only one related course is 3-2, with further advanced courses with some degree of relevancy being 3-4 and 3-5 (repair).

- As for 3-5 (repairing of PC and peripherals) offered in the third year, the course should start in the first year if repair technicians are to be trained. On the other hand, there are a number of courses that are not relevant to such objective. For instance, course 1-1 has no relevancy.

11.4 Balochistan Province

11.4.1 General Overview

According to the 1998 census, Balochistan is the largest province in Pakistan with a land area of 340,000 square kilometers, and population of 6.51 million and population density of 19 persons per km^2. The following table summarizes the population composition of the province.

	All area			Urban area			Rural area		
	Both sexes	Ma.le	Female	Both sexes	Male	Female	Both sexes	Male	Female
Total	6,511	3,481	3,030	1,516	833	683	4,995	2,648	2,347

(Number in 1,000, Source : 1998 Census)

Balochistan is composed of 27 districts. There are 11,677 government schools operating in the Province. Among these, approximately 10,285 are primary schools, 772 middle schools, 550 high schools and 70 colleges. The dropout rate is very high, accounting for nearly one half at primary and middle levels. It declines at secondary and post-secondary levels, e.g., 10% at metric level and 5-6% at college level. The root cause of large number of dropouts is poverty. Other key constraints include the commuting distance from settlements to school, limited availability of space in class, and lack of basic facilities such as water, electricity and toilet. Some schools even do not have sufficient number of teachers.

Major problems peculiar to the province include the vast area with widely scattered administrative districts to prevent the establishment of schools in sufficient number and size, the lack of awareness of education of children due to the lack of leading industry, and diversity of races and tribes composing the province's population, which creates difficulty in establishing and maintaining unified educational standards.

Another major problem is a low literacy rate. Distribution of literacy rates among the population above 15 years of age, based on the 1998 census data, is as follows.

	All area (%)	Urban area (%)	Rural area (%)
Both sexes	30.7	43.9	16.1
Male	33.3	56.4	25.0
Female	11.8	28.6	6.4

(Source: 1998 Census)

As seen in the above table, the literacy rate is clearly low among the female population. The literacy rate of the rural female population is in fact the lowest among the whole of country.

11.4.2 Organization and management

Please refer to Annex v, which shows organizational structure of technical education and vocational training institutes in Balochistan.

In Balochistan, Directorate of Technical Education (DOTE), is planned to be creates, under Department of Education (DOE) is responsible for planning and programme development pertaining to the field of technical education, while Directorate of Manpower Training under Department of Labour and Manpower (DOLM) is in charge of vocational training. DOE supervises two technical education schools, namely GCT (Government College of Technology) and Government Polytechnic Institute for Women, each of which has one campus in Queatta and is constructing new campuses in Turbat (for GCT) and Gwadar (for polytechnic). On the other hand, there is only one monotechnic institute in the province.

One Government Polytechnic Institute for Women is operating under the jurisdiction of Education Department, which was established in 2002 as part of Asian Development Bank's Technical Education Programme (TEP). This particular rprogramme has already completed but similar other ADB projects are also going on in the Province.

Department of Education and Department of Labour and Manpower have formed a

steering committee for promotion of programmes relating to technical education and vocational training in the province. In practice, however, the coordination system does not work well due to lack of understanding and absence of mechanisms needed for mutual cooperation and undertaking joint initiatives. This is perhaps an area where steering committee can play a much bigger and effective role.

11.4.3 Budget

According to Pakistan Economic Survey (2004 – 2005) Balochistan Province spent 5,724.7 Rs as current account relating to education in the fiscal year 2004/2005 and 2,049.4 Rs as development account. The breakdown of budgetary expenditures in the field of education by provinces is summarized below.

Provincial Government	Current	Development	Total
Punjab	41,178.1	11,235.2	52,413.3
Sindh	17,410.8	2,221.0	19,631.8
NWFP	13,281.0	3,694.3	16,975.2
Balochistan	5,724.7	2,049.4	7,774.2
Total	77,594.6	19,199.9	96,794.5

11.4.4 Quality of education and training

As seen in education and training institutes in other provinces, quality of technical education and vocational training in Balochistan is not very high, and it is further loosing in terms of course relevance to the actual needs of industry. It was also observed that the curriculum lacks consistency; contents have limited scope for application; knowledge of methods available for curriculum development and course content is not adequate; and the machinery available for training is insufficient, outdated, and worn out.

As the province has no major industry and agriculture is its economic base, therefore, there is not much demand for industrial workers.

Meanwhile, vocational training for women is increasingly receiving attention. Women's Technical Training Center (WTTC) and Government Polytechnic Institute are responding to the increasing demand for vocational training among women and offer following curriculums that is practical and relatively has high level of quality.

WTTC : Children's clothing, sewing, operation of office automation equipment, secretary training, electronics, office administration, and training of beauticians.
GPIW : Computer operations, electronics, secretary training, office management, and sewing of fashion dresses.

Some institutes in the province have developed well-designed curriculums under the aid of various international organizations such as CIDA and ADB, but some of their courses are still unable to attract large number of students primarily because they do not meet the actual needs of the market. For instance, the electronics course offered at GPIW has only 6 students, whereas, it has a capacity for 40 students. In other words it is due to the fact there are no electronic companies operating in Quetta and its vicinities and it is very difficult for graduates of the electronics course to find jobs.

11.4.5 Current state of skills standards

As pointed out earlier, NTB's skills standards are documented as an achievable target and are not enforced, so that training institutes do not feel the need to use them as a practical guideline. As a result, no institute designs or conducts its course curriculum and teaching on the basis of NTB's standards.

11.4.6 Training of teachers

In Quetta, there are two training institutes for imparting general education to teachers. The graduates with diploma from technical college and polytechnic are generally given priority when vocational training institutes recruit new teachers. If qualified persons are not available among graduates of the institutes recruitment is done from outside the city and sometimes even from other provinces. Also, persons who do not have a diploma from the technical college or polytechnic institute may be employed on account of work experience in private enterprises.

11.4.7 Development of teaching materials

Textbooks used at GCT and WTTC are made according to NISTE's guidelines. In fact, they are prepared and distributed by NISTE. They are not owned by students but are kept in a library and issued to students for a specific duration at request. In other words, the institutes are required to use textbooks that comply with NISTE's national standards. In turn, NISTE is expected to study the changing trends and identify the areas of growing demand for certain vocations and skills and then modify course contents and curriculums on regular basis, so that the scope and application of the

training courses offered at the institutes could be kept in line with the market and industrial needs. However, it was pointed out to the study mission that NISTE does not necessarily perform its duties accordingly.

All the teaching materials used at GPIW are according to the curriculum developed by ADB. These curriculums were jointly developed by NISTE and ADB. GPIW also expressed its general satisfaction over the present curriculum and courses used at the institute.

1.4.8 Equipment and materials for training

Machinery and equipment used at GCT is generally old and some of them are nearly 50 years old. Machine tools such as lathes, boring machines, and drilling machines, which would still be serviceable if periodical maintenance and inspection was carried out, are left unattended. In fact, this problem is also common in institutes of other provinces.

Compared to GCT, WTTC is less oriented to industrial application and uses sewing machines and PCs (relatively new models), which are kept in good operating conditions. In particular, a large number of foot- or hand-operated sewing machines are used in short courses, although some of them are older than 50 years. There are only a few industrial sewing machines and the short courses on sewing seem to be designed for self employment and combination of hobby and practical benefits of housewives. PCs used for the software engineering training course are two generations old and are not equipped with most advanced microprocessors, but they seem to be suited for the present curriculum and the purpose of the course.

Equipment and materials used at GPIW are relatively new; they were put into use in April 2002. As they are not for industrial application and are carefully handled by female students, they can be used for additional ten years if periodical maintenance and inspection is carried out. However, GPIW does not allocate a budget for continuous maintenance of existing machines and equipment, which means that it may face similar problems experienced by other institutes in the future.

11.4.9 Course contents

The two institutes offer courses that are similar to those provided at similar facilities. For instance, GCT provides courses in the following six fields.

(a) Electronics
(b) Mechanical
(c) Auto-Diesel
(d) Air-conditioning and Refrigerator
(e) Mining
(f) Food Processing

Among them, the mining and food processing courses have been established under the assistance of ADB. The most popular field is electronics. As industrial development in the province is lagging behind, there are a very small number of employment opportunities in and around the city. Students of these institutes therefore opt to take the electronics course that allows them to find jobs with major employers, namely telecommunications and power and water supply companies. The next popular course is the mechanical field and graduates are often employed by the gas company. Approximately 90% of graduates work in the private sector.

Following courses are offered in WTTC.

- Children's clothing, Sewing of fashion dresses
- Training of office automation equipment and secretary training
- Electronics
- Beautician training

In addition, short courses designed for practical benefits for housewives are provided, including sewing, beauty care, and fashion design.

GPIW's courses are consisting of the following elements;

- Computer operation
- Electronics
- Secretary training
- Office management
- Sewing

Among them, the most popular courses are IT related, such as computer operation, reflecting the fact that women are more and more engaged in office work, especially banks. On the other hand, the least popular course is electronics, as explained earlier.

11.4.10 Other Factors

In Pakistan, the federal government is pursuing a decentralization policy including delegation of administrative power and authority to local governments. Many voices were heard at technical education and vocational training institutes demanding similar empowerment at provincial levels, i.e., directors and managers of many institutes wanted more delegation of power from provincial government's departments. During the present study, the study team also learnt that the issues raised by directors or managers and their opinions rarely reach to the concerned education or labour department.

Furthermore, the province in particular and Pakistan as a whole, seems to be highly "accustomed to taking foreign aids for granted," as compared to other countries.

In addition to the low literacy rate among women, the following problems relating to promotion of the province's education are pointed out.

- Gender issues: while social participation of women is increasingly demanded men still criticize and oppose it, e.g., it is not worth educating women; women should be protected at home; and companies refuse to hire women.
- Education on mathematics and English is at very low levels.
- Textbooks are of poor quality and are short of supply.
- Teachers' level of knowledge and capacity is low.
- There is an apparent gap between supply and demand. While there is limited demand for industrial skills, responsible departments and institutes have not been able to understand the market needs accurately and establish an appropriate curriculum that meets the market needs. There is also a lack of formal or systematic collaboration with the private sector.

11.5 Punjab Province

11.5.1 General overview

Punjab is the second largest province next to Balochistan, with a land area of approximately 205,000 square kilometers. According to Pakistan Economic Survey 2004-05, it had population of around 8.5 million in FY2004, accounting for 56% of the country's total population. The composition of population of the province is compared

with that of other provinces on the basis of the 1998 census data, as shown below.

	Whole area			Urban area			Rural area		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Total	72,585	37,509	35,076	22,700	11,889	10,811	49,885	25,620	24,265

(Number in 1,000., Source : 1998 Census)

According to the above survey, the literacy rates of people over 15 years old as of 1998, by district, are presented below. (Note that figures denote percentage.)

	Total	Urban	Rural
Both Sexes	43.8	62.4	34.9
Male	55.6	70.2	48.3
Female	31.2	53.5	20.9

As seen in the above table, the literacy rate in urban areas is much higher than that is in rural areas. In particular, the literacy rate among women living in rural areas is less than one half of those living in urban areas.

11.5.2 Organization and Management

Problems which are identified relating to technical education and vocational training in Punjab Province are listed as follows.

- Curriculum is outdated and not in line with industry needs.
- Obsolete courses and curriculums.
- Low capacity of teachers.
- Lack of coordination among organization dealing with the education.
- Old and obsolete equipment are installed in the institutions.
- Poor quality of graduates unable to meet the requirement of the industry.

To respond to this situation Punjab government established TEVTA in 1999. Please refer to Annex vi, to view the organizational chart of TEVTA Punjab.

TEVTA is managed by board members and is organized to cover the entire province that is divided into three areas, called "zone operations." Each zone is under control of a zone manager and consists of seven districts. This means, the province is divided into a total of 21 districts. Each district has a district manager, under which the Board of Management is organized to give advice to the district manager. Under the Board of Management, the Institute of Management Committee (IMC) is organized and functions as an advisory body for the board.

Technical education and vocational training institutes under the jurisdiction of TEVTA are operated throughout the province. Annex vi also presents types of educational institutes supervised by TEVTA and the number of schools.

11.5.3 Budget

According to Punjab Statistics Book published in 2004, the province's education-related expenditures totaled Rs 8,230 million in the fiscal year 2004/2005 and Rs 8,900 million in fiscal year 2005/2006, an 8.1% increase. They represent 18.2% and 16% of the province's total expenditures in the respective years.

11.5.4 Quality of education and training

The province's technical education and vocational training faces similar problems observed in other provinces, e.g., relatively low levels of education and training in terms of contents; most course curriculums do not meet the market needs; the lack of unification in curriculum organization; lack of knowledge regarding the tools and methods through which course contents can be modified and made responsive to the changing market and industry needs. Also, as seen in other provinces, there is shortage of textbooks and the machinery/equipment used for training is insufficient, and outdated.

As Punjab has large cities including Lahore, there are a great number of employment opportunities for women, such as office work and sewing. It is therefore said that courses that teach practical skills of relatively high levels, such as children clothes, garment sewing, PC operation, and secretary, need to be developed and offered.

11.5. 5 Current state of skills standards and major issues

In 1971, Punjab Board of Technical Education (PBTE) was founded as an organization to conduct examinations for students of educational institutions that are below degree levels, such as technical education and vocational training institutes. PBTE's major functions are summarized below.

- Administration of student examinations of the above institutes
- Direction and advice on design and development of courses and curriculums.
- Accreditation, certification and revocation of training institutes.
- Issue of certificates and diploma
- Planning and organization educational activities outside the school
- Creation of scholarships and subsidies

Compared to other provinces, skills standards in the province are relatively well developed in terms of standardization of the examination system, examination content refinement, and prevention of cheating and other wrongdoings. Nevertheless, as the actual course curriculums have some basic flaws such as they do not meet the market needs and the PBTE's examination system and its contents are based on the present curriculums adopted by technical education and vocational training institutes. Thus PBTE's efforts alone will not address the present scenario rather a more coordinated approach and efforts are needed..

11.5.6 Training of teachers

The province has Staff Training Institute (STI) that trains teachers and provides additional education to teachers. It was established in the 1970s under the assistance of GTZ (Germany), which provided facilities and equipment. Required qualification for admission in the institute is a technical certificate or diploma plus teaching experience of four or more years.

STI offers short-term and long-term courses. The long-term courses are generally referred to as the "Master Craftsman Curriculum" and are primarily designed for persons who intend to become teachers. The courses are divided into two categories, i.e., electricity/electronics and mechatronics. Each course generally lasts one year, with teaching hours totaling 818 for electricity/electronics and 888 for mechatronics. The tuition is Rs 50 per month, excluding seasonal holidays for which no tuition is charged.

On the other hand, the short-term courses are around 40; and mostly one to two weeks duration while some courses are taught up to three weeks. Most of them are designed for education and training of in service teachers.
One of the three-week courses teaches AutoCad, reflecting the fact that the learning of computer-based design techniques using the CAD system requires a relatively long period of time. The tuition is 1,000RP for the one-week course, 2,000RP for the two-week course, and 3,000RP for the three-week course.

STI's equipment and other training material have worn out due to aging and have not been replaced or upgraded since the facility's opening in the 1970s. Course contents have not been revised or updated, resulting in out-of-date teaching and old knowledge. STI's teachers continue to teach what they learned in Germany three decades ago. To cap it all, STI is lagging behind in terms of quality of education and responding effectively to the market needs.

11.5.7 Development of teaching materials

Teachings materials used by technical education and vocational training institutes in the province are mostly developed by NISTE. Again, they contain obsolete knowledge and/or are not in accordance with the market needs, as has been seen in other provinces also.

11.5.8 Equipment and materials for training

As in the case of other provinces, equipment and materials for training used by the province's training institutes are generally old and have passed 30 – 50 years after initial installation.

Furthermore, many machine tools used at training institutes for men, such as lathes, boring machines, and drill milling machines, are not well maintained and over 70% of them are not unserviceable at some institutes. On the other hand, equipment and tools used at training institutes for women are not heavy duty, e.g., sewing machines, drills, and screwdrivers, and can still be used.

11.5.9 Course contents

For the purpose of the study, a six-month computer application course was reviewed and analyzed. The course has been developed by TEVTA Punjab and is being used by a number of institutes in the province.

The primary objective of the course is defined below. Professions suitable for graduates upon completion of the course include computer operators, data input personnel, and composers (using a special software programme).

- Learn basic function of computer.
- Learn components consisting of computers.
- Learn operations of operating system.
- To be able to encode more than 40 words per minute.
- To be able to process the word using word processor both in English and Urdu.
- To be able to use spreadsheet software.
- To be able to handle presentation software.
- To be able to send e-mail.

Following courses are required to acquire the above stated competencies. (Numbers in the bracket denote required course hours.)

- Introduction to Computers (10)
- Disk Operating System (10)
- Microsoft Windows (15)
- Typing Lesson (50)
- Microsoft Word (110)
- Urdu Word Processing (35)
- Spread Sheet MS Excel (60)
- MS Power Point as Presentation Software (40)
- Internet & Electronic Mail

Some problems relating to the course's design and organization are summarized as follows.

- "Introduction to Computer" taught for 10 hours does not seem to be necessary or worthwhile. In particular, the lectures on the method for conversion to binary code as well as laboratory work are not relevant to the course's objective. This element can be covered in one hour.
- Similarly, "Disk Operating System (DOS)" takes 10 hours but DOS no longer fits the concept of system software and it is not necessary to learn DOS

commands unless students need to learn programme development using an assembler language. This can therefore be covered in one hour or one can do without it.

- "Typing Lesson (50)," "Microsoft Word (110)" and "Urdu Word Processing (35)" should be taught as an integrated course. As the course is designed to train data input personnel as its primary purpose, it does not need to contain elements relating to the training of programmers. The course should therefore be redesigned to focus on the basic objective.
- On the other hand, "Spreadsheet: MS Excel (60)" seems to require some more time. Teaching advanced skills to use functional commands and macro generation, in addition to basic key operations, are expected to meet the future market needs in the country.
- As shown in the above examples, most courses are not consistent with the course objectives and emerging market trends. These problems are not unique to Punjab, but it requires much attention for institutes in Lahore and other large cities where there is increasing demand for female workers relating to office and other works.

11.6 NWFP Province

11.6.1 General Overview

The following table shows a population structure of NWFP based on the 1998 Census.

	All area			Urban area			Rural area		
	Both sexed	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Total	17,555	8,963	8,592	2,973	1,573	1,400	14,582	7,390	7,192

(Number in 1,000.Source : 1998 Census)

According to the Bureau of Statistics data published in 2004, the administrative structure of NWFP is summarized as follows.

Total area	Numb er of District	Number of Sub-division	Tehsil*[1]	Village/Mouza*[2]
74,521Km^2	24	43	47	7,335

(Source NWFP and FATA at a glance, Bureau of Statistics, P & D Department)

According to the same source indicated above, the dropouts at the primary school level will reach up to 46 %, and the literacy rate in the province is shown in the following table. (All numbers in %)

	Male/female(entire province)	Urban area	Rural area
Average	39.3	56.6	35.9
Male	58.4	70.4	55.9
Female	19.9	41.3	16.9

(Source NWFP and FATA at a glance, Bureau of Statistics, P & D Department)

11.6.2 Organization and Management

According to the report of "Restructuring of Technical Education and Vocational Training System、ADB TA No. 4048-PAK" published by the Asian Development Bank in June 2003, TEVTA was scheduled to be formed in September 2002. However, this plan has been postponed due to the reformation and change of organization in the ministries and others, actual formation is re-scheduled in June 2006.

Please refer to Annex vii, which illustrates an organizational structure of TEVT related administrative units in the NWFP Provincial government.

Department of Industries, Commerce, Labor, Mineral Development and Technical Education stands under management of the Provincial government, and Board of Technical Education (BTE) is positioned as a subsidiary organization. BTE was established as an autonomous agency under the NWFP Board of Technical Education Act in 1972. Functions of BTE include the management and guidance of TEVT related institutions, the development of course curriculums, and development and administration of examinations for students of the institutes.

Members of BTE consist of a chairman, a vice chairman, directors and principals of TEVT institutes, directors of higher education including university presidents, and representatives of various companies. Please also refer to Annex viii, which shows a general organization of BTE. BTE consists of following advisory committees.

- Academic Committee
- Finance Committee
- Appointment Committee
- Committee for Appointment of Papers setters and Head Examiners
- Committee of Courses

- Discipline Committee

Centers Management Committee (CMC) is formed in each TEBT institute. Each CMC consists of a chairman, a secretary, and other officers and members. The number of members varies depending on the size of each institute, normally between 4 and 10.

Major functions of CMC are summarized as follows.

- Seek and provide employment opportunities for graduates, and to grasp the needs for human resources in terms of level and quality.
- Making education and training plans for the institute and compile and request an operating budget.
- Assess the needs for educational facilities and equipment, and monitor their operating status and conditions.
- Assess the needs for human resources.
- Negotiate with individual companies for the arrangement of students' OJT programmes.
- Monitor the education and training budget
- Manage expenditures in relation to the education and training budget.

11.6.3 Budget

According to the Bureau of Statistics, budget for literacy improvement and education for primary and secondary education and higher education during the 2003 - 2004 year are Rs 2,113 million and Rs 511 million respectively. They represent 14.4 % and 3.5 %, respectively, of total budget expenditures in the province. As an example of annual budget expenditures spent in each TEVT institute, the following case in Technical & Vocational Center (Boys) Peshawar is summarized below.

	Item	Amount (PRs)	Ratio (%)
1.	Salary	16,732,000	91
2.	Repair of machine and Equipment	44,500	0.05
3.	Transportation*	117,300	0.6
4.	Communication	33,728	0.2
5.	Utilities	1,060,000	5.8
6.	Teaching material	260,000	1.4
	Total	18,400,000	100

*Mainly transportation fee for school management and school buses for the students.

As shown in the above table, salaries of teachers and staff members of the institute account for most of the disbursement. On the other hand, only less than 1 % of the budget spent for repairing and maintenance of machines and equipment. According to the interview survey with the institute's personnel by the study team, the subsidy coming from the provincial government for each student is only Rs 30 per course per month. This is only half of the actual spending per student.

11.6.4 Quality of Education and Training

The same problems as seen in other three provinces are pointed out for NWFP Province. These include poorly prepared education curriculums, quality improvement of teachers, course content that does not meet the industrial needs, and obsolete and poor maintenance of facilities and equipment due to budget constraint. Graduates from TEVT institute prefer to find their jobs in either other provinces or overseas due to the less advanced nature of the local industry as compared to other provinces. Also, graduates are looking for employment opportunities in the neighboring country, Afghanistan, where reconstruction is underway. Again quality of teachers is considered to be a major factor.

11.6.5 Present State of Skill Standards

The Board of Technical Education (BTE) is conducting examination under the guidance of the Ministry of Education of the federal government. BTE functions as a main body for designing and administration of examinations, at the same time it provides guidance for course curriculums and give advice on operation and management of educational institutions. In other provinces, normally examinations are administered by the Board of Technical Education under Department of Education, and by Trade Testing Board under Department of Labour. In Sindh Province, examinations are administered by both Board of Technical Education and Trade Testing Board since these two departments have not been merged. In NWFP, examinations are also administered by Board of Technical Education. Up to 1972, examinations were undertaken by Trade Testing Board, the responsibility was then transferred to BTE on the occasion of the establishment of the current TEVT system.

Specific programmes adopted by BTE at present include the introduction of the mark sheet method, and concurrent administration at all institutes.

At present, efforts are underway to develop methodology to ensure smooth examination and its implementation process. Also, the outsourcing of printing of answer papers and administration of tests to outside organization is being in progress to prevent any cheating during examination.

Although introduction of a computer system to conduct examinations in an efficient manner is being considered, it faces various constraints including budgetary provisions.

11.6.6 Training of teachers

In NWFP, there is Technical Teacher Training College, whose graduates can become teachers without passing a certification examination or teaching experience, so far as they obtain a certificate. On the other hand, follow-up training of teachers is conducted at the Staff Training Institute, as done in other provinces. However, these institutes have many problems in terms of quality and level of training partly due to the shortage of training equipment and materials and partly due to course contents that is also of obsolete nature.

It is a rare practice to send teachers to NISTE on refresher training courses. The hindering factors are geographical distance between NWFP and Islamabad, lack of acceptance for NISTE's curriculum and payment of course fee.

11.6.7 Development of teaching materials

Teaching materials are either developed by each institute or donated by international organizations. Textbooks developed and edited by NISTE are available but institutes do not necessarily use them.

11.6.8 Machinery and equipment for training

As seen in other provinces, machinery and equipment used at the institutes is fairly old, and many lathes and boring machines were installed over 50 years ago are still in use. Also, the condition of buildings is also not very good as they are very old; some of them were constructed as old as in 1930s.

There are also several instances in which machinery was found well maintained. For instance, Technical and Vocational Center, which was visited during the survey period, was the oldest vocational training institute in NWFP Province. It used machine tools that were provided by GTZ nearly 50 years ago, which were well maintained and could be used for a while. This means that the institute performed careful maintenance and replaced parts by purchasing second-hand products or making them at their own shop.

11.6.9 Course Content

In addition to the major courses and curriculums discussed above, key features of courses conducted by the training institutes that were visited by the study team during the field survey are summarized below.

Technical Training Center Peshawar: This was inaugurated in 2003 under financial assistance of the Chinese government, totaling Rs 130 million. Its activities started in 1998 and 30 staff members have been sent to China on special training. The building construction cost and the purchase of machinery and equipment were all borne by the Chinese government, while the NWFP provincial government provided land. Major courses include welding, plumbing, air-conditioning/refrigeration, and computer. In fact, the center is only one institute in the country that has NTB's G-1 level curriculum. Note that operation manuals and reference materials for machine tools provided by the Chinese government are written in Chinese and cannot be used by students. Students have to learn operation from teachers who have received training in China. The center has a dormitory accommodating 200 persons for students who come from remote areas.

Technical and Vocational Training Center for Boys, Peshawar : Established in 1942. Facilities and equipment are re-furnished under the assistance of GTZ in 1980s. The following courses are offered.

a. Electric*
b. Refrigeration and Air Conditioning*
c. Radio / TV Mechanic*
d. Draughtsman for Civil and Mechanic
e. Machinist*
f. Auto mechanic*
g. Welding
h. Plumber*
i. Carpenter

j. Tailoring

*Also afternoon classes are available. Night courses and women's courses are also available and 200 enrollment at present.

Government Woman Technical & Vocational Training Center: The center is one of GTVCs and has acquired machinery and equipment under CIDA's assistance. Major courses include secretarial, beautician, architectural drafting, dress design, and computer, taking around one year. In addition, short-term courses are offered for computer graphics (mainly AutoCad) and operation (use of Office software). Many students come from low-income class and 90% do not have experience in operating a computer or typing. 80% are very poor in English language skills. Upon completion of the one-year course, around 80% of graduates find office jobs in the companies within the city. The most popular course is secretary training, which teaches reception, telephone conversation, and appointment, preparation of documents for meetings, filing, word processing, and computer operation including e-mail management.

11.6.10 Other Factors

As of March 2006, it was learnt that NAVTEC would be organized, but no information on the appointment of the regional director in charge of NWFP was provided.

12. Roles of the Private and Public Sectors in Technical Education and Vocational Training, and Key Issues

12.1 Roles and Issues

Technical education and vocation training conducted by the private sector is roughly divided into two types, i.e., the one that is conducted by a single company, and the other that is arranged and carried out through the chamber of commerce and other organizations. The former type includes education and training for new employees and a follow-up OJT programme. Some Japanese companies, such as automakers, make their internal training courses available to non-employees, but usually limited to group companies. In the latter case, while the chamber of commerce does not provide direct assistance, such as funds or resources, some organizations establish special courses or send instructors to Center Management Committee (CMC) in Sindh and Punjab, and the Institute Management Committee (IMC) in NWFP.

12.2 Possible Areas of Cooperation between Public and Private Sectors- Future

At present, there are a fairly limited number of opportunities for public organizations, such as a provincial government or a public technical education or vocational training institute to have direct contact with the private sector. As mentioned earlier, they only work together in organizing special training courses or sending instructors, and there is no official arrangement or system for mutual cooperation. If such cooperation is to be pursued, it may be manifested in the following areas and activities.

- Information exchange between the two sectors, especially provision of information by the private sector to public organizations in terms of the industry trends, labor market needs, and priority areas for education and training.
- Proposal and recommendation by the private sector for policies and programmes in the area of technical education and vocational training.
- Development and modification of course curriculums to meet the actual needs of industry.
- Clear definition of skills standards, particularly reconfirmation of skill levels for t48 job types and the establishment of the evaluation system.
- Establishment of a special fund by the private sector to provide financial assistance for technical standard and vocational training institutes.

13. Roles of Relevant Ministries and Agencies in Technical Education and Vocational Training, and Key Challanges

This section discusses the functions and roles of ministries, agencies and other government organizations in the area of technical education and vocational training. Annex ix shows the structure of organizations relating to technical education and vocational training at federal level.

Technical education and vocational training at federal level is led by three ministries, namely the Ministry of Education; the Ministry of Industries, Production, and Special Initiatives; and the Ministry of Labour, Manpower & Overseas Pakistanis. This chapter discusses key roles and functions of each ministry in formulation and implementation of policies and programmes relating to technical education and vocational training.

13.1 Ministry of Education

The Ministry of Education is responsible for planning and development of a national education system at the federal government level, and formulation and implementation of policies and programmes, including course curriculums for basic education. Also, the ministry assumes a key role in development and implementation of technical education-related plans. Furthermore, it accredits Diploma of Associate Engineer (DAE). (The diploma is actually issued by Examination Board of each Province.)

13.1.1 National Institute of Science and Technical Education (NISTE)

NISTE was established in 1997 with the primary purpose of retraining teachers and promoting science and technology. It is also responsible for government policy formulation in the area of education. At the same time, it functions as the principal coordinating body for technical education activities in collaboration with related organizations, in and outside the country, as well as cooperation with industries.

According to the NISTE, as for retraining of teachers, 280 courses are currently in place. Currently, NISTE implements a programme to provide retraining for around 1,000 teachers from July each year through June the following year. The programme was previously advised by three Japanese senior volunteers. Now one advisor is assigned to Mechanical Engineering Department.

Key challenges that NISTE is facing are summarized as follows.

- The operating budget is not enough to meet requirements. NISTE is requesting a total budget of Rs 2.5 million for new equipment and facility addition, but it is not certain as to whether the request will be approved.
- For retraining of teachers, there is the shortage of places to provide trainer's training and supplemental measures such as provision of information (e.g., publications and literature) and training at private companies are taken. Also, there is shortage of teachers who may be eligible for receiving training. (At present, 25 courses have vacancies.)
- As for promotion of science and technology fields, for example, CAD/CAM and Planar Lightwave Circuit (PLC) the operating budget and equipment are far below required levels, or machinery is very old.
- NISTE identifies multimedia and e-learning as fields that it will emphasize in future, it is difficult to secure a budget to purchase required equipment.

13.2 Ministry of Industries, Production, and Special Initiatives

The ministry is in charge of development and formulation of industrial policies and industrial development plans at federal level. Technical education and vocational training is handled by the Engineering Development Board (EDB) that was established with the primary mission to reinforce the engineering sector and promote marketing efforts. To achieve the goal, EDB is engaged in various activities, including cooperation with the private sector in the areas of technical exchange and marketing, information exchange on latest technology with universities and research organizations, and information exchange with exporters and importers. EDB has the following organizations that are engaged in human resource development through technical education and vocational training.

13.2.1 Technology Upgrading and Skill Development Company (TUSDEC)

TUSDEC was established in 2004 to upgrade technological capabilities of the industrial sector and its major activities include transfer of advanced technology, acquisition of technology information, the training of skilled workers. It has Skill Development Center (SDC) and conducts a variety of activities including Research & Development projects relating to leading-edge technology, operation and management of Technology Upgrading Center, licensing negotiations with donors, and loan service for licensing.

13.2.2 Automotive Testing & Training Center Ltd. (AT & TC)

This is an organization providing services relating to quality control and standardization and performing testing service. Especially, it performs tests for automotive parts manufacturers and provides consultation service. It also holds seminars, workshops and training courses for engineers and skilled workers.

13.3 Ministry of Labour, Manpower & Overseas Pakistanis

This is a federal ministry that handles formulation and implementation of labor policies and programmes, including promotion of domestic employment, management of working environment, and research and analysis of labor needs in foreign countries. In the area of technical education and vocation training, the ministry supervises post-matric vocational training institutes, as done by the Ministry of Education in the same field.

In particular, the ministry conducts a variety of activities relating to technical education and vocational training through the following organizations under its supervision.

13.3.1 National Training Bureau

Established in 1980, the National Training Bureau is responsible for development of skills standards and periodical review and updating, the issuing of skill certifications based on applicable standards, development of methodology for examination of professional skills, development of training curriculums and teaching materials, the planning and implementation of evaluation skills training workshops, and the retraining of teachers. The skills standards are currently established for 48 job types and are enforced. The bureau intends to reinforce courses in the fields of construction, heavy industry, textile, electrical/electronics equipment and other manufacturing, and service.

13.3.2 National Training Staff Institute

The institute was established for the purpose of conducting the retraining of teachers who work at Technical Training Center that is operated in each province. Using its own course curriculum and teaching materials, the institute provides training relating to teaching methods and techniques to rate motivation of students. Also, it conducts a training programme for the training centers' directors, while serving to promote cooperation with private enterprises.

13.3.3 National Training Bureau for Women

This is an organization responsible for development of vocational training plans for women and policy formulation. It also conducts training and retraining of teachers and instructors of Technical Training Center for Women established in each province.

14. Current State of Technical Education and Vocational Training from the Gender Viewpoint

14.1 General Overview

In Pakistan, technical education and vocational training for women has been actively conducted since 1980s. Its scope goes beyond manual work that has traditionally been women's job, such as handcrafting, and covers a variety of areas. In particular, many vocational training courses deal with professional skills in many aspects partly because they are designed to help increase household income. Also, some technical education institutes offer short-term courses that give consideration to housewives by setting a flexible schedule that takes into account the time required for housework and child care, and one-year courses to allow the learning of skills required for actual employment.

14.2 Course Curriculum

Many courses are designed to take into account women's general aptitude and social needs, such as information technology, sewing, secretary, drafting, welding, and assembly of parts. The sewing course is very popular because the skill helps find employment or a contract job. In urban areas, the secretary course (mainly teaching the use of business software programmes, including word-processing and simple bookkeeping) is one of the most popular courses and most graduates have found jobs. The beautician course is also popular not only because there are many opportunities for employment or independent work, but also because the skill is considered to be handy or valuable by young women and housewives.

Today, there `is strong need for female workers, especially in the textile and garment industry. In the present labor market, however, it is difficult to hire female workers who are often required to handle housework and/or children at house. Yet the scope for increased involvement for female worker is growing making it feasible for the technical and vocational training institute to imitate new courses for female workers in line with the industry requirements.

14.3 Efforts needed address the Industrial Needs

While technical education and vocational training for women is advocated nationwide, there are still some obstacles to women's participation to work, e.g., low literacy rates of women in some provinces, which remain within the range between 6% and 12%,

and/or continued presence of companies that are still reluctant to hire women. And steady efforts are being made to remove such obstacles. For instance, the first vocational training institute for women in Balochistan was inaugurated in 1990, for the first time in previous 35 years. It continues to be operated as the Woman Technical Training Center. WTTC, GPIW and other training institutes are expected to meet growing public demand for social participation by women in the province.

15 . Proposals for overall development of Technical Education and Vocational Training in Pakistan

15.1 Background

In order to promote overall development of TEVT sector in Pakistan following factors should be taken into account.

15.1.1 Teaching materials

Problems relating to teaching material used in Pakistan are summarized as follows.

- Out-of-date textbooks that do not meet the contemporary needs of industry.
- Obsolete machinery and equipment that does not meet the growing needs of the industry.
- Number of courses sponsored by industry (such as CMC courses) is limited,
- Courses are neither designed nor conducted according to skills standards established by the Ministry of Labour
- The contents of skill standards are found to be obsolete in nature and insufficient in contents resulting in low quality of education and inadequate development of skills and eventually that of the industry

15.1.2 Government

The government sector includes federal government offices and organizations - the Ministry of Education, the Ministry of Industries, Production, and Special Initiatives, the Ministry of Labour, Manpower & Overseas Pakistanis, and organizations under the ministries, such as NAVTEC, NISTE and SDC, and provincial government offices and organizations including TEVTA, Department of Education, Department of Labour, and their affiliates – Directorate of Technical Education, Directorate of Manpower and Training, and Testing Board. Activities conducted by the government sector are the establishment of school clusters in the area, construction and maintenance of classrooms, and provision of adequate transport facilities for students.

Problems to be addressed in the government sector are summarized as follows.

- There is no unification or agreement on policy direction and the implementation method at federal, provincial and local levels, namely between related ministries or between provinces or between municipalities.

- Operating costs of education and training institutes are largely borne by provincial governments, while the federal government provides little financial assistance in the form of subsidy or by other means.
- Provincial budgets are insufficient for covering operating costs required for content and levels of technical education and vocational training that are set forth in government policy.
- Management of individual institutes is fairly limited in power and authority relating to their operation and management.

15.1.3 Teachers

The term "teachers" herein used refers to full-time and part-time teachers who teach at technical education and vocational training institutes, and other instructors and visiting lecturers. Problems relating to teachers are summarized below.

- Quality of teachers is generally low. Few have passed a certification examination and most of them are employed on the basis of a certificate or a diploma issued by teachers' colleges or similar institutes.
- Their salaries are very low so is the motivation to teach
- Teaching in Pakistan is generally viewed as a less prestigious profession having low social status.

15.1.4 Students

The term "students" refers to those who study at technical education and vocational training institutes, including all types of courses – they may be called standard, short-term, morning or afternoon courses – that are offered by each institute. Subcomponents for this category include levels of students' knowledge and capacity, motivation for study, and health. As mentioned earlier, because no questionnaires were administered to learn about students' opinions and views in this study, it is difficult to discuss about this factor here. However, it requires further examination and shall not be overlooked as an important part of the whole process of TEVT development.

15.1.5 Family

Family means families and relatives supporting students who study at technical education and vocational training institutes. It can further be linked and studied in relation to the level of household income and the level of keenness to acquire education.

Again, no questionnaire was administered to collect opinions of families in this study, nevertheless, this factor also should be taken into account while promoting the overall development of TEVT in Pakistan. .

15.2 Pakistan's Current Policy on TEVT development

15.2.1 Target Group

According to Planning Commission Report of Working Group on Basic and College Education for MTDF 2005-2010, target group for TVET is "dropouts who complete 8th grade or more". As part of the scenario for improvement of technical education and vocational training, dropouts from school are selected as the target group.

15.2.2 Skill Level

The skill level to be achieved by the target group is set at skill levels that are generally acceptable to industry.

15.2.3 Attainable Goals

The final goal is set to promote "vitalization of overall economic activities" and "reduce the number of people in poverty" by enabling people in the target group to acquire skills that make them qualified for working in the various industries ranging from agriculture, manufacturing to service sector.

15.3 Some reflections on the Policy from implementation perspective

15.3.1 Description of objectives and concepts of technical education, vocational training, and dropout reduction measures

Technical education, vocational training, and dropout reduction measures should be redefined in terms of objective and concept.

15.3.2 Formulation of industrial development policy

The government intends to formulate the "Action Plan for National Industrial Technology Development." The formulation process will require review and selection of priority industries and coordination with employment and HR development policies. At the same time, target groups for technical education and vocational training, and industry and job types suitable for graduates of training institutes need to be defined.

15.3.3 Elaboration of the vision to train one million skilled workers

The vision to train one million skilled workers by year 2010 should be operationalized by defining job types and their percentage distribution, potential trainees, training methodology and facilities.

15.3.4 Labor market information system

The operating and usage modalities of the labor market information system from within the government and private sectors should be worked out in order to keep the labour market information system consistent with the information needs of the primary, secondary and tertiary stakeholders.

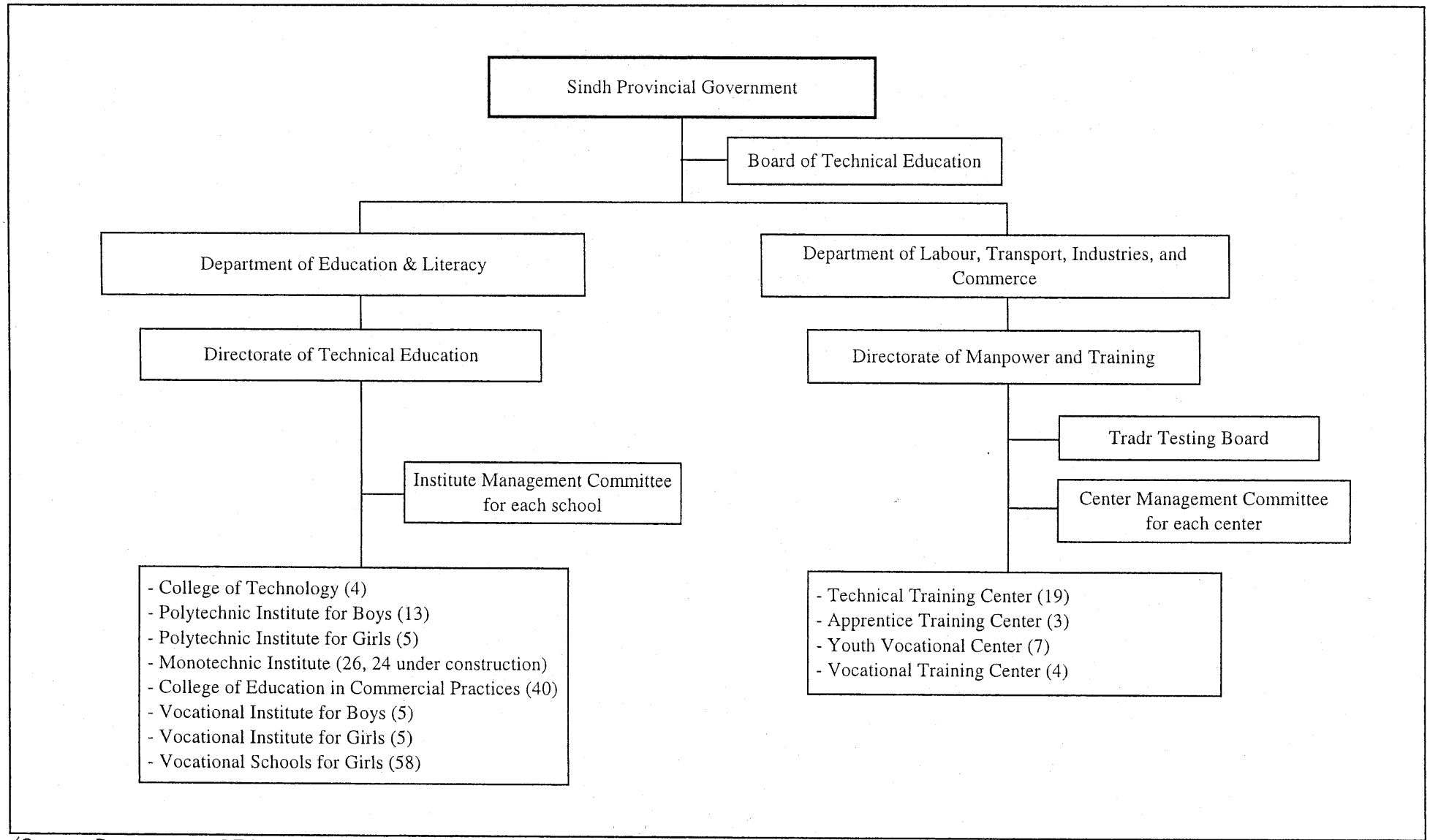
15.3.5 Role envisaged for NAVTEC in the TEVT development

NAVTEC can act as a facilitator, a catalyst for change and development of TEVT sector in Pakistan. It can also support provincial governments and related organizations in respect of the following.

- Formulation of policy
- Extending technical support for formulation &/or refinement of proposals aiming at the development of TEVT in Pakistan
- Provide both technical and financial support
- Monitoring of the actual progress.

Annexes

Structure of TEVT related Organization (Sindh)



(Source: Department of Education & Literacy, arranged by the Study Team)

Course Curriculums and Degrees/Certificates/Diploma Offered in the Institutions

Course/curriculums	Diploma/certificate offered	Number of institutions
Civil, Electrical, Mechanical, Chemical, Electronics Auto & Diesel, Computer, Auto & Farm, Refrigerator & air conditioner Architecture, Telecommunication Food, Dress, Design making, Fine Arts	Post Metric three years, Diploma of Associate Engineer (DAE)	38
Accountings, Short Hand, Secretary and office work	Post Metric two years, Diploma in Commerce (D.com)	77
Accountings, Marketings	Post Metric two years, Diploma in Business Administration (DBA)	17
Electrician, Machinist, Radio & TV, Refrigerator Air conditioner, Civil draftsman, Wood work, Mechanical draftsman, Welding, Auto mechanics	One and two year G-III and G-II level certificates	12
Electrician, electrical supervisor, Welding, Refrigerator Air conditioner, Radio & TV, Auto mechanic, plumbing, Pipe fitting, Motor driving, Armature winding, Turner, Surveyor, Tailoring	One year and 6 months short term certificate	16
Tailoring, Knitting, Embroidery	Post Metric two years	14
Tailoring, Knitting, Embroidery	Post middle two years woman vocational courses	46
Tailoring, Knitting, Embroidery	9 months women vocational course for illiterate women	46
Computer software	One year diploma in information technology	113
SSC program with a trade specialty	Two year Technical School Certificate (TSC) program	113

(Source: Directorate of Technical Education and Manpower Training, Sindh)

Number of Enrollments and Ratio of Graduates

Course/curriculums	Number of students examined annually	Ratio (%)
Post Metric three years Diploma of Associate Engineer (DAE)	19,500	38
Post Metric two years Diploma in Commerce (D.com)	12,500	49
Post Metric two years Diploma in Business Administration (DBA)	1,000	52
One and two year G-III and G-II level certificates	200	88
One year and 6 months short term certificate	850	76
*Post Metric two years woman vocational courses 9 months women vocational course for illiterate women *One year diploma in information technology	600	84
One year Diploma in Information Technology (DIT)	5,000	34
Two year Technical School Certificate program (TSC)	150	42

(Source: Directorate of Technical Education and Manpower Training, Sindh)

1. Electrical/Electronics
2. Radio & T.V. Mechanic
3. Instrument Mechanic
4. Industrial Electronics
5. Armature Winder

Mechanical

6. Machinist
7. Turner
8. Bench Fitter
9. Welding (Arc, Gas)
10. Sheet Metal Worker
11. Draughtsman (Mechanical)

Atuomotive

12. Motor Vehicle Mechanic (Light)
13. Motor Vehicle Mechanic (Heavy)
14. Tractor Mechanic
15. Auto Electrician
16. Auto Body Denter
17. Auto Body Spray Painter

Civil/Construction

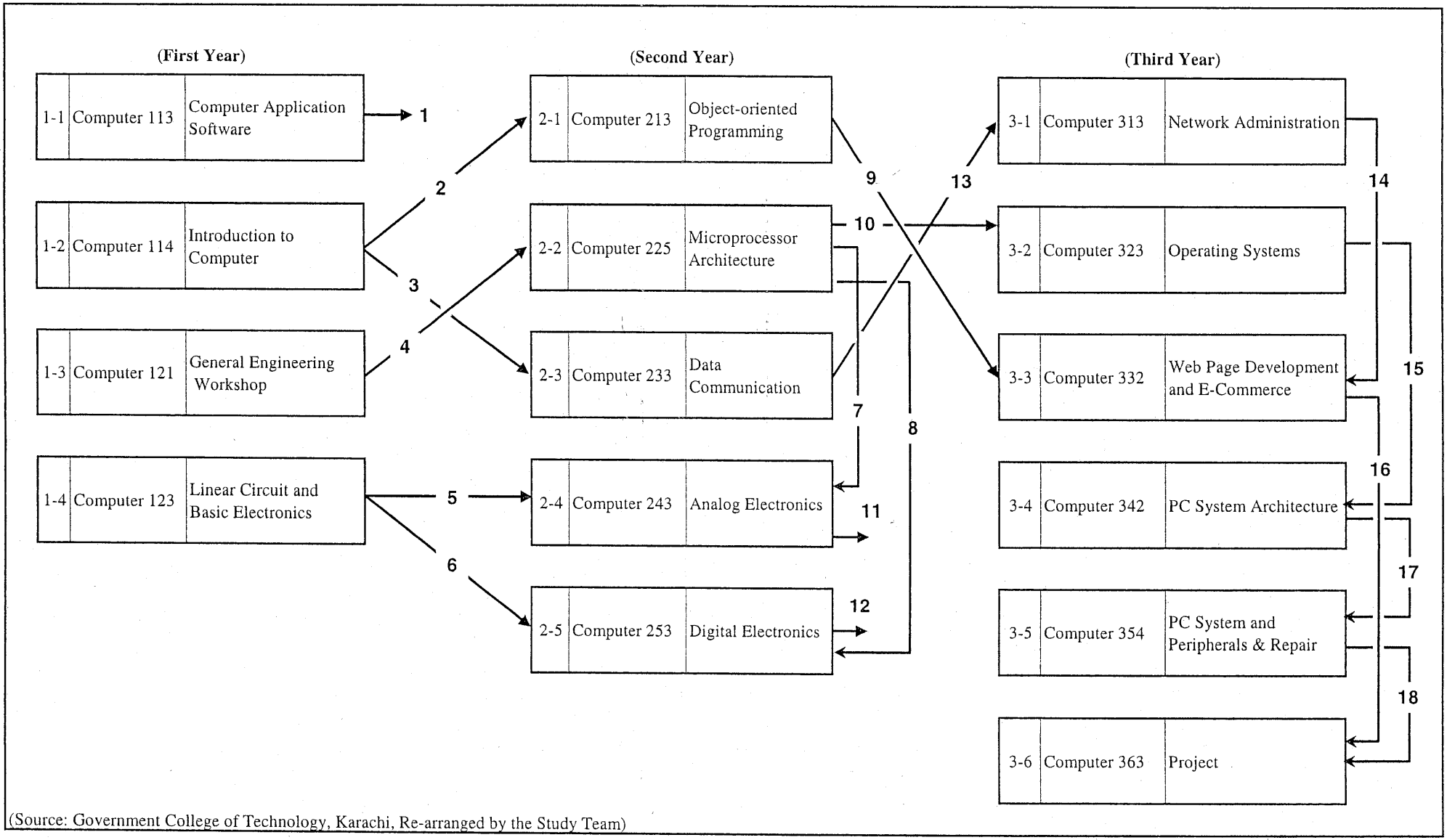
18. Steel Fixer
19. Carpenter
20. Wood Technology / Cabine Making
21. Draughtsman Civil
22. Pumber / Sanitary Installer
23. Shuttering (Mono level)
24. Brick Layer / Mason
25. Surveyor
26. Construction Machinery Operator
27. Construction Machinery Mechanic (Chassis)
28. Construction Machinery Mechanic (Engine)
29. Building Painter
30. Architectural Draugtman

Miscellaneous

31. Rac Mechanic
32. Textile Fitter (Spinning)
33. Surgical Equipment Mechanic
34. Leather Work (Sport Goods)
35. Tailoring
36. Housing Appliance Repairer
37. Computer System Operator
38. Secretarial Occupation
39. Hospital Technician
40. Dress Designing and Making
41. Beauty Culture and Hair Dressing
42. Communication Skills
43. Banking and Finance
44. Fold Preservation
45. Commercial Cooking
46. Carpenter (Sports goods)
47. Broad based Training (Multi skills)
48. Cutler Manufacturing

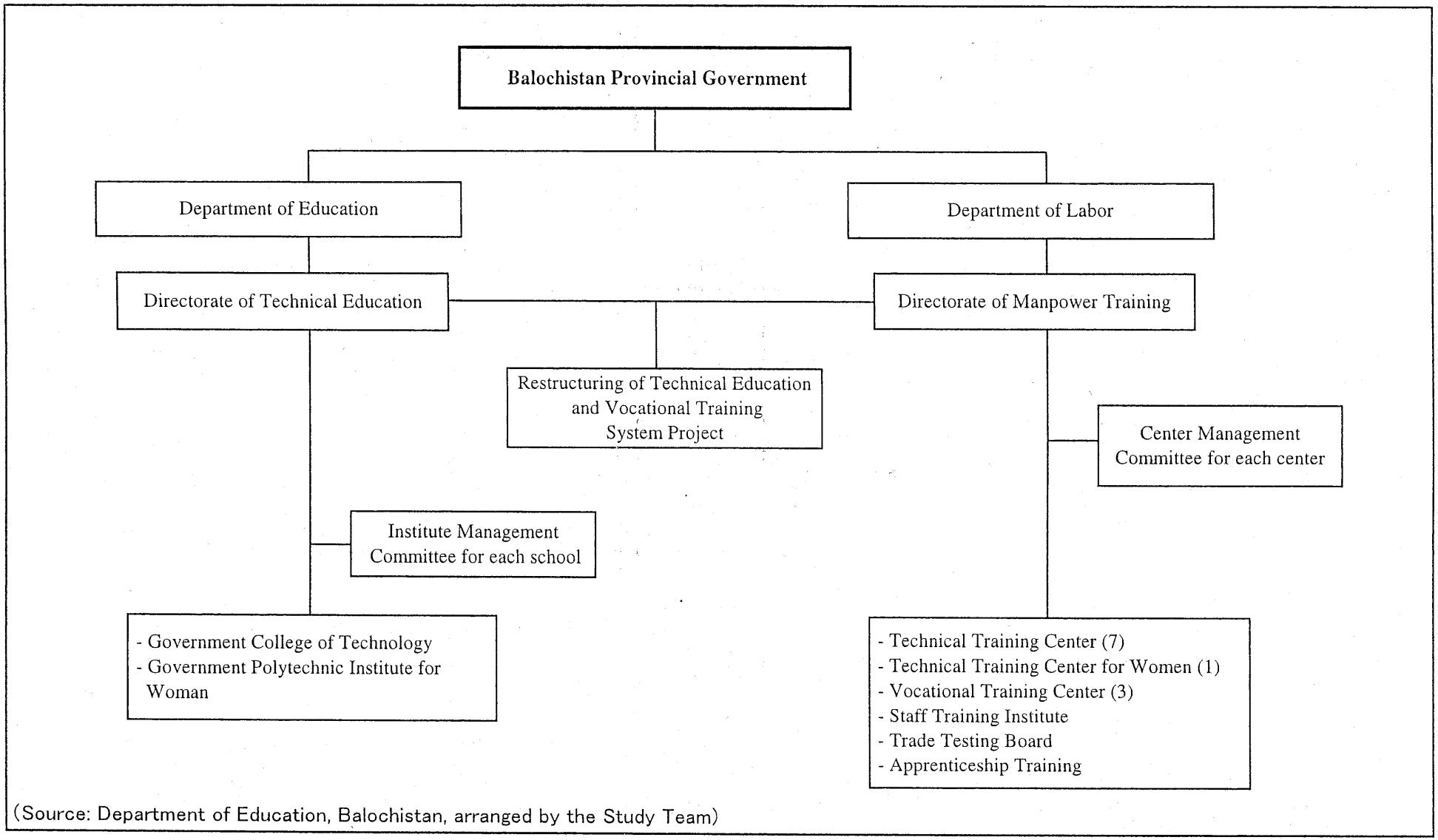
(Source: Ministry of Labour, Manpower & Overseas Pakistanis)

List of Courses for Consideration of the Contents



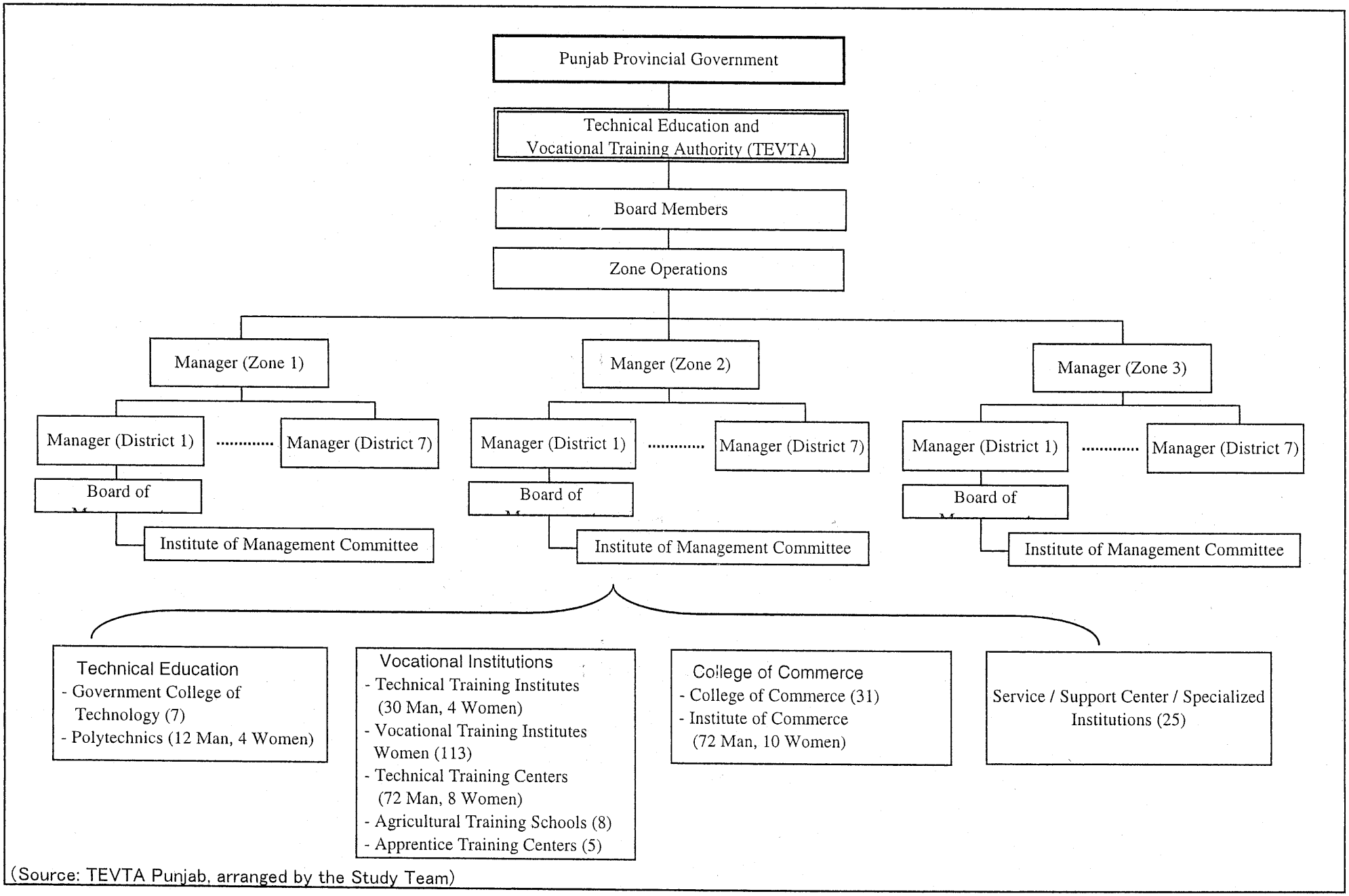
(Source: Government College of Technology, Karachi, Re-arranged by the Study Team)

Structure of TEVT related Organization (Balochistan)



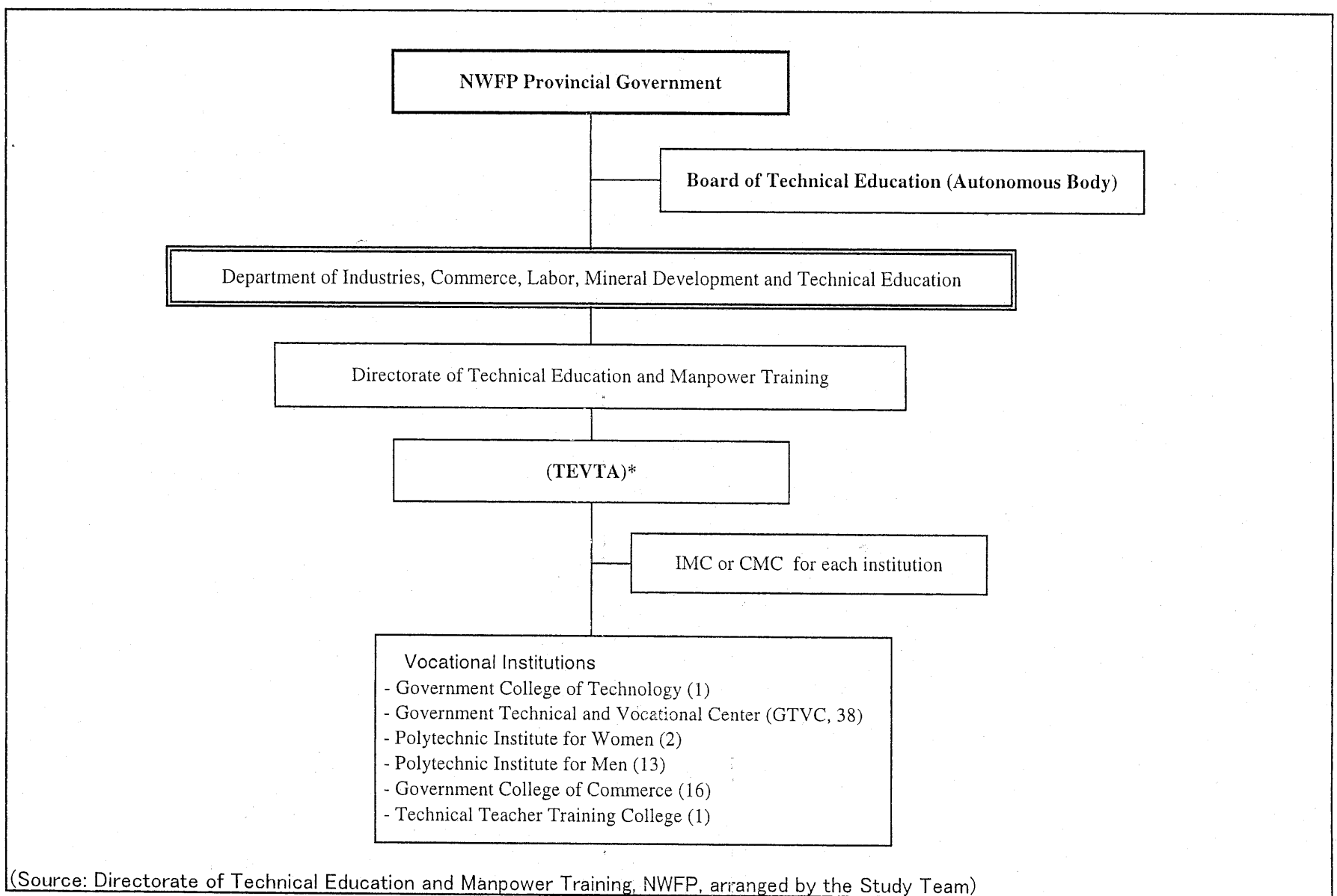
(Source: Department of Education, Balochistan, arranged by the Study Team)

Structure of TEVT related Organization (Punjab)



(Source: TEVTA Punjab, arranged by the Study Team)

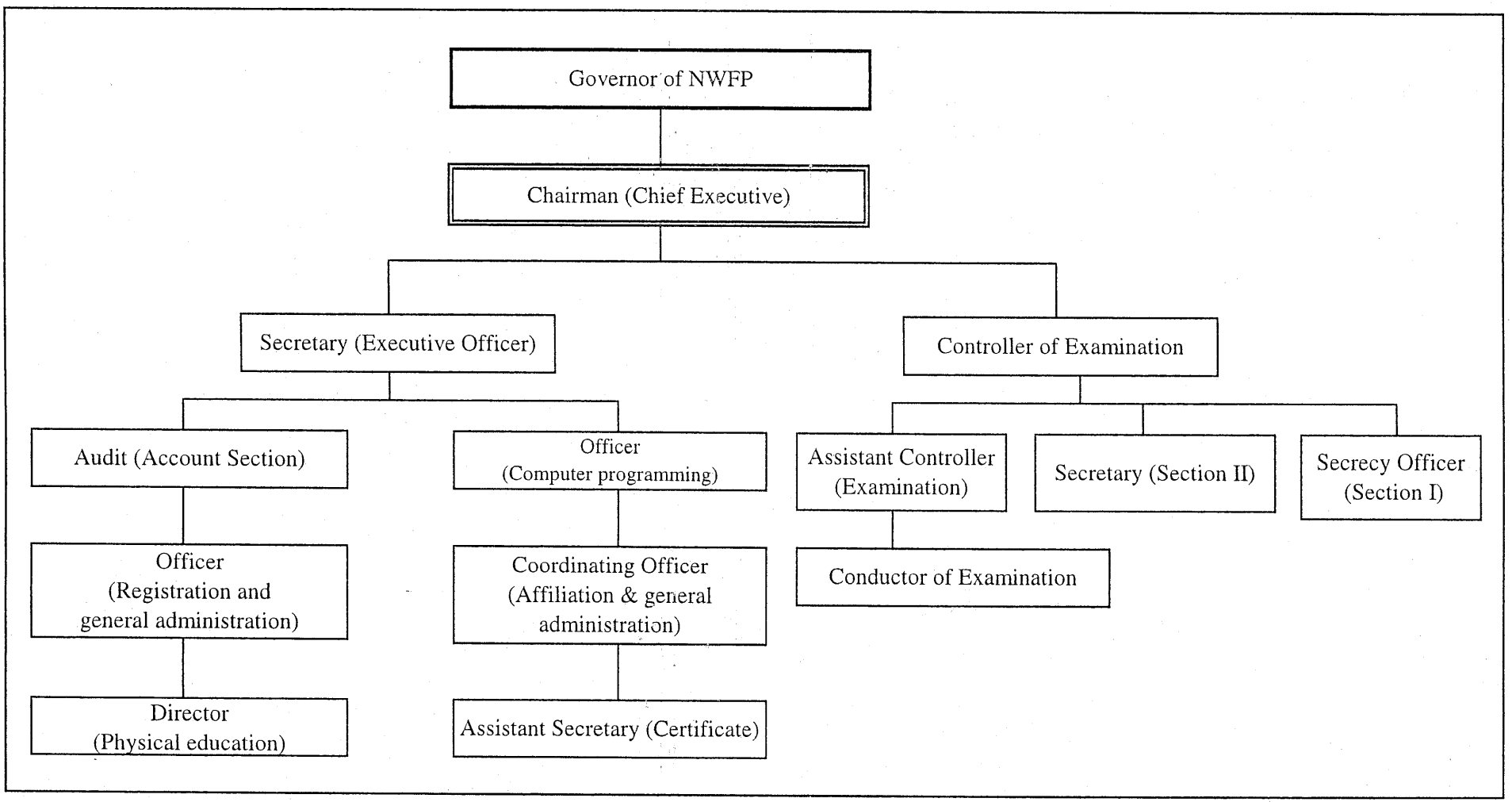
Structure of TEVT related Organization (NWFP)



(Source: Directorate of Technical Education and Manpower Training, NWFP, arranged by the Study Team)

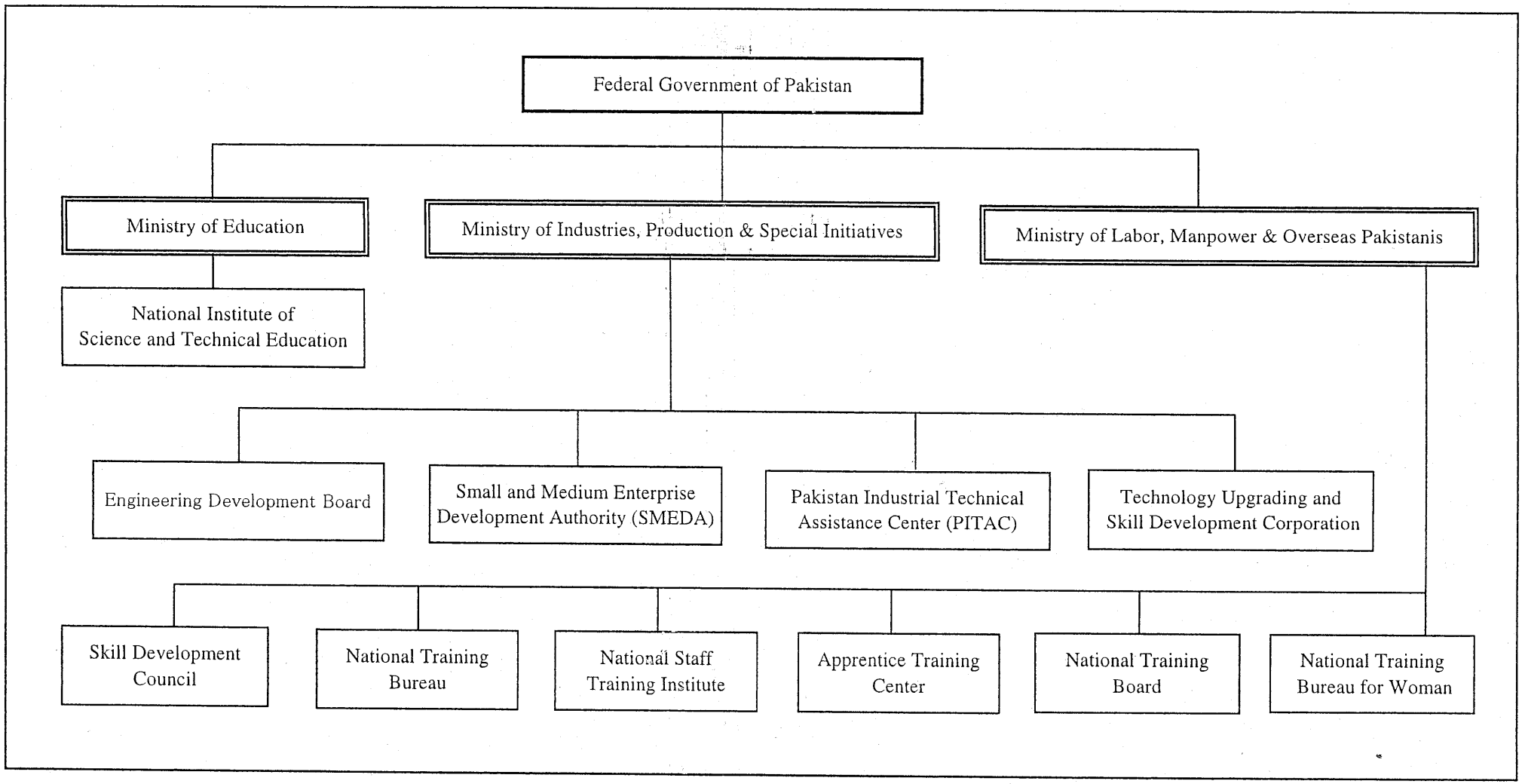
* to be established in the middle year of 2006.

Organization Chart of Board of Technical Education (NWFP)



(Source: Board of Technical Education, arranged by the Study Team)

Organization of TEVT related Ministries and Institutions (Federal Level)



Organizations Visited during the Field Survey

Date	Location	Name of Organization
23-Feb	Islamabad	Economic Affairs Division Ministry Industries, Production and Special Initiatives National Institute of Science and Technical Education Engineering Development Board
24-Feb	Islamabad	Ministry of Labor & Manpower & Overseas Pakistanis World Bank Mr. Khushnood Lashari, Exectutive Director of NAVTEC Asian Development Bank
25-Feb	Islamabad	Ministry of Education National Institute of Science and Technical Education National Training Bureau Skill Development Council Islamabad Chamber of Commerce and Industry
27-Feb	Karachi	Department of Education, Government of Sindh Directorate of Technical Education, Government of Sindh Board of Technical Education, Government of Sindh Japan External Trade Organization(JETRO) All Pakistan Textile Mills Association (APTMA) Skill Development Council (SDC), Karachi
28-Feb	Karachi	Secretary, Department of Labour, Transport, Industries and Commerce, Government of Sindh Directorate of Manpower & Training, Government of Sindh Small and Medium Enterprise Development Authority Ministry of Industries, Production and Special Initiatives Hinopak Motors Limited National Vocational and Technical Education Commission
1-Mar	Karachi	Government Jamia Polytechnic Institute, Malir PAK-Swidish Technical Training Center, Al-Haidery Technical Training Cente for Woman Pak Suzuki Motor Company Limited Indus Motor Company Limited (IMC)
2-Mar	Karachi	Government College of Technology, Karachi Government Polytechnic Institute Thal Limited
4-Mar	Karachi	Pak-Swiss Karachi Chamber of Commerce and Industry Pakistan Council of Scientific and Industrial Research Karachi Chamber of Commerce and Industry
6-Mar	Karachi/Quetta	Plastic Technology Center Office of the Honorary Consul-General of Japan Ministry of Industries, Production and Special Initiatives

Organizations Visited during the Field Survey

Date	Location	Name of Organization
7-Mar	Quetta	Secretary, Department of Education, Government of Balochistan Secretary, Department of Labour & Manpower Government College of Technology PD Technical Education Project (Education) PD Tech Project (Labour) & Visiting Centers Chamber of Commerce and Industry Quetta, Balochistan Merck Marker (Pvt.) Ltd. - Pakistan Small and Medium Enterprise Development Authority
8-Mar	Quetta	Government Polytechnic Institute for Women
9-Mar	Lahore	TEVTA Government Technical Training Institute for Woman Government Technical Training Institute Board of Technical Education, Punjab Mr. Muhammad Abid Javed, Regional Director, NAVTEC of Punchab Skill Development Council (SDC), Lahore Lahore Chamber of Commerce and Industry
10-Mar	Lahore	Government Polytechnic Institute for Woman Government Polytechnic Institute for Glass & Ceramic Interwood Mobel(PVT) LTD Small and Medium Enterprise Development Authority Pak Elektron Limited (PEL)
11-Mar	Lahore	TEVTA Staff Training Institute Industries, Commerce and Investment Department, Government of Punjab
13-Mar	Peshawar	Secretary of the Department of Industries, Commerce, Mineral Development, Labour & Technical Education Directorate of Technical Educatin & Manpower Board of Technical Education Lahore Chamber of Commerce Technical Training Center for Women Polytechnic Institute for Man Technical Training Center
14-Mar	Islamabad	Internal Meeting
15-Mar	Islamabad	Qiaid-i-Azam University Meeting with NAVTEC Executive members
16-Mar	Islamabad	Debriefing to Government of Pakistan

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