

DOCUMENT RESUME

ED 399 369

CE 072 417

TITLE National Profiles in Technical and Vocational Education in Asia and the Pacific: Bhutan.

INSTITUTION United Nations Educational, Scientific and Cultural Organization, Bangkok (Thailand). Principal Regional Office for Asia and the Pacific.

PUB DATE 95

NOTE 30p.; Product of UNEVOC, the International Project on Technical and Vocational Education. For related documents, see CE 072 415-429.

AVAILABLE FROM Asia-Pacific Centre of Educational Innovation for Development (ACEID), UNESCO Principal Regional Office for Asia and the Pacific, P.O. Box 967, Prakanong Post Office, Bangkok 10110, Thailand; Networking and Information Service Unit, CPSC, P.O. Box 7500, Domestic Airport Post Office, NAIA, Pasay City 1300, Manila, Philippines.

PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS Delivery Systems; Educational Change; *Educational Development; Educational History; Foreign Countries; Program Descriptions; Staff Development; Teacher Education; Technical Assistance; Technical Education; *Vocational Education; Vocational Schools; *Womens Education

IDENTIFIERS Asia Pacific Region; *Bhutan

ABSTRACT

This technical and vocational education (TVE) profile on Bhutan is one in a series of profiles of UNESCO member countries. It is intended to be a handy reference on TVE systems, staff development, technical cooperation, and information networking. Part I, Policy Concern, provides general information on the education delivery system, the role of primary education, the role of secondary education, technical and vocational education, technical education, and teacher training. Part II, Planning and Management of Technical and Vocational Education and Training (TVET), addresses problems and challenges; implementation of the plan; involvement of international assistance; and partnership with the Colombo Plan Staff College. Two charts illustrate the present situation with respect to the three basic levels of planning, and the present strengths and weaknesses of the planning processes prevailing in Bhutan, respectively. Strategies are proposed for the improvement of the planning process. Part III, Training Modes and Systems, describes the current state of technical education and training in Bhutan and these aspects of the technical and vocational education division: rural skills development, national inplant training scheme, limited skills training center, needs of the country to develop and improve technician education, and new development. Part IV, Women Technician in Industrial Development, discusses their participation at various levels. The bibliography contains 10 references. (YLB)

NATIONAL PROFILES IN TECHNICAL AND VOCATIONAL EDUCATION IN ASIA AND THE PACIFIC

Bhutan

UNEVOC

International Project on Technical and Vocational Education

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NATIONAL PROFILES IN TECHNICAL AND VOCATIONAL EDUCATION IN ASIA AND THE PACIFIC

Bhutan



UNEVO
International Project on Technical and Vocational Education
Projet international pour redéfinir les techniques et professionnelles



Colombo Pinn Staff College
for Technician Education

UNESCO PRINCIPAL REGIONAL OFFICE FOR ASIA AND THE PACIFIC, BANGKOK, 1993

This volume is one of a series of member country profiles on Technical and Vocational Education of the following member countries:

AFGHANISTAN	MALAYSIA
AUSTRALIA	MYANMAR
BANGLADESH	NEPAL
BHUTAN	ISLAMIC REPUBLIC OF PAKISTAN
PEOPLE'S REPUBLIC OF CHINA	PAPUA NEW GUINEA
FIJI	PHILIPPINES
INDIA	SINGAPORE
INDONESIA	SRI LANKA
ISLAMIC REPUBLIC OF IRAN	THAILAND
JAPAN	SOCIALIST REPUBLIC OF VIET NAM
REPUBLIC OF KOREA	

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Published by the
UNESCO Principal Regional Office for Asia and the Pacific
P.O. Box 967, Prakanong Post Office
Bangkok 10110, Thailand

Printed in Thailand

Copies of this publication are available upon request from (i) Asia-Pacific Centre of Educational Innovation for Development (ACEID), UNESCO Principal Regional Office for Asia and the Pacific, P.O. Box 967, Prakanong Post Office, Bangkok 10110, Thailand, and (ii) Networking and Information Service Unit, CPSC, P.O. Box 7500, Domestic Airport Post Office, NAIA, Pasay City 1300, Manila, Philippines.

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FOREWORD

Technical and vocational education has always been an important component of UNESCO's consecutive Medium Term Plans. The basic objective of this programme is to support the efforts of Member States to link education systems more closely to the world of work and to promote the expansion and improvement of technical and vocational education in the light of changing employment needs.

The Colombo Plan Staff College for Technician Education (CPSC) also dedicates itself primarily to enhancing the growth and development of the technician education systems in its member countries which are located in the Asia and Pacific region. Its programmes, projects and activities are geared to provide the needed impetus for the professional development of senior level personnel involved in technician education development efforts.

UNESCO has launched an International Project on Technical and Vocational Education (UNEVOC) as of 1992 in co-operation with the Government of Germany, ILO, FAO, UNDP and NGOs interested in the reform of technical and vocational education. This project focuses on exchanging information, research and experiences on policy and programme issues in technical and vocational through a network of co-operating institutions.

In a spirit of co-operation between UNESCO and CPSC, under UNEVOC, an attempt is being made to compile and publish studies on the development of technical and vocational education in Member States in the form of TVE profiles of 21 countries. It is hoped that this series will serve as a handy reference information on TVE systems, staff development, technical co-operation and information networking. These studies have been possible because of the full co-operation to UNESCO PROAP and CPSC by all concerned in the Member States.

The opinion expressed in this study are those of the authors and do not necessarily reflect the position of UNESCO and CPSC in this regard. This profile on Bhutan was prepared by Dr. Pichit Punsri, seconded Faculty Member to CPSC by the Government of Thailand.

C.K. Basu
Director, CPSC

Victor Ordonez
Director, UNESCO PROAP

Part I

POLICY CONCERN

1.1 Introduction

We can call Bhutan *Drunk Yul* which means the *Land of the Thunder Dragon*. The neighbour countries closest to Bhutan are China in the north and India in the west, east and south. Bhutan has an area of 46,500 square kilometers. It lies between latitudes 26° 40' and 28° 20' north; and between longitudes 28° 45' east 29° 10' east.

Climatically, it varies from place to place. This is because some places are very high in altitude while others are very low. On high mountains it is cold while in lower valleys and foothills it is hot. Bhutan is full of hills, valleys, mountains and very few flat areas. The population of Bhutan in 1988 was established at 1,375,000.

Until the early 1960s, practically no formal schooling existed in Bhutan except for the teaching of religion and classical Dzongkha in monastic schools in monasteries and dzongs. The number of Bhutanese who had studied outside the country was extremely limited, with most of the few who had been sent as children to schools in India. Over the last two decades, the country has made considerable progress in education. A formal education and technical training system has been established, and students have been sent abroad in significant numbers for specialized training. Nevertheless, Bhutan is still struggling to improve its key education indicators such as enrolment ratio and adult literacy.

1.2 Education Delivery System

The formal education cycle consists of two years of pre-school education (lower and upper kindergarten), five years of primary education (Class I through Class V), five years of secondary education (Class VI through Class X), and two years of the *Plus Two Programme* at the Junior College. At present, there are 132 primary schools (offering elementary education from lower kindergarten through Class V), 24 junior high schools (covering lower kindergarten through Class VIII), and six central schools (offering integrated education from lower kindergarten through Class X). While primary schools are day schools serving the local communities, both central schools and junior high schools have hostels and function as boarding schools. The formal education systems culminates in the Junior College. There is no university in Bhutan at present. The medium of instruction is English although the teaching of Dzongkha, the official language, is mandatory. Vocational training institutes include two teacher training schools, the Kharbandi Technical School, and the Royal Bhutan

Polytechnic. There are no private schools in Bhutan. Formal education and vocational training are administered entirely by the government. This makes the education system highly centralized. The Department of Education controls the curriculum, the recruitment, training and assignment of teachers.

The Government provides free textbooks and supplies, as well as free food and board at every level of education and vocational training. Under the recent decentralization, the financial administration for primary schools has been shifted to the district administrations which pay for teachers' salaries, teaching materials, and other supplies out of their annual budgets. Local communities also provide voluntary labour for the construction and maintenance of primary schools. On the other hand, the central government pays to establish and operate all central schools, junior high schools and other specialized institutions, as well as for the tuition and stipends of students and civil servants doing school education and degree programmes abroad. In 1980/81, total public expenditures on education amounted to roughly 4 per cent of GDP; recurrent expenditure in education accounted for 15 per cent of the total public recurrent expenditures. Bhutan allocates a relatively large share of financial resources to education compared to neighbouring countries. Primary education which accounts for 93 per cent of school enrolment, claims about 50 per cent of the education recurrent expenditure (of total recurrent outlays on primary education, about 70 per cent go to teacher salaries and related allowances). Another major category in the recurrent budget is the outlay for degree scholarships and associated expenditures on students studying abroad. This amounts to about 10 per cent of recurrent expenditure on education.

1.3 The Role of Primary Education

Recognizing the role of basic education (and literacy) in overcoming poverty through increasing productivity, improving health and nutrition, and reducing family size, the Government is committed to free and universal (but not compulsory) primary education. Nevertheless, enrolment in primary education (lower kindergarten through Class V) amounts to only about 37,400 comprising 25 per cent of the estimated age group for boys and 17 per cent for girls. In most areas of Bhutan, settlements are scattered. The consequent need to travel significant distances in a harsh environment and with poor transportation makes school attendance difficult. And although primary education is free, children are frequently needed at home to help with household and agricultural work during the peak seasons, which may conflict with a fixed school schedule. For these same reasons, the drop-out rate and repeater ratios are reported to be high although relevant statistics are not available.

Much thought has clearly gone into developing an education system which is consistent with the Government's overall development objectives. The emphasis on universal primary education is sound. People need basic formal schooling to acquire a broad base of knowledge, attitudes, values and skills on which they can subsequently build, even if they do not receive further formal instruction. There

remain, however, two fundamental questions. First, is the five-year primary education cycle adequate for providing the basic literacy and education needed in adult life. Second, what government initiatives are needed to reach the vast number of children (up to 80 per cent of the age group) who are not receiving basic education.

Considering Bhutan's mainly agrarian economy, the current five year primary education cycle is probably adequate for imparting basic literacy and numeracy. The curriculum attempts to balance the training of cognitive skills (through subjects such as languages, mathematics and social studies) with instruction in practical subjects such as farming and animal husbandry. The Government also plans to include instruction on health, hygiene, and nutrition in the primary school curriculum, once the textbooks currently under preparation become available. Nevertheless children are normally no more than 11 or 12 years of age when they leave Class V, and are hence liable to forget what they have learned. To help utilize and reinforce reading habits, local communities should be encouraged to organize periodic refresher courses and to distribute suitable reading materials. The Government is also considering raising the minimum age for admitting children to primary education

Perhaps the more crucial question at this stage is how to make primary education accessible to a much wider segment of the population without putting excessive burden on the government budget. From a strictly financial point of view, it would appear unwise to attempt to attain universal primary education too quickly. If, for instance, primary school enrolment were to increase from the current 27 per cent to 50 per cent of the age group over the next five years, the financial implications of this increased enrolment in primary education alone would mean the GDP would have to grow by as much as 8 per cent per annum in real terms over the next five years to keep the share of total outlays on education from rising above the already relatively high 3.7 per cent of GDP of 1980/81.

The problem of growing demands for education on budgetary resources cannot easily be resolved. Two possible courses of action are open-finding additional sources of financing and reducing per student costs by improving the efficiency of the education system. Local communities are already-effectively mobilized to contribute free labour for the construction and maintenance of primary schools. Based on the affordability criteria, the government is now considering asking certain communities to contribute to the cost of operating their primary schools by providing food and paying for the children's textbooks and supplies entirely paid for by the Government at present. Moreover, a system of fees balanced by scholarships could be introduced selectively at the primary level. Any decrease in unit costs of secondary and higher education can release significant additional funds for providing primary education, while the potential economic gains to individuals with post-primary level education are large and could justify some fees. Possible approaches to increasing efficiency include sessions and increasing the ratio of students to teaching staff. Because teacher salaries constitute as much as 70 per cent of the recurrent expenditure in primary education, student-teacher ratios need to be maintained at as near to the

acceptable norms as possible. A recent World Bank study challenges the conventional wisdom that a decrease in class size implied improvement in education quality. In fact, studies have shown that variation in the size of the class within a range of 20 to 40 make little or no difference in the average achievement level of students. Considering that the average ratio in Bhutan is a relatively favorable 31, this suggests that some saving could be achieved here with no significant loss in educational quality.

1.4 The Role of Secondary Education

Secondary education in Bhutan is offered in junior high schools and central schools. Enrolment is restricted, and is guided by the projected manpower requirements of the country in order to avoid creating a pool of educated unemployed. At the end of the fifth, eighth and tenth year of schooling, students take examinations that determine eligibility for (though not necessarily confer entrance into) subsequent levels of education. At the end of the fifth and eighth years the Government also transfers students between schools in different regions of the country to promote national integration.

The ceilings for the numbers of students that can be admitted to each level are set by the Government. They are based on manpower projections which indicate that Bhutan's incremental high level manpower projections need will number 600 during the Fifth Plan period and 170 per year through the remainder of the decade. On the basis of the Class V examination, the first 1,500 are eligible to enter secondary schools. the remainder may enroll in technical schools, join the army, return to their villages or apply to the various on-the-job training schemes conducted by government departments. On the basis of the examinations conducted at the end of Class VIII, the best 600 students may be admitted to Class IX. After Class X examination, about 120 students are selected for admission to the Junior College at Kanglung, near Tashigang. As of April 1982, secondary school enrolments were 2.5 per cent of the age group, and the numbers of students qualified to enter Classes VI, IX and XI had not reached the approved ceilings. Up to about 100 of those who successfully complete the "Plus Two Programmes" in the Junior College and pass the qualifying examinations can be sent abroad (primarily to colleges and universities in India) for degree programmes.

Although it is unclear whether the secondary enrolment ceilings are too restrictive for establishing an adequate base for manpower training, at present this issue is immaterial as the number of qualified candidates at each level is below the approved ceilings. In this light, it appears appropriate for the government to concentrate its limited resources on primary education, while trying to increase secondary and higher level enrolments to the ceilings. Over the longer term, it will however, be necessary for the government to keep the ceilings under periodic review, to ensure that projected future higher-level manpower needs can be met, not only for the public sector but also for the economy as a whole.

As many Bhutanese students have traditionally gone on to degree programmes in Indian Colleges and Universities following the "Plus Two Programmes", the education system in Bhutan is closely affiliated with that of India. The coverage of the Indian secondary school examinations has effectively determined the curricula and the choice of textbooks for secondary education in Bhutan. In order to acquire greater flexibility for orienting the education system to suit Bhutanese conditions and needs, the Government is planning to establish a National Board of Secondary Education and training during the Fifth Plan period. The Board will be responsible for developing and reviewing the school curriculum, establishing its own school certificates and holding its own qualifying examinations at the end of Classes X and XII. The Government of India has promised full cooperation by directing the Equivalence Committee of the Indian Universities Association to recognize the certificates of the Board on par with those of the Indian system for purposes of admitting Bhutanese students to colleges, universities and other training institutes in India.

1.5 Technical and Vocational Education

Technical and vocational training under the Department of Education was started in early 1976. It was the only coordinating body between the user organization and the institutes. This body was established with the following objectives.

1. To plan programme, implement and co-ordinate the technical and vocational training in the country.
2. To analyze the needs of technical personnel at different levels.
3. To strengthen and update technical and vocational training system.
4. To identify new programmes to be started in line with the needs of the country and implement them as and when necessary.
5. To monitor the training programmes, and evaluate them.

Technical and Vocational Education Division has played a vital role in exercising its mandate. In fact, the number of technicians and draftsmen employed across the country was directly or indirectly coordinated by the Division. The Division also played an active role in training the drop-out students from primary level and attaching them to various departments as in-plant trainees. It was also the certifying body for the in-plant trainees. On completion of the training, they are directly employed as semi-skilled and skilled workers depending on the duration of the course received.

There are at present about nine institutes catering to the vocational/technical education needs of the country as follows:

- A. Technical
 1. Royal Bhutan Polytechnic
 2. Royal Technical Institutes

3. National Trade School

B. Others

4. Health School
5. Royal Institute of Management
6. Royal Commercial Institute
7. Royal Veterinary Institute
8. Royal Forestry Institute
9. Agricultural Training Institute

The first three are administered by the Technical and Vocational Education Division of the Department of Education. The rest are administered by the different government sectors concerned.

All institutions were established in the late 60s and 70s to train the middle-level technicians and field personnel to staff the respective developmental agencies. Apart from the three Technical Institutes run by DOE, most of the other institutions are extension to and often part of the ministries/employing agencies. The courses offered in these institutes have over the time evolved with the particular requirement of these respective agencies. The courses offered in these institutes are as follows:

1. Royal Bhutan Polytechnic (RBP)
 - 1.1 Diploma in Civil Engineering
 - 1.2 Diploma in Electrical Engineering
 - 1.3 Diploma in Mechanical Engineering
 - 1.4 Survey
 - 1.5 Draughtsman
2. Royal Technical Institute (RTI)
 - 2.1 Motor Mechanics
 - 2.2 General Mechanics
 - 2.3 Electricians
 - 2.4 Building Construction
3. National Trade Training Institute (NTTU)
 - 3.1 Masonry
 - 3.2 Plumbing
4. Health School
 - 4.1 Health Assistant
 - 4.2 Auxiliary Nurse Midwife
 - 4.3 Basic Health Worker
 - 4.4 General Nurse Midwife
 - 4.5 Assistant Nurse
 - 4.6 Pharmacist Technician
 - 4.7 Laboratory Technician
 - 4.8 Dental Technician
 - 4.9 X-ray Technician

- 4.10 Eye Technician
- 4.11 Physiotherapeutic Technician
- 5. Royal Veterinary Institutes
 - 5.1 Pasture Training
 - 5.2 Diploma in Animal Husbandry
- 6. Royal Commercial Institute
 - 6.1 Stenography
 - 6.2 Typing
 - 6.3 Computer Programming
 - 6.4 Middle Level Accounting
 - 6.5 Junior Level Accounting
- 7. Royal Forestry Institutes
 - 7.1 Forestry
 - 7.2 Forest Guard
- 8. Agriculture Training Institute
 - 8.1 Diploma in Agriculture

1.6 Technical Training

Technical training is currently carried out by the Royal Bhutan Polytechnic at Deothang and the Kharbandi Technical School near Phuntsoling. The Polytechnics runs a five-year programme for the training of diploma-level technicians in civil and electrical engineering. The entrance requirements for the first two years of the programme, which constitutes a pre-diploma course, is a class VIII pass. The entry requirement for the next three years, a diploma course, is a Class X pass. About 60 students are admitted each year. The Technical School runs a five-year certificate programme for the training of skilled craftsmen in the electrical, general mechanic and auto mechanic trades. The entry qualification for candidates is a class V pass, and the admission is about 80 students per year. In addition, training courses lasting six months to two years are conducted under the National In-plant Training System to develop semi-skilled workers in various trades as required by government departments and public enterprises. Entrance requirements vary according to the trade. The minimum entry qualification is envisaged to be a class V pass, although at present less qualified candidates are admitted to help meet immediate manpower needs.

1.7 Teacher Training

There are presently some 1,390 teachers in the formal education system. However, this figure conceals serious inadequacies in teacher training. Only about 35 per cent of the teaching staff are fully qualified, and as many as 30 per cent have had no training at all. About 50 per cent of the teachers are non-nationals on fixed term contracts. There are two teacher training institutions in the country. The Teacher Training Centre at Paro, established in 1975, has a two-year course for pre-

primary teachers. The annual intake of students at this center is about 25 per year, and the minimum qualification for admission is a Class VII pass. The Training Institute at Samchi was established in 1968 for the training of primary school teachers. Annual admission is 40-50 pupils. The minimum qualification for admission to the Institute is a Class VIII pass (this is now being raised to a Class X pass) and the duration of the course is also two years. Currently, all secondary school teachers are trained outside the country, but during the Fifth Plan period, the Government proposes to expand the institute at Samchi into a primary and secondary school teacher training college, the National Institute of Education. In addition to training new primary and secondary school teachers, the Institute will also conduct a regular programme of in-service training for existing teachers.

Part II

PLANNING AND MANAGEMENT OF TVET

2.1 Problems and Challenges

With the continuous growth of industries and development of new technologies, the demand for trained manpower is continuously increasing in both quantity and quality. The division has in some areas failed to fulfill the demand and this is due to the following reasons:

1. Continuous change in administrative level manpower.
2. Inadequate quantity and quality of staff both in the division as well as in the Institutes.
3. Lack of vocational guidance in schools.
4. Inadequate data on manpower needs.
5. Insufficient authority to act as a co-ordinating agency between the institutes and the user organizations.
6. Inadequate training facilities in the Institutes due to budget constraints.
7. Public impression of technical/trademark as demanding

2.2 Implementation of Plan

As a result of partial failure of Technical Vocational Education Programme the Government has recently asked the Department of Education to carefully review the situation.

The division now plans to take the following measures to ensure the fulfillment of its mandate.

1. Establish a National policy making body for technical and vocational education.
2. Establish a National testing and certification body.
3. Equip the TVE Division and the Institutes with required trained personnel.
4. Create an awareness among the general public through media and counselling.
5. Organize meetings between the users and the institutes from time to time.

6. Replace the Institutes training equipments with up-to-date model as fast as possible.

2.3 Involvement of International Assistance

The Federal Republic of Germany has kindly expressed her intention of helping the Royal Government with necessary expertise, equipments and expansion of other building facilities at Royal Technical Institute. If everything goes as planned the project through G.T.Z. should be implemented very soon.

Recently, Asian Development Bank has been indicating the possibilities of assisting the Royal Government for further improvement of Royal Bhutan Polytechnic. Further the United Nations Development Programme is very active in promoting the Vocational Training activities throughout the country. The organization intends to provide more assistance in expanding the TVE Division with both expertise and equipment, wherever possible.

Technical assistance from British Government for improving the vocational training system is going on. The aid is given through ODA in the form of expertise, equipment and training facilities for the national staff in the United Kingdom.

UNESCO has in 1994 conducted in co-operation with UNDP, an Education Sector Study which analyzed the present situation of the country in education, including technical and vocational education. The study also identified areas of concern and the possibilities of involvement and co-operation of international aid and assistance in education.

2.4 Partnership with CPSC

The active support given by Colombo Plan Staff College during the last years played a very significant role in updating the planners, curriculum developers, instructors, etc. with new concepts and knowledge. However, it has been noticed that certain workshops/seminars were not very relevant to the present situation.

Due to some reasons the in-country course facilities could not be fully utilized to the maximum except the recent workshop on "Instructional Materials Development and Evaluation." This workshop benefited the lecturers/instructors from the two institutes.

It is very difficult for CPSC to conduct the workshop/seminars according to the requirements of the individual member countries. Still it will be very helpful for the Technical Vocational Education if Staff College could consider the topics of methodologies of teaching in the programme for the next two years.

Vocational Training Division now wishes to fully utilize the in-country course facilities offered by CPSC. Therefore, a workshop on "Management of Resources" at lecture/instructors level may kindly be given maximum consideration for Bhutan.

Present Situation with Respect to the Three Basic Levels of Planning in Bhutan

Levels of Planning	Development	Ministry/ RCSC*	Planning Commission	Institute	Remarks
1. Strategic Planning <ul style="list-style-type: none"> • Human Resources • Budget & Expenses • Status • Regional Development 		✓	✓		The activities of the planning processes identified under the strategic level show some examples of the planning executed at the material level where His Majesty the King chairs and steers the processings.
2. Tactical/Long-Term Planning <ul style="list-style-type: none"> • Human Resource • Budget & expense • Building • Courses • Status 	✓	✓	✓		The activities identified under the tactical/long-term planning under some examples of planning executed at the ministerial and departmental level where again His Majesty chairs the processings of planning & mid-term review meetings.
3. Operational Planning <ul style="list-style-type: none"> • Budget & Expenses • Buildings • Enrolment • Materials/Equipment • Curriculum • Staff Development • Maintenance 				✓ ✓ ✓ ✓ ✓ ✓	The operational planning is done at the institutional level and submitted to the Directorate, which reviews and amends wherever necessary in consultation with the National Budget and Accounts and the Ministry before it is ultimately approved.

*Royal Civil Service Commission

The Present Strengths and Weaknesses of the Planning Processes Prevailing in Bhutan

Main Issues	Strengths	Weaknesses
A. Strategic Planning <ul style="list-style-type: none"> • Human Resources • Budget & Expenses • Status • Regional Development • Industrial Development 	<ul style="list-style-type: none"> • Sets a clear framework for long term/tactical & operational planning. • His Majesty's chairmanship sets the vision with absolute clarity in the planning processes. 	<ul style="list-style-type: none"> • Lack of validity and reliability in the forecast. • Uncertainty of future events. • Limited experience, expertise and exposure on the part of the planners. • Frequent changes in the policies and leadership. • Political bias.
B. Technical/Long Term Planning <ul style="list-style-type: none"> • Human Resources • Budget and Expenses • Buildings • Status • Courses 	<ul style="list-style-type: none"> • Sets a framework for operational planning. • Midterm reviews appraise the degree of achievement. • Leave a clear directive of development in terms of time frame. • His Majesty chairs the initial planning process and also the review meeting. 	<ul style="list-style-type: none"> • Lack of coordination. • Uninvolvement of the unit's concerns. • Ambiguity in aims and objectives. • Limited experience, expertise and exposure on the part of the planners. • Political bias. • Frequent changes of leadership • Rigidity in the financial exponents.
C. Operational Planning <ul style="list-style-type: none"> • Budget and expenses • Buildings • Enrolment • Materials/Equipment • Staff Development • Curriculum • Maintenance 	<ul style="list-style-type: none"> • Independence in the planning exercise. • Able to set clear goals . • Moral boost to the staff since they participate in the planning. • Assures optimal success in the implementation. • Improves coordination amongst the key persons in the institutions. 	<ul style="list-style-type: none"> • Lack of senior experiences and faculty members. • Diverse attitude of the staff. • Unawareness of the long term plans. • Rigidity in the financial rules and regulation. • Insufficient stepping.

The following strategies are proposed for the improvement of the planning process.

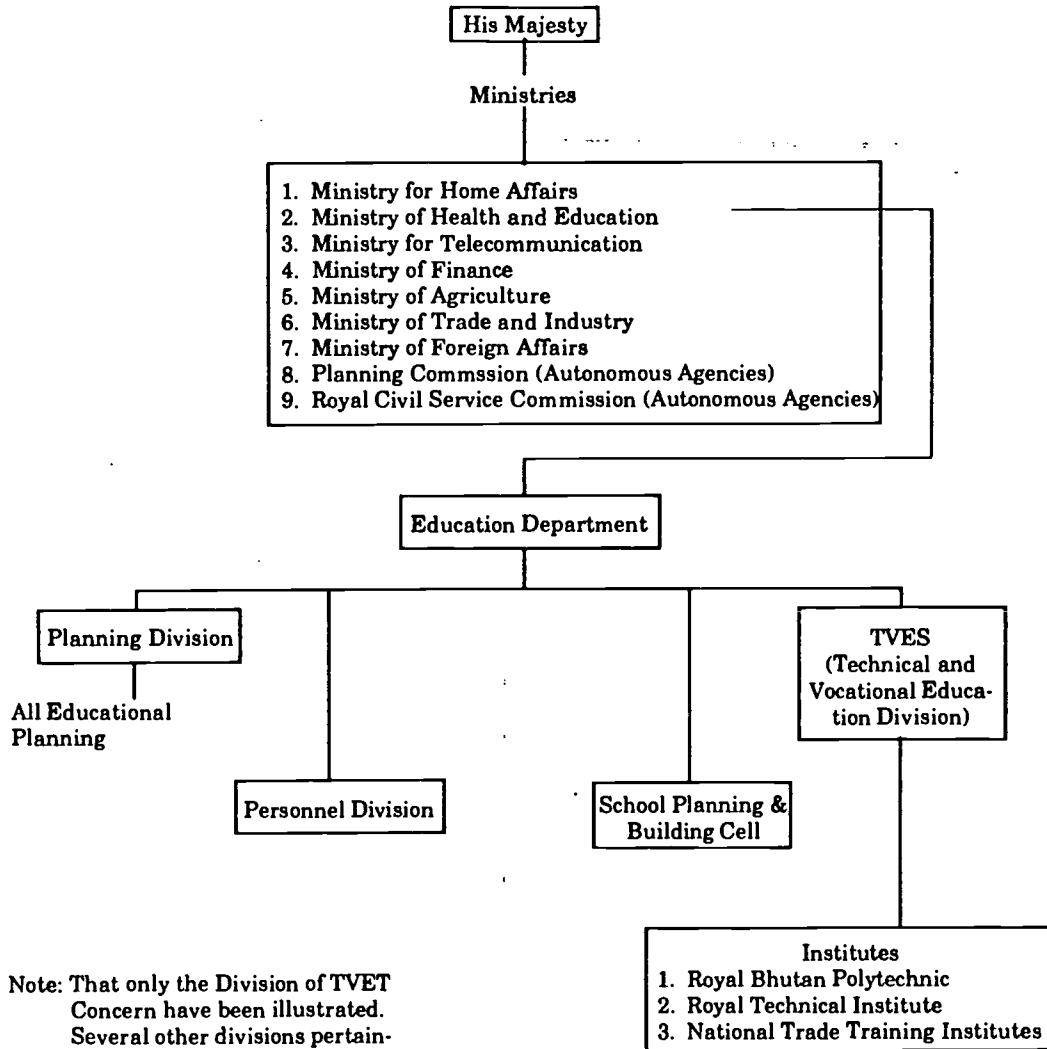
Establishment of an Advisory Board

- A. Objectives:** The main objective for establishing a high level advisory board is to constantly review and guide that technical and vocational training institutes in the achievement of its long-term goals.
- B. Functions:** The Board shall;
1. Determine aims and policies for technical and vocational education.
 2. Analyze the needs (industry and training) and evaluate the relevance.
 3. Advise ministry, departments and training institutes.
 4. Standardize the training levels.
- C. Strategy:**
1. The chairperson must be a deputy minister's and must be given an absolute mandate.
 2. The mandate should be approved at the highest level so that a national recognition is created.
 3. The board should consist of very senior experts from the public/private enterprises, it must be a very dynamic body.
 4. The reviewed proposition should be the clear directive of planning and development in the respective area.
 5. The meetings of the board should be convened at least twice a year.
 6. The follow-up on the implementation of the proposition must be taken seriously.
- D. Expected Outcome:**
1. Co-operation between industry and training institutes will be strengthened.
 2. Co-ordination between ministry/department and institutes will be clear.
 3. Less bureaucratic procedures.
 4. A co-ordinated planning process will evolve.
 5. Image and status of institutions will improve.
 6. Moral of staff and student will be boosted.

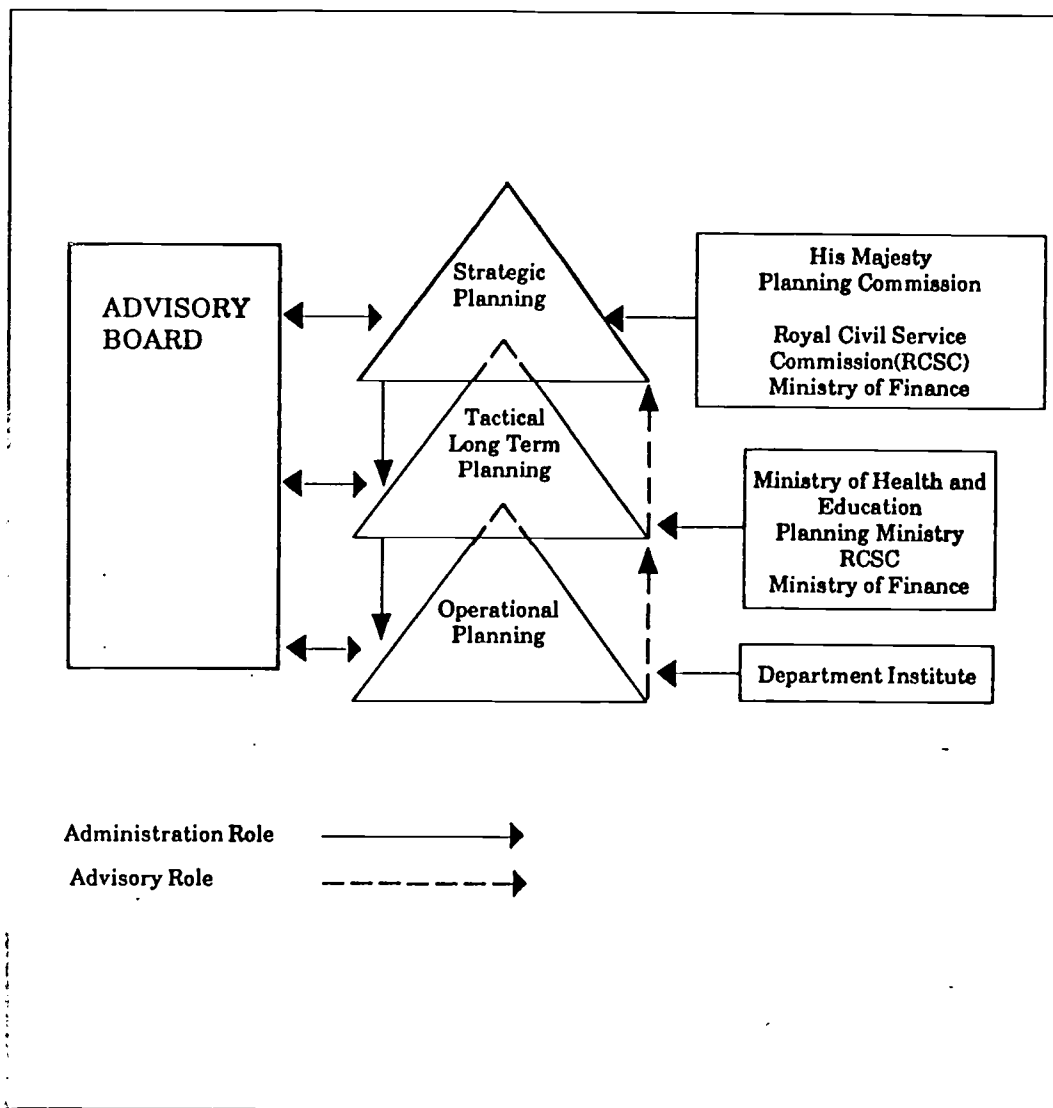
Proposed Members of the Board:

1. Deputy Minister for Social Service (Chairperson)
2. Chairperson of Bhutan Chamber of Commerce & Industry
3. Major industry representatives
4. Director of Trade and Industry
5. Royal Civil Service Commission
6. Planning Commission
7. Finance Ministry
8. Director Department of Education
9. Officer-in-Charge, TVED
10. Head of the institutes

Government Structure
(partial)



Note: That only the Division of TVET Concern have been illustrated. Several other divisions pertaining to general education have not been mentioned.



Part III

TRAINING MODES AND SYSTEM

3.1 Current State of Technical Education and Training in Bhutan

Technical education provision is centred in two institutes:

- i) The Royal Bhutan Polytechnic, Deothang
- ii) The Royal Technical Institute, Kharobandi

The courses offered are at Diploma level and Craft Certificate level, respectively. The interest in technical education has increased considerably over the past few years. Both Institutes now receive a large number of applications for the limited number of first year places. The courses at both Institutes have suffered from a tendency in the past year to make them "academic rather than practical" courses. The second major difficulty is that of a serious shortage of well-qualified teaching staff. The word "qualified" is used particularly with reference to good industrial experience. Many graduates from both of the Institutes have been "lost" to technical work because of poor initial grading on entry to a Department, and relatively "slow" promotion grading on entry to a Department, and relatively "slow" promotion prospects. Both of the Institutes suffer from largely outdated equipments in workshops, laboratories and classrooms.

The curriculum for the programmes offered has been reviewed on a number of occasions with a major effort being made to match the curriculum against the needs of the industries.

The staff of the institutes are well aware of the criticisms made by many investigating missions into technical education (ILO, GTZ and ADB).

A brief summary of the two Institutes programmes follows this section.

1. The Royal Bhutan Polytechnic
Located at Deothang (Eastern Bhutan)

Type of courses offered are:

- a) Diploma in Electrical Engineering
Diploma in Civil Engineering
Diploma in Mechanical Engineering started August 1989.

Level of entry: Class X

Length of course: Three years

No. of students: 176

- b) Certificate course in:
 - i) Survey
 - ii) Draftsmanship

Level of entry: Class VIII
Length of course: Two years
No. of students: 27

- 2. The Royal Technical Institute - Kharbandi
Located at Phuntsholing (South West Bhutan)

Type of course offered:

- a) Craftsman Certificate in Electrical Engineering
Craftsman Certificate in Mechanical Engineering
Craftsman Certificate in Automobile Engineering
Craftsman Certificate in Building Construction

Level of entry: Grade VI minimum, preferably to Grade VIII
Length of course: 3/4 years
No. of students: Approximately 320

3.2 The Technical and Vocational Education Division

The original office of TVED was called the Technical Education cell and was first established in 1976. The role of the cell was to:

- i) Plan, co-ordinate and implement all training programmes in the country.
- ii) Co-ordinate the efforts of the two major technical education institutes, i.e., Royal Bhutan Polytechnic and Royal Technical Institute, Kharbandi.
- iii) Review and revise the curriculum of the training programme to meet the on-going needs of the industries.
- iv) Monitor the effectiveness of the training programmes.
- v) Certify that graduates from the training programmes and help to place them in the required job location through RCSC.

The shortcomings of the cell were mainly because of the lack of national awareness of the vital needs for its work. There was also a shortage of trained, experienced technical personnel, particularly within the industries to support the National In-plant Training Scheme. In addition, the Village Skills Development Programme at Graylephug suffered a similar set-back due to shortages of experienced instructors.

In 1986, the Technical Education cell was given a new status and a new title under the Department of Education, the Technical and Vocational Education Division. The new division still suffers from the same problems despite a noble effort on the part of the staff. The Department of Education had undergone a change of

Directorship on three occasions, and each time, TVED struggled to fulfill its objectives.

3.2.1 Rural Skills Development

(Graylephug, Formerly the Village Skills Training Programme)

The aim of this training programme has been to provide basic skills to persons not achieving "normal" education standards. The trained persons are then intended to return to "rural" places and improve the general standards of living for the local population.

Length of the training programme : 3 to 5 months

Trades offered:

Plumbing	Masonry
Electrical	Carpentry
Mining	

The scheme has suffered from a "real sense of purpose" generated by the lack of co-ordination and administration from the central offices.

The teaching staff have tried valiantly to improve the efficiency of the training centre but support was often lacking from the central office.

The syllabuses need an immediate review. The teaching staff also needs an updating programme on Instruction Techniques. Raw materials for the workshops are also needed.

3.2.2 National In-plant Training Scheme

The aim of this training scheme is to provide short-term specialized training within the individual Department or industry.

The TVED co-ordinated the training. The department or industry conducted the training. TVED certificated the graduates.

A large number of training programme has been conducted successfully but over the past few years, the scheme has slowed down because many departments were introducing their own training schemes which superseded the NITS

The current proposal is to hand over this training programme to the administration of RCSC and individual Ministry's.

3.2.3 Limited Skills Training Centre

Plans are now being finalized to set-up a training centre at Chukha. The aim of the training programme is to provide 12 months skills training to persons who have completed Class VI (not necessarily passing Class VI). The plan is to start with four trades:

- Masonry
- Carpentry
- Electrical Wiring
- Plumbing

The programme is proposed to follow a Foundation Model of Training which includes a three month period of on-the-job-training. Discussions are still in progress to finalize the plans and to select an implementing agency.

To summarize:

1. There is a vital need to prepare a National plan for technical education and training.
2. A detailed analysis of jobs, occupations, and manpower requirements is essential so that technical education and training can be designed to meet those needs. Following this, a database must be established to rationalize the numbers being trained in all sections of the Government.
3. The Central Office (TVED) needs to be strengthened to make a worthy contribution to the national service of technical education and training.

3.2.4 Needs of the Country to Develop and Improve Technician Education

The three institutions referred to above are the sole institutes in the country which train and generate technical personnel for both the Government and the Private sectors. Of the three the oldest is the RTI established in the 60s. The RBP was established in early 70's and NTTI was established only in 1990. Over the last five years or so, these technical institutions have become the focus of increasing concern as they failed to keep in pace to the country's requirement of skilled and technical personnel. For example, compared to the estimated demand for 1,795 civil, electrical, electronics and mechanical engineering personnel between 1990-1994, outputs from RBP, the only polytechnic diploma-awarding certificate in the country, will be about 500 technicians at current capacity, only 40% of total requirements. The acute shortage of technical staff as compared to administrators and other category of staff has been a constant worry and concern to the government. Thus not less than 10 studies were conducted over the last decade to find out ways and means of improving the Technical Education System in the country in general and specifically the training imparted at RBP, the RTI and the trade school. Virtually all those studies have identified the same basic problem areas as follows:

- A lack of coordination.
- Need to re-organize the TVED of the Department of Education.
- Need for national standard and certification.
- Accurate data on manpower and training requirements.
- Revise/update curriculum at all training institutes.
- Repair, update and add to institute building and equipment.
- Update the qualification of instructors, especially with regard to instructional techniques.

3.2.5 New Developments

There are at present two projects to help put technical education on firmer footing.

1. UNDP/ADB project for Royal Bhutan Polytechnic
2. FRG project for Royal Technical Institute and National Trade Training Institute

The projects address some of the problems enumerated earlier. In particular, the proposed projects aim to improve the quality and effectiveness of technical and vocational education offered in the institutes as well as increase the number of outputs, strengthen the institutional capacities of the Technical and Vocational education Division (TVED), and provide support for technical teacher training, curriculum upgrading and instructional materials development, and planned maintenance of equipment & physical facilities.

The policy of the Royal Government of Bhutan with respect to technical education in the country is therefore to consolidate on the existing institutions rather than building new ones. Since the country's pool of expertise on Technical Education is limited, much of its planning and detailed strategies have been worked out using international aid agencies and consultancies. In a similar light, much of the training and exposures required by our technical instructors and administrators have been acquired by sending people to foreign institutions and through their contact with the experts and consultants. In this role played by the Colombo Plan Staff College for Technician Education has been invaluable. And Bhutan, hope to take further advantage of this institute in the future, too.

Part IV

WOMEN TECHNICIAN IN INDUSTRIAL DEVELOPMENT

In Bhutan, women are treated as equal to men. There are no separate rules imposed on men and women. Both enjoy the same benefits, from education to employment. Even so, there are more educated men than women in the country.

4.1 Women's Participation at Various Levels

As women constitute almost half of the total population of the country, the Government realizes the implications of this fact and is therefore, encouraging women to participate more actively in the development processes of the country. With the acute shortage of manpower especially in the technical field, women have to contribute in order to meet these shortages.

The Government is committed to free and universal primary education with functional literacy as the main objective of basic education. However, primary education is not compulsory and if rural families had a choice between educating a son or daughter, the former's education is preferred and considered it to be wise decision for a number of domestic reasons. While the education system does not discriminate against girls attending school, socio-cultural factors such as early marriage, teenage pregnancy and the imperatives of domestic and subsistence labour prohibit rural girls from attending school as much as boys. As a result, there is a clear bias in favor of boys when examining current enrolment figures by sex. Enrolment levels for girls are about half those for boys from pre-primary to Class VI. From Classes VII and VIII, they drop to less than 50% and in Class IX and X to roughly 26% and 16% respectively. At the higher and professional level, women participation is comparatively quite low for the same reasons as mentioned.

It is unfortunate that we have no female craftsmen except for the handloom weavers, nor any technicians, as this is considered to be a man's profession from the traditional point of view. Since our economy is dominated by agriculture, most Bhutanese are farmers. Therefore, most of our people feel that a woman is expected to run the household; consequently education for girls is not encouraged, particularly at the higher or professional levels. However, it is encouraging to note that more women are taking up professional studies or completing their masters degrees to qualify themselves for holding better positions in the service. With time, Bhutanese women will participate as actively as their men folk in the development process of the country.

As mentioned earlier, women participation in technical field is very low. There are two lady engineers and 14 crafts-women in all over the country. This number increases in health slightly with four lady doctors and 155 nurses and midwives. This may be due to the fact that more Bhutanese women are becoming aware of the health hygiene aspect and with the curative approach which would also help them in their family household. The substantial contribution by these female graduates have shown a very fruitful result and the impressive acceptance by the populace has been very encouraging for the decision-makers. It is hoped that in future decision-makers will involve more females in the National Development Projects.

Though there is a great demand for women in fields where their competence is traditionally recognized (as teachers, nurses, doctors, nutritionists, secretaries, etc.) and thus less pressure for them to enter non-traditional fields, there are more women interested in courses in craftsmanship and technical studies including areas in applied science such as agriculture, animal husbandry, veterinary, etc. Earlier, females were not admitted into institutes offering these courses but the Department of Education is now admitting girls into Polytechnics and other vocational institutions. Though the number of females interested in these areas is still small, the Government hopes that in future, with the increase in facilities, female participation will increase.

In concussion, the Royal Government of Bhutan shares the concern and goal of the National Women's Association of Bhutan and strongly urges the education of girls and women. Time and again it has been mentioned that there is no limit to women's upward mobility and in fact, if capable, women could well reach higher positions quicker than their male contemporaries. Government officials also recognize that women, with at least basic education and literacy could function better in their traditional roles as mothers, agriculturists and homemakers in present day Bhutan.

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