive items that were significantly ranked lower. These are the same issues that were raised in our interviews.

(1) Enforcing contracts take very log time and costs are high (ranked 134th).

(2) Paying taxes are laborious tasks and take too much time (127th). VAT related reimbursement processes are for exported goods are too complicated.

(3) International trading process is not efficient (103rd). It takes 10-14 days longer to import or export goods in comparison with Thailand or Malaysia.

Concerning the custom operations, however, the authority has made significant effort to improve the procedure for trading[1]. For example, the computerized custom operations have been introduced in

[1] Based on the information from Mr. Hiroshi Nakano, JICA Expert to CBR.

some parts of the custom office at the Karachi Port. The authority has attempted to promote paperless, to speed up custom clearing and to establish “a single window” in the custom. In fact, the time for custom clearance was considerably reduced from 4.1 days to only 5.57 hours in May to June 2006 in the KICT (Karachi International Container Terminal), where the computerized custom clearance system has been introduced. From now on, all custom offices are going to introduce the computerized custom clearance system, leading to significant impact of the efficiency in the custom offices. The problem that we face in the future should be inefficient procedures in the other trade related authorities as well as weak logistic services. For instance, the benefit of “a single window” should be limited, if only the custom offices introduce this system. All other offices concerned are required to follow the custom offices to introduce this system, which would inevitably promote paperless, as well. Moreover, it is suggested to implement the research to examine the amount of time required for trading for all steps from the arrival in port to the delivery of imports by the joint initiative between the public and the private. The effort of one single authority should not generate much benefit. All organizations concerned should work together to promote the efficiency in the trade procedures.

Table 2-6 "Doing Business Ranking- Benchmarking Business Regulations" (out form 155 countries)

	Pakistan	Thailand	Malaysia	Philippines	Indonesia	India	Japan
Ease of Doing Business	60	20	21	113	115	116	10
Ease of ...							
Starting a Business	38	29	57	89	144	90	81
Dealing with Licenses	80	8	101	91	107	124	5
Hiring and Firing	91	23	34	82	120	116	20
Registering Property	43	22	53	92	107	101	36
Getting Credit	72	59	6	121	63	84	18
Protecting Investors	20	33	5	132	58	29	14
Paying Taxes	127	34	19	80	118	103	50
Trading Across Borders	103	89	36	33	49	130	12
Enforcing Contracts	134	49	61	89	145	138	3
Closing a Business	36	37	43	132	116	118	1

Source: World Bank, "Doing Business - Benchmarking Business Regulations, 2005", http://www.doingbusiness.org/

Table 2-7 Comparison in "Paying Tax", "Trading Across Borders", and "Enforcing Contracts"

Country		Pakistan	Thailand	Malaysia
Paying Taxes	Payments (number)	32	44	28
	Time (hours)	560	52	..
	Total tax payable (% gross profit)	57.4	29.2	11.6
Trading Across Borders	Documents for export (number)	8	9	6
	Signatures for export (number)	10	10	3
	Time for export (days)	33	23	20
	Documents for import (number)	12	14	12
	Signatures for import (number)	15	10	5
	Time for import (days)	39	25	22
Enforcing Contracts	Procedures (number)	46	26	32
	Time (days)	395	390	300
	Cost (% of debt)	35.2	13.4	20.2

Source: World Bank, "Doing Business - Benchmarking Business Regulations, 2005", http://www.doingbusiness.org/

In short, "Starting business" in Pakistan is becoming much easier than before. On the other hand, "Doing business" involves many obstacles and has rooms for improvements.

Table 2-8 Comparison of Investment Promotion (1)

	Pakistan	India	Thailand	Malaysia
Agencies in charge of Investment Promotion	BOI	Foreign Investment Promotion Bureau, Reserve Bank of India, Foreign Investment Implementation Agency, Japan Cell of MOCI	BOI	Malaysia Industrial Development Agency, Multimedia Development Corporation, Foreign Investment Committee
Regulations				
Limit in share holding	No limit for non-agriculture	100% FDI allowed unless listed in a negative list. Indirect investment is limited up to 24% unless applied exceptional conditions.	A company with more than 50% share of foreigners cannot enter 43 industries.	There are some regulations for designated kinds of industries.
Land acquisition	No limits	Possible to buy land. by locally registered companies or branches. Representative office cannot buy land.	Foreigners cannot buy land. Companies approved by BOI or Industrial Estate Authority of Thailand (IEAT) can buy lands.	Limited to a real estate more than 150000 M$/property.
Sectors	Not allowed to strategic industries	There is a negative list	A list of regulated 43 industries	Not allowed to public utility and the likes (railways, electricity, water, telecom, and broadcasting). When some conditions are met max of 30% investment share is allowed.
Other	There was "Deletion Program". Removed in July 2006.	Companies located in SEZ, or categorized as 100% Export-Oriented must have net export incomes.	None. Old regulations were lifted in accordance with WTO rules.	Some conditions for localization.

Source: JETRO Database

Table 2-9 Comparison of Investment Promotion (2)

Incentives	Pakistan	India	Thailand	Malaysia
Items of incentives	Reduction of tariffs in raw materials and capital goods, Provincial Government Incentives on Corporate Tax, Industry-wise Incentives.	There is no distinction of foreign and local capitals in provision of incentives. Reduction of tariffs in raw materials and capital goods, Provincial Government Incentives on Corporate Tax, Industry-wise Incentives.	Incentives are applied in accordance with locations of factories. Reduction of tariffs in raw materials and capital goods, Reduction of Corporate Tax, Industry-wise Incentives.	Reduction of tariffs in raw materials and capital goods, Reduction of Corporate Tax, Industry-wise Incentives for high-tech and telecom.
Priority industries	Medicine, Chemical, Engineering, Services, Agro-based Industry, Electric & Electronics, Food Processing of local materials, Automobile.	SEZ, Infrastructure, Science (R&D), Petroleum related industries.	Designated 130 industries (March 2004)	Wide ranges of industries are designated for incentives. Recently high-tech and R&D have the highest priority and most generous incentives.

Source: JETRO Database

Table 2-10 Comparison of Investment Promotion (3)

	Pakistan	India	Thailand	Malaysia
Visa	Working Visa	Employment Visa	Non-immigrant visa and work permits	Employment visa and working pass
Employing foreign workers	Foreign workers are allowed when no Pakistani can fulfill skills or knowledge requirements for positions.	None	Foreign workers are not allowed for 39 industries. To hire foreign workers a company has to have more than 2 million Baht of capital.	A company should hire the Malaysian for all positions. Foreign companies are allowed to hire foreign workers when no Malaysian can fulfill skills or knowledge requirements for positions.
Local employment	No conditions	No conditions	As of October 2004, a foreign company should hire at least 4 local employees.	There are some applicable laws and regulations. A company is asked to employ workers in accordance with proportions of ethnic groups.

Source: JETRO Database

2.1.2 Trade Promotion Policy in Pakistan

(1) Characteristics of International Trade of Pakistan

Depending on Low Value Added Light Industry Exports

From a global point of view, 20 out of 66 categories of products increased their shares in the total value of world trade during the period between 1992 and 2004. These are so to speak "Winning Industries" including "electric appliance", "telecom and recording device", "medicine", "business and data processing device", "land transportation device (automobiles)". These are produced with higher technologies and well-trained skilled labor. Among top ten export products of Pakistan, "furniture/ bed ware" (9th in Pakistani export), "medical device" (10th in Pakistani export) are "Winning Industries". The real shares of these two items in total amount of Pakistani export are very small (1.4% and 1.2% respectively).

On the other hand, categories of products decreased their shares in the total value of world trade are so to speak "Losing Industries". These are mostly primary products or low value added products. Major export items of Pakistan are in the list of "Losing Industries" including "yarn and textile", "apparel", and "Transport device (railways and ships)". These three recorded the 3 largest margins of loosing shares in the world, and at the same time account for 71% of Pakistani export. In short, Pakistani export is heavily depending upon "Losing Industries".

Trade Liberalization – Tariff Cuts

Pakistan had a long history of inward-oriented import substitution policies, protecting domestic industries. Trends had been changed after FY1997/98. The Pakistani government has significantly liberalized the trade regime by tariff cuts. The normal maximum rate of customs duties was reduced from 65% in 1997/98 to 25% in 2005/2006. Average rates of all products also fell from 47% in 1997/98 to 14% (10.4% for industrial products, 15.6% for agricultural products) in 2005/6. The high

customs duty rates on built up automobiles for the purpose of protecting Pakistan made cars have been reduced from the 75-150% range to the 50-75% range in 2005/6.

(2) Recommendations by the World Bank for Farther Liberalization and Rationalization

The World Bank is appreciating the unprecedented reforms for trade liberalization in Pakistan. At the same time, the bank made recommendations for farther liberalization and rationalization in view of export promotion[2]. These include following 6 major points.

The World Bank recommendations for trade liberalization
(1) An escalating tariff structure, with lower rates for raw materials and intermediates should be changed to uniform rate system.
(2) Exceptional arrangements should be removed, especially in cases of edible oil and automobiles.
(3) Need to do phased and pre-announced tariff cuts and rationalization.
(4) SAFTA should be utilized consistently with unilateral liberalization program.
(5) Further enhancing the efficiency of the duty drawback schemes.
(6) Improving the refund scheme for the Sales Tax.

(3) Phased and Pre-announced Tariff Rationalization

The automobile industry has been one of the most protected sub-sectors in Pakistan. As a result, there are several car companies producing rather in small volume in a small market. There was the deletion program (removed in July 2006) that forced car assemblers to buy Pakistan made auto parts. Given such protection, the auto parts industry had been in "no competition status" where whatever they made were bought and did not have incentives to have internationally competitive edges. In order to make the automobile industry competitive, it is important to expose them to international competition as the World Bank recommendation sooner or later.

On the other hand, it is not good for Pakistan to remove protection too quickly in terms of incubating new leading industries. Given the facts that domestic market had been very small until recently and the auto parts industry needs more demand than assemblers, they may need protection for the time being. It is also important to quickly boost promotion policy package to invite investments of the international competitive auto parts producers. The package may include development of industrial zones with good infrastructure and export incentives package. It may need at least 5 years to 8 years of phased liberalization to reach the point of momentum.

Here, we should reconfirm again that "protection without a road map to exit" would only make the matters worse. The most important thing is to clarify prospects of liberalization to let them decide if they will try to stay in competition or retreat. Only those who are ready to face international market should stay. The present expansion of domestic market will sooner or later eventually goes into the phase of slow down. Then the only hope to survive shall be export market, they need to be ready for this. Time left is not so long.

The real meaning of the phased and pre-announced liberalization program is that to show the private companies how far they should go and how much time left for them to improve their competitive edges. It is not the purpose to let all of them survive as they are today. Some will expand and the other will just go out. In the present system, nobody is sure until July speech by the Minister of Commerce. A company cannot make a move. It is also criticized by the Japanese companies that the present policy making is too often dependent upon political connections and thus inconsistent year by year. More transparent and closer public-private cooperation, such as in a case of Thailand, is needed in the process of policy making. Once a policy package is in place,

[2] World Bank, "Pakistan, Growth and Export Competitiveness, April 25,2006"

Chair Person of FPCCI, Mr. Chaudhry Mohammad Saeed criticized the politicizing moves of the garment industry

"Some of our colleagues are not ready to grow. They are stuck in 'exemption era'. They have not done benchmarking. They have not canalized R&D subsidy in a prudent fashion. They have not gone for branding of their products. This has led to falling unit prices, which is very unfortunate. For reversal of the trend, they need to put their own act together instead of again leaning on the government", he commented.
The head of country's premier trade body thought the trade policy direction to be satisfactory with emphasis on logistic improvements for facilitation and improving the competitiveness. Chaudhry Saeed, however, felt the government needs to do more to simplify procedures to create atmosphere of trust and transparency in the country.

Source: DAWN Internet Edition, http://www.dawn.com/2006/07/24/ebr2.htm

Concerning the custom operations, however, the authority has made significant effort to improve the procedure for trading[3]. For example, the computerized custom operations have been introduced in some parts of the custom office at the Karachi Port. The authority has attempted to promote paperless, to speed up custom clearing and to establish "a single window" in the custom. In fact, the time for custom clearance was considerably reduced from 4.1 days to only 5.57 hours in May to June 2006 in the KICT (Karachi International Container Terminal), where the computerized custom clearance system has been introduced. From now on, all custom offices are going to introduce the computerized custom clearance system, leading to significant impact of the efficiency in the custom offices. The problem that we face in the future should be inefficient procedures in the other trade related authorities as well as weak logistic services. For instance, the benefit of "a single window" should be limited, if only the custom offices introduce this system. All other offices concerned are required to follow the custom offices to introduce this system, which would inevitably promote paperless, as well. Moreover, it is suggested to implement the research to examine the amount of time required for trading for all steps from the arrival in port to the delivery of imports by the joint initiative between the public and the private. The effort of one single authority should not generate much benefit. All organizations concerned should work together to promote the efficiency in the trade procedures.

[3] Based on the information from Mr. Hiroshi Nakano, JICA Expert to CBR.

Table 2-11 Comparison of Trade Related Rules and Regulations (1)

	Pakistan	India	Thailand	Malaysia
Current Balance (US$ million)	-4,695 [2005]	-13,437 [2005]	-3,714 [2005]	19,892 [2005]
Trade Balance (US$ million)	-6,104 [2005]	-41,419 [2005]	-8,578 [2005]	33,390 [2005]
WTO and other trade affiliation	WTO	WTO	WTO, APEC, ASEAN	WTO, APEC, ASEAN
Trade Control				
Agency	Ministry of Commerce	DGFT:Director General of Foreign Trade, Ministry of Commerce and Industry	Department of Foreign Trade, Ministry of Commerce （http://www.dft.moc.go.th）	Ministry of International Trade and Industry, Malaysia Industrial Development Agency (MIDA)
Import Regulation	1.Prohibited List, 2.Regulated List	[1] Free Trade Goods, [2] Prohibited, [3] Regulated, [4] Designated Importers Only	(1)DFT regulations [1]Require license (41 goods) [2]Import surcharge (3 goods) [3]Need License for fuel distributor (3 goods)、(2)Other regulations (3)Prohibited imports [1]Violating registered trade marks [2]Fake products.	(1) Prohibited List (14 items) (2) Require license (40 areas) (3)Protected (15 items) (4）Need to meet conditions (46 items)
Origin of Imports	1.Do not allow imports from Israel 2.Do not allow imports from and through India except for approx 750 items. 3.Ministry of Commerce makes occasional announcement about cross border trade.	None	None	(1) Some products from Indonesia (2) Some licensing products are not allowed from Israel.

Table 2-12 Comparison of Trade Related Rules and Regulations (2)

Export related	Pakistan	India	Thailand	Malaysia
Export Regulation	1.Regulated Exports、2.Export quota、3.Designated Exporters	[1] Free Trade Goods, [2] Prohibited, [3] Regulated, [4] Designated Exporters Only	(1)DFT regulations [1]Require approval (rice) [2]Export surcharge (Ball bearings to EU) [3]Others to meet conditions (durians)、(3)Prohibited exports [1]Violating registered trade marks [2]Fake products.	(1) Prohibited List (3 items) (2) Require license (45 areas) (3)Protected (15 items) (4) Need top meet conditions (19 items)
Destination of Export	Export to Israel is not allowed.			(1) Some licensing products are not allowed to Israel.

Table 2-13 Comparison of Trade Related Rules and Regulations (3)

Customs and Duties	Pakistan	India	Thailand	Malaysia
Agency in charge	CBR	Department of Revenue. Ministry of Finance http://finmin.nic.in/index.html	Customs Department, Ministry of Finance	Customs Department, Ministry of Finance, MITI, MIDA
Categories of items	HS Categories and WTO rules.	HS Categories	HS Categories	SITC and HS Categories
Most favored arrangements	SAPTA	Designated items of imports from Mauritius, Tonga, and Seychelles. Other items designated by Bangkok Agreement, India- Sri Lanka Free Trade Agreement.	(1)ASEAN CEPT (2)AICO(3) FTA	（1）AFTA（CEPT）（2）AICO（3）ASEAN・China（ACFTA）（4）JMEPA（5）Malaysia - Pakistan Early Harvest（6）Part of EU trade
Base price	CIF	Assessable Value = CIF+CIFx1% of（Landing Charge）	CIF	Transaction Value
Type of duties	Combinations of "an *ad valorem* duty" and "a specific duty".	Mostly "an a*d valorem* duty". Some items are "a specific duty".	Mostly "an *ad valorem* duty". Some items are "a specific duty"	Mostly "an *ad valorem* duty". Some items are "a specific duty"
Other	Every exporter must be a member of a respective Trading Association and registered at Export Promotion Bureau (EPB).	Reduced import duties are applied for importing raw materials and capital goods when a target of export is met within a target period of time by importers.	(1)Reduced import duties (2)Reimbursement of duties related to exports (3)SEZ scheme	Reduced import duties for approved FDIs.

Source: JETRO Database

2.1.3 Impact of South Asia Regional Cooperation and Free Trade Agreement on Pakistan's Economy

(1) Impact of South Asia Free Trade Agreement (SAFTA) on Pakistan's Economy

South Asia Free Trade Agreement (SAFTA) came into effect on 1 January, 2006 among the seven South Asian Association for Regional Cooperation (SAARC) members of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, although Pakistan and Sri Lanka reserved ratification. To measure impact of SAFTA on the Pakistan's economy, it is a wise attempt to analyze progress of South Asian Preferential Trade Agreement (SAPTA). At the same time, it is also required to

re-examine the framework of SAFTA compared to SAPTA since the SAFTA's framework is wider and better modified than that of SAPTA.

South Asian Preferential Trade Agreement (SAPTA)

SAPTA was implemented in December 1995, and since then there have been four rounds of SAPTA negotiations (Pakistan and India did not add any tariff line concession on the fourth round). Pakistan covered 271 tariff lines, while India covered 477 tariff lines for SAARC countries. During the second round negotiation, Pakistan and India added largest numbers of tariff lines (Pakistan: 227 items with 10 per cent concessions; India: 390 items with ranged between 10 – 40 per cent concessions).

Bilateral trade point of view, the volume of SAPTA items compared to the total exports and imports between Pakistan and India has been increasing since around 2000. In 1996/97, the Paqkitan's largest preferential exports to India were mineral products alone making up 87 per cent of the total. In 2002/03, in contrast, the largest preferential imports became not only mineral products but also chemicals and allied products, and vegetable products. On the other hand, Pakistan's main preferential imports from India in 1996/97 were mineral products and chemicals and allied products. In 2002/03, the shares of plastics, rubbers and articles thereof have gone up considerably in addition to mineral products and chemicals and allied products.

Since SAPTA came into force, the preferential products have been exported and imported between Pakistan and India. However, it is noticed that the impact of SAPTA on the bilateral trade between Pakistan and India was very small. Although SAPTA has been exchanged over 10 years of period, the proportion of India's trade with Pakistan against the India's total trade was less than 0.1 per cent in 2003/04, and the volume of intra-trade in SAARC countries has remained static to around 5 per cent growth for ten years from 1995. Some main reasons of faltering trade between Pakistan and India in SAPTA are:

(1) Tariff concession rates are still low,
(2) They still apply commodity-commodity approach in tariff line concessions,
(3) Non-tariff barriers is still high,
(4) Pakistan has not granted MFN (Most-Favored-Nation) treatment to India, and
(5) India has applied imported controls (quantitative restriction) against Pakistan.

The result of SAPTA performance indicates that South Asia Free Trade Agreement (SAFTA) has a tough road ahead. Accordingly, it is not expected that India's exports to Pakistan will suddenly go up in a short term after SAFTA's implementation. However, the framework of SAFTA is noticeably expanded from SAPTA. Thus, in a medium or long term, SAFTA may give positive impact on the trade between Pakistan and India, especially India's exports to Pakistan.

South Asian Free Trade Agreement (SAFTA)

Non-Least Developed Country (Non-LDC) members of SAARC (India, Pakistan and Sri Lanka) will reduce their existing tariffs to 20 per cent except products on the sensitive list within two years from the date the agreement came into force. Meanwhile, Least Developed Country (LDC) members of SAARC (Bangladesh, Bhutan, Maldives and Nepal) will reduce their existing tariffs to 30 per cent except products on the sensitive list within two years from the date the agreement came into force. The subsequent tariff reductions from 20 per cent or below to 0 - 5 percent shall be done by 2012 (for Sri Lanka it shall be done by 2013). For the LDC, the subsequent tariff reductions from 30 per cent or below to 0 – 5 per cent shall be done by 2015. In addition to tariff concessions, the proposed methodology for negotiation is 'across board' instead of 'product –by-product' of SAPTA, The quantitative restrictions will be also eliminated. Furthermore, the number of products in the sensitive lists will be subject to maximum ceiling.

Under assumption of more open trade among SAARC countries and trade with India allowed free of

the positive test of permitted exports and imports, it is estimated that Pakistan-India trade is likely to increase tenfold, from the current $ 2 billion (including informal trade) to $ 20 billion[4]. Another study shows that between Pakistan and India a high degree of intra-industry trade is indicated in medical and pharmaceutical products and soap and cleansing preparations in the chemical and related products category; leather, articles of paper and paperboard in the basic manufactures category; and a number of products in the category of machinery and transport[5]. Furthermore, Pakistan has potential to export high-value agricultural products such as cut flowers and vegetables and processed agricultural products such as canned fruit and fruit juices targeting upper middle and high income households in India. In service sector, Pakistan also has another potential, especially financial and banking services will be able to penetrate the Indian financial market. At the same time, India's ICT (information, communication and information) sector will invest in Pakistan's market and create new business chances in Pakistan, which also stimulate and improve the Pakistan's ICT industry. In terms of power industry, since India has faced a power shortage problem, India has a long term plan to receive supply of natural gas through pipelines from Iran. If this is worked out and made reality, Pakistan will annually receive $ 500 million of passage charge for the pipelines.

Another expectation for increasing bilateral trade between Pakistan and India is that trade via a third country may become direct trade between these countries. For example, Pakistan Economic Survey shows a steady increase in Dubai's share in Pakistan's total exports. This is due largely to the redirection of goods and commodities to and from India, so-called third country phenomenon, which has become increasingly important for these two countries. Once trade barriers are removed under SAFTA, Pakistan and India trade will be the elimination of these backdoor channels.

Because SAFTA is a seven countries' multilateral agreement, it always takes so much time and effort to coordinate and make settlements. Therefore, each country's commitment is an essential condition. As far as the history of SAARC and progress of SAPTA are observed, each country's internal as well as external affairs occasionally hindered SAARC activities, and directly gave negative impacts on SAPTA and the SAARC regional trade. SAARC has been also played for political negotiating tactic underneath the surface. Therefore, whether Pakistan-India trade and investment will increase or not under SAFTA depends on political affairs between these two countries and each country's serious commitment on SAFTA.

(2). Pakistan – China Early Harvest Agreement (EHA)

In April 2005, Pakistan and China were to sign a number of pacts[6] including an "Early Harvest Agreement", the first stage towards a Free Trade Agreement (FTA). This first agreement allowed two countries to receive zero tariff treatment of 52 products for each country. In February 2006, the second round negotiation set zero tariff treatment of 486 products importing from China to Pakistan, and 769 products importing from Pakistan to China. The main EHA products imported from Pakistan were cotton fabric and man-made fabric, vegetables and fruits and stone materials (Medical instruments and sport goods were already included in the first stage negotiation). Meanwhile, the main EHA products imported from China were vegetables and fruits, stone materials, synthetic fiber, organic chemical products (raw materials for the Pakistan chemical industries were already included in the first stage).

In the run-up to FTA, Pakistan and China started preferential trade on January 1, 2004. Pakistan had given lower tariff concessions of 188 products, and China had also given lower tariff concessions of 893 products by October 2005. On January 1, 2006, the both countries reached the agreement that China would cut its tariffs by 27 per cent on 1,671 kinds of products from Pakistan, and Pakistan would cut tariff by an average of 22 per cent on 575 kinds of products from China. In May 2006, the third round of negotiation was started, and further tariff reduction between these countries is expected.

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[4] Eugenia Barconcelli, "Pakistan-India Trade Study: Economic Gains and the 'Peace Dividend' from SAFTA", a study for Pakistan-India trade project; commissioned by the World Bank at the request of the Government of Pakistan

[5] A.R Kemal, 2004. SAFTA and Economic Cooperation. SAFMA Regional Conference, Dhaka

[6] At least ten separate agreements including the fields of economic and trade cooperation, defense, tourism and air links.

The trade volume between Pakistan and China reached $ 4.26 billion in 2005, 39 per cent larger than that in the previous year (China's exports were $ 3,685 million, meanwhile Pakistan's exports were $ 575 million). In the first three months of 2006, the bilateral trade was $ 1.018 billion, 42.3 per cent larger than that in the same period of 2005. The two countries started the tariff reduction process on January 1, 2006, and the tariffs are expected to reach zero by January 1, 2008. This is the process towards Pakistan and China FTA.

Compared to SAFTA, development of Pakistan – China FTA is much faster and more tangible. This is due partially to bilateral agreement instead of multilateral agreement in SAFTA. However, it is clearly recognized that the commitment of the both countries is much higher and firmer than that of SAFTA. Because of this point, it is expected that the impact of Pakistan – China FTA on Pakistan economy will be much larger than that of SAFTA in short and medium terms.

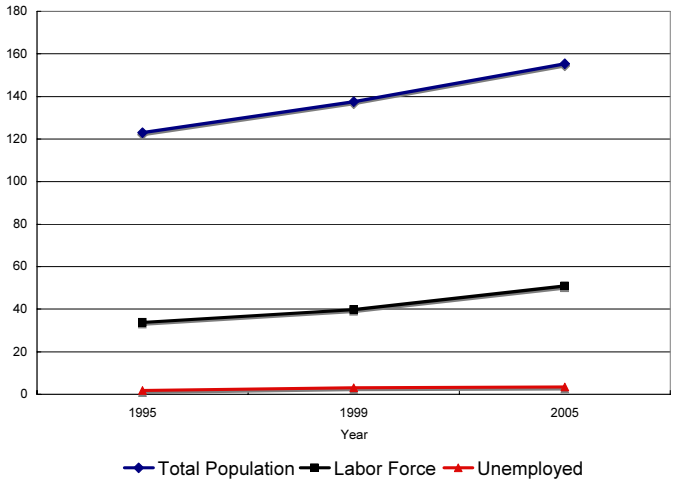
2.2 Industrial Human Resource Development/ Employment Policy

In this section, present situation and problems of training human resources who can work in the leading industries are analyzed. First, after over viewing the employment situation, the government policy and the system of human resource development through the technical education and vocation training (TEVT) is explained. Then, Study Team summarized private sector's view on TEVT based on the field survey as well as the Manufacturing Establishment Survey. Taking into account of problems existed in the present TEVT, Study Team suggested several challenging points which are expected to enhance the human resource development for future leading industries.

2.2.1 Present Situation

(1) Technical Education and Vocational Training in Employment Situation

The Government of Pakistan has an intention to strengthen technical education and vocational training (TEVT) in order to absorb newly generated workers as many as 1.2 to 1.5 million every year, and 17 million of young people who dropped out from basic education schools. It is also considered that various types of TEVT need to be improved and strengthened for unskilled as well as skilled engineers. In the 8th Five Year Plan, income generating activities through TVET, setting up self-financed courses, facilitating production units, increasing tuition fees and imposing TVET Cess on industrialists/business associations are proposed for skill development.
Figure 2-1 shows the estimated manufacturing labor force in urban and rural areas in four provinces. The total numbers of workers are higher in Punjab and Sindh provinces than the other two.
Total labor force[7] of Pakistan is 59.89 million in the second half of 2005, which is 32.8% of total population of 155.4 million (CAR) and 46.9% (RAR) of the population of persons who are 10 years of age and above (Figure 2-1).



Source：The JICA : JICA Study Team made this figure based on Table 13.7 and Table 13.10 of Economic Survey 2005/06,(p.193 and p.196)

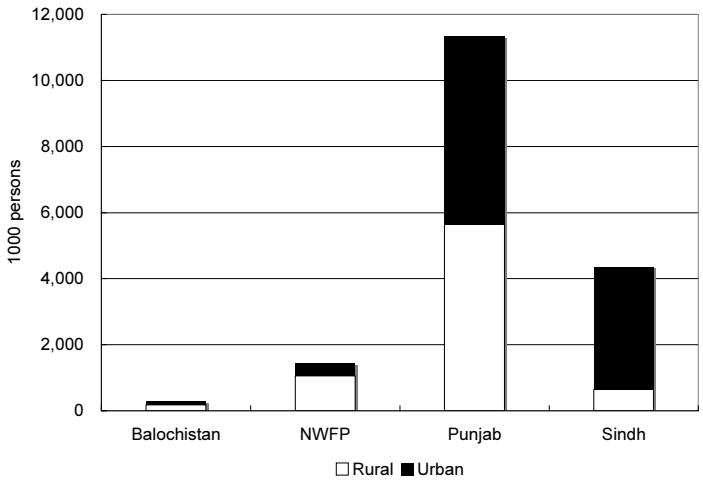
Figure 2-1 Total Labor Force and Unemployed

The low participation rates of labor are mainly derived from female's low participation rates of 14.1% (CAR) and 20.2 % (RAR) and inadequate employment opportunities especially in rural areas. Regarding the structure of employment, employees and self employed respectively account for 38% and 34% of the total employed work force followed by unpaid family helpers (27%) and employers (1%). In terms of sectors, agriculture still accounts for the largest source of employed labor force and the share in employment is 45 % by mid of 2005-06. The share of manufacturing is 13.6 % (male

[7] In Pakistan, labor force participation is estimated on the basis of the Crude Activity Rate (CAR) and the Refined Activity Rate (RAR). The CAR is the percentage of the labor force in the total population while RAR is the percentage of the labor force in the population of persons 10 years of age and above.

13.4 %, female 14.0%).

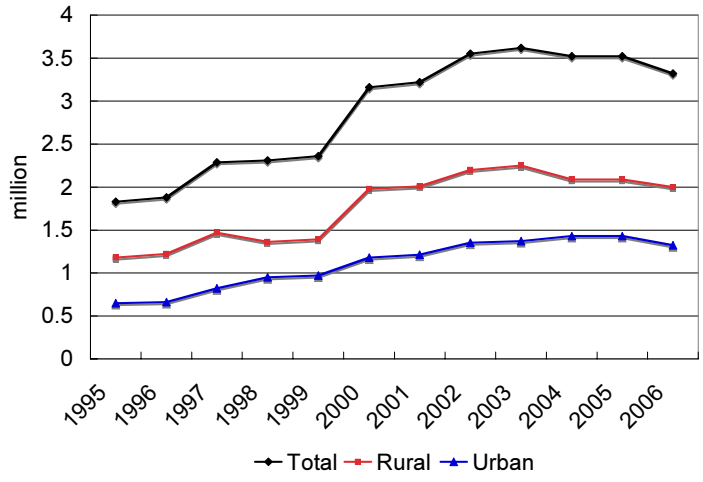
From the point of view of working areas, 69.7 % of labor force is employed in rural areas and 30.5 % is in urban areas. Figure 2-2 shows the working areas of labor force that are engaged in manufacturing sector. Majority of the labor force work in the two provinces: namely, Punjab and Sindh. In Punjab and Balochistan, the share of labor force that works in rural and urban areas is almost fifty to fifty percent. In the case of Sindh, the share of urban labor force is higher than that of rural ones, while NWFP shows the opposite case.



Source：Economic Survey 2005/6、Chapter 12 Appendix Table12.3(Population by Sex, Urban/Rural Areas, 1972, 1981 and 1998 Census)、Table 12.12 Percentage Distribution of Employed Persons of 10 Years of Age and Above by Major Industry 2003/2004

Figure 2-2 The Estimated Manufacturing Labor Force in Urban and Rural areas in Four Provinces

Figure 2-3 shows the numbers of unemployed labor force since 1995. 3.32 million people were unemployed in the second half of 2005. The number of unemployed has increased during the period. It is not easy to say what exactly caused the increase as several factors are considered to exert an influence on the employment situation. There are some factors which are considered to affect the employment: inadequate employment opportunities which cannot absorb the growing population, unstable employment condition especially in the informal sectors, laid off in economically stagnated areas and mismatch of supply and demand conditions of human resources.



Source：The JICA：JICA Study Team made this figure based on Table 13.10 Unemployed Labor Force by

Rural / Urban Areas (No in Million) ,of Economic Survey 2005/06,p.196,

Figure 2-3 Unemployed Labor Force by Rural / Urban Areas

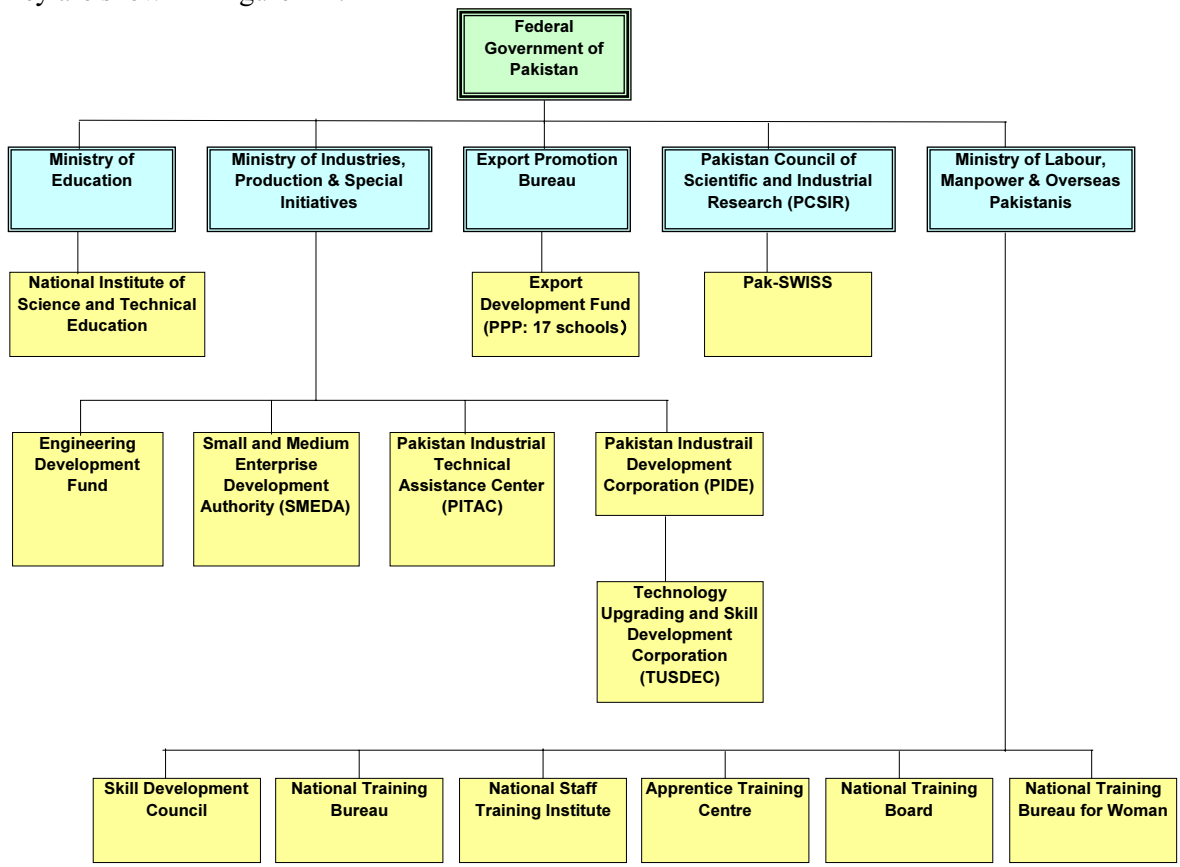
(2) Technical Education and Vocational Training in Employment Policy

The Government of Pakistan fully recognized the importance of decreasing the numbers of unemployed and has an intention to strengthen technical education and vocational training (TEVT) in order to absorb newly generated workers as many as 1.2 to 1.5 million every year, and 17 million of young people who dropped out from basic education schools. It is also considered to improve various types of TEVT so that capacities of unskilled as well as skilled engineers can be strengthened. In the 8th Five Year Plan, income generating activities through TVET, setting up self-financed courses, facilitating production units, increasing tuition fees and imposing TVET Cess on industrialists/business associations are proposed for skill development.

(3) Technical Education and Vocational Training System

Supervising Organizations of Technical Education and Vocational Training

There are various ministries and government organizations that are in charge of TEVT in Pakistan. They are shown in Figure 2-4.



Source: JICA, Project Formulation Study on Technical Education and Vocational Training in Pakistan ('Draft Final Report,. JICA Study Team adds to Figure 11 of the Report

Figure 2-4 Supervising Organizations of Technical Education and Vocational Training

At the Federal level, the Ministry of Education is responsible for technical education and the Ministry of Labor, Manpower and Overseas Pakistani is for vocation training. However, uniform policies and strategies are not adopted among different ministries, between the federal government and provincial governments, and among provincial governments. Therefore, the federal government set up the National Vocational and Technical Education Commission (NAVTEC) in December 2005. NAVTEC

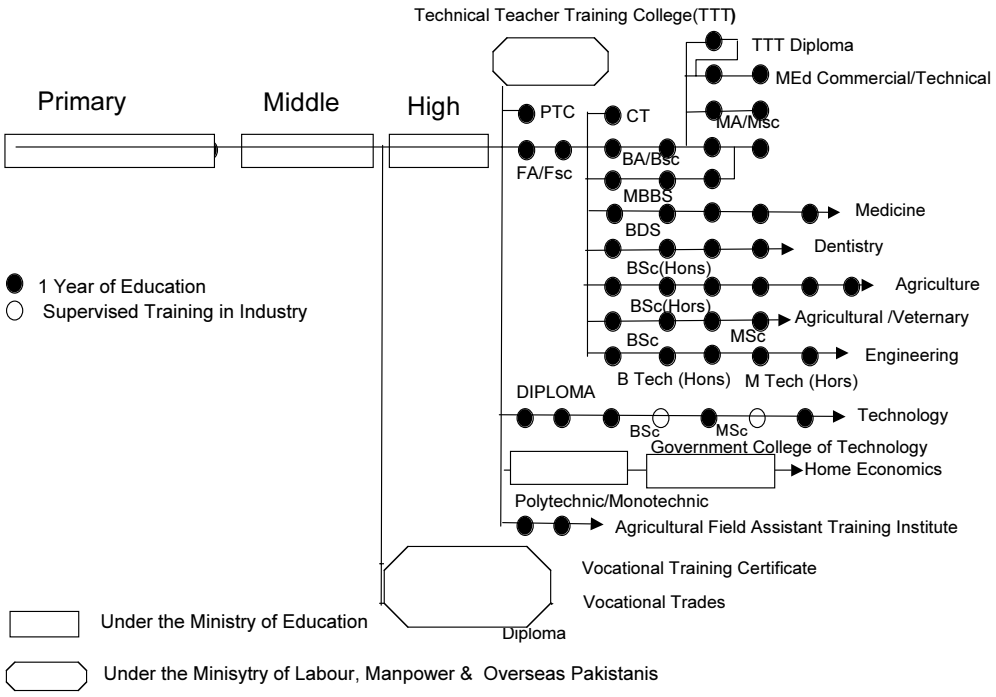
is an umbrella body, which supervises and coordinates different departments of provincial government and is expected to play a central role in TEVT. For instance, the Ministry of Education proposes that basic education should be more focused upon during the primary and middle schools and strengthens vocational training in secondary schools. NAVTEC on the other hand, proposes to strengthen TEVT from middle schools. These different ideas are to be coordinated.

At the provincial level, Punjab and NWFP have already started trials of "coordinating different departments under a single umbrella body", while Sindh and Balochistan have a system that different departments have different responsibilities. Linkages between the government TEVT schools and the private sectors are yet to be strengthened.

Formal Technical Education and Vocational Training System

Figure 2-5 shows the formal TEVT system in Pakistan. As is shown in the figure, graduates from vocational schools are not allowed to enter higher educational schools, which are supervised by the Ministry of Education,

In addition to the Ministry of Education and the Ministry of Labor, Manpower and Overseas Pakistani, Ministry of Commerce and Pakistan Council of Scientific and Industrial Research (PCSIR) have several vocational schools. There are private vocational schools as well.



Source：http://www2.unesco.org/wef/countryreports/pakistan/rapport_3.html

Figure 2-5 Formal Technical Education and Vocational Training System

Regional Disparity of Technical Education and Vocational Training by Provinces

Table 2-14 shows a number of a governmental TEVT schools by provinces. Most schools exist in Punjab and Sindh provinces where manufacturing labor force mainly works as is previously shown in Figure 2-2. Types of schools differ by provinces.

Table 2-14 Number of TEVT Institutions by Province

	Balochistan	NWFP	Punjab	Sindh
Government College of Technology		1	7	4
Government Polytechnic Institute for Girls	1	1	4	50
Government Polytechnic Institute for Boys	1	10	13	
Government Technical Training Institute TTC/Apprenticeship			133	22
Vocational Institute (Women)	12	11	128	80
Vocational Institute (Men)		32	2	
Total	14	55	287	156

Source: JICA, Project Formulation Study on Technical Education and Vocational Training in Pakistan ('Draft Final Report,, p.40 "Number of TEVT Institutions by Province". JICA

PPP Based Vocational Institutions

In order to strengthen the export sector and boost exports of the country, the Export Promotion Bureau (EPB) has extended assistance for establishment of a number of institutions for training and development of human resources for export-oriented industries. Assistance has also been provided for strengthening of infrastructure for the exporting industries. Institutions under the scheme have been established in the private sector on the principle of public-private partnership to ensure that the institutions are managed on professional lines while remaining responsive to the needs of the trade and industry, specially the export sector. 22 institutes were established and out of which, 17 are functional at present. These institutes have been established and are being managed by concerned business associations. Funding for the projects has been provided by the EPB through the Export Development Fund. The institutes are providing job-oriented education and training to meet human resource and technological needs of the exporting industries.

The Pakistan Bedware Exporters Association (PBEA) in collaboration with EPB established Pakistan Bedware Designing & Training Institute in 1998. PBEA established the institute as it fully recognized the importance of creating Pakistan's own branded products. The institute has a management system that all board members except for a project director and a EPB staff member are elected every year so that a particular company (-ies) cannot ruling the institute and member companies can equally be benefited from the institute. PBEA member companies have strongly supported the institute by supplementing the deficits of the recurrent costs of the institute for the past eight years and accepting internships as well as newly graduates.

Textile Institute of Pakistan (TIP) was founded in 1994 under the aegis of APTMA in order to provide professional education and training to a new class of young professionals by honing their practical skills in addition to providing the necessary theoretical knowledge. With support from EPB, TIP opened its operation in 1999. APTMA had a strong intention to provide training on product development, marketing and designing so that Pakistani textile industry can produce more highly value added products.
APTMA has supported TIP in various ways: participating in Board of Governors of TIP, supplementing the deficits of recurrent costs of TIP, providing scholarship to students, arranging internships of students at APTMA's member companies and dispatching specialists as part-time lecturers to TIP. Both students and member companies have benefited from the internships and the number of companies, which accept students, have said to be increased. TIP also has close ties with overseas institutions such as British Council, DFID and the University of Manchester in order to obtain

National Institute of Leather Technology, which was established by Pakistan Tanners Association (PTA) and EPB in 1994, is a training institute that provides leather related technology and products. Students come from all over the country. It is located in the middle of leather manufacturing cluster

in Korangi area of Karachi. Therefore, it provides Physical & Chemical testing to neighboring manufactures as well. PTA has supplemented the deficits of recurrent costs of the institute.

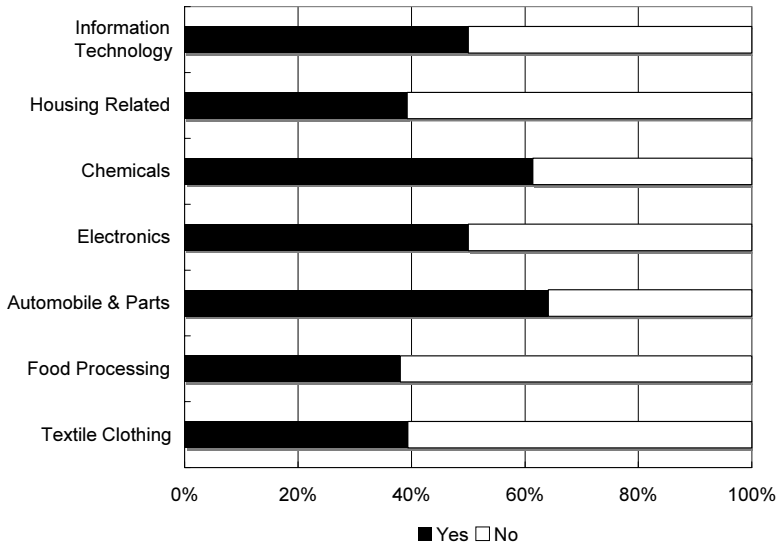
Pakistan School of Fashion Design (PSFD) was established in 1995 as one of the EPB projects. It gradually and systematically transformed the curriculum into the ones, which respond to industrial sectors' future demand taking into account of international markets. PSFD does not have strong connections with particular business (trade/industrial) associations. Instead, PSFD organize regular meetings with an Executive Committee whose chairman is a CEO of a private company once in a month. There, daily activities and curriculum that reflect industrial sectors' needs are determined. PSFD occasionally has meetings with business associations for exchanging opinions, but its operation is independent from any of them. PSFD through the Academic committee has autonomy of employing faculties and students, while EPB has a right to hire accountants, guard men and secretaries.

PCSIR Funded Vocational School

There is another successful vocational institute apart from EPB supported project. **PAK-Swiss, Precision Mechanics & Instrumentation Training Centre**, which was established by Swiss cooperation in 1965 under Pakistan Council of Scientific and Industrial Research (PCSIR), is a vocational school, which provided basic technological training. Since its outset, the principle has discretion of budget and public administration, which enables the Centre to maintain workshops, equipment and machinery in a proper manner and prepare for training materials promptly. The well-prepared facilities help students learn practical knowledge and technology through actual exercises. The demand for employing graduates is high and many of them entered automobile industries.

Internal Training of Manufacturing Establishments

Apart from public and private technical and vocational training institutes, some private manufacturing establishments are providing internal training to employees. Figure 2-6 shows the results of Enterprise Establishment Survey on in-class training. Automobile and parts industry shows the highest result followed by chemical industry. The result shows that both industries are relatively technology intensive among the targeted seven industries. On the other hand, food processing, housing related and textile industries show the low percentage of conducting such in-class training.

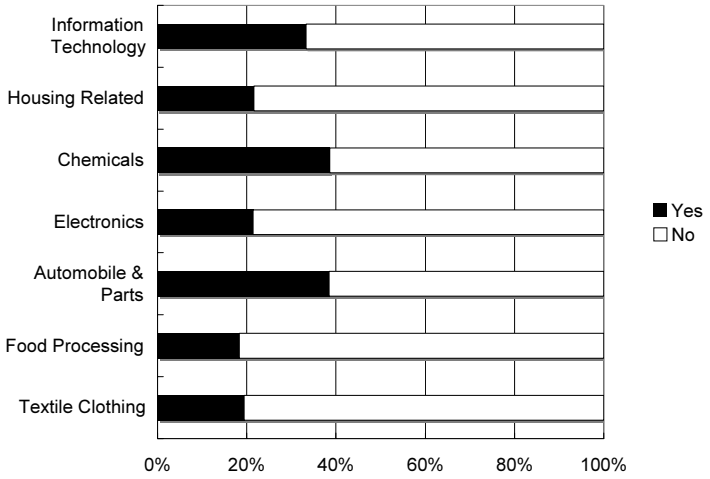


Source：JICA : JICA Study Team

Figure 2-6 Whether IN-CLASS TRAINING is provided to workers

Figure 2-7 shows employees participation in overseas training program(s). Likewise internal

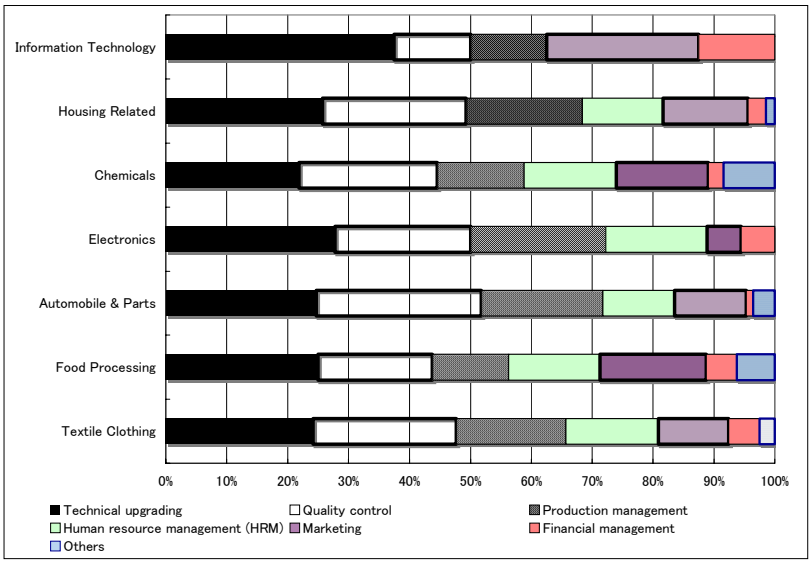
training, automobile and parts and chemical industries show higher results compares with the other industries, which means these two industries have more chance to obtain foreign technology.



Source：JICA : JICA Study Team

Figure 2-7 Employees' Participation in Overseas Training Program(s)

Figure 2-8 shows the most frequently offered subjects to the permanent staff members. Two items those are "Technical upgrading" and "Quality Control" dominate the fifty percent in the seven industries.

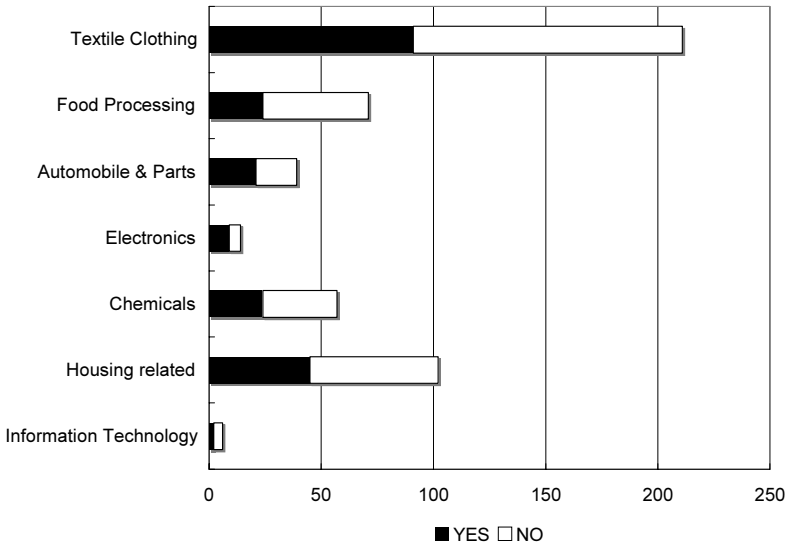


Source: JICA Study Team

Figure 2-8 The Most Frequently Offered Subjects

Introduction of Foreign Technology

Some manufacturing establishments have received technical support from foreign firms. In the Enterprise Establishment Survey, 216 out of 508 sample companies have received technical support from foreign firms. The results are shown in Figure 2-9.



Source: JICA Study Team

Figure 2-9 Technical Supports from Foreign Firms

Table 2-15 shows the contents of technical support provided by foreign firms. “Up gradation of production process”, “Improvement of Quality Control System” and “Maintenance or Repairing of Machinery and Equipment” show the top three of the technical support.

Table 2-15 Support from Foreign Firms (Multiple Choices)

(Unit: Number of Firms)

	Up gradation of production process	Improvement of Quality Control System	Development of New Products	Maintenance or Repairing of Machinery and Equipment	Elaboration of Marketing Skill	Others
Information Technology	0	1	0	2	0	0
Housing related	34	29	15	30	1	Design 1
Chemicals	19	16	14	16	5	Technical Collaboration1
Electronics	6	5	5	6	0	Technical Collaboration1
Automobile & Parts	17	14	12	9	2	0
Food Processing	19	17	13	17	0	0
Textile Clothing	66	67	47	67	35	0
Total	155	149	106	147	43	3

Source: JICA Study Team

2.2.2 Manufacturing Establishments' View on Technical Education and Vocational Training

(1) Manufacturing Establishments' Demand for Human Resources

Manufacturing establishments who face severe competition with foreign companies fully recognized the importance of employing educated human resources in order to produce high value added products and to diversify their products. They want to employ people who hold matric and the above level of education. (Please refer to Box 2-1)

BOX 2-1 Demand for Human Resources with Matric and Above Education Levels

- "Employees who have Matric and above level of education have inventiveness and those who do not have can only do what they are told to do. We cannot respect them more. We would like to hire more employees with Matric and above levels of education, but they normally prefer to work at big companies like Honda. Small and medium scale enterprises cannot hire such people, as they want, quoted from a general manager of a medium scale vender company in Lahore. ,
- Industries, which require simple works such as spinning, do not need educated people. However, those who have to compete with foreign companies such as apparel need to produce high value added and diversified products. Such target can be achieved by employing educated people; at least those who have Matric and above level education, quoted from a CEO of export oriented Apparel Company.
- Considering more sophisticated industry, education level has to be matric. Most industries with any scope of exports have gone for ISO 9000, ISO 9002 and ISO 14000, a lot of paper work is involved and matric

(2) Supply Condition of People Who Have Matric and the above Level of Education[8]

Tables 2-16 and 2-17 look at people who have Matric and above level of education more in detail: namely, by generation and by living areas. The supply condition differs among provinces, urban and rural areas, and gender. In general, the numbers of people who hold matric and the above education level are higher in urban areas, and in the younger generation, especially in the twenties and the thirties. In urban areas of Punjab, Sindh and NWFP, more or less fifty percent of the male whose ages are twenties and thirties have Matric and the above level of education.
Matric level students can further proceed to upper level vocational and technical education schools. A principle of a well-known vocational school stated, "Technicians who get diploma after Matric can play a liaison role between unskilled illiterate workers and engineers who are graduates from universities. However, the number of those diploma holders is limited, hence it is necessary to train the layer".

Table 2-16 The Share of Matric and the Above Level People in Urban Areas

	Punjab	Sindh	NWFP	Balochistan
Male				
15-19 (Note)	27%	37%	32%	23%
20-24	46%	57%	56%	42%
25-29	49%	57%	49%	44%
30-34	49%	54%	42%	47%
35-39	44%	50%	39%	25%
40-44	40%	45%	44%	32%
45-49	43%	44%	37%	37%
Female				
15-19 (Note)	36%	38%	23%	15%
20-24	52%	51%	22%	14%
25-29	45%	44%	25%	18%
30-34	34%	40%	22%	12%
35-39	28%	32%	15%	3%
40-44	24%	29%	15%	11%

Table 2-17 The Share of Matric and the Above Level People in Rural Areas

Male				
15-19 (Note)	9%	21%	17%	9%
20-24	22%	28%	38%	22%
25-29	20%	28%	14%	20%
30-34	15%	26%	25%	15%
35-39	14%	20%	28%	14%
40-44	6%	13%	25%	6%
45-49	9%	11%	10%	9%
Female				
15-19 (Note)	1%	5%	11%	1%
20-24	2%	7%	12%	2%
25-29	1%	3%	4%	1%
30-34	0%	3%	5%	0%
35-39	0%	1%	4%	0%
40-44	0%	0%	0%	0%
45-49	0%	0%	0%	0%

Note：The age group between 15 and 19 do not reach the age of university graduate levels, the figure includes those who have less than degree level education.

Source：Pakistan Labor Force Survey 2003-2004, Table 3 ～Table 3.4。

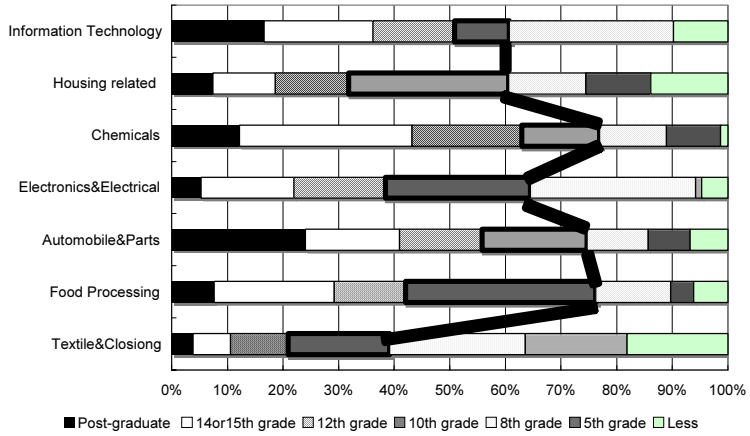
[8] Pakistan Labor Force Survey 2003-2004, Table 3 to 3.4. Total percentage of Matric but below degree, Degree and post graduate.

(3) Establishment's Labor Force by Level of Education

Figure 2-10 shows the results of Manufacturing Establishments Survey regarding education levels of labor force in the seven industries. Education levels are classified into seven categories: namely; Post graduate; BA/Bsc (14-15th grade); Intermediate FA/FSc(12th grade); Matric (10th grade); Middle (8th grade); Primary (5th grade) and Less than 5th grade. Since many private firms have intended to employ people whose educational background are at lease Matric level, we add black line in the Figure so that people can recognize the share of employees who have more than Matric level education.

It is clear from the Figure that the shares of people who have Matric and the above levels education are relatively high. Among the seven industries, Chemical, Food Processing and Automobile & parts industries show higher shares. On the other hand, educational background of labor force working in Textile industry is not as high as other industries. Textile industry consists of various sub industries such as harvesting raw cotton, ginning, spinning industries to apparel, bedware and knitting industries. In the case of industries belong to the up stream part of Textile industry might prefer to employ low wage laborers, while firms belong to the down stream part which have faced with the sever international competition might prefer to employ well educated human resources. The different perception about human resource development in the whole production chain of Textile industry will prevent it from producing higher value added products.

Chemical and Automobile and parts industries show the highest share of labor force whose educational background is BA/BSc and the above, while Textile, Housing related and Electronics and Electrical industries employ smaller share of such human resources.



Source: JICA Study Team

Figure 2-10 Percentage of Establishment's Labor Force by Level of Education

Table 2-17 shows the highest level of education of their top management (CEO). Education levels of the top management are generally high, as the share of CEO who holds post graduate degree accounts for 76 per cent on average. In particular, Chemical, IT and Automobile and parts are the highest. The shares of Food processing and Electronics and Electrical industries are lower than other industries. Although both Automobile and parts and Electronics and Electrical industries belong to the engineering industry, educational backgrounds of CEO and labor force are different. The result implies that Electronics and Electrical industry utilizes relatively low technology to produce simple products.

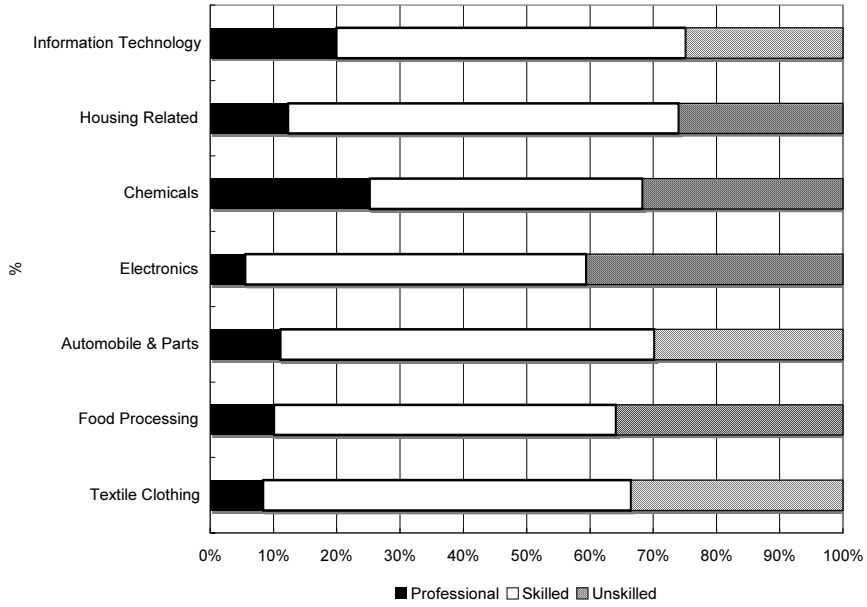
Table 2-18 The Highest Level Of Education Of Their Top Management

(Unit: %)

	Post G	14 or 15th grade	12th grade	10th grade	5th grade
Overall	76	19	4	1	0
Textile Clothing	76	21	2	1	
Food Processing	66	27	4	3	
Automobile & Parts	79	13	5	3	
Electronics	64	36			
Chemicals	88	11	2		
Housing related	73	18	8	1	1
Information Technology	83	17			

Source: JICA Study Team

Figure 2-11 shows the average number of skilled / unskilled workers and professionals in the seven industries. Chemical industry (25.2%) shows the highest share of employing professional staff members, and Electronics and Electrical (40.6%), Food Processing (35.9%) and Textile industries (33.5%) show the lower share of employing the professional staff members.



Source: JICA Study Team

Figure 2-11 Average Number of Skilled / Unskilled Workers and Professionals in 2005

(4) Private Companies' Opinions on Vocational Schools

Manufacturing establishments do not always have high expectation in vocational and technical education schools. According to the Manufacturing Establishments Survey, only 87 firms out of total 508 firms reply that they have received services from vocational and technical education schools in the last two years and 132 firms answered that they have not received any services. Out of 87 firms, 76 firms are satisfied with the services provided to skilled workers, and 51 firms are for the unskilled workers. 35 firms are satisfied with the service when they elaborate the learned training system in their own establishments. On the other hand, 11 firms are dissatisfied with the training for skilled workers, 6 firms for unskilled workers and 3 firms are for the elaboration of the training system. Table 2-19 summarizes the reasons for dissatisfaction.

Table 2-19 Reasons for Dissatisfaction to Vocational and Technical Education Schools

Training for Skilled Workers	The technical advice is neither practical nor useful （4firms）
	The institution does not have appropriate technical expertise （3firms）
	The service is too expensive. （2 firms）
	The level of technology is outdated. （2 firms）
Training for Unskilled Workers	The institution does not have appropriate technical expertise （5firms）
	No Return on Investment （1firms）
	Further Improvement Required （ 1 firms）

Source: JICA Study Team

The followings are the summary of private companies' opinions on vocation schools, which JICA Study Team obtained during the filed survey.

Curriculum

There is a system to reflect private sectors' opinion in the curriculum and course contents of technical education and vocational schools. However, many things did not change even though private companies spent a lot time and contributed to improving TEVT, which hinder their motivation to spend their limited time for curriculum and course contents improvement.
A Chairman of Technical Education Board, which formulates Syllabus of vocational schools do not always have rich experiences in the filed.
It is also important to include arts and craft aspects in technical education, in addition to traditional technical subjects, in particular, in the field of marble, granite and tannery.

Strengthening the Relationship between Industrial Sectors and Vocational Schools

In order to obtain industrial sectors' collaboration to improve the existing facilities and curriculum, it is necessary to consider ways to make the busy industrialists want to join the activities. For example, financial remuneration, tax rebates and recognition/appreciation to the activities are considered to be effective.

Status Improvement of Vocational Schools

There is a wide recognition that lower layer of students tend to go to technical training and vocational schools and bachelor degree is regarded to be higher than diploma. It is necessary to make diploma be regarded as Matric Tech and Fsc.Tech

Improvement of Teachers Knowledge

There are inadequate skill development programs for teachers. If there is a program to provide teachers with adequate trainings so that he or she can improve their knowledge and skills, their motivation to work will be improved. For example, a machinery operator teaching at school could be a floor manager if he/she receives training, which leads to further motivation to work.

Operation and Management of Vocational Schools

For successful operation and management of vocational schools, a principle should have discretion in terms of administrative and financial decision-making. This enables schools to prepare for workshops in a proper manner all the time by maintaining machinery and adding necessary inputs, so that students can have opportunities to learn practical skills and to learn about "hands on" that cannot be taught only in a classroom teaching. It also makes schools employ appropriate teachers and skilled staff members who meet real demand of private manufacturing establishments.

If a civil servant or a former civil servant becomes the top management of an executing board or committee of vocational schools, it is highly likely that the project will not be implemented successfully.

Various Types of Vocational Schools

While the federal government, provincial governments, and public-private partnership initiatives have established various types of vocational schools, no union standards exist. They should be more complemented with each other.

2.2.3 Problems of Technical Education and Vocational Training

The followings are considered to be problems of TEVT.

(1) Budget and Systems

The budget allocated for TEVT is seven per cent of the total education budget. Out of which, more than ninety per cent is used for wages and salaries and the rest is used for maintenance of inputs, machinery and facilities. Therefore, workshop exercise is not implemented properly, which inhibits students from learning about "hands on".

There are systematic problems, which prevent improvement of operation and management of TEVT. First of all, a principal, who is responsible for operation and maintenance of schools, is not given a proper discretion of budget allocation and administrative decision-making. Secondary, no linkage in the curriculum adopted by technical education at middle and secondary schools and that of vocational schools prevents students from learning streamlined technology. The federal government has started NAVTEC within which TEVT are strengthened in a streamlined manner, but it is still to be functioned.

(2) Curriculum Which Do Not Meet with Industrialists' Need

Presently, various systems, which vocational schools and industrialists exchange opinions on the school curriculum, are not functioning well. Therefore, it is highly likely that ongoing vocational training do not always meet with the demand of industrialists.

In the case of technical education, the technical subjects (Z list courses) are being taught in secondary schools based on the "Agro-Technical Education Scheme" launched in 1970 without proper examination by BISEs. The courses therefore are not formulated in a manner that regional characteristics are reflected.

The Federal government expresses the view that it transfers the authority of the curriculum formulation from the federal government to provincial government in order to reflect regional characteristics in the curriculum. However, adequate human resources are not facilitated at provincial levels to achieve the objective.

(3) Teachers and Students

It is difficult to prepare for adequate numbers and quality of teachers at schools, due to the following reasons: low wage rates; inadequate commuting systems to schools; and teachers are not respected as they were used to be. Furthermore, having no opportunities to update their knowledge and skills, many of them are teaching obsolete technology that cannot respond to the present industrialists' demand.

The drop out rates from technical education and vocational schools are high. It can be said the dropout by students is caused by economical reason. Students tend to quit schools once they learn

skills so that they can find working places at markets. Some students do not have appropriate transportation means to continue their schools.

(4) Others

Some parents do not have clear images about the future direction of their children after graduating from TEVT schools. Those parents are reluctant to let their children go to the schools. The fact that many of technical education and vocational schools are located mainly in urban areas prevents rural students from joining the schools.

2.2.4 Challenges for Industrial Human Resource Development for Leading Industries

The followings are challenging aspects of industrial human resource development for leading industries in Pakistan.

(1) To Increase the Numbers and Improve Quality of People who Have Matric and the above Level of Education

For leading industries which compete in foreign markets and need to produce high value added and diversified products, it is crucial to increase the numbers and improve quality of people who have at least Matric and the above education level. In the case of younger generation such as twenties and thirties the share of people who studied up to Matric level has increased to about fifty percent in urban areas. Taking the trend into consideration, it is recommended to provide assistance to these people and pave the way to proceed to the higher-level education if they want to. These people are expected to play a "bridging role or middle manager" between unskilled workers who cannot read and write and engineers who graduate at least 14^{th} to 15^{th} grade, or technical staff members and owners.

(2) Strengthen Systems that Enhance Linkages between Schools and Industrialists

It is crucial to formulate a system, which enhances linkages between schools and industrialists, so that curriculum and syllabus can be made after reflecting real demand of industrialists. Being occupied with their dairy work, industrialists are normally reluctant to spare their time for the improvement of technical education and vocational schools. Therefore, it is important to consider measures that make industrialists be willing to participate such improvement activities.

In order to make such a system function, three measures are considered. Firstly, industrialists' contribution should be recognized / appreciated properly, instead of leaving their efforts alone and not being taken into consideration of curriculum and syllabus at all. Secondary, schools should consider proposals by the private sector seriously and respond to the proposals promptly. Thirdly, providing financial remuneration and tax exemption to industrialists, which have contributed their time and efforts to improve TEVT.

It is also important to raise awareness of industrialists that contributing to school improvement will benefit themselves in the medium and long term by generating more talented and skilled graduates from the schools and they can employ such human resources.

Vocational training for development of leading industries should be promoted through public-private partnership (PPP) approach. Practical operation and management should be done by private sectors. It is not recommended to make former or acting civil servants who have no experience in the vocational training be a top of the executing committee. Rather, it is recommendable to set a committee consisting of the private sector in charge of vocational training schools and the government employees for regular meeting between the two to improve curriculum. In order to make vocational schools operate successfully through PPP approach, the government not only grants land, buildings and materials to start vocational schools, but also need to provide technical support so that the private

sector such as business association can build operation systems which are not taken the lead by specific enterprises and individuals, and can supplement the recurrent costs of the school when it is necessary and maintain the school operation sustainable.

(3) Appropriate Evaluation to Technical Education and Vocational Training

It is important to remove a stigma attached to TEVT that generally academically weak students who cannot proceed to the higher education go to these schools. Under the present education system, graduates from vocational schools, which are under the Ministry of Labor, Manpower and Overseas Pakistani cannot proceed to colleges or other higher technical educational schools under the Ministry of Education. It is important to open the way to entering in a technical university by students who received 2 to 3 year's Vocational Training after graduating a high school. Such reform will help train people who can work at leading industries. In order for those who obtained vocational training and technical education to have widely recognized certificates, examinations of technical subjects and vocational training need to be reexamined.

(4) Improvement of Technical Skills of Middle Aged Workers

There are many middle-aged workers who develop their skills through the experience even though they do not have Matric level education. There are cased that private companies provide education to middle aged illiterate workers. It is possible for skilled workers and semiskilled workers to take short-term training of three to six months such as the vocational training center that the Sialkot Business Association started up, in order for them to catch up with the latest technology and to further improve their skills. Various inspection machines are facilitated there, and it is worth considering providing service associated with the machinery to member companies of business associations.

In line with the industrial human resource development mentioned above, it is crucial to improve the technical education in Middle and Secondary schools in the medium to long run.

(5) Enhancement of Technical Education in Middle and Secondary Schools

Matric is the minimum educational level requirement of many leading industries. On the other hand, there are many SMEs, which employ dropouts from middle and secondary schools. These SMEs as well recognize the benefits of employing Matric level students in order to add value and diversify their products. Therefore, it is required to increase the numbers and quality of Matric level students. .

In order to increase the absolute numbers of Matric level students, basic education system needs to be strengthened in the medium to long run. There are many problems that should be solved in the technical education. For instance, candidates for technical education teachers whose major is science subjects at universities tend to work at other technical areas and “teacher” is the last choice for them. Therefore, the numbers of science and mathematics teachers are absolutely short of supply and there are some schools, which have no science and mathematics teachers even in urban areas. As a result, even teachers who have no background of science and mathematics are teaching technical education. As a result, even though students can proceed to higher educational institutions, he or she cannot keep up with the classes of Mathematics, Physic and Chemistry, because these students just memorize instead of understanding the meanings. Therefore, some higher-level vocational institutions have to prepare for basic Mathematics, Physic and Chemistry lessons in the beginning of the semester.

Compared with vocational schools, middle and secondary schools, which are teaching technical subjects in addition to normal education, can receive more students. It is therefore important to reconsider the contents of technical subjects in order to make them reflect regional difference and changes in labor markets, instead of just following Agro-Tech contents.

At middle schools, it is very important to strengthen science and mathematical subjects and let students be more familiar with manual work based on these subjects, rather than providing vocational

training per se. At secondary schools, technical education should be more strengthened. Taking into account that some professionals such as carpenter and blacksmith have been looked down upon, new technical subjects, which are not related to social taboos such as IT, computer technology, mobile phone maintenance, electronic engineering and beauty should be more be promoted. It is also necessary to improve knowledge and skills of teachers and fulfill their teaching motivation. This strategy is very important and concrete cooperation methods should be examined further.

2.3 Infrastructure Development Analysis

Among all infrastructures, this section describes mainly the power sector of Pakistan which requires the most urgent countermeasures. JICA is currently conducting "Pakistan Transport Sector Study" in transport sector and "Study on Water Supply and Sewerage Master Plan in Karachi City" in water supply sector.

2.3.1 Situation and Issues of Power Sector

(1) Institutions of Power Sector

Government Sector
Ministry of Water and Power (MWP) is the responsible authority within the Federal Government. Under the Ministry, Water and Power Development Authority (WAPDA) has been established as an implementing authority. In addition, the National Electric Power Regulatory Authority is working as a regulatory body of electric tariffs.

Private Sector
The operations of WAPDA are currently being privatized and dissected into generating, transmission and distribution companies. Each company is established as a public-owned company and their stocks are sold to private sector. Among them, the Karachi Electric Supply Corporation (KESC) is the largest distribution company.

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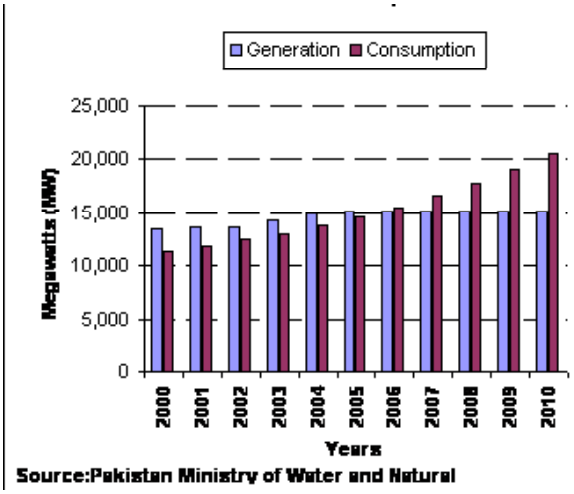
(2) Outline of Supply and Demand

Situation of Supply and Demand
Since 2000, the power demand of Pakistan is growing rapidly by the growth rate of 7-8 % each year (Figure 2-12). On the other hand, the supply side, the generating capacity, is not growing and it causes a gap between supply and demand.



Source：http://www.eia.doe.gov/emeu/cabs/Pakistan/images/image003.gif

Figure 2-12 Forecast of Pakistan's Power Generation and Consumption

The domestic power demand is growing by 5 percent annum but the industrial power demand has been stable over the years. The generating power capacity depends on the hydraulic and thermal plants owned by WAPDA. The generating capacity of Independent Power Producers (IPPs) shares only 30.3% of total capacity (Figure 2-20).

Table 2-20 Generating Capacity by Power Company

Power Company	Installed Capacity 2004-06	% Share	Installed Capacity 2006-08	% Share	% Change
WAPDA	11298	58.2	11363	58.5	0.6
Hydel	6463	57.7*	6463	56.9*	0.0
Thermal	4835	42.3*	4900	43.1*	1.3
IPPs	5873	30.3	5858	30.1	-0.3
Nuclear	462	2.4	462	2.4	0.0
KESC	1756	9.1	1756	9.0	0.0

Note: * share within WAPDA
Unit: MW

(3) Review of IPP Policy in Pakistan

The Pakistani power sector attracted the IPPs in 1990s as a good practice of Private Finance Initiative (PFI). Especially, the Hub Power Company (Hubco. Power Plant Contract in 1991. The first turbine operated in 1996. Power output: 323MW x 4) represented a model practice of international financing consortium. In favor with the good investment environment, more than twenty IPP project were in progress.

However, the dismissal of Bhutto Prime Minister in December 1996 and the establishment of the Second Sharif Administration in February 1997 influenced to review the existing Power Purchase Agreement. After the Nuclear Experiment in May 1997, new disbursement from Japan, US and international financing institutions was frozen. In July 1998, the Pakistani Government issued the cancellation notice to several IPPs and pushed them to decrease the power purchase price from 6.5Rs./kWh. The notice was recalled in return of resumption of international finance.

Since then, the purchasing price had been discussed and the price is going down by the IPPs' concession. This long-time inconsistency of power policy by the Government showed a country risk and discouraged investors to the long-term power producing projects.
[Source: Sato, Taku. 2000. *Pakisutan Bijinesu Saizensen.* Tokyo: Jetro.]

(4) Power Sector Privatization and KESC

The Pakistani Government has launched power sector privatization since July 1992 for the purposes shown below.
- To accumulate capital agglomeration of off-government budget and without government guarantee.
- To improve efficiency of power sector by competition, accountability, independency, and profit-incentive.
- To sustain socially desirable power tariff policy for rural electrification and low-income group and to rationalize power price and subsidies.

Based on the policy, the Power Wing of WAPDA has been privatized into twelve Public Limited Companies as follows;
- Distribution Company: 8
- Generating Company: 3
- National Transmission and Dispatch Company (NTDC)

In 1998, the further reform confirmed that eight distribution companies should be operated independently. Among them, the KESC, which is the largest power supply company for the area of 6,000 sq. km including all Karachi City, has been focused for privatization.

The Cabinet Commerce of Privatization (CCoP) approved the Government to sell the 73% of KESC

stock to Kanooz Al-Watan Consortium of Saudi Arabia at the price of Rs. 20.24 billion in February 2005.
In addition, the Government sold a part of publicly owned KESC stocks to the private sector and the KESC became finally privatized in November 2005. The Government sold its stock to the employees of KESC at Rs. 1.65 per stock although the market price of KESC is around Rs. 10.

Not only distribution, the KESC is also generating power and the largest power company of the privatized. The KESC's countermeasure to the power shortage is to prevent voltage drops by stopping supply temporarily by area and it is called as "load-shedding." The criteria to select the load-shedding area are so unclear that it frustrates users. One of the reasons for explanation is the sudden stop of IPP generation side by unexpected and its information is not transferred to KESC via WAPDA.

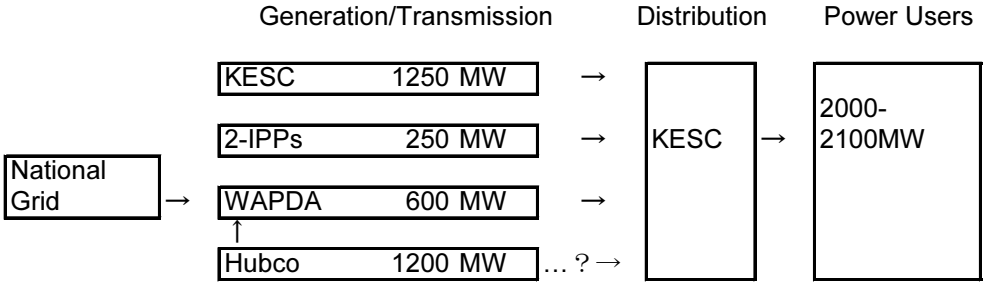
Current power crisis of KESC is caused by (1) KESC itself and (2) absolute power shortage for KESC to buy.

Outdated Equipments of KESC

KESC is now under the privatization scheme and tariff recovery is being improved. However, the facilities and equipments are not maintained for long time and severely outdated.

Shortage of Generation Capacity Outside of KESC

Another problem is that KESC does not have sufficient power generators outside of KESC. Currently an option is examined to have a direct deal between KESC and HUBCO. As an IPP, HUBCO has a contract to sell all power to WAPDA and it cannot directly sell power to KESC. WAPDA is now preparing an amendment to the contract which allows the direct deal. On the other hand, the direct power deal has a technical problem in its facility. It is necessary to establish a new 1,000MW substation. The substation is to be located near Baldia Grid Station and to be estimated at Rs. three billion. Despite the official commitment by WAPDA and MPW, the station has only the capacity of 510MW in the summer 2006. In addition, the WAPDA transmission system is outdated and needs substantial maintenance (Figure 2-13).



KESC Power Plant
-Bin Qasim Thermal (1000MW)
-Korangi Thermal
-Combine Cycle (Under construction)

Figure 2-13 Power Supply to KESC

(5) Future Plan

To meet the future demand, new construction of power plant is planned and most of them are by IPPs and WAPDA as shown in Table 2-21.

Table 2-21 Power Plants (In Operation and Planned)

Thermal/Nuclear

Name	Owner	Current Capacity	Planned or Under Construction	Year to start
HUBCO (Hub Power Company)	International Consrotium	1,300MW		
KAPCO(Kot Addu Power Company)		1,600MW		
Chinese company	Chinese Company		600MW	
Combine Cycle at	WAPDA		450MW	2007
Combine Cycle at Baloki	WAPDA		450MW	2010
Thar Coal Plant 1&2	WAPDA and Chinese Company		600MW	2009
Third Nuclear Power Plant	WAPDA and China National Nuclear Corporation		325MW	

Hydraulic

Name	Owner	Current Capacity	Planned or Under Construction	Year to start
Ghazi Barotha hydro plant		1450MW		
North West Frontier Province	WAPDA		2,400-3,600MW	
Malakand-III	WAPDA		81MW	2007
Pehur	WAPDA		18MW	2007
Mangala Dam	WAPDA		150MW	2007
Khan Khwar	WAPDA		130MW	2008
Allai Khwar	WAPDA		121MW	2008
Duber Khwar	WAPDA		130MW	2008
Kayal Khwar	WAPDA		130MW	2008
Golan Gol	WAPDA		106MW	2008
Jinnah	WAPDA		96MW	2008
Matiltan	WAPDA		84MW	2009
New Bone Escape	WAPDA		79MW	2009
Taunsa	WAPDA		120MW	2010

Source: Pakistan & Gulf Economist. July 3-9, 2006. et al.

Although these plants are completed, more power suppliers are expected.

(6) Problems and Issues

Establishment of Long-term IPP Policy

Instability of Pakistani Government policy in the late 1990s discouraged the investment willingness and it leads to the current power supply shortage. In addition, the declination of operating rate, which has been exchanged for the power purchase drop by the government, causes the unstable operation.

To attract more investors to the power sector, the Government IPP policy should be stable in the long term and the external condition, such as crude oil price surge, should be incorporated into the power tariff. Most IPP are operating thermal plant and the oil price can directly influence the profit. At the same time, the power distribution company should be deregulated to add the oil surcharge on the power tariff easily.

Redevelopment of National Transmission Grid

At national level, the power shortage provides different viewpoint. In the northern area, active power development, mostly hydraulic, is observed. The Karachi Metropolitan Area and the South experience severe power shortage, especially in summer.

On the other hand, the generating capacity in north decreases in winter because the water level of the

reservoir lowered. These gaps between north-south and winter-summer have been fulfilled by the national grid system and it transmits power from north to south during summer and from south to north during winter.

Thus, the national transmission grid system plays an important role to interchange power to fulfill the seasonal and regional gaps.

Development of Alternative Energy

Wind Power Development

Karachi, which faces with the ocean, or mountainous area near Karachi may have a potential for wind power development. Currently, the Government is recruiting investors by IPP basis. Once the wind conditions are surveyed and power purchase price is fixed, its feasibility is easily determined.

Solar Power Development

Solar Power generation has potentials in needs of direct current power source and independent charges. Pakistan Government prepares to introduce solar power to the un-electrified rural area in the north. There will be, however, other potential area besides rural electrification. Especially, the structures with large roofs such as factories and gymnasium can provide a flat space for generation.

The power generation cost is 23-31 JPY/kWh (NEDO, Case of Japan) which is significantly higher than the KESC power price (4-5 Rs./kwh) and IPP power wholesale price (5-6 cent/kwh) to the industrial sector. Karachi observes lower degree of latitude and more sunshine than in Japan. In addition, the cleaning cost is expected lower than in Japan.

Mitigation of Impact to Industrial Sector

Unstable power supply significantly influences to the industries in Karachi and surrounding area by deterioration of product quality and production line stops. Many large factories prepare their own generators for the unavoidable production part and it raises the production cost.

This section proposes the short-term measures for priority power distribution.

1) Power Utilization during Night Time
Karachi Metropolitan Area depend its power sources on thermal plants and their capacities do decrease significantly during night time. The power sensitive industries are encouraged to shift their production time to night. KESC also should differentiate the price gaps between day and night.

Current off-peak tariff for industrial use is Rs. 3.59/kWh and on-peak rate is Rs. 5.44/kWh (B2 category). It is reasonable to differentiate the price to the ratio of 1:3.

2) Introduction of ESCO
ESCO (Energy Saving Company) business[9] is hardly available in Pakistan. Under the continual power shortage situation, the business has a big potential for the large power users. It is desirable to support such business as private-led ventures.

3) Priority Distribution to Industrial Sector
Industrial sector is required to receive stable power supply. It is desirable to promote concentration of major large factories to Port Qasim Area and to distribute powers to the area with priority with a substation on site.

[9] ESCO provides a whole service for energy saving for factories and buildings without any sacrifice of environment. ESCO partially receives its revenue from their clients' saved power cost.

2.3.2 Infrastructure to Support Industrial Cluster Development

(1) Components to Support Industrial Cluster Development

Concentration of location by the economy of scale is the most important factor for industrial cluster development. Along with the course of agglomeration, information and products are being sophisticated into the more advanced one.

Agglomeration of production facilities will lower the service cost of infrastructure. Additionally, the segregation between residential area and industrial area will provide appropriate environmental impacts in pollution problems.

The following infrastructures positively influence the industrial cluster development.

Industrial Estate

During their planning stages, industrial estates are assumed to locate which industries. Because heavy industries such as petrochemical and steel requires acquisition of own land and port, they do not move into the ready-made industrial estate. Thus, built-for-sale typed industrial estates focus on the light industries such as assembling and light-processing industries.

In order to support formulation of industrial clusters, it is necessary to prepare common facilities and to measure off the site based on the target industries. Types of target industries are selected from the existing ones such as surgical instruments in Sialkot or the new industries such as textile city in Karachi.

Industrial Water Supply Facility

Although piped water system assumes the quality of potable water, many urban water systems in Pakistan cannot qualify the standard. On the other hand, the industrial water is used in the washing process or cooling process, the quality can be lower than potable water. If certain volume of industrial water is required, it is possible to provide inexpensive industrial water by an own water purification facility.

Wastewater Treatment Facility

Pakistani environmental regulation is not so strictly enforced. However, many foreign importers, especially European, request stricter environment regulation than domestic standard. One of the advantages of location within industrial estate is utilization of common wastewater facility on site. Especially, the availability of treatment facility is a key factor for factories which discharge heavy metal pollutants.

Substation

Voltage fluctuation, frequency fluctuation, and instantaneous voltage drop deteriorate the quality of job in the process with the precision machineries and reduce the durable years of machines. Some factories require higher voltages and three-phase alternating current. In order to satisfy such requirement, it is necessary to establish exclusive substations for the area where factories are concentrated as a industrial estate.

Transportation System

Pakistani transportation system heavily depends on the road transport system. Among transportation volume on land, 89% of annual passenger transport 239 billion passenger-kilometers and 96% of annual freight transportation are by road (JICA Pakistan Transport Planning Study Final Report 2006). Thus, the industrial sector depends on road transportation for input of materials, export of products and commuting of employees.

Especially, the container transportation is a *de facto* standard of surface cargo transportation. It is important to reduce the container transport cost to the inland area through two Karachi ports.

(2) Formulation of Regional Cluster and Infrastructure

This section describes the formulation of regional industrial cluster development from a viewpoint of infrastructure.

Port Qasim Industrial Area (PQIA) (Karachi)

Following the site selection of Pakistan Steel in 1972, PQA (Port Qasim Authority) was established in 1973 and its development is still ongoing. Even after thirty years, the function of PQIA is far from completion. The possible reasons are as follows.

Inefficient management of PQA (Port development is in progress by PFI base. On the other hand, the industrial area side is not in good condition.)
Shortage of infrastructure, especially water supply.
Far from current workers' living area, Karachi City. At the same time there is no city around PQIA.

Accordingly, the tenant company should find advantages even to offset these handicaps. Factories which needs large area tends to locate themselves within PQIA.

Currently, the following two industrial clusters are recognized to be promising.

Steel / Automobile Cluster

Because PQIA has Pakistan Steel, downstream industries are desired. However, the only limited number of Pakistan Steel products meet the requirement of automobile industries in PQIA and internal linkage is very weak. Automobile industries import steel rolls and pressed parts such as doors from other Asian countries.
In order to activate this cluster, the following infrastructure development is desired.
-Road development in and around the PQIA
-Stable industrial power supply
-Industrial water supply

Textile Cluster

Comparative advantage for textile cluster to locate in PQIA is its proximity to the port for export. "Textile City" project in progress will materialize the advantage. Textile cluster in PQIA assumes the production process from cotton yarn to final products such as garment. This cluster is based labor-intensive type and creates large employment.
To promote this cluster, the following infrastructure development is desired.
-Development of regional transportation system (Transportation of input materials from all area of Pakistan. Port development. Commuting of workers)
-Stable industrial power supply.
-Improvement of living environment for workers.

Sialkot Area (Punjab Province)

Although Sialkot area is located inland area, the area produces unique internationally competitive products for export. To keep the competitiveness, the most important thing is to reduce the transportation cost for import and export. For surface transportation, the land transportation cost between Karachi Port and Sialkot may raise the cost. Thus the following aspects are important by transportation mode.

Road Transport

Among export products, US bound products (price sensitive), bulk products, and seasonally regular products are carried to Karachi Port for export. Because the distance between Karachi Port and Sialkot Area is 1400km, its fuel charge for trucks is the significant. Inbound cargoes to Sialkot are sometimes empty and one 40feet container transportation cost is estimated never less than US$1,000.

This cost decreases the international competitiveness of Sialkot, but currently the exporters pay only $350 though the one-way cost is $550. The Government subsidizes the gap of $200. The transportation cost will rise because of international oil price change.

SDPT (Sialkot Dry Port Trustee) is functioning properly as an inland container depot. It is necessary to expand the function and develop the road around SDPT.

Railway Transportation

Currently, the freight transportation on railway is inactive. If railways can transport containers from Punjab to Karachi, it will reduce lower container transport cost than the road.

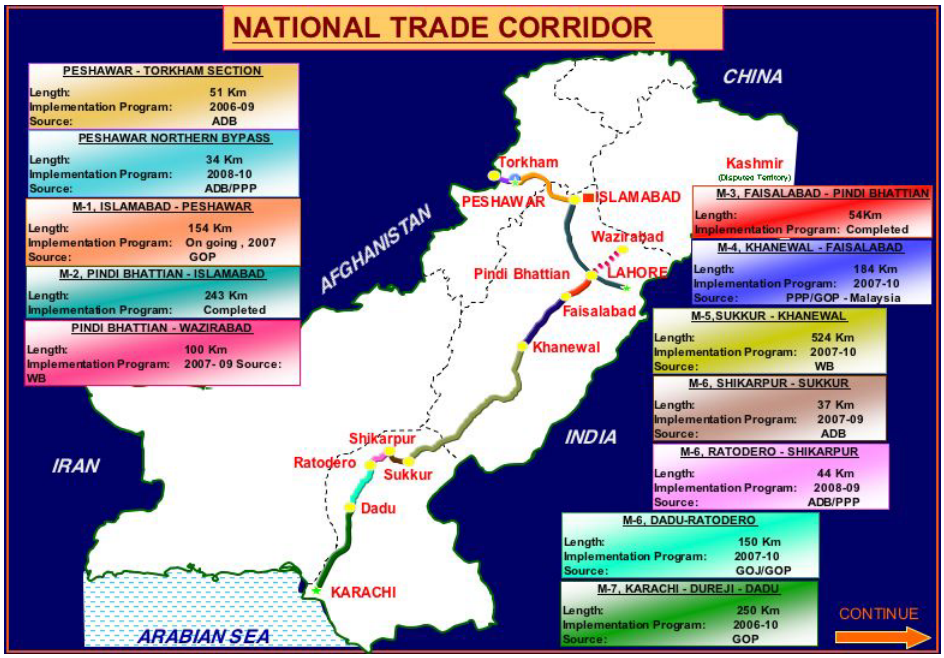
Air Transportation

Sialkot produces the light products such as footballs and surgical instruments and many of them are exported by air. Currently, Sialkot area uses the Lahore and Islamabad International Airports. In 2007, the Sialkot International Airport (SIA) will open and it will activate the export from the Sialkot Area.

Box 2-2 National Trade Corridor Program

On July 14, 2006, the World Bank Pakistan Office announced its agreement on US$ 1.8 billion National Trade Corridor Program. This is a joint finance with Asian Development Bank and JBIC for the transportation sector in order to improve exporting power. It is intended to improve the total trade volume of Pakistan in the world from 0.2% to 1.0% by 2030.
The program includes the following components.
Duty free import of large trucks for replacing obsolete 2-axle and 3-axle rigid trucks with introduction of prime movers, multi-axle and Euro standard trucks
Deepening Karachi Port and Qasim Port draft
Banking and insurance sector improvement to meet the requirement of WTO and SAFTA.
Modernization of motorways
Railway modernization by creation of freight unit and
Civil aviation modernization.
"Dawn" Article on July 17, 2006.

This enables Pakistan to provide transit facilities to Central Asia, Western China, Afghanistan and Iran.
Actual route assumes the utilization of existing highway for the section without motorway.



Source: NHA presentation

Figure Routes of NTC

Chapter 3

Industrial Sector Analysis