DETAILED FEASIBILITY REPORT ON SCHOOL SUPPLIES

Part I

For

DEPARTMENT OF INDUSTRIES
MINISTRY OF ECONOMIC AFFAIRS
ROYAL GOVERNMENT OF BHUTAN

By

IDRG CONSULTANCY SERVICES
In Association with Sherpa Consultancy

February, 2009

CONTENTS

Executive summary ……..3-9

1. Chapter I Introduction …… …..10-16
2. Chapter II Education sector – Administration & Management ……..17-23
3. Chapter III Policy Scenario, Constraints & Challenges …….…..…….24-31
4. Chapter IV Overview of the Education Sector …….32-40
5. Chapter V School Supplies – Demand Estimates & Supply Chain…….. 41-51
6. Chapter VI Selection of Viable Projects ……52-58

Annexures ……..59-70

Annexure I - List of persons contacted

Annexure II - List of references

Annexure III - Project Profiles

- *1. Injection and blow molded plastic goods*
- *2. Chalk crayons*
- *3. Ball point pen and ball pen refills*

Executive Summary

Register to Remove Trial Watermark!!

IDRG

PART 1 – Review of the School supplies scenario and identification of potential projects

1. In the strategic framework of development plans, Education has been viewed as an important dimension of human capital besides contributing to Gross National Happiness and well being of the Bhutanese Society. Education expenditures therefore are deemed to be the long-term investments that are expected to provide both tangible and intangible socio-economic returns. Reflecting the basic principle of according high priority to education sector, extending free school education has been enshrined as a constitutional obligation.

2. The Government of Bhutan views public resource expenditures on education at all levels as vital investments that have both immediate and long term benefits for individuals and Bhutanese society. The underlying core concept is that the education plays a crucial role in accelerating economic growth through creating a productive national workforce and in advancing various other socio-economic objectives as emphasized in the strategic framework priority for investing in human capital.

3. The main thrust of the whole developmental process in education sector is to provide quality education for all. The education sector has been receiving a budget allocation of around 10 per cent of the country's total allocation during last few plan periods. The Government of Bhutan during past decades has also availed loans from the international agencies such as World Bank to construct more schools.

4. Today, the educational infrastructure consist of 245 community schools, 88 primary schools, 21 higher secondary schools, 23 private schools and 18 other institutions. Another 39 schools are under construction through aid from World Bank and Government of India. In the last two decades, the gross primary enrollment has increased from less than 30% of the relevant age group to nearly 72% and it has been growing at the rate of 4-5% per annum suggesting that it would be possible to achieve target of universal primary enrollment in near future.

5. In order to sustain and further strengthen the educational infrastructure and to efficiently run the school system to provide quality education to younger generation in Bhutan, a large number of inputs including construction materials, equipments, furniture and other school supplies viz. books, exercise books, other stationery items, uniforms, items for games and sports, scientific instruments etc. are required. With the increase in the number of Government schools, establishment of more and more private schools and enhancement in the number of students, the demand for these school supplies is growing very fast. At present majority of the school supplies are being imported from India by the Government agencies as well as by private business. It is in the above context that a project has been assigned to M/s IDRG Consultancy Services to carry out detailed feasibility study of school supplies projects in Bhutan.
6. The latest available statistics about the number of schools, teachers and students in Bhutan relate to the academic year 2006. According to the data published by the

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

National Statistics Bureau of Bhutan, in the academic session 2006, there were 150,957 students enrolled in 507 schools and institutions. Out of these 507 schools and institutions, 23 schools were in private sector while the remaining 484 were being run by the Government.

7. During studies of the school supplies, it was observed that the growth in education sector, establishment of new schools including those in private sector, higher level of enrollment in schools and consequent rise in the demand level of various items of school supplies and upcoming industrial development in Bhutan, there exists a potential for the setting up manufacturing units for some of the items of school supplies in Bhutan. The entire range of school supplies was accordingly studied in details.

8. The requirements of school supplies falling under three categories viz. non-consumables, consumables and services were studied. For obvious reasons, the emphasis has been on the study of consumable's requirements which included a large number of products like text books, exercise books, school uniforms, school bags and other stationery items like pencils, pen, colors and crayons, geometry box, drawing box, laboratory chemicals and consumables, laboratory glass wares, items of games and sports.

9. A large number of school supplies viz textbooks, exercise books for students in rural areas, laboratory chemicals and glass wares, sports items are procured by the Ministry of Education. The current total budget for procurement of school supplies is around NU 90 millions including NU 50 millions for textbooks and NU 40 million for other items. Accordingly, besides open market sales, the Government of Bhutan would also be a major buyer for domestic production of school supplies.

10. Based on the number of students specially those in class VI to XII & taking into consideration the average consumption level, it was found that there is a substantial demand for exercise books, school uniforms, school bags, ball point pens and refills, chalks and crayons, pencils and plastic stationery items.

11. After consideration of various factors viz current demand level and future growth projections, availability of local raw materials and skilled manpower, possibilities of export to the adjoining markets and possibility of use of environment friendly technology, it was decided in consultation with Ministry of Economic Affairs and other stakeholders that the detailed feasibility studies be carried out for the setting up units for the manufacture of exercise books & cut paper stationery and school bags & uniforms in Bhutan. Besides, it was decided that project profiles be prepared on ballpoint pen refills and chalks crayons for the benefit of prospective entrepreneurs.

12. Detailed feasibility analysis for setting up units for the manufacture of exercise books & cut paper stationery and school bags & uniforms has been carried out covering various facets as outlined in the terms of reference. These two detailed feasibility analysis for exercise books and school bags & uniforms have been given in the part II and part III of the report respectively. The salient features of these two feasibility analysis are given in the subsequent paras.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Part II – Detailed Feasibility Analysis of exercise books and cut paper stationery

13. The objective of the project is to carry out Detailed Feasibility Analysis of **Exercise Books and Cut Paper Stationery**. The project envisages the manufacture of various types of exercise books, writing pads, registers and cut paper stationery for a variety of applications.

14. Thimphu, Chhukka, Trashigang, Samdrup, Paro and Samatse happen to be the main education centres in terms of enrollment till higher secondary. Keeping in view, various other parameters, these sites have been short listed in the order of preference and it is observed that Thimphu would be the most preferred site for locating the project followed by Paro.

15. Based on the detailed study of the school supplies in Bhutan, it is observed that from market point of view, it would be feasible to setup a unit for the manufacture of exercise books and cut paper stationery. The current demand level for various types of exercise books for school students only is estimated to be around 2 million per year. In addition to this, there is a demand from offices, commercial establishment and households. Besides the proposed unit in Bhutan could market, their products in north-eastern part of India and also in other adjoining markets. Presently, there are no manufacturing units for exercise books in Bhutan and the entire demand is being met through imports. There exist possibilities of marketing exercise books, both to the government and private trade. There being no local competition, the proposed unit stands a good chance of capturing substantial domestic markets.

16. The Annual Production capacity recommended is 3 million nos of Exercise books and registers (assorted size) and 30,000 reams of cut paper stationery.

17. The Land and Building Requirement is as given below: -

Plot area - 1000 sq. mts
Built up area – 250 sq mts
Industrial shed – 500 sq. mts

18. The total power requirement would be 37.5 KWH.

19. Main machinery includes Automatic ruling machine, Paper cutting machine, Note book folding machine, Binding machine, Wire stitching machine and Spiral binding machine.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

20. Man power requirement would be as under: -

Managerial and office staff	– 5 nos.
Skilled and unskilled workers	– 23 nos

21. Total project cost is estimated as Rs. 160.38 lacs.

22. The project implementation period is estimated to be around 10-11 months.

23. Means of finance would be as under:

Debt	-	Rs. 112.26 lacs (70%)
Equity	-	Rs. 48.11 lacs (30%)

24. Break up of cost of project is as under: -

Machinery	-	Rs. 69.53 lacs
Construction cost	-	Rs. 32.50 lacs
Misc. fixed assets	-	Rs. 3.00 lacs
Pre-operative exp.	-	Rs. 5.00 lacs
Training expenses	-	Rs. 0.70 lacs
Interest	-	Rs. 13.29 lacs
Working capital	-	Rs. 36.36 lacs
Total	**-**	**Rs. 160.38**

25. Annual sales turnover is estimated as Rs. 5.3 crores.

26. The financial analysis results are as under

IRR	– 65% on equity
IRR	– 36% on investment
NPV	– Rs. 254.95 lacs (discount rate of 12%)
Pay back period	– 2 years 6 months
Project Break-Even	– 39%

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Part III – Detailed Feasibility Analysis of School Bags and Uniforms

28. The objective of the Project is to carry out Detailed Feasibility Analysis of School Bags and School Uniforms. The project envisages the manufacture of school bags and air bags in various sizes and designs and school uniforms as well as readymade garments.

29. Thimphu, Chhukka, Trashigang, Samdrup, Paro and Monggar happen to be the main education centres in terms of enrollment till higher secondary. As the students happen to be the target customers, it would be quite logical to locate the unit near to these education centres. Besides, as the unit would also be manufacturing air bags and readymade garments, the vicinity to trade centres would be an added advantage. Keeping in view, various other parameters, these sites have been short listed in the order of preference and it is observed that Thimphu would be the most preferred location for the project followed by Paro and Chukka.

30. The detailed study of school supplies scenario has revealed that there is enough demand of school bags and school uniforms to justify the setting up of an integrated manufacturing unit for these two products. The current demand level for school bags is around 1,60,000 nos while the demand of uniforms is around 90,000 sets of uniforms. In addition to this, there is a substantial market demand for air bags and readymade garments which could be easily manufactured in the proposed unit. Presently, there are no manufacturing units in Bhutan for school bags and uniforms. The demand is being met through imports. There being sufficient demand, both in school supplies sector as well as in open market and there being no indigenous production, the proposed unit is expected to have bright prospects for capturing a substantial share of domestic market. Besides, the unit could also explore the possibilities for export to neighboring markets.

31. The Annual Production capacity recommended is as given below: -

School bags – 1,00,000 pieces per annum
Sets of uniform – 1,20,000 pieces per annum

32. The Land and Building Requirement for the plant is as under: -

Plot area – 1500 sq. mts
Built up area – 300 sq mts
Industrial shed – 950 sq. mts

33. The Power requirement for the project is around 45 KWH.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

34. Main machinery includes Industrial sewing machine – semi-automatic, heavy duty craftsman sewing machine and Tape braiding machine for bag section & Cloth cutting machine, Single needle sewing machine – universal, over lock safety stitching machine, Button holing machine and Button stitching machine for uniform section.

35. Manpower requirement would be as under: -

Managerial and office staff	–	7
Production supervisor	–	2
Cutting master	–	2
Tailoring staff for bag section	–	35
Tailoring staff for uniform section	–	90
Unskilled workers with helpers	–	70

36. The total project is estimated around of Rs. 163.82 lacs.

37. The project implementation period for the project is around 10 months.

38. The means of finance for the project are given below

Debt	-	Rs. 114.67 lacs (70%)
Equity	-	Rs. 49.14 lacs (30%)

39. The break up of cost of project is as under: -

Machinery	-	Rs. 36.11 lacs
Construction Cost	-	Rs. 51.25 lacs
Misc. Fixed Assets	-	Rs. 3.00 lacs
Pre-operative exp.	-	Rs. 5.00 lacs
Training Expenses	-	Rs. 0.36 lacs
Interest	-	Rs. 11.49 lacs
Working Capital	-	Rs. 56.61 lacs
Total	**-**	**Rs. 163.82 lacs**

40. The annual sales turnover would be around Rs. 7.2 crores.

41. The financial analysis of the project is given below: -

IRR – 36% on investment
IRR – 56% on equity
NPV – Rs. 206.75 lacs (discount rate of 12%)
Pay back period – 2 years 6 months
Project Break-Even – 69%

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

Chapter I

Introduction

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

1. Background

1.1 The history of development in education sector like all other social and economic sectors in Bhutan dates back to 1960 when Bhutan opened its doors to the forces of change and modernization. In early 1960's Bhutan had only 11 primary schools, which catered to the needs of less than 500 children. It was only in 1968 that the first 20 Bhutanese completed high school education in the country. There were no arrangements to produce teaching material or for training of teachers.

1.2 During the last four decades Bhutan has undergone a major transformation. The progress recorded in diversification of economy and the development of physical infrastructure has been more than matched by the progress in the social sectors viz. education and health. Today the educational infrastructure consist of 245 community primary schools, 88 primary schools, 84 lower secondary schools, 29 middle secondary schools, 21 higher secondary schools, 23 private schools and 18 other institutions. Another 39 schools are under construction through aid from World Bank and Government of India. In the last two decades the gross primary enrollment has increased from less 30% of the relevant age group to nearly 72% and it has been growing at the rate of 4-5% per annum suggesting that it would be possible to achieve target of universal primary enrollment in near future.

1.3 The secondary education has also been growing rapidly. With a view to facilitate those, who belong to remote areas, in acquiring secondary level education, boarding facilities have been created in a number of middle secondary and higher secondary schools. One of the most positive developments has been the setting up of private schools and encouragement to private sector enterprises for establishing educational institutions. Besides significant development has been made in the field of tertiary education. Opportunities have been enlarged for acquiring technical, administration, managerial and vocational skills by Bhutanese people so that they could effectively contribute in maintaining the pace of social and economic development of the country.

1.4 In order to sustain and further strengthen the educational infrastructure and to efficiently run the school system to provide quality education to younger generation in Bhutan, a large number of inputs including construction materials, equipments, furniture and other school supplies viz. books, exercise books, other stationery items, uniforms, items for games and sports, scientific instruments etc. are required. With the increase in the number of Government schools, establishment of more and more private schools and enhancement in the number of students, the demand for these school supplies is growing very fast. At present majority of the school supplies are being imported from India by the Government agencies as well as private business.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

2. Justification for the Project

2.1 With the growth in education sector, consequent rise in the demand level of various items of school supplies, upcoming industrial development in Bhutan, it has been considered in the fitness of things that some of the school supplies could be manufactured within the country. This approach would provide higher level of sustainability to educational system as well as help in industrial development of the country. It has therefore been considered desirable to study the entire spectrum of school supplies viz. the major items of supplies, their current level of demand, future demand projections, frequency of recurrence of the demand, major centers of requirement, present system of supplies, comparative advantages of factor inputs and markets, etc. and then select some viable projects for development in Bhutan. Out of these short-listed projects, some potential projects are to be studies for detailed feasibility so as to facilitate the private sector in making investment decisions for setting up commercial ventures in the field of school supplies.

2.2 With the establishment of basic infrastructure, major investment in hydropower, the focus of the Government is now on expansion of economic ways through increased investment in business and manufacturing activities. The Government is keen to promote industrial units in various product sectors to meet the domestic demand as well as for exports. While the Government is keen to pursue private sector led growth, there has been a dearth of project ideas. The private sector entrepreneurs particularly those interested in Small and Medium Enterprises (SMEs) have their inherent limitations in undertaking feasibility studies at their own. With this background, Department of Industry, Ministry of Economic Affairs with the responsibility to promote industrialization has initiated a programme for identification of project ideas and feasibility studies for the benefit of private sector investors. Schools supplies have been identified as one of the potential sectors for identification of viable projects and detailed feasibility studies for few selected projects.

2.3 It is in the above context that a study has been assigned to M/s IDRG Consultancy Services. The focus of the study shall be to carry out an intensive investigation in close consultation with the Ministry of Economic Affairs, Ministry of Education, relevant organization and institutions and other stake holders and prepare a detailed feasibility report for school supplies project in Bhutan. The above stated consideration and objectives are clearly evident in the terms of reference of this study as given in Annexure-I.

3. Approach to Work

3.1 The terms of reference envisage that the study would be conducted in two phases, the first will be the preliminary studies to identify the viable projects in the field of school supplies, selection of projects with maximum potential for development and the second would be to carry out detailed feasibility studies for the selected projects. Accordingly, during the study on the project and formulation of feasibility report, following were attempted at:

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

- Review and examine the current education scenario, future policies and programmes.
- Review the available literature, information, and statistics about the requirement of school supplies, the policies and prevailing practices for their procurement.
- Assessment of the current demand level for various items of the school supplies and make future demand projections.
- Shortlist the items/group of items, which can be taken up for production in Bhutan.
- Select the projects with maximum potential.
- Study the selected project(s) for preparing detailed feasibility report.
- Preparation of detailed feasibility report on school supplies.

4. Methodology

4.1 The methodology comprised of collecting and collating information from Government authorities, private business and other stake holders in educational sector about various items of school supplies, prevailing practices of supplies, current demand level and future demand projections. The Consultants further attempted to:

- Review the data on current and future demand projections of various items of the school supplies and prepare a list of items substantial recurring demand.
- Assess the technical viability of manufacture of these items/group of items.
- Draw upon a list of projects in school supplies, which are considered viable.
- Select project(s) with maximum potential in consultation with the Department of Industry, Ministry of Economic Affairs.
- Carry out detailed feasibility studies of the selected project(s) as per terms of reference.
- Submission of the final report.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

5. Consultation & Review of the Literature & Information

5.1 IDRG team initiated the work on the project on 28th April, 2008 with a briefing meeting with the Chief Industries Officer & Project Officer in the Department of Industry, Ministry of Economic Affairs. Subsequent to briefing meeting IDRG team had meetings and discussions with various stakeholders in Education sector including Government authorities, schools, private sector business & industrial units.

5.2 The Consultancy team had extensive meetings at Thimphu, Phuentsholing and Pasakha with several government officials and the private sector. IDRG team had a meeting with Director, Department of School Education, Ministry of Education; Director gave the background of school education system in Bhutan. It was informed that majority of schools in Bhutan are Government Schools and there are only few private schools. There is a separate agency viz. School Planning & Building Department, which coordinates the work relating to setting up of new Government schools. Director also outlined the policy for procurement and distribution of textbooks, exercise books, stationery items etc. A booklet on education policy guidelines and instructions by Policy Planning Division, Ministry of Education was also made available to the team. The team also had a meeting with the Chief Administrative Officer, Department of Education, Ministry of Education. It was informed that the current level of procurement is as under:-

- Total procurement budget - NU 90 millions
- Budget for text books - NU 50 millions
- For other items - NU 40 millions

5.3 It was observed during discussion that except textbooks for which sufficient indigenous capacity has been created; all other items are being procured from India through tender system. It was further informed that the details about major items of purchase, their procurement level and value would be compiled and made available to the team, later.

5.4 The team had discussions with some printing presses and stationery stores. Majority of the stationery items are being imported, as there are no indigenous manufacturing units. The printing presses were also interested in job work only and did not show any inclination for taking up the production of exercise books, etc.

5.5 The team had a meeting with Director, National Statistics Bureau with a view to have the statistics about education sector. The Statistical Year Book of Bhutan 2007 relating to statistics of year 2006 was made available to the team.

5.6 The team also had meeting with Joint Director, Department of Revenue and Customs for ascertaining the level of imports of item of school supplies as also the countries of origin.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

5.7 IDRG team also had a meeting with Secretary General, Bhutan Chamber of Commerce & Industry (BCCI) to have their perspective on industrial development in Bhutan and the problem areas.

5.8 Practically there are no industrial units manufacturing item of school supplies in Bhutan. However, the team had meetings with a number of industrial units at Phuentsholing and Pasakha in the field of wood products, plastic product, industrial gases, and health food. The discussion with industrial units provided an insight about the problems being faced by the entrepreneurs as also the suggested remedial measures to accelerate the pace of industrialization in Bhutan.

6. Presentation of Inception Report

6.1 Based on the information from various stakeholders in education sector, relevant literature and available data, IDRG submitted an inception report on the subject. At a meeting held on 22nd May, 2008 in the Ministry of Economic Affairs, wherein all stake holders were present, IDRG team made a presentation on the findings of the inception report on the detailed feasibility study on school supplies in Bhutan. During the presentation, it was suggested that the two main products out of the various items of school supplies, be studied for detailed feasibility analysis. IDRG team was advised to select these two items based on the various parameters and considerations relating to market demand, availability of raw materials, technology and skilled manpower, environmental consideration, etc. using matrix model. The comments and observations made during the meeting and subsequent written observations, if any, by the concerned authorities were also to be incorporated in the final report. Subsequently IDRG submitted the relevant information to Ministry of Economic Affairs and finalized the following two items of school supplies for detailed feasibility analysis:-

- Exercise books and cut paper stationery
- School bags and uniforms

7. Organizations and Institutions Contacted

7.1 Subsequent to presentation of inception report, IDRG team had another round of meetings with concerned organizations and institutions in order to collect detailed information relating to identified projects and also the details on availability of land and other infrastructure, availability of finances, existing marketing channels, current prices scenario etc. Back in India, the team had extensive discussions and meetings with large number of industrial units, concerned organizations, knowledgeable persons engaged in the manufacture of similar products, manufacturers of machinery and equipment, manufacturers and suppliers of raw materials in various parts of the country. Quotations and indicative prices of various items of machinery and equipments and raw

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

materials were obtained from the concerned manufacturers through meetings and correspondence.

7.2 The team's endeavor has been to collect maximum possible information and details on education sector. The list of the organizations visited and all the persons who were kind enough to spare their time for discussions with IDRG team during their visits to Bhutan is as given in annexure 1.

7.3 The list of industrial units, organizations and institutions visited in India through correspondence and meetings is quite extensive. The relevant names and addresses of the concerned organizations have been given along with the detailed feasibility analysis of the above stated two items of school supplies in the list of machinery and equipment suppliers and raw materials manufacturers and suppliers. The detailed feasibility analysis of exercise books and school bags & uniforms have been covered in the part II and part III of the report.

7.4 The information available during the discussions was further supplemented by review of the published literature and the information available on Internet in public domain. List of documents and literatures and books consulted by the team for all the three parts of the report on school supplies is given in annexure II:

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Chapter II

Education Sector - Administration & Management

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

Education Sector - Administration & Management

1. Approach to Development

1.1 As is well known and appreciated, Gross National Happiness (GNH) is the core theme of developmental philosophy especially in the context of education and health sector. Having accepted that the maximization of Gross National Happiness is the philosophy and objective of the country's development, it was necessary to more clearly identify the main areas, which would most contribute towards furthering this philosophy and objective. Recognizing that a wide range of factors contribute to human well-being and happiness and that it may not be possible to fully and exhaustively define or list everything for the purpose of its development planning, the country has identified four major areas as the main pillars of Gross National Happiness. These are:

- Economic growth and development
- Preservation and promotion of cultural heritage
- Preservation and sustainable use of the environment and
- Good governance

1.2 It was recognized that economic growth is essential to support and nurture the spiritual and social needs of the community. This has led the country to clearly stipulate that economic growth, while essential, is not an end in itself but is one among many means of achieving holistic development. This has led to the declared objective of viewing development as a continuous process towards a balance between material and non-material needs of individuals and society. Accordingly it was also mandated that at the central focus of planning is the individual whose welfare and well being especially in social sectors like health & education need to be ensured by the Government.

1.3 In the strategic framework of development plans, Education has been viewed as an important dimension of human capital besides contributing to Gross National Happiness and well being of the Bhutanese Society. Education expenditures therefore are deemed to be the long-term investments that are expected to provide both tangible and intangible socio-economic returns. The continued reinvestments in education sector are envisaged to help protect other long-term human capital investments from erosion and enhance their impact considerably. Reflecting the basic principle of according high priority to education sector, extending free school education has been enshrined as a constitutional obligation.

1.4 The Constitutional commitment to provide free basic education for all Bhutanese population has considerable positive ramifications on the prospects of reducing both income and human poverty in Bhutan. The thinking has been that there is a growing evidence to support the contention that in many countries, education is closely linked to

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

productivity. As such education investment are regarded to generate greatest productivity benefits for the poor and the low income groups and these investment also create positive impact on this section of society.

2. Modern Education System in Bhutan

2.1 Review of the published literature would reveal that, Western-style education was introduced to Bhutan during the reign of Ugyen Wangchuck (1907-26). Until the 1950s, the only formal education available to Bhutanese students, except for private schools in Ha and Bumthang, was through Buddhist monasteries. In the 1950s, several private schools were established without government support, and several others were established in major district towns with government backing. By the late 1950s, there were twenty-nine government and thirty private primary schools, but only about 2,500 children were enrolled. Secondary education was available only in India. Eventually, the private schools were taken under government supervision to raise the quality of education provided. Although some primary schools in remote areas had to be closed because of low attendance, the most significant modern developments in education came during the period of the First Development Plan (1961-66), when some 108 schools were operating and 15,000 students were enrolled.

2.2 The First Development Plan provided for a central education authority--in the form of a director of education appointed in 1961--and an organized, modern school system with free and universal primary education. Since that time, following one year of preschool begun at age four, children attended school in the primary grades--one through five. Education continued with the equivalent of grades six through eight at the junior high level and grades nine through eleven at the high school level. The Department of Education administered the All-Bhutan Examinations nationwide to determine promotion from one level of schooling to the next. Examinations at the tenth-grade level were conducted by the Indian School Certificate Council. The Department of Education also was responsible for producing textbooks; preparing course syllabi and in-service training for teachers; arranging training and study abroad; organizing interschool tournaments; procuring foreign assistance for education programs; and recruiting, testing, and promoting teachers, among other duties.

2.3 The core curriculum set by the National Board of Secondary Education included English, mathematics, and Dzongkha. Although English was used as the language of instruction throughout the junior high and high school system, Dzongkha and, in southern Bhutan until 1989, Nepali, were compulsory subjects. Students also studied English literature, social studies, history, geography, general science, biology, chemistry, physics, and religion. Curriculum development often has come from external forces, as was the case with historical studies. Most Bhutanese history is based on oral traditions rather than on written histories or administrative records. A project sponsored by the United Nations Education, Scientific, and Cultural Organization (UNESCO) and the University of London developed a ten-module curriculum, which included four courses on Bhutanese history and culture and six courses on Indian and world history and

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

political ideas. Subjects with an immediate practical application, such as elementary agriculture, animal husbandry, and forestry, also were taught.

2.4 Bhutan's co-educational school system in 1988 encompassed a reported 42,446 students and 1,513 teachers in 150 primary schools, 11,835 students and 447 teachers in 21 junior high schools, and 4,515 students and 248 teachers in 9 high schools. Males accounted for 63 percent of all primary and secondary students. Most teachers at these levels--70 percent--also were males. There also were 1,761 students and 150 teachers in technical, vocational, and special schools in 1988.

2.5 Despite increasing student enrolments, which went from 36,705 students in 1981 to 58,796 students in 1988, education was not compulsory. In 1988 only about 25 percent of primary-school-age children attended school, an extremely low percentage by all standards. Although the government set enrolment quotas for high schools, in no instance did they come close to being met in the 1980s. Only about 8 percent of junior high-school-age and less than 3 percent of high-school-age children were enrolled in 1988.

2.6 Bhutan's literacy rate in the early 1990s, estimated at 30 percent for males and 10 percent for females by the United Nations Development Programme (UNDP), ranked lowest among all least developed countries. Other sources ranked the literacy rate as low as 12 to 18 percent.

2.7 Some primary schools and all junior high and high schools were boarding schools. The school year in the 1980s ran from March through December. Tuition, books, stationery, athletic equipment, and food were free for all boarding schools in the 1980s, and some high schools also provided clothing. With the assistance of the United Nations Food and Agriculture Organization's World Food Programme, free midday meals were provided in some primary schools.

Higher education was provided by Royal Bhutan Polytechnic just outside the village of Deothang, Samdrup Jongkhar District, and by Kharbandi Technical School in Kharbandi, Chhukha District. Founded in 1973, Royal Bhutan Polytechnic offered courses in civil,

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

mechanical, and electrical engineering; surveying; and drafting. Kharbandi Technical School was established in the 1970s with UNDP and International Labour Organization assistance. Bhutan's only junior college--Sherubtse College in Kanglung, Tashigang District-- was established in 1983 as a three-year degree-granting college affiliated with the University of Delhi. In the year it was established with UNDP assistance, the college enrolled 278 students, and seventeen faculty members taught courses in arts, sciences, and commerce leading to a bachelor's degree. Starting in 1990, junior college classes also were taught at the Yanchenphug High School in Thimphu and were to be extended to other high schools thereafter.

2.8 Education programs were given a boost in 1990 when the Asian Development Bank granted a US$7.13 million loan for staff training and development, specialist services, equipment and furniture purchases, salaries and other recurrent costs, and facility rehabilitation and construction at Royal Bhutan Polytechnic. The Department of Education and its Technical and Vocational Education Division were given a US$750,000 Asian Development Bank grant for improving the technical, vocational, and training sectors. The New Approach to Primary Education, started in 1985, was extended to all primary and junior high schools in 1990 and stressed self-reliance and awareness of Bhutan's unique national culture and environment.

2.9 Most Bhutanese students being educated abroad received technical training in India, Singapore, Japan, Australia, New Zealand, Britain, the Federal Republic of Germany (West Germany), and the United States. English-speaking countries attracted the majority of Bhutanese students. The vast majority returned to their homeland.

3. Administration & Management Systems

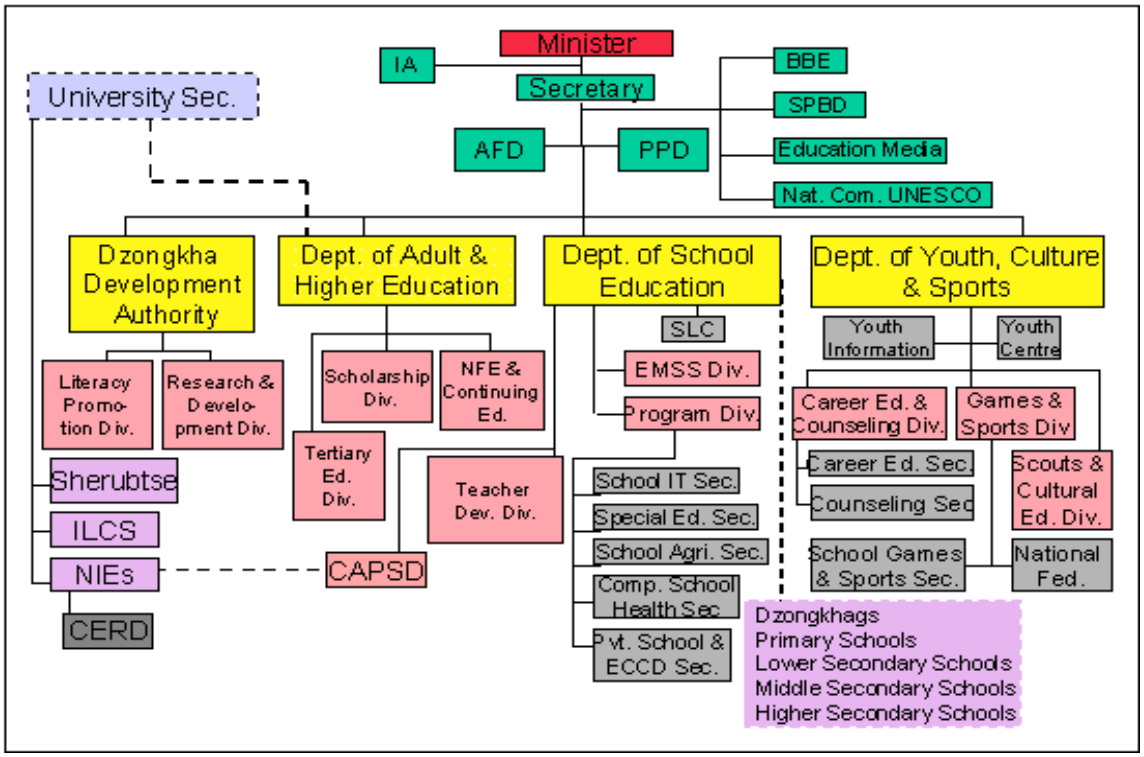
3.1 The Ministry of Health & Education bifurcated into two separate Ministries in mid 2003. The establishment of a separate Ministry of Education is a milestone in the history of education sector in Bhutan. This has been done to provide adequate policy development, planning and administrative and managerial support to the ever-expanding educational system. The Ministry of Education is entrusted with a wide range of responsibilities viz. policy, planning and administration of basic, secondary and general academic higher education.

3.2 The Ministry of Education now comprises of three main departments namely, the Department of School Education (DSE), the Department of Audit & Higher Education (DAHE) and the Department of Youth Culture & Sports (DYCS). Further, as a part of the Government's restructuring exercise the Dzongkha Development Authority (DDA) and National Commission for UNESCO, are placed under the Ministry of Education. There is now a clear line of job responsibilities and functions for each section and the unit within Education Ministry to ensure rationalization of resources and coordinated approach for the management of education system. The organizational structure of Ministry of Education is as given below:-

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

Fig. 1.6 (a) Organisational Structure, Ministry of Education



4. Decentralization of Administration

4.1 One of the best things that have happened in education sector is the decentralization of the administration of the schools to Dzongkhag. As per policy, the schools are to be constructed both by Dzongkhag and the Ministry of Education. The procurement of a number of school supplies has also been decentralized. At the Dzongkhag level, education matters are looked after by the Dzongkhag Education Officers (DEOs). DEOs report directly to the Dzongda but is also accountable to the Ministry of Education for education matters within the Dzongkhag.

4.2 School Planning & Building Division (SPBD) in the Ministry of Education is responsible for planning and coordination of construction activities for building of new schools. With the policy of decentralization, considerable volume of school construction work has since been transferred to Dzongkhag. The Ministry of Education has been coordinating with the Ministry of Works & Human Settlement and other agencies for speedy implementation of school construction works. The allocation of responsibilities between SPBD, Ministry of Education and Dzongkhag in the matters of school building projects is as under:-

4.3 Responsibilities of SPBD

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

- Finalization of standard building drawings & estimates and technical sanctions.
- To provide complete Master Plans in case of Government of India school sites.
- Provide schematic Master Plans in case of other school sites.

4.4 Responsibilities of Dzongkhag

- Land acquisition, payment, transfer and registration
- Finalization of annual construction programme
- Finalization of corresponding annual budget
- Processing of technical sanctions and all other approvals.
- Floating of NIT and selection of contractor as per financial manual.

4.5 It is informed that 28 schools are under construction through World Bank aid and another 10 schools are being built through aid from Government of India.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Chapter III

Policy Scenario, Constraints & Challenges

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Policy Scenario, Constraints & Challenges

1. Planning for Education

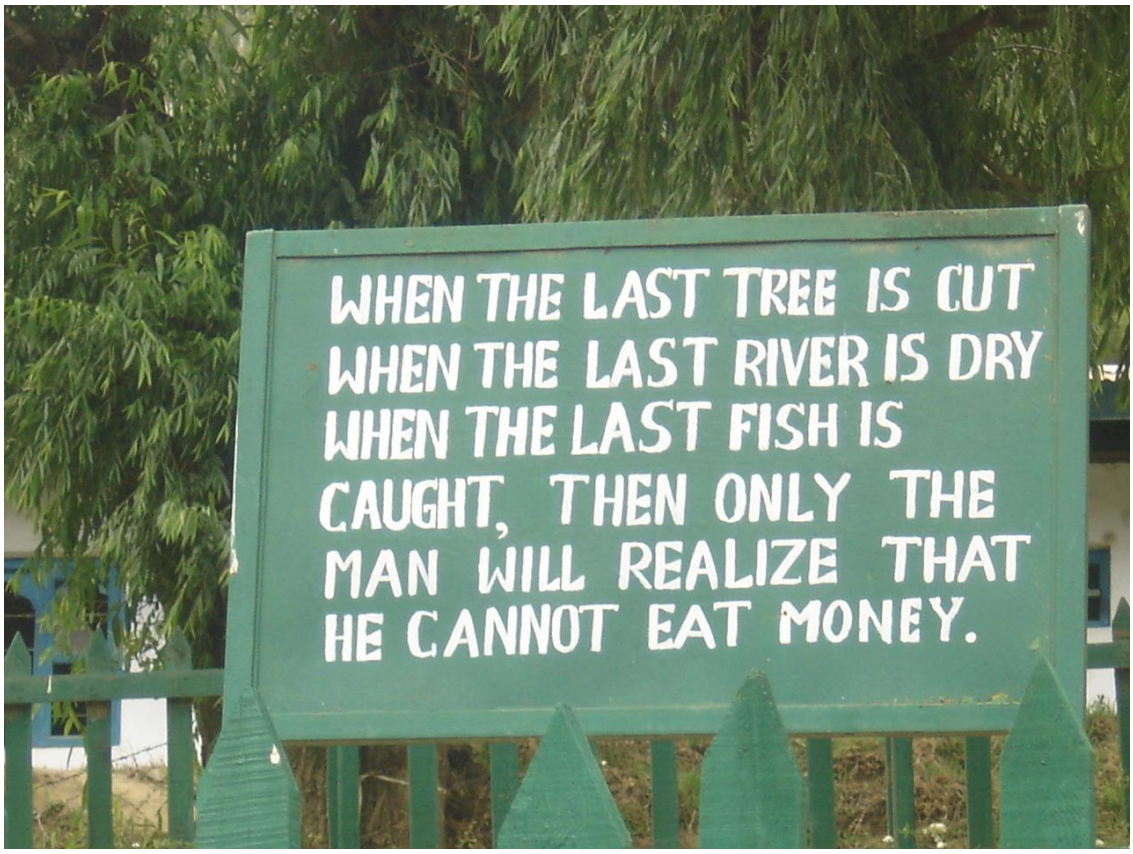
1.1 The tradition of entitlements and welfare in Bhutan has emphasized free education even in the medieval period when the state supported free monastic education. Similarly, in modern Bhutan, education is accessible to everyone. Free tuition, textbooks, sports equipments, meals and boarding facilities where required, are important means of ensuring this. The Government of Bhutan also provides free stationery to rural schools. This free provision is balanced by appropriate contributions from the parents to engender a sense of participation amongst the communities.

1.2 The Government of Bhutan views public resource expenditures on education at all levels as vital investments that have both immediate and long term benefits for individuals and Bhutanese society. The underlying core concept is that the education plays a crucial role in accelerating economic growth through creating a productive national workforce and in advancing various other socioeconomic objectives as emphasized in the strategic framework priority for investing in human capital. The advent of a democratic form of governance in Bhutan also demands a better-educated polity to make well-informed choice and participate more meaningfully in national and local political affairs. Moreover, the expansion and improvements in the quality of education at all levels will greatly determine the prospects for the eventual emergence for a knowledge based society in Bhutan.

1.3 Another important consideration has been that education constitutes a strategic means to achieve poverty reduction in the country. In this regard, various studies conducted in Bhutan and elsewhere, have revealed very strong linkages between educational attainment and poverty alleviation. It has been observed that a mid-secondary education could have a noticeable impact in lifting an individual out of poverty. The benefits of education for poverty alleviation in countries all around the world are also well documented and known. These documents and reports persuasively argue the case that ignorance and the lack of education have far-reaching socio-economic costs and detrimental consequences that perpetuate a vicious cycle of poverty and disempowerment.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!



A Board in a School in Thimphu

1.4 In view of the above stated logic and the broader quest to improve happiness and life satisfaction in Bhutanese society, the education sector has continued to receive high priority in successive five-year plan. In the 10th plan also the same policy would continue. In the Tenth Plan special emphasis will be laid on sustaining universal basic education in terms of

- Enhanced net enrollments,
- Providing equal opportunity and access in education at all levels,
- Improving education quality and standards,
- Enhancement of value education,
- Promotion of national literacy and
- Making education more relevant to the workplace.

1.5 The further expansion of higher education, particularly technical and management education, and the promotion of lifelong learning opportunities are other

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

areas of significant priority too as they considerably advance the quality and level of human capital formation.

2. Constraints and challenges

2.1 Though the progress made within the primary education programme over the last decade to meet the Millennium Development Goals (MDGs) and the education for all has been excellent, however the process of attaining these objectives have stretched the limited resources of teachers, facilities and finance and severely tested the capacity of the system to deliver Bhutan's commitment to quality education for all. There are also several challenging issues related to monitoring education in remote areas, maintaining staff morale and improving teacher's performance. Other important educational concerns relate to inadequate access to primary education in a few small and isolated communities and enhancing incentives for teachers especially those in remote areas.

2.2 The strengthening of inclusive education, including providing adequate access and opportunities to children with special needs of disabilities, providing boarding facilities in remote and highly dispersed settlements are other issues which need to be looked in to.

2.3 The success at the primary level has placed enormous pressures on the secondary and post secondary levels with an ever-increasing number of students moving up the education ladder. This has resulted in a critical shortage of secondary education places and qualified Bhutanese teachers at this level. There is a further increasing pressure of providing gainful employment to many of the educated youth who do not go to tertiary level education, as many of them are unskilled. Addressing the apparent mismatch between the skill level of educated youth and job availability in the labour market thus constitutes a major area of concern for education reforms.

2.4 Achieving gender parity at the higher secondary and particularly tertiary level is another challenge. While gender parity at the primary and mid-secondary level has been achieved, it continues to remain a problem at higher secondary and tertiary levels. This calls for the need to adopt affirmative action and relevant measures to ensure gender parity at these levels. The achievement of gender parity at higher level of education would promote more effective utilization of female human capital in labour market and address the gender imbalance in more remunerative jobs and higher profile occupations including the upper echelons of political and civil service positions.

2.5 Various policy initiatives have been undertaken to encourage students to enter vocational training. However, the present vocational education system is both inadequate and inefficient. It is also an unpopular option for many students due to low status and poor working conditions associated with blue-collar jobs. Career counseling and introduction of some basic skills training through a system of school club and career information system need to be strengthened to help address this issue.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

2.6 In view of the above constraints and widely dispersed nature of Bhutanese settlements, it is becoming increasingly difficult to provide educational services on the basis of continued expansion of community primary and primary school infrastructure and resources. The strategic shift to be employed as outlined in the draft tenth plan envisages consolidating schools for more effective and rational utilization of resources. This will not only enable a better provisioning and pooling of educational services, resources and opportunities in a optimal location to a larger body of the students but will also allow for improved quality of education and better monitoring of the system.

2.7 The process of consolidation will not reduce access to primary education or result in decline in its school participation. Boarding facilities are to be provided in more remote areas including mid-day meals in the day schools and bus service in urban areas. For children of poor families this will also include providing a living stipend, clothes and other essential amenities.

3. Policy Objectives

3.1 Taking cognizance of the existing scenario, constraints and challenges, the main thematic objective of the education as enunciated in the draft tenth plan would be the consolidation and further enhancement of the quality of education. The salient key objectives particularly in the context of this study would include the following:-

- Enhance Primary Net Enrolment to near 100% by 2013.
- Provide opportunity for at least 40% of class X pass outs to enroll in class XI.
- Develop a more sustainable education system through private participation and cost sharing measures.
- Promote an education industry based on high academic quality.
- Enhance quality of education to achieve competency in languages, ICT, Mathematics and Science to match international standards.
- Strengthen and improve education management system at all levels with particular emphasis on school level management.
- Enhance enrollment of girls in tertiary education.

4. Strategies

4.1 The draft tenth plan includes the following strategies to achieve the above stated objectives of the education sector:-

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

- Support **DZONGKHAGS** and **GEWOGS** to increase number of schools especially the small community primary schools in remote and interior areas.
- Effect a consolidation of schools in urban and rural areas for more effective rationalization of resources and improvement in the quality of education.
- Establish boarding facilities to cater to the needs of dispersed settlements.
- Upgrade selective community and primary schools to the secondary schools and establish new secondary schools to meet the growing demand at this level.
- Expand the number and variety of private schools.
- Institutionalize boarding school payment arrangement for a more sustainable education system.
- Education industry to be promoted through private and foreign participation.
- Enhance management system with emphasis on monitoring quality of education.
- Enhance health and physical education programme and provide for more organized games and sports.
- Enhance science education at all levels.
- Expand programme of technical and vocational education clubs in schools to orient the thinking in favour of technical and vocational education.

5. Budget & Financing of Education

5.1 The main thrust of the whole developmental process in education sector is to provide quality education for all. The education sector has receiving a budget allocation of around 10 per cent of the country's total allocation during last few plan periods. The Government of Bhutan during past decades had to resort to loans from the international agencies such as World Bank to construct more schools. The Government had taken a loan of more than US $ 70 million from World Bank for three projects in education sector. During ninth plan period, the Ministry of Education was able to seek assistance from various bilateral and multilateral organizations and more than ninety per cent of the capital funds were thus secured.

5.2 The rising demand for education and the limited resources compelled the Government to implement a number of cost saving measures such as involving communities and district authorities in assisting in the construction of primary schools in their localities. The Government provides design and materials and the community supplies the labour. In order to make education accessible to everyone, free tuition, free

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

textbooks, sports items, meals and boarding facilities wherever required are provided by the Government.

5.3 Further, to meet the growing public demand for a wider and more diverse choice of higher education facilities and provide options for parents who can afford, the private sector is being encouraged to set up the schools. Presently there are 23 private schools inclusive of nursery, primary and secondary schools in whole of Bhutan. As per Government policy the partnership with and engagement of private sector in establishing the schools is to be actively promoted. The policy for engagement of foreign investors in partnership to develop high quality academic schools and institutions is also to be actively pursued.

5.4 Education in Bhutan is free, however, parents pay a token fee towards the welfare of the students which is as under:-

- Primary School : NU 30
- LSS : NU 100
- MSS/HSS : NU 200

5.5 Students also need to buy uniform in all the schools. There is also a travel cost when children graduate from primary school and need to move to lower secondary schools.

5.6 As stated above, the education has been considered as one of the priority sectors for budget allocation. The **Table-I** depicts the ninth plan outlay and allocation to education. The table also indicates percentage of education sector outlay in the total plan budget allocation including central ministries, autonomous organization, DZONGKHAGS and GEWOGS.

Table -I

Ninth Plan Budgetary Allocation & Outlay 2002-2007

NU in Million

Organization/Ministry	Capital	Recurrent	Total	Percent in total Plan Allocation
Department of Education	998.476	1598.485	2596.961	3.7

Source: Statistical year book of Bhutan-2007

5.6 According to available information, the capital outlay for education sector in the tenth plan for both central and DZONGKHAGS programme is NU 11755.99 million. The

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

Table -II below depicts the capital and recurrent expenditures by the Government on education sector during the last three years:

Table-II

Recurrent and Capital Budgetary Expenditures on Education

NU in Million

Year	Recurrent Budgetary Expenditure	Capital Budgetary Expenditure	Total
2003-2004	405.80	342.23	748.03
2004-2005	419.50	249.49	717.99
2005-2006	155.10	476.83	631.93

Source: Statistical year book of Bhutan-2007

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

Chapter IV

Overview of the Education Sector

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Overview of the Education Sector

1. Formal Education System

1.1 The introduction of comprehensive education system in Bhutan came along with the economic development in 1961. Prior to initiation of the process of economic development and modernization, there were virtually no modern educational facilities in Bhutan and the only form of education was through MONASTIC form of education, which continues to exist even today. Over a period of time a modern system of education has been established and today there exists an extensive network of schools and other educational institutions spread through out the country. The present form of education refers to hierarchically structured and chronologically graded learnings, which requires certificate to the learner to progress through the grades to go to higher levels. The formal education system consists of

- One year pre-primary schooling (PPS)
- Six year primary schooling (PS)
- Two years lower grade schooling (LSS)
- Two years middle secondary schooling (MSS)
- Two years higher secondary school and
- Three years of tertiary education or college

2. Educational Systems and Structure

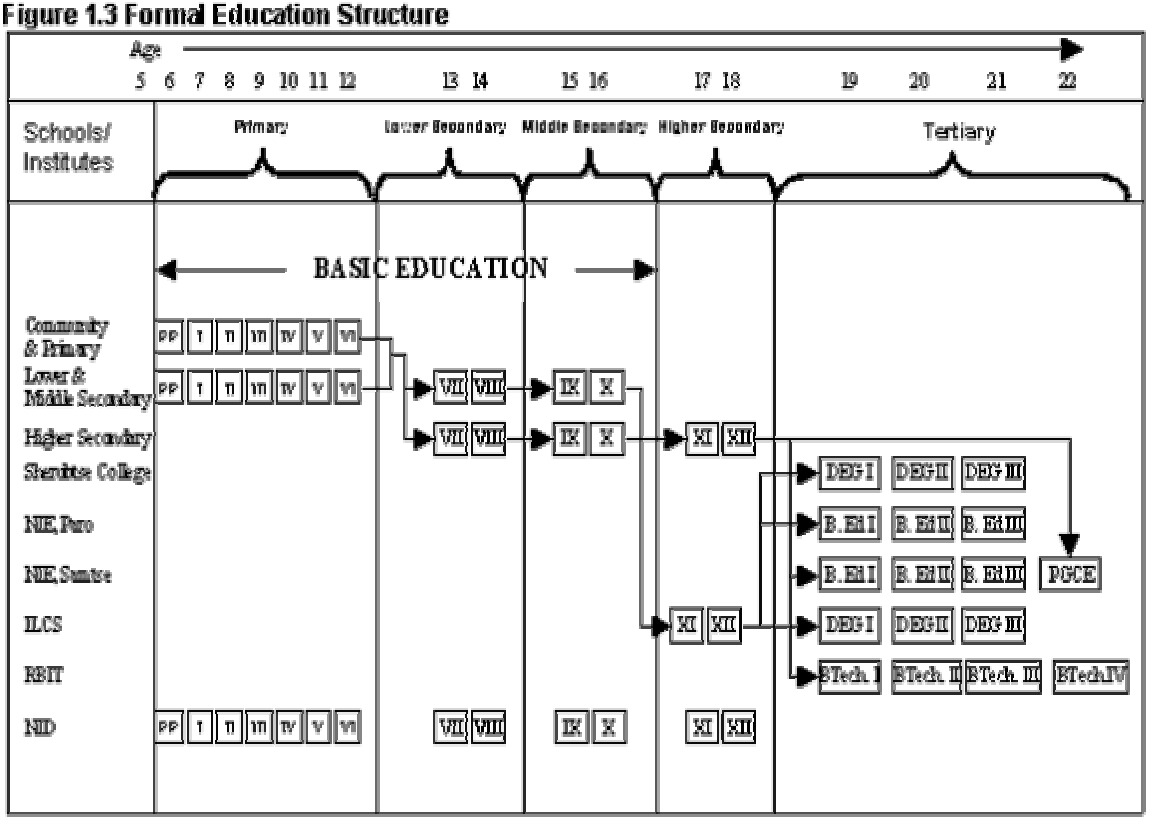
2.1 The formal educational systems and structure in Bhutan consists of 7 years of Primary education (including Pre-Primary) and 6 years of Secondary education, comprising of 2 years each of lower, middle and higher secondary. This is followed by a 3-year Degree programme at Sherubtse College, the two National Institutes of Education (NIE) at Paro and Samtse, and the Institute of Language and Cultural Studies. A 4-year degree programme is also available at the Royal Bhutan Institute of Technology.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Figure 1.3 Formal Education Structure



2.2 Entry into formal education system starts at the age of 6 when the children are admitted into pre-primary classes. The medium of instruction in the school is both **DZONGKHA** the national language and **ENGLISH.** School curricular also includes training in traditional arts, crafts and agriculture. The Ministry of Education maintains an extensive range of statistics on schools, number of students and teaching personnel for the modern education system.

2.3 Students all over the country are subjected to national examination at the end of grade VIII, Grade X and Grade XII. It is estimated that 85% of those who reach class VIII continue in class IX and 30% that reach class X continue to class XI and another 30% that reach class XII continue to general academic degree programmes. The education system is a steep pyramid with the students leaving the system at every stage. According to ninth plan estimate less than 1% of total enrollment enters in higher education viz. degree level in colleges and above.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

3. Number of schools, teachers and students

3.1 The latest available statistics about the number of schools, teachers and students in Bhutan relate to the academic year 2006. According to the data published by the National Statistics Bureau of Bhutan, in the academic session 2006, there were 150,957 students enrolled in 507 schools and institutions. Out of these 507 schools and institutions, 23 schools were in private sector while the remaining 484 were being run by the Government. The **Table-III** below depicts the number of schools by type, institutions, staff and students during the academic 2006.

Table-III

Number of Schools and Institutions Staff and Students Bhutan 2006

Details	CPS	PS	LSS	MSS	HSS	Pvt.	Other Inst.	NFE Centre	Daycare Centres	Total
Number of School and Institution	245	88	84	28	21	23	18	646	5	1,158
Teaching staff	852	790	1,643	748	596	334	449	669	13	6,094
Bhutanese	850	780	1,506	588	388	238	373	669	13	5,405
Non-Bhutanese	2	10	137	160	208	96	76	0	0	689
Number of students	29,132	25,745	50,576	21,236	14,414	5,421	4,433	18,550	269	169,776
Male	15,210	13,224	25,340	10,971	7,801	2,711	2,886	5,444	135	83,722
Female	13,922	12,521	25,236	10,265	6,613	2,710	1,547	13,106	134	86,054
Student to teacher ratio	34.2	32.6	30.8	29.5	29.2	16.2	9.9	27.7	20.7	28.2

Source: Policy & Planning Division, MoE, Thimphu

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

3.2 During the last 5-7 years, there has been a substantial increase both in the number of schools as well as the number of students and teachers. In terms of enrollment, the increase during last five years, 2001-2006 period the enrollment has arisen from 1, 20,000 to 1, 51,000 recording an annual growth of about 4-5 per cent. The table-IV below depicts the number of educational institutions, teachers and students for the period 2001-2006.

Table-IV

Number of Educational Institutions, Teachers and Student, Bhutan (2001 to 2006)

Year	Infrastructure			Teacher			Student		
	School	Inst.*	Total	School	Inst.*	Total	School	Inst.*	Total
2001	375	11	386	3887	441	4,328	117323	2467	119790
2002	397	11	408	3668	282	3950	123283	3096	126379
2003	426	14	440	4005	313	4318	129160	3251	132411
2004	447	14	461	4376	321	4697	135987	3381	139368
2005	458	18	476	4604	566	5170	141388	4429	145817
2006	489	18	507	4963	449	5412	146524	4433	150957

*Excludes NFE & DCC
Source: Policy & Planning Division, MoE, Thimphu

3.3 It would be seen from the above tables that during 2006, there were 245 community primary schools catering to small and far-flung remote areas. Community primary school is the basic level for primary school system, which caters to these specific communities, a village or a cluster of defined villages. The table shows that there were 88 primary schools, 84 lower secondary schools, 28 middle secondary schools and 21 higher secondary schools besides 23 private schools. These schools are located in various **DZONGKHAGS** of the country. The details of number and type of these schools situated in various **DZONGKHAGS** are as given in **table-V** below.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Table-V

Number of Educational Facilities by Type and Dzongkhag, 2006

Dzongkhag	CPS	PS	LSS	MSS	HSS	Pvt.	DCC	Total
Bumthang	13	1	2	1	1	1	0	19
Chhukha	17	5	6	4	4	2	0	36
Dagana	14	2	0	2	0	0	0	18
Gasa	3	0	1	0	0	0	0	4
Ha	2	3	3	0	1	0	0	9
Lhuentse	14	8	1	1	1	0	0	25
Monggar	30	9	6	0	2	0	0	47
Paro	4	4	8	2	1	5	0	24
Pemagatshel	11	3	4	1	1	0	0	20
Punakha	5	2	3	1	1	1	0	13
Samdrup Jongkhar	13	4	8	3	0	1	0	29
Samtse	7	4	3	2	1	0	0	17
Sarpang	9	1	3	1	1	2	0	17
Thimphu	6	7	10	3	2	11	5	44
Trashigang	34	13	9	3	2	0	0	61
Trashi Yangtse	20	2	4	1	1	0	0	28
Trongsa	15	3	3	1	1	0	0	23
Tsirang	3	2	3	0	1	0	0	9
Wangdue Phodrang	13	5	4	1	1	0	0	24
Zhemgang	12	10	3	1	1	0	0	27
Bhutan	245	88	84	28	21	23	5	494

Source: Policy & Planning Division, MoE, Thimphu

3.4 It is observed from the table-V above that majority of the private schools have been established in Thimphu (11 schools) and Paro (5 schools).

4. Centres of concentration in terms of schools and students

4.1 Keeping in view of the objective of the study, it is also desirable to have an assessment of the areas of maximum concentration of the students in terms of their enrollment especially in lower secondary school, middle secondary school and higher secondary school. The students in these schools would constitute the target market segments for the proposed manufacturing units and the information on centres of maximum concentration of students would be quite useful in deciding the location of the manufacturing units. The **Table-VI** below provides the details of the number of students in high school and below for each **DZONGKHAG.**

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Table-VI

Number of students in lower, middle and higher secondary schools & below by DZONGKHAG and type of the schools

DZONGKHAGS	No. of Students			
	Lower Secondary	Middle Secondary	Higher Secondary	Total
Bumthang	1,392	610	474	2,476
Chukha	5,432	4,039	1,263	10,734
Dagna	0	837	0	873
Gasa	198	0	0	198
Ha	1,482	0	733	2215
Lhuentse	300	437	415	1152
Mongar	2,816	0	1,552	4,368
Paro	4,236	1,149	957	6,538
Pemagatshen	1,276	827	538	2,641
Punakha	1,224	1,192	759	3,175
Samtse	2,469	2,962	673	6,104
Samdmdrupjongkhar	3,880	2,894	0	6,774
Sarpang	3,192	724	518	4,434
Thimpu	9,083	2,168	2,553	13,804
Trashigang	3,889	1,647	1,242	6,778
Trashiyangtse	1,754	661	438	2,853
Trongsa	890	271	419	1,580
Tsirang	2,403	0	612	3,015
Wangduephodrang	2,917	429	478	3,824
Jhemgang	1,743	389	790	2,922
Bhutan	**50,576**	**21,236**	**14,414**	**86,226**

Source: Policy & Planning Division, MoE, Thimphu

4.2 It is observed from tables above that the size of total enrollment during the academic year 2006 was around 1,51,000. Out of this, around 86,000 students were in lower secondary, middle secondary and higher secondary school's Further, it is observed that the size of enrollment till higher secondary was in Thimphu dzongkhag followed by Chhukka, Trashaigang, Paro and Monggar. Evidently Thimphu, Chhukka, Trashaigang, Paro and Monggar constitute major centres for market sales of school supplies as they account for maximum number of students. The **Table-VII** below depicts the number of students in different grades in Bhutan during the year 2001 to 2006.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

Table - VII

Number of students in different grades 2001 to 2006

Grade	2001	2002	2003	2004	2005	2006
Primary grade	88412	90944	93841	97323	99874	102225
Nursery					416	
Pre-primary	15166	15604	15977	16636	15518	16869
I	15006	14828	15517	15925	16455	15546
II	13846	14526	14268	15081	15633	16109
III	12494	12947	13616	13643	14415	14772
IV	12253	12594	12939	13805	13750	14591
V	10255	10954	11251	11756	12635	12618
VI	9392	9491	10273	10477	11052	11720
Lower secondary grade	15128	15988	16207	17619	19647	20482
VI(a)	n.a	n.a	n.a	n.a	n.a	n.a
VII	8439	8859	9093	10036	10686	11214
VIII	6689	7129	7114	7583	8961	9268
Middle secondary grade	10508	11423	12537	13829	14183	15715
IX	5890	6613	7241	7544	7732	8859
X	4618	4810	5296	6285	6451	6856
Higher secondary grade	2719	4432	5804	6691	7684	8102
XI	1631	2749	2991	3610	3997	4234
XII	1088	1683	2813	3081	3687	3868
BHUTAN	116767	122787	122585	135462	141388	146524

Source: Policy & Planning Division, MoE, Thimphu

5. Growth in enrollment

5.1 Education being one of the focus areas for planning and development, the Government's strive has been to provide education to everyone. The education facilities have been consistently strengthened over the last few years. The gross primary

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

enrollment ratio was estimated to be 72 per cent in 2001 and the enrollment has been increasing annually at the rate of 4-5 per cent. As depicted in the table-II, and mentioned above, the annual rate of increase in the enrollment has been 4-5 per cent. Based on the total enrollment figure being 1,51,000 for the year 2006, it can be safely assumed that the total current enrollment during academic year 2008 would be around 1,60,000 considering a modest growth rate of 3.5 per cent. Similarly the number of students in lower secondary schools, middle secondary schools and higher secondary schools would be around 92,000 in the academic year 2008.

6. Non Formal Education System

6.1 In addition to a structured educational system in schools, Bhutan has also a system of non-formal education, which is imparted through non-formal education centres. This system of education which is meant for those individuals who are unable to avail the facility of formal education was first established formally in 1992. Basic literacy, skills, reading, writing and numeric skills are strengthened through this system. Besides, the modern education system, there are large number of traditional institutions offering education to children in **MONASTERIES**, **DRUPADS** and **SHEDRAS.**

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Chapter V

School Supplies – Demand Estimates & Supply Chain

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

School Supplies – Demand Estimates & Supply Chain

1. Procurement policies and procedures

1.1 Ministry of Education also shoulders the responsibility for the provision of school supplies at all levels of the schools. The school supplies which are procured either centrally or through dzongkhags level include the following:-

- Text Books
- Library Books
- Exercise Books
- Stationery Items
- Scientific Equipments
- Glass Wares
- Laboratory reagents and chemicals
- Games and sports related items

1.2 The school uniforms for the children and other items of requirements viz. water bottles, Tiffin boxes, shoes, etc. are procured by the parents from the market. As per policy in-vogue, textbooks are prepared centrally and supplied to all schools including private sector schools, free of cost. The textbooks are either purchased from the market or got printed as per contents and specifications finalized by the concerned authorities.

1.3 The library books, exercise books, stationery items are being procured at dzongkhags level in pursuance with the policy of decentralization. Scientific equipments, glasswares, laboratory reagents and chemicals are being procured centrally. The exercise books and stationery items are being supplied free of cost by the Government in rural schools, while in urban area schools, the parents have to purchase the exercise books and stationery items from the market.

1.4 The procurement section, which falls under the administrative and finance division of the Ministry of Education has the mandate to look after the procurement and distribution of its school supplies. The Education Central Store coordinates the supplies through out the country. There are three Regional Education Central Stores spread through out the country and these regional stores facilitate the efficient delivery of school supplies to all the schools in the country.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

1.5 It was observed that there exists sufficient capacity for printing of textbooks. However, all other items of school supplies are being imported. The purchases are made on L-1 basis through global tendering system.

2. Decentralization of Procurement

2.1 In pursuance with the policy of the decentralization of the government, the Ministry of Education has finalized the following proposals for decentralizing budget to dzongkhags for the procurement of school supplies:-

- Ministry of Education's budget for procurement of textbooks, stationery and sports goods to be decentralized to dzongkhags. The dzongkhags will be provided the budget for text books, stationery and sports goods.

- Ministry of Finance to open a current account in favour of Educational Central Store Phuentsholing and provide a revolving fund amounting to Nu 84 million.

- The Education Central Store Phuentsholing to function as a commercial agent and sell the goods to dzongkhags. Dasho dzongkhags in turn on behalf of the school to place order as per their requisition and take delivery of the goods on payment.

- The overhead budgets for the Education Central Store to be provided like any other agency and budget for procurement of the stationery, text books and sports goods to be allocated to dzongkhags.

- The existing fleet of trucks of Educational Central Store to continue transporting the goods from Phuentsholing to the regional stores at Trashigang, Gaylegphug and to the western dzongkhags. The existing trucks at the regional stores to be used for transporting books, stationery and other goods in their region.

- The stores to levy a 5 per cent handling charges to dzongkhags over and above the total cost to meet the inflation rate.

- An additional Finance Officer to be placed in the Educational Central Store Phuentsholing.

2.2 According to education policy guidelines and instructions the system of decentralization has been in effect since 2004-05 on pilot basis. Based on the experience gained from the pilot basis operation, further changes are to be made in the decentralized policy for procurement of school supplies.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

3. The Current Procurement Level

3.1 The current budget for procurement of school supplies is NU 90 million, which includes purchase of textbooks, stationery, equipments, consumables and items of games and sports. The break-up of the budget for the broad categories of items is as under:-

Total procurement of budget	-	NU 90 million
Budget for procurement of books	-	NU 50 million
Budget for procurement of stationery, equipment, chemicals & consumables and items for sports	-	NU 40 million

3.2 It was informed during the discussions that the total purchase of equipments and glasswares during the current financial year is likely to be NU 14 million while the corresponding figure for the last year was NU 10 million. The efforts were made by the team to retrieve the information for current level of item-wise procurement by the Government especially for items with NU 0.5 million and above, however, due to variety of reasons such information could not be made available. It may further be mentioned that under school supplies, majority items are being procured by the children from the market excepting textbooks and part stationery. In the circumstances, the team has tried to asses the current demand level based on the number of schools and number of students in the various classes.

4. Assessment of School Supplies Requirements

4.1 School supplies can be broadly classified into three categories viz. (i) Non consumable or non-recurring, (ii) consumables or recurring and (iii) services. The details of the items of requirements falling under these three categories are as under :-

4.2 Non Consumable Requirements

4.2.1 Besides building construction materials, these items are required at the time of establishment of the schools. The demand is one time and usually the replacement demand arises after a very long period of time. The main items falling under this category includes the following: -

- Furniture & Fixtures
- Black boards
- Laboratory equipment and instruments
- Non-consumable sports items viz. table for TT, swings, slides etc.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

4.2.2 Keeping in view, that a number of schools are being set up in Government sector, the possibilities of establishment of new private school and plans for creation of boarding facilities in the school, substantial demand is likely to be generated for furniture and fixtures, black boards and sports items. These items would also be required by the existing schools for replacement, renovation and expansion. There are some units in Bhutan manufacturing wooden furniture including CKD furniture by M/s Bhutan Board Products Limited (BBPL). However, as per information available, the company is not supplying furniture to schools. Keeping in view, the widely dispersed locations of the schools all over the country, it would be more appropriate if the existing unit(s) or new units take up the manufacture of composite furniture in steel/aluminium and wood preferably in CKD, as per design and specifications finalized by the schools. It is informed that black boards are being indigenously manufactured in the country. Keeping in view the size of demand there does not appear to be much scope for indigenous production of items of exports.

4.3 Consumable Requirements

4.3.1 A wide range of items are required as consumables by the schools and school children. Majority of these items are required by all types of school and children studying in different classes. However, the consumption level varies with the type of the schools and the standard in which the student is studying. The consumption level is higher and more distinctly visible during class VI to class XII i.e. in lower secondary grades, middle secondary grade and higher secondary grade. Further, in these classes the consumption does not show much variation with the type and location of the schools. As mentioned earlier also, some of these items are procured by the Government and supplied to schools as per policy while others are purchased by the school children/their parents from the open market. An illustrative list of consumable items required by the schools and school children is as follows: -

- Text books
- Exercise books
- Loose cut paper stationery viz. plain/ruled/ drawing sheets, charts, etc.
- Brown paper/craft paper
- File covers
- Pencil
- Eraser
- Pencil sharpener
- Ball point pen/ink pen
- Drawing pen

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

- Sketch pen
- Coloured crayons
- Chalk white/low dust chalk
- Gum adhesive
- Geometry box
- Dissection box
- Colour box/postal colours
- School bags
- School uniform
- Water bottles
- Tiffin box
- Laboratory chemicals and consumables
- Laboratory equipments and glass wares
- Items of games and sports including Montessori games

4.3.2 As mentioned earlier, the major items of purchase by the Government include text books, exercise books for rural area schools, equipments, glass wares and chemicals and items of games and sports. Other items like uniforms, water bottles, lunch box, stationery items including exercise books for urban areas, writing instruments, etc. are purchased by the children/ parents from the market.

4.4 Services

4.4.1 There is a limited scope for service sector enterprises in the education sector. However, keeping in view the changes taking place in this sector, following could be possibilities for private sector enterprises.

- School bus/van transport system
- School/hostel canteen on contract basis
- Private hostels
- Private day care centres

4.4.2 Evidently the possibilities of starting such service enterprises would be more in the urban areas especially in cities with major concentration of schools viz Paro, Thimphu. There appears to be bright prospects for developing school transport system

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

either by a private transporter or by the school itself. As the majority of the schools are Government schools including those in urban areas, the possibility of a private enterprise for providing transport services to various schools need to be seriously explored. As per prevailing practices in India, buses or vans are placed at the disposal of schools for specified periods of time. The schools organize the bus routes, collect charges from the students and the payments are made to bus owner company by the schools. Possibilities of a similar system, to begin with the main cities could be tried in Bhutan also.

5. Main items of supplies – current level of demand

5.1 The items of school supplies especially consumables are both procured by the Government for distribution to schools as well as purchased by the school children/their parents from the market. In order to have a near realistic assessment of the consumption level of various items, it is desirable to estimate the demand based on the number of schools and the number of students in various grades and also the review the figures of Government procurement. It is quite pertinent to mention that the Government mainly procures textbooks, library books, exercise books for rural areas, laboratory equipments, chemicals and consumables and items of games and sports. Other items are being supplied by the markets. It has also been observed during discussions with concerned authorities and the trade that enough indigenous capacity exists for printing of textbooks which account for over fifty percent of the procurement budget of the Government. The exercise books and stationery items are purchased both by the Government as well as by the children/their parents. In the circumstances, it appears to be more logical to estimate their demand on the basis of number of schools and number of students.

5.2 The other items of Government purchases viz. laboratory equipment, chemicals and consumables, items of games and sports do not appear to having much potential in the context of the study owing to their limited demand. However, in case of laboratory glasswares, there appears to be good potential for setting up of a glass blowing unit.

5.3 In view of the above, though the figures of government procurement, which are presently not available need to be perused, it is more important to assess the current demand level for various items of school supplies. As mentioned earlier, the demand is more uniform and distinctly visible in case of students in grades from VII to XII and this segment of students has been considered as a core market segment for consumable school supplies. In the forthcoming paras it has been attempted to assess the current demand level for various items of school supplies.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

6. Demand Level for Non Consumable Items

6.1 Major items having potential for indigenous manufacture are the products of wood based industries. These include school furniture and fixtures and black board. Keeping in view around 40 new schools being set up by the government in addition to private schools, there appears to be good potential for setting up a new unit or the product diversification of an existing unit to manufacture these items. It would be preferable to supply the composite material furniture in CKD so as to reduce the transport cost. The requirement of these items would vary depending upon the type of school, number of class rooms, attached hostel facilities, if any. As mentioned earlier also, there is not much potential for indigenization of the production of other non-consumable items.

7. Demand Level for Consumable Items

7.1 Major consumable items of school supplies besides text books are uniform, school bags, lunch box, water bottles, exercise books, pencils, ball point pen & refills, chalk white, geometry box, plastic scales, sketch pens, etc. In case of these items, as mentioned earlier the main market segment is constituted by students of class VI and above. The demand estimates for these items are based on the following presumptions: -

- The total number of students in all schools for the academic year 2008-09 would be around 153,000, the figure for 2006 being 146,524 and the annual growth rate being 3.5 percent.
- The total number of students including those in institutions in 2008 would be around 158,000 taking the figure of 150,957 for the year 2006.
- The number of students in class VI to class XII during the academic year 2008-09 would be around 60,000 taking the figure of 56,000 for the year 2006 and a growth rate of around 3 per cent.
- If a figure of 5,000 students in different institutions is added to the above figure of 60,000 the total number of students above class VI would be 65,000. It has been presumed that they constitute the core market segment for consumable school supplies.
- Thus the break up of the students in various grades during academic year 2008-09 would be as under: -

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

- Total number of students including those in institutions - 158,000
- Number of students in above class VI and above including those in institutions - 65,000

7.2 Based on the above estimates and presumptions, the current item wise demand level estimates for major items of school supplies would be as under :-

7.2.1 School Uniforms - It is further presumed that all students of class VI and above would need one uniform per annum while 25 percent of the remaining students may be those in urban areas may need formal uniform. The annual demand would be as under: -

- For class VI and above, students - 65,000 sets of uniform
- For other students - 25,000 sets of uniform

TOTAL - 90,000 sets of uniform

7.2.2 Schools Bags - Normally all students would need one school bag per annum. However, the type of bags may vary. Therefore, the demand level would be around 1,58,000 school bags of different types per annum.

7.2.3 Water Bottles & Lunch Boxes - The demand pattern for water bottles and Tiffin box would be nearly the same as in case of the uniform and the requirement would be as under: -

- Water Bottles - 90,000 Nos.
- Tiffin Boxes - 90,000 Nos.

7.2.4 Exercise Books - It is presumed that students of class VI and above would require at an average 20 exercise books of all types per annum considering six subjects of studies. The requirement of other students has been taken as eight exercise books per annum. Thus the demand would be as under:-

- For class VI and above, students - 130,0000 Nos.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

(65,000 x 20)

- For other students - 74,4000 Nos.
  (93,000 x 8)

TOTAL - 204,4000 Nos.

7.2.5 Pencils - Presuming the similar pattern of consumption level as in case of exercise books the demand level would be as under

- For class VI and above, students - 130,0000 Nos.
  (65,000 x 20)
- For other students - 74,4000 Nos.
  (93,000 x 8)

TOTAL - 204, 4000 Nos.

7.2.6 Ball Point Pen/Refills - Presuming an average requirement of 10 ball point pen/refills for class VI and above students and another 2 for other students the demand would be as under:-

- For class VI and above, students - 6,50,000 Nos.
  (65,000 x 10)
- For other students - 1,86,000 Nos.
  (93,000 x 2)

TOTAL - 8,36,000 Nos.

7.2.7 White/Low Dust Chawks - Presuming a class of 35-40 students, there would be around 4000 class rooms of studies keeping in view the total number of students. Considering 50 boxes of chalk consumption per class per annum, the requirement level would be as under. This estimate is in near confirmative to the guidelines issued for chalks vide 23rd Education Policy Guidelines and instructions.

- For 4000 class rooms of all students - 200,000 boxes of 50 chalks each
  (4000 x 50)

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

7.2.8 Geometry Box & Sketch Pens - These items are mainly needed by students in class VI and above and the demand level would as under: -

- Geometry Box - 70,000 Nos.
- Sketch Pen - 70,000 packet of 12 colours

7.2.9 Plastic Scales & Gum adhesive tubes - Presuming a consumption level of 3 plastic scales and 2 adhesive tubes mainly for students from class VI and above, the demand would be as under :-

- Plastic scales - 200,000 pieces
- Gum adhesive tubes - 150,000 tubes

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Chapter VI

Selection of Viable Projects

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Selection of Viable Projects

1. Issues and Approach

1.1 Once the different items of requirement and their quantum have been identified along with growth projections for future demand, it is desirable to assess the techno-economic viability of their manufacture in Bhutan before finalizing the recommendations. The items suggested to be taken up for production, in the initial phase necessarily should be:

- Based on simple technology

- The items requiring single operation manufacturing process and where the machine suppliers would be able to help in technological aspects and operation of their machines need to be preferred. To illustrate, the leading manufacturers of plastic processing machines provide on site technical and operational training for the production of plastic conversion products. Similarly in case of steel/ aluminium/ fabrications items the main operations are cutting, bending, welding and assembly, which are quite simple technology. For such fabrication based products critical components like wheel assembly, ball bearing etc. could be imported.

1.2 Keeping in view the comparatively small requirements of various items of school supplies and that too spread over a vast area where schools are situated the economic viability of each item of requirement has to be seriously studied. Before deciding in favour of a product, it is extremely important to confirm that the demand level is much higher than the minimum economically viable size of the unit for that item. In the initial phase the unit need to be viable based on part demand as it may not be able get the orders for entire requirements. These indigenous units also need to compete with the existing suppliers both in terms of quality and the price.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

2. Cluster approach for development

2.1 In the circumstances, the best option would be to study the feasibility for a group of products involving similar technology in order to set up viable indigenous production units. A cluster approach for developing similar product based units could also be adopted for accelerating the pace of industrialization in Bhutan. Cluster for production of steel and aluminium fabrication products, plastic products cluster, readymade garments cluster could be the possible examples. In these clusters products and operations could be divided amount the units along with a provision for capital intensive common facility services. This would help in bringing down the production cost, improve quality and also help in better access to the market. The cluster approach would also enable to develop cost effective pollution control mechanism through setting up of common effluent treatment plants (CETP's) where ever needed. It is important to mention that world over, specially in case of SMEs, cluster approach is considered to be the most effective for promoting industrialization and this need to be kept in view while developing industrial units in Bhutan also.

2.2 In today's world when the markets have become global and outsourcing has become the order of the day, the brand has become an important factor for influencing the customer's preference and access to the new markets. In Bhutan also, in the general market, the brand is an important factor for acceptance of a product. In case of school supplies also, the brand becomes quite important viz in case of ball point pen/ refills, pencils, sketch pen etc. One of the suggested approaches to ensure market acceptability of some school supplies items could be the production of accepted brand through franchising arrangements with the Indian/ other foreign company supplying this product in Bhutan. Such an arrangement, besides ensuring market acceptability of the product, is also likely to facilitate the easy availability of finances, speedy implementation of the project and also access to overseas markets.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

3. School Supplies – Identified Projects

3.1 Based on the demand level for various items of school supplies, analysis of market scenario as discussed in preceding paragraphs, IDRG team has identified the following projects for development in private sector / public private partnership in Bhutan

- Exercise Books of all types
- School bags
- School Uniform
- Water Bottles, Lunch boxes, Montessori games
- School furniture and black boards
- Ball point pen/refills, ink pen, sketch pen
- Pencil
- Chalk white, Wax colour crayons, poster colours, water colours, gum adhesive tubes
- Geometry box, plastic scales
- School transport

4. Selection of projects for detailed feasibility analysis

4.1 Based on the studies of various aspects of school supplies, demand estimates, and supply chain system, IDRG team submitted an inception report on school supplies in Bhutan. A presentation was made on the findings of the inception report in a meeting held on 22nd May, 2008 in the Ministry of Economic Affairs wherein all stake holders were present. During the presentation, IDRG team presented the details of 10 identified products as listed in para 2 above and suggested that the first thee items be considered for detail feasibility analysis. It was decided that based on the various parameters viz. current demand level, potential for growth in demands, existing manufacturing facilities in Bhutan, availability of raw materials, technology and machines, possibilities for adaptation of manufacturing technology as also the parameters discussed above relating to issues and approach for selection of projects, IDRG team would make a selection of two viable projects for detailed feasibility study using matrix model. It was also decided

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

that project profiles for three another potential items of school supplies be also included in the purview of the report.

4.2 Based on the discussion during presentation and subsequent interaction with stake holders the critical parameters were identified and the project ranked accordingly. While ranking the projects the aspect relating to possibility of developing a cluster of similar products has also been kept in view. The table No VIII shows the ranking of the various projects.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Table No. VIII School Supplies – Ranking of Project based on various parameters

S. No.	Item	Existing Demand Level	Future growth prospects	Availability of Local raw material	Adaptability of Technology	Availability of skilled manpower	Employment potential	Saving in Transportation cost	Advantage due to insufficient of domestic production	Export possibility	Environment friendly process	Total
1	Exercise Books of all types	9	8	5	8	8	9	7	9	7	9	79
2	School bags	9	9	5	7	8	9	5	7	5	9	73
3	Water bottles, Lunch boxes, Montessori games	7	7	3	5	5	7	7	7	8	7	63
4	Chalk white, wax colour crayons, poster colours, water colours, gum adhesive tubes	8	8	7	7	7	7	4	7	2	5	62
5	Ball point pen/ refills, ink pen, sketch pen	7	7	5	5	5	7	7	5	3	5	56
6	School furniture and black boards	5	5	7	5	5	6	3	3	4	4	47
7	Pencil	5	5	6	5	3	6	3	3	4	5	45
8	Geometry box, plastics scales	5	5	4	3	3	4	5	5	2	5	41
9	School transport	Service Sector										

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

4.3 As would be seen from the matrix model presented in table No. VIII, exercise books all types, school bags and uniforms were identified to be most viable projects. It was agreed that M/s IDRG Consultancy Services should prepare two detailed feasibility reports on projects thus selected. In addition to this three project profiles shall also be prepared for the benefit of entrepreneurs. Accordingly, in school supplies sector detailed feasibility analysis has been carried out for the following two projects: -

- Exercise Books and cut paper stationery
- School bags and uniforms

The detailed feasibility analysis on exercise books and cut paper stationery and school bags and uniforms have been presented in part II and part III of the report respectively.

4.4 In addition to detailed feasibility analysis, the project profiles on following three items have also been included in the report.

- Water bottles, Lunch boxes, Montessori games
- Chalk white, wax colour crayons, poster colours, water colours, gum adhesive tubes
- Ball point pen/ refills, ink pen, sketch pen

The project profiles on above said three products are given in annexure III of this report.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

Annexures

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Annexure I

List of persons contacted.

1. Mr. Loknath Chapagai,
   Chief Industries Officer,
   Department of Industry, Ministry of Economic Affairs

2 Mr. Mindu Dorji
   Project Officer, Department of Industry, Ministry of Economic Affairs

3 Mr. Tshewang Tandin
   Director,
   Department of School Education, Ministry of Education

4 Mr. Tashi
   Chief Administrative Officer,
   Ministry of Education

5. Ms. Naki Dorji,
   Dy. Managing Director, Nima Group of Companies
   (Nima High School Taba)

6. Mr. Phub Tshering,
   Secretary General,
   Bhutan Chamber of Commerce & Industry (BCCI)

7. Mr. Dorji Wangda,
   Director,
   Department of Geology & Mines,
   Ministry of Economic Affairs

8. Mr. Kuenga Tshering,
   Director,
   National Statistics Bureau

9. Mr. T.B. Chhetri,
   Joint Director,
   Head of Revenue Audit & Accounts,
   Department of Revenue & Customs,
   Ministry of Finance

10. Mr. Om P Nirola,
    Head, Entrepreneurship Promotion Centre,
    Department of Industry, Ministry of Economic Affairs.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

11. Mr. Tashi Tshering
Architect
Industrial Infrastructure Development Division
Department of Industry

12. Mr. Kesang Wangdi
Regional Secretary
Bhutan Chamber of Commerce & Industry, Phuentsholing

13. Bjemina Industrial Estates
Thimphu

14. Mr. Thinley Dorji
Norbu Rabten Press
P.O. Box. 339, Thimphu

15. Mr. Phuntsho Wangdi
Phuntsho Timber Industry, Phuentsholing

16. Mr. D.K. Pradhan
Manager Production
Bhutan Polythene Company Limited, Phuentsholing

17. Mr. Sajal Mukherjee
Dy. General Manager
Bhutan Polythene Company Limited, Phuentsholing

18. Mr. Tandin Dorjee
C.E.O.
Yarab Pvt. Limited, Phuentsholing

19. Mr. Singye Dorji
Managing Director
Bhutan Board Products Limited, Phuentsholing

20. Mr. Rinchen Dorji
Chairman
Bhutan Marbles & Minerals Pvt. Limited, Phuentsholing

21. Mr. J.P. Singh
M/s. Health Food Products Private Limited, Pasakha

22. Majur Gas, Pasakha

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Annexure II

List of references

1. Bhutan 2020 – A Vision for peace, prosperity and happiness
2. Ninth plan main document (2002-07)
3. Draft 10th Plan document – available on Internet
4. Statistical yearbook of Bhutan 2007
5. Bhutan Trade Statistics 2006, 2005 & 2004
6. Bhutan Private Sector Survey 2002
7. Innovative Ideas for Industrial Development in Bhutan
8. Bhutan Business Directory
9. Education sector and School Supplies Related Information as available on Internet
10. Technical books and literature relevant to identified projects.
11. Relevant specifications by Bureau of Indian Standards (BIS).
12. Technical literature on various technologies and machines and raw materials available from raw material machine manufacturers.
13. Articles write-ups, photographs, maps, etc. on the identified projects as available in public domain on Internet.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

Annexure III

Project Profiles

1. CHALK CRAYONS

INTRODUCTION

Chalk crayons are round and tapered shape sticks of different colours made of 'Plaster of Paris'. They are extensively used for writing on black boards and markings on any coloured surface. They have an indispensable role in all educational institutions and to some extent in the industrial establishments. There is an ever-increasing demand for this products arising from a large number of primary and secondary schools, colleges and other institutions. Besides, the coloured crayons are used by a large number of students mainly in rural areas.

PRODUCTION TARGET (PER ANNUM)

The scheme envisages setting up a unit with an annual production capacity of 1,50,000 boxes- each containing 150 chalk sticks, valued at Rs. 15,000,00/- on single shift basis for 300 days in a year.

PROCESS OF MANUFACTURE

The main raw material for manufacture of chalk crayons is plaster of Pairs. For making crayon, the moulds are to be cleaned and applied with lubricant consisting of kerosene and groundnut oil in 4: 1 ratio.

The moulds are then set properly in the wooden frames. Requisite quantity of Plaster of pairs and china clay in the suitable proportions are mixed thoroughly in an enamel bowl along with other additives like whitening agent in the case of white chalk and coloring agents in the case of colored chalks. Then the requisite quantity of water is

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

slowly added to the mixture with constant and vigorous stirring till it attains the form of homogenous slurry. Air bubbles, if any, formed should be removed from the slurry. The slurry is then slowly poured into the mould, and allowed for few minutes for proper setting. Excess material, if any, on the top of the mould be removed, after it is duly set. The moulds are then dis-assembled and the chalk sticks, which are in wet condition, are slowly removed by sliding the mould plates one by one. The moulded chalks are the placed in wooden trays for initial drying in the shade and then under sunlight.

Dried chalk sticks are finally tested for their strength and smoothness in writing and packed in card board boxes duly filled in with saw dust or rice husk to avoid breakage in transit.

QUALITY CONTROL AND STANDARDS

Bureau of Indian Standards has formulated and published the following standard specifications for maintaining the quality standards of the product.

IS : 2694-1963 – Moulded white school chalks.
IS : 4222-1967 – Moulded coloured chalk crayon.

LAND AND BUILDING

Land area	-	250 sq. met.
Covered area	-	150 sq met

MACHINERY AND EQUIPMENT

1. Aluminum moulds of 150 cavities @ Rs. 1,100/ per mould – 10 moulds.
2. Balance, wooden trays, furniture & other misc. equipments, pre-operative expenses etc.

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

RAW MATERIALS (PER MONTH)

Plaster of pairs

Colouring agents/ metal oxides, china clay, whitening, lubricants etc.

TOTAL CAPITAL INVESTMENT

Machinery & Equipment	Rs. 18,000
Working capital for 3 month	Rs. 30,000
Total	Rs. 48,300

ANNUAL TURN OVER Rs. 15,000,00

PROFITABILITY

Profit on sales	13%
Profit on capital investment	43%

BREAK EVEN ANALYSIS **58%**

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

2. INJECTION / BLOW MOULDED PLASTIC CONTAINERS

INTRODUCTION

Thermo-plastic materials like high density polythene polypropylene PVC can be blow moulded into containers of different shapes and sizes like water bottles for use by school students as well as a large variety of containers for packaging. The lightweight, flexibility, chemical-resistance, attractive colour possibilities are the positive qualities in favour of thermoplastics for packing applications. Plastic processing industry in small-scale sector in the country today presents a broad and colorful spectrum comprising a large number of units producing varies and extensive rang of items. Plastic items are light and weight, easily washable, durable and cheap and hence they are replacing metallic household utensils rapidly.

Besides, containers a large number of injection moulded items viz tiffin boxes, colour boxes, pencil boxes in plastic are used by the school students. These items could be manufactured in various colours and shades and are quite attractive to the children. The manufacturing process for both injection moulded items and blow moulded items is relatively simple and machine based. Besides school items these machine can produced a wide range of consumer products only by the change of moulds, machine remaining the same.

PRODUCTION TARGET

BLOW MOULDED AND INJECTION MOULDED ITEMS

- Quantity - 60 M.T.
- Value - Rs. 90,00,000

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

PROCESS OF MANUFACTURE

Plastic material in the form of granules are subjected to heat and pressure in an extruder and the semi-molten plastic is extruded through the nozzle in the form of hollow tube known as parison. Adjustments have been provided in the machine to very wall thickness of the parison. Suitable parison is then inserted in a female mould and air blow into parison to force it against the sides of the mould. The material is then cooled before removal from the mould. The article is then trimmed to remove flashes. Material is introduced into the injection-moulding machine via a Hopper. The injection-moulding machine consists of a heated barrel equipped with a reciprocating screw (driven by a hydraulic or electric motor), which feeds the molten polymer into a temperature controlled split mould via a channel system of gates and runners.

LAND AND BUILDING

Land	-	750 Sq. M
Built area	-	450 Sq. M

MACHINERY & EQUIPMENT

1. Semi Automatic extrusion blow moulding machine consisting:
   (a) 500 mm screw extruder with 10 HP motor, variable speed drive and electrical control cabinet.
   (b) Crosshead dies (single double and triple cores and spacer.
   (c) Mould closing and opening unit with hydraulic system 5 HP motor.
2. Compressor with 5 HP motor 100 psi.
3. Water pump 1 HP motor

   Moulds, dies, tools etc

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

4. Automatic injection moulding machine complete
5. Scrap grinder
6. Dry colour mixture
7. Buffing machine
8. Material heating oven
9. Mould lifting equipment
10. Sets of moulds
11. Water cooling arrangement
12. Weighing scale
13. Tube well, water connection motor and pump with overhead tanks etc.

RAW MATERIAL

(i) HDPE / Polypropylene / PVC granules.
(ii) Colour, pigment, handles for buckets, screen-printing accessories etc.

TOTAL CAPITAL INVESTMENT

(1) Fixed Capital	-	Rs. 23,50,000
(2) Working capital for 3 month	-	Rs. 25,00,000
Total capital cost	-	Rs. 48,50,000
RATE OF RETURN	**-**	**39.75%**
BREAK EVEN POINT	**-**	**45.70%**

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

3. FOUNTAIN PEN AND BALL POINT PEN

INTRODUCTION

Fountain Pen and Ball Point Pen are used by the people from all walks of life for writing purposes. School and colleges students are the largest consumers of fountain pen and ballpoint pen. In the modern times, these have become mass consumption items and are used by every household. With increase in literacy and economic development the demand for fountain pen and ballpoint pen is increasing year by year. There is a large demand for these items in Bhutan also including those from a large number of students in various schools.

PROCESS OF MANUFACTURE

The body of fountain pen and ballpoint pen is moulded from cellulose acetate butyrate materials. The other raw materials like cellulose acetate and polystyrene are also used for making less expensive bodies of fountain pen and ballpoint pen. The process for the manufacture is injection moulding. The raw material is fed into the barrel through the hopper of the injection-moulding machine. The barrel is heated by electricity and the material is softened by heat. The softened material is pushed into the cold mold by the piston. As soon as it enters the cold mold, it gets the shape of the mould cavity. The mould is opened to take out the moulded products and thus the body is manufactured. Normally semi-automatic injection moulding machine with multi cavity moulds are used. For small parts hand operated injection moulding machine are used. Similarly barrel, cap, neck etc. of the ball pen are also made in the injection moulding machine. After the body and other parts are moulded the fountain pen and ball point pen are manually assembled by joining the various parts viz. ball point pen refills, nib, ink filling system and cap clip etc.

PRODUCTION TARGET (PER ANNUM)

1,00,000 Fountain Pen and
5,00,000 Ball Point Pens

Register eDocPrinter PDF Pro Online Now!!

Register to Remove Trial Watermark!!

IDRG

LAND AND BUILDING

Covered shed for factory 250 sq. meter

MACHINERY AND EQUIPMENT

1 Semi automatic injection moulding machine
2 Hand operated ¾ oz. Cap injection moulding machine.
3 Hand operated Oz ½ cap injection molding machine
4 Polishing machine
5 Nib fitting machine
6 Cap holding machine
7 Moulds

RAW MATERIAL

Cellulose acetate butyrate
Clip for fountain and ball point pen
Nib for fountain pen
Ball pen refills
Packing materials

TOTAL CAPITAL INVESTMENT

1. Fixed Capital	Rs. 5,00,000
2. Working capital	Rs. 12,00,000
Total	**Rs. 17,00,000**

TURNOVER (PER YEAR) - Rs. 60.00 Lakhs

NET PROFIT (PER YEAR) - 3.5%

BREAK EVEN POINT - 55.5%

Register eDocPrinter PDF Pro Online Now!!