

BH0/92/001

**UNITED NATIONS CAPITAL DEVELOPMENT FUND AND
ROYAL GOVERNMENT OF BHUTAN**

**PRIMARY SCHOOLS & BASIC HEALTH
UNITS
IN EASTERN BHUTAN**



**PROJECT COMPLETION
EVALUATION**

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LP
2001



Final Report April 2001

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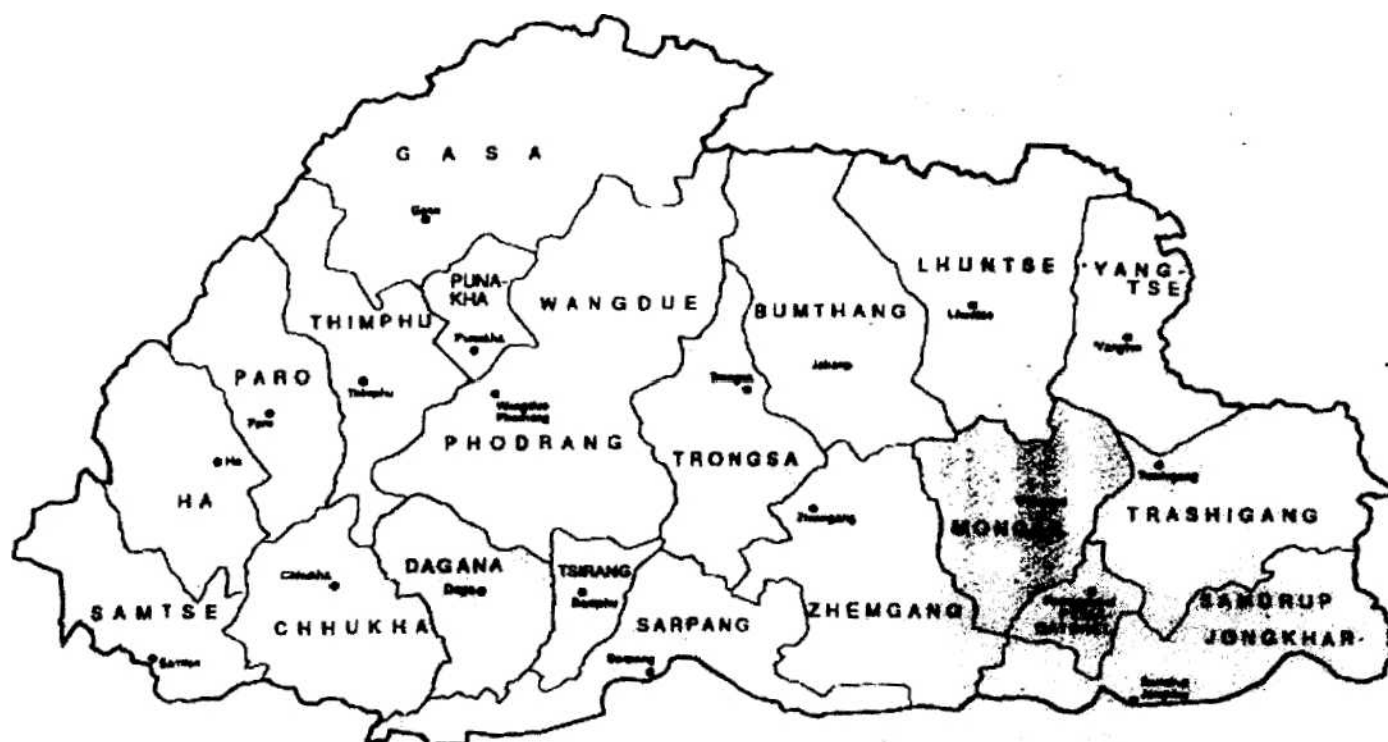
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ACRONYMS

AEC	Architecture and Engineering Cell
AET	Architectural and Engineering Team
ANC	Antenatal Care
ANM	Assistant Nurse Midwife
ARI	Acute Respiratory Illness
BDC	Block Development Committee
BHUs	Basic Health Units
BHW	Basic health Worker
BOQ	Bill of Quantities
CGIS	Corrugated Galvanized Iron Sheets
CPR	Contraceptive Prevalence Rate
DADM	Department of Aid Coordination and Debt Management
DANIDA	Danish Agency for International Development
DEO	District Education Officer
DOE	Education Division, MHE
DOH	Health Division, MHE
DMO	District Medical Officer

DHSO	District Health Supervising Officer
DSU	District Supervision Unit
DWH	Division of Works and Housing
DYT	Dzongkhag Yarge Tshogchungs (District Development Committees)
EPI	Expanded Program for Immunization
GNM	General Nurse Midwife
GOI	Government of India
GYT	Geog Yarge Tshogchungs (Block Development Committees)
HA	Health Assistant
HEC	Health Engineering Cell, MHE
MA	Maintenance Agreement
MHA	Ministry of Home Affairs
MHE	Ministry of Health and Education
MOF	Ministry of Finance
NAPE	New Approach to Primary Education
NBACD	National Budget and Aid Coordination Division
OPD	Outpatient Department
ORC	Outreach Clinic
ORT	Oral Rehydration Therapy
PSO	Project Support Office
PS	Primary Schools
RGOB	Royal Government of Bhutan
SPBC	School Planning and Building Cell
SS	Site Supervisor
TBA	Traditional Birth Attendant
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VHW	Village Health Worker
WHO	World Health Organisation

PROJECT DATA SHEET

Project Number and Title **UNCDF BHU/92/CO1/UNDP BHU/92/C09 Primary and Basic Health Units in Eastern Bhutan (Phase 1)**

Cooperating Agency: United Nations Capital Development Fund
Government Executing Agency: Ministry of Health and Education

Sector
Subsector: Education and Health

	Original Approval	Latest Revision
UNCDF Budget:	2,919,441	4,417,345
Government Budget:	502,000	832, 564
UNDP	155,290	426,415
UNICEF	54,000	54,000
Total	3,630,731	US \$5, 730, 324 *

Date Project Approved: 12 April, 1994

Date Project Started: January 1995 (approx)
Date Project Evaluated: Project Completion - Jan/Feb 2001

Type of Evaluation: Project Completion Evaluation
Actual Expenditure at Evaluation: US \$5,730,324*

* Approximate - dependent on exchange rate used.



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EXECUTIVE

SUMMARY 1. Development Context

Bhutan's unique path of development has been crystallized in the term *Nat bhat Happiness* (*GNr*, a concept which defines Bhutan's development objective as the improvement in the happiness and satisfaction of Bhutan's people, rather than the growth of

Gross National Product (GNP). Although the past four decades have seen phenomenal development, Bhutan has preserved its ancient traditions and its distinct cultural identity. The pristine environment, religious heritage and culture have been protected and strengthened by controlling development at a manageable pace, with a strong emphasis on sustainability and self-reliance.

Over the 8th Five Year Plan period (1997-2002), the education, health and social service sectors have made great strides forward and continue to be the primary thrusts of Bhutanese development efforts. Quality and accessibility of basic services have been central tenets of Bhutan's development strategy, to promote equity and to reduce rural/urban migration. Health and education received approx. 22% of the national budget in 1998.

2. Project Development

Following an initial UNCDF Preparatory Project Planning and Identification Mission in 1991, a Memorandum of Understanding (MOU) between RGOB and UNCDF was signed in February 1992 including proposals for the construction of 30 Primary Schools and 20 Basic Health Units (BHUs) in Eastern Bhutan, over a five year period but in a phased manner, at a total cost of US\$5 million. Given the government's policy to ensure development services reach the people in remote areas and given the condition of health and education infrastructure

in Eastern Bhutan and the lack of other donors supporting this area, the present project formed an essential part of UNDP/IJNCDF's program strategy to support the 7th Five Year

Plan (1992/1996) goals in Eastern Bhutan. School and BHU survey missions were conducted in May-June 1992 followed by a Project Formulation Mission in May/June 1993. On the basis of the Project Formulation Report, a Project Agreement (PA) was prepared and signed by UNDP, UNCDF, UNICEF and RGOB in April 1994.

3. Project Description

Development Objective

To assist the Royal Government of Bhutan in improving the human development status of Eastern Bhutan, specifically in both education and health sectors, in accordance with the Government's Seventh Five-Year Plan. Specifically:

- to increase the literacy rate through a larger primary school enrolment (especially of girls) from the current 57.9 percent of primary aged children (aged 6-12 or above) to the projected 81 percent in I , and
- to extend primary health care coverage to the entire population by improving the network of Basic Health Units, and thereby, to enhance the life expectancy noticeably by cutting the infant mortality rates.

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Immediate Objectives

- i). to assist the RGOB in achieving its objective to increase primary school enrolment and extend primary health care coverage in the rural areas by expanding the network of primary schools and BHUs in the Dzongkhags of Lhuntsi,. Mongar, Trashigang, Trashiyangtse, Pemagatsel and Samdrup Jongkhar;
- ii). through the rehabilitation, upgrading, reconstruction, relocation and new construction of these social facilities, to promote a sustainable construction as well as suitable and cost effective designs, that will also substantially reduce the maintenance costs so it can be replicated and implemented by the Government to any outreached area of Bhutan;
- iii). to strengthen the institutional capacity of the Department and of the Dzongkhags to deal with construction programs of this kind in a **cost-effective manner; and**
- iv). to create a community-based system of regular preventive maintenance, emphasizing the primary responsibility to the community/school supervisory management boards.

Project Outputs, Cost and Duration

Project outputs included: the reconstruction, rehabilitation, relocation, new construction of 14 primary schools (PSs) and 15 basic health units (BHUs); a community-based maintenance system; and strengthened engineering capabilities in six dzongkhags.

The initial cost of the project was US\$ 3,630,731 comprising contributions from RBOB (502,000), UNCDF (2,919,441), UNDP (155,290), and UNICEF (54,000), with a later contribution from the Nordic Trust of \$100,000. The proposed project duration was 33 months.

The present project completion evaluation, conducted over one month in-country during January/February, 2001, was intended to assess: the overall achievement of the project;

project relevance and sustainability; and the efficiency and effectiveness of project implementation and management strategies. Critical lessons learnt about project design, implementation and management were expected to emerge.

The four-person team comprised Education and Health Specialists, an Engineer and an Architect. The evaluation involved consultation with key stakeholders, extensive review of project files, reports and other relevant documentation, and a two-week field trip to project sites in Eastern Bhutan. The team visited 7 primary schools and 7 BHUs (2 non-project), in 4 of the 6 project Dzongkhags (districts) (Lhuntsi, Mongar, Trashigang and Trashiyangtse), accompanied by the former Project Manager and one Section Officer. The field work was constrained by a number of factors, including: the coincident visit of His Majesty King Jigme Singye Wangchuk to Eastern Bhutan, which prevented meetings with Dzongkhag administrative personnel; the winter school vacation which prevented access to schools and consultation with teachers; the closure of the Project Support Office almost 12 months earlier, preventing consultation with project personnel and review of project files.

An Aide Memoire was presented to stakeholders prior to departure, in order to obtain feedback on initial findings for incorporation in the final report.

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Project Evaluation

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5. Project Achievement

The project succeeded in achieving its major output - the construction of 14 primary schools and 15 Basic Health Units in remote locations in Eastern Bhutan. These facilities are now fully utilized and are resourced in a manner commensurate with current RGOB capacity.

The network of primary schools and BHUs did not expand, as the project strategy involved reconstruction of *existing* facilities.

Literacy and life expectancy have increased and infant mortality has reduced over the project period, although these are not directly nor solely resulting from project interventions. Enrolment increase in lower grades of project schools reflects the national trend and thus is not necessarily a result of project support. Enrolment increase in project schools in Classes VII and VIII is considerable, and increased dormitory facilities are likely to be a major contributing factor. Great advances have been made in increasing the enrolment of girls.

While it is difficult to assess whether access to basic health care has improved as a result of the project, the upgraded facilities are more attractive to both clients and staff, which

leads to increased utilization of facility-based health services.

The project has confirmed the general suitability of the primary school and basic health unit designs for remote locations, whilst recommending a number of minor modifications. Efforts were made towards establishing a community-based maintenance system, however further work is required in this area.

On-the-job experience has been provided for contractors in Eastern Bhutan, several of whom have been upgraded as a result of project experience. Capacity enhancement of dzongkhag administration for construction management was less than anticipated, although commensurate with project effort to this end.

Overall, many lessons may be observed from the experience of the present project that point to the need for effective project design and management strategies.

The project was and remains highly relevant. The future RGOB education strategy includes the continuing expansion of basic education to the entire population, improving quality and relevance, and developing a highly motivated and competent teaching cadre. It is planned that all children will be enrolled in primary school by end of the 9th 5 year plan in 2007, with particular regard for girls. Achieving this goal will require, amongst other, establishing more community schools in currently underserved remote locations, increasing dormitory facilities at existing schools and generating increased numbers of trained teachers.

With regard to health, Bhutan's national health system exemplifies an ideal model in primary health care. It is a well-thought out, well-planned system that actually works. The present project certainly embraced the mainstay of the system, through the upgrade, renovation and partial new construction of 15 BHUs.

Infrastructure is one of the central necessities of development to promote accessibility and equity. This project assisted in this endeavor and succeeded. Furthermore, it is a tribute to this project's extraordinary commitment to rural development that it took on the tremendous

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challenge of working in rural areas, far from the road. This project was a major player in developing remote areas in the Eastern region.

RGOB commitment to the equitable delivery of high quality education and health services, is impressive, as reflected in budgetary allocations, which have increased over consecutive fiveyear plans.

6. Critical Issues

Project Design

The evaluation found the project design demonstrated a number of weaknesses, which impacted on project achievement. These included: lack of clarity as to project structure with some overlap between objectives and outputs; unrealistic expectations of capacity

building given project activities and resources; lack of performance indicators; lack of risk assessment; lack of clear rationale for the *staffing* structure proposed; unrealistic timeframes and gross under-estimation of cost.

Staffing Issues

Difficulties in recruiting staff, resulted in a significant delay in project operationalization, the cancellation of many project positions and the appointment of personnel with less than specified qualifications.

Site Surveys, Preparation Detailed Designs and Tender Process

Although site surveys were prepared, they provided lack of detail to enable the accurate calculation of the earthwork, foundations, and retaining walls, which resulted in underestimation of quantities.

Given the delay in project commencement, it was decided to tender all the sites as quickly as possible and simultaneously, rather than in a phased manner, as originally intended. This caused a serious time constraint to the limited staff to prepare all the tender documents and to evaluate all the bids in a relatively short period of time, and prevented opportunity to feed lessons learnt from limited implementation into improved and expanded practice. Construction implementation subsequently revealed a number of omissions and errors in the tender documents (such as the secured advance clause and special conditions of contract) which resulted in a considerable number of contract variation orders to be awarded. Inadequate initial site surveys, inaccurate estimate of quantities, insufficiently detailed working drawings, inexperienced officers, inadequate supervision and checks, limited staff working under-pressure are likely to have contributed to the flaws in the tender and contract documents.

Construction Delays

Commencement of construction was delayed by up to 22 months at some sites from that anticipated in the project agreement. Actual construction of schools ranged from 21-56 months, as opposed to the anticipated 15-20 month time period. For BHUs, the Project Agreement estimated a construction period of 8-12 months, whereas the actual construction time for BHUs ranged from 11-52 months. The original project agreement had anticipated all sites to be completed by October 1996. In reality, 3 sites were completed in 1997, 12 were completed in 1998, 10 were completed in 1999, 1 was completed in 2000 and 2 await completion in early 2001. The main causes for delays were negligence of the contractor, roadblocks, floods and landslides (preventing access to locally available materials and/or

sites), design changes, relocation of sites, and the political situation at Samdrup Jongkhar Dzongkhag (preventing purchase of materials).

Cost escalation

One of the most significant issues plaguing the project was that of cost escalation. The total project cost increased by 59% of the original budgeted amount. The original UNCDF budget of \$2,919,441 was first increased by \$1,387,903 (Bud Rev E) in December 1996

and again by another \$95,000 (Bud Rev H) in February 1999, for civil works activities. The actual UNCDF civil works final expenditure was \$3,757,422 against the original budgeted amount of \$2,172,287, an increase of 73%.

The UNDP expenditure tripled over the life of the project due to increased project management costs and training activities not originally budgeted, together with inflation. The RGOB contribution also increased by Ngultrum 12 million as a result of RGOB meeting the cost of final additional civil works expenditure after the UNCDF budget expired. Cost escalation was considered due either to flaws in the initial project costing or to project implementation changes, and represented a true reflection of actual construction costs.

Capacity-building

While the project provided *experience* to both contractors, communities and district-level government officials in BHU construction, it did not make a concerted effort to either strengthen institutional systems and procedures or enhance individual capacity to better perform duties and responsibilities. Capacity building objectives, indicators and resources were not articulated in the project design, greatly weakening any capacity-building efforts. No follow-up or monitoring of application of skills learnt or impact of training appears to have taken place.

Construction Maintenance

A major weakness of the project was its limited achievement in terms of developing an adequate and sustainable maintenance strategy. Despite the development of a Maintenance Agreement and a limited amount of maintenance training provided to community members, facilities are already showing signs of inadequate regular maintenance.

Project Management, Monitoring and Reporting

The project appears to have suffered from lack of clarity as to the roles, responsibilities and authorities of the various project management players, (the Project Support Office, the Dzongkhag administration, the Ministry of Health and Education and the Project Steering Committee), and especially with regard to financial management. Project management did not establish any system of checks and balances that would have ensured timely feedback on implementation difficulties. The project should have made a greater conscious effort to establish effective, transparent, accountable and efficient financial management strategies at the outset.

Only three Steering Committee Meetings were held over a 7-year period, from April 1994 to January 2001, despite the project being large, complex and innovative, with significant cost and time over-runs occurring. No other forum was established to progressively review implementation achievement or lessons learnt. Project progress reports, while prepared on a timely and regular basis, contained mostly quantitative information with qualitative commentary lacking.

7. Lessons Learnt and Recommendations

A considerable number of lessons have been learnt from the experience of this project, in relation to project design, project management, monitoring, reporting, and capacity building more broadly, as well as a number of Bhutan-specific construction issues, which, it is hoped, will inform future project design and implementation.

In terms of *Project Design, Management, Monitoring and Review*, lessons learnt include the need for the preparation of thorough project design documentation including: clear articulation of and relationship between objectives, outputs, activities and inputs; a logframe matrix; appropriate performance indicators; a risk assessment matrix and **risk management plan; clear lines of project management responsibility with a focus on transparency and accountability** especially with regard to financial management; adequate resource allocation for monitoring and quality assurance; and adequate emphases on capacity building and skills transfer.

In terms of Bhutan-specific *Construction/Maintenance Issues*, lessons learnt include the need for adequate pre-construction site survey and design preparatory work and the avoidance of shortcuts at this critical stage; ensuring high quality tender and contract documents are produced; ensuring adequate technical back-stopping and construction monitoring; and provision of enhanced support to local contractors.

Evaluation recommendations, relating to project completion and follow-up, include, amongst other:

- conducting a final Project Steering Committee meeting to ensure completion of outstanding project matters and to review and act upon the present evaluation findings and recommendations;
- assessing the status and effectiveness of current maintenance strategies and developing, implementing and monitoring Dzongkhag maintenance plans;
- reviewing the use and maintenance of latrines at schools and BHUs and the disposal of clinical waste at BHUs;
- monitoring the numbers and location of out-of-school children by accessing BHU-generated population statistics;
- developing five-year District Education Plans detailing education goals, strategies, development activities, budgetary allocations, and monitoring framework, for the achievement of *education for all* targets at the district level;
- launching a campaign about the benefits of BHU services through social marketing to promote use of BHU services;
- conducting a Health Facility Assessment to measure the quality of BHUs service delivery and client satisfaction in 2 - 3 years;
- inputting lessons learnt from this evaluation into a Lessons Learnt database and ensuring future project design teams take account of the same; and
- including the input of project design specialists either within project design teams or for subsequent appraisal of draft project designs, to ensure appropriate quality of

project design and documentation.

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1.1

INTRODUCTION AND BACKGROUND Project Evaluation - Purpose and

Strategy

The present project completion evaluation was conducted over one month in-country from January 19 - February 16, 2001. The purpose of the evaluation was to assess:- i) the overall progress of the project in attaining project objectives; ii) project relevance and sustainability of implemented activities; iii) the efficiency and effectiveness of project implementation and management strategies; and iv) the contribution of the project to the institutionalisation of RGOB's decentralisation process. The evaluation was expected to identify critical lessons learnt about project design, implementation and management. The Terms of Reference is included as Annex 1.

The four-person team comprised Education and Health Specialists (international), an Engineer and an Architect (national). The evaluation methodology involved consultation with key stakeholders in Thimphu and project locations, extensive review of project files, reports and other relevant documentation, and a two-week field trip to project sites in Eastern Bhutan. The team visited 7 primary schools and 7 BHUs (2 non-project), in 4 of the 6 project Dzongkhags (districts) (Lhunsi, Mongar, Trashigang and Trashiyangtse). Indian militant activity in the southern border area prevented visits to Pemagatsel and Samdrup Jongkhar. The team was accompanied on the site visits by the former Project Manager and one Section Officer. The support in reaching project sites, the extensive insights into project implementation issues, and the over-whelming hospitality provided by the Project Manager and Section Officer in particular, and by other RGOB officials, was invaluable and highly appreciated by the team. The team also wishes to convey its appreciation to UNCDF in facilitating the visit. Annexes 2 and 3 include a List of Persons Consulted/Itinerary and a List of Documents Reviewed.

Several factors limited the scope of the field visit, including the royal visit of His Majesty King Jigme Singye Wangchuk to Eastern Bhutan, which coincided with the evaluation program. Consequently, consultations with the Dzongdags and MHE Officers at Mongar, Trashigang and Trashiyangtse were not possible. However, given that the present incumbents are recently appointed, in-depth feedback on project implementation experience was unlikely in any case from these same officers. Additionally, as the Project Support Office had closed almost 12 months earlier, few of the project implementers were available and the PSO files were not accessible. Further, given the timing of the evaluation, all the schools were closed, preventing access into the school buildings. Only one Head Teacher was present at the schools visited. Consequently, more time than originally anticipated was required for document review and data analysis, in order to piece together a large complex project, which had been initiated almost ten years earlier.

An Aide Memoire summarizing the team's preliminary observations and findings was

prepared and presented at a Stakeholder Meeting, in order to obtain further clarification and response prior to the tear's departure from Bhutan. Feedback from that meeting has been incorporated into the present report.

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This report includes: an introduction to the development context of Bhutan and background to the project (chapter 1); a description of the project as articulated in the Project Agreement (Chapter 2); an account of actual implementation (Chapter 3); a summary of project achievement and impact (Chapter 4); discussion of critical issues (Chapter 5); and presentation of the main findings, lessons learnt and recommendations (Chapter 6). An Evaluation Summary is included as Annex 4.

1.2 Bhutan Development Context ¹

Bhutan is a small land-locked country in the Eastern Himalayas with an area of approximately 46,500 km², roughly 150 km from north to south and 300 km from east to west. It is bordered by the Tibetan region of China to the north, and elsewhere, by the Indian states of Sikkim, West Bengal, Assam and Arunachal Pradesh. The terrain is among the most rugged in the world, rising steeply from altitudes of 160m above sea level at the base of the foothills in the south to over 7,550m towards the Tibetan border.² The country can be divided into three geographic zones, the southern foothills, the inner Himalaya, and the high Himalaya.

Bhutan is one of the least populated countries in South Asia. Bhutan's population is estimated to be approximately 600,000 citizens. 80% of the population live in small villages or isolated scattered individual farms. The number of houses per village range from 2-100. The capital, Thimphu, in western Bhutan is the largest township with an estimated population of 40,000. Women constitute about 49% of the total population and hold a very strong socio-economic position in Bhutan. They are the principle landowners in East Bhutan and play a vital role in cash-generating activities such as weaving, raising cattle, and horticultural fanning.

Bhutan's mountainous terrain, rivers, dense forests and scattered settlements have resulted in a small-subsistence economy, although both topography and low soil fertility limit agricultural production to approximately 8% of total land area. Nevertheless, the agriculture sector, including forestry and livestock, remains an important part of the modern economy. Major crops include maize, paddy, wheat and millet. Livestock and livestock products are widely used in Bhutan. Hydro-electric power, generated from Bhutan's four main rivers, for domestic consumption and export to India, has emerged the most significant contributor to Bhutan's self-sustaining development. Forests, which cover some 72% of the land area, are Bhutan's other major natural resource, although only a small amount of the annual increment is extracted.

His Majesty, King Jigme Singye Wangchuk, is Head of State. Full executive responsibility for the running of the government is vested upon a Council of Ministers which is elected by the National Assembly. The National Assembly has a three-year term of office, and meets twice a year. Of its 150 members, 105 are elected, with membership based on

district populations. Twelve seats are reserved for monk bodies, and the remainder are occupied by senior officials, ministers and members of the Royal Advisory Council (RAC). The RAC advises the King and Ministers on major issues of policy and monitors implementation of the National Assembly resolutions.

Much of this chapter is extracted from the Project Agreement April 1994, unless otherwise specified. ² Eighth Five Year Plan; Vol. I, p. 1

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Bhutan is divided into 20 Dzongkhags, each headed by a District Officer (Dzongdag). The dzongkhags are further divided into 194 village blocks (Gewogs), each with an elected Cup (or Mandal, in the south) in administrative charge. In 1981, Dzongkhag administrations were made responsible for the implementation of most development programs. In 1991, 20 Dzongkhag Yargay Tshogchungs (District Development Committees) were created and now there are also 202 Geog Yargay Tshogchungs. Bhutan's process of decentralization continues to evolve.

Buddhism is the official religion of Bhutan and the foundation of the country's culture, drama, music and dance. Monks play a leading role in the lifestyle of the individual as well as the society. Buddhism has a profound influence on the people's education, health and other aspects of life.

Bhutan's unique path of development has been crystallized in the term Gross National Happiness (GNH), a concept which defines Bhutan's development objective as the improvement in the happiness and satisfaction of Bhutan's people, rather than the growth of Gross National Product (GNP).

Bhutan is currently in the process of reviewing implementation of its 8th Five Year Plan (1997/2002) (8 FYP), whose objectives include: self-reliance, sustainability, preservation and promotion of cultural values and traditions, national security, balanced development, improving the quality of life, institutional strengthening and human resource development, decentralization and community participation, and privatization and private sector development.

Over the 8th plan period, the education, health and social service sectors have made great strides forward and continue to be the primary thrusts of Bhutanese development efforts. Quality and accessibility of basic services (ensuring development services reach the people) have been central tenets of Bhutan's development strategy, to promote equity and to reduce rural/urban migration.³ Health and education received approx. 22% of the national budget in 1998.⁴ Health and education services are provided free of cost and the quality of service delivery in remote parts of the country is impressive, considering their short history of development.

Although the past four decades have seen phenomenal development, Bhutan has preserved its ancient traditions and its distinct cultural identity. The pristine environment, religious heritage and culture have been protected and strengthened by controlling development at a manageable pace, with a strong emphasis on sustainability and self-reliance.

1.3 Bhutan Education and Health Sectors - Overview

Bhutan Education Sector

While monastic education has been an important part of religious life in Bhutan for centuries

³ RGOB - Development Toward Gross National Happiness, 7th Round Table Meeting, November 2000. ⁴ UNICEF- Situation Analysis 2000; p. 16

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and continues to be so, planned modern education was only introduced in the early 1960s and has come a long way in a relatively short time span since. School enrolment grew from 1,500 in 1959 to over 63,000 students in 1993, of which 60,000 were enrolled in 252 primary schools. By 2000, the total enrolment in general education was approx. 100,000, with another 3,000 students enrolled in vocational and training institutions.⁵

The present education structure consists of one year of pre-primary, six years of primary, four years of secondary (2 years of junior high and 2 years of high school), two years of

senior secondary, and three years for a college degree. While 'basic education' in the early nineties included pre-primary to Class 6, this was extended during the 7th Five Year Plan period (1992-1996) to include Classes 7 and 8.

In 1990, the gross enrolment ratio was estimated at 63%, based on an estimated population of 100,000 children aged 6-12. The low enrolment ratio was considered to reflect the lack of and inadequate facilities, the long distances children have to walk to reach schools (up to 4 hours per one way walk), insufficient numbers of trained teachers, home labour requirements and *insufficient* funds to meet boarding expenses. Demand, on the otherhand, has been steadily growing. In the early 90s, Bhutan stated its aim to achieve universal access to primary education by the year 2000. This has since been revised to 90% by 2002. In order to ensure a more equitable distribution of primary educational facilities, RGOB's 7th Five Year Plan gave special emphasis to educationally backward areas.

By 1999, the estimated gross enrolment ratio for primary had increased to 72% (82% for boys and 62% for girls). This figure remains only an estimate, given the lack of accurate demographic data. At the same time, the net enrolment ratio may be closer to 53%, given the many over-age children in schools and the repetition rate.⁶ Nevertheless, the number of children enrolled in primary school has been increasing at an average of about 7.7% annually, although this figure is said to reflect more increased retention than increased enrolment into primary.⁷ It is notable that the actual growth rate slowed from 10.5% between 1991-1992 to 4.5% between 97/98, as a result of more stringent application of rules to restrict the entry of under-age children in view of the RGOB attempt to slow the pace of enrolment expansion to match the availability of teachers and materials.⁸

The annual growth rate has been facilitated by the establishment of community schools in remote villages, development of boarding facilities, rehabilitation of existing schools, school feeding programs and provision of free textbooks and stationery.

The proportions of students successfully *completing Class 6, 8, 10* have steadily increased. The annual repetition rates have decreased from 26% in 1990 to 16% in 1995, and dropout rates have reduced from 8% to 4% in the same period. Gender disparity is being steadily reduced. In 1991, the ratio of girls' enrolment to boys was 41:59. In 1998, it was 45:55.⁹

United Nations System Bhutan - Common Country Assessment. Draft for Discussion. Education for All - Assessment of Progress; p.25.

UNICEF- Bhutan: Situation Analysis; p. 115.

" Education For All - Assessment of Progress.

UNICEF - Plan of Operations, p. 70.

Factors inhibiting girls participation in school have included lack of female teachers, concern over vulnerability of girls with regard to distance between school and home; lack of hygienic and secure hostel accommodation; lack of female matrons; home labour requirements and risk of pregnancy. Distances between school and home and the need for boarding facilities are the main prohibitive factors. The ongoing establishment of community schools and dormitory facilities are relevant for increasing girls' participation at

primary and secondary level.

The national Department of Education (DOE) is responsible for policy planning, programming and implementation of all the education [programs](#) in the country, except some technical training. While the DOE directly administers higher, technical and teacher training programs, financial and administrative responsibility for the primary and secondary schools is now exercised by the respective Dzongkhag Administrations. Curriculum, inspection, certification and initial teacher recruitment remain within the direct purview of the DOE.

The current objectives for education (8FYP) include increasing the numbers of children attending school; increasing the basic education level from Class VI to Class VIII; further improving the relevance and quality of education at all levels; improving the efficiency of the education delivery system to make the education system more sustainable and cost-effective; improving the content and delivery system of technical education programs and providing educational opportunities for the disabled and disadvantaged.

Bhutan's curriculum has been revised to be relevant to the needs of Bhutanese children, covering the fundamentals of history, geography, culture, agriculture, environment, health, hygiene and population planning, in addition to literacy (in English and Dzongkha) and numeracy. Moral science or values education is also given special attention in the curriculum. The new approach to primary education (NAPE) is child-centered and activity-based.

Alongside government policy to provide education in the most cost-effective efficient manner, efforts are being made to ensure the infrastructure developments can be supported by the necessary human and financial resources to ensure quality, sustainability and equity of service delivery. Teacher supply continues to be the greatest challenge, with the rapid expansion of the system outstripping government capacity to provide trained Bhutanese teachers, despite increases in the government education budget.

Bhutan Health Sector

Modern health services were also introduced in the early 1960s, with the opening of the Thimphu hospital in 1961. Within 40 years, Bhutan has also achieved tremendous strides in Primary Health Care (PHC). From no hospitals, few dispensaries and no trained people in the early 60s, the country has expanded coverage to 28 hospitals, 149 BHUs and 426 Outreach Clinics (ORC) with over 880 trained health personnel and 1000 trained volunteer village health workers. This extensive network reaches 90% of the population. There has been a remarkable reduction in infant mortality and a large increase in life expectancy. In 1984 the infant mortality was 102 and by 2000, it was 30. The under-five mortality has been reduced from 163 in 1984 to less than 50 in 2000. Life expectancy rose from 48 years in 1984 to 66 in 1994.¹⁰

¹⁰ Department of Health Services, *Annual Health Bulletin*, 1999.

A striking aspect of Bhutan's health system is the adherence to the true essence of PHC, which rests upon a foundation of prevention, equity, accessibility and *Health for All*. Bhutan was a forerunner of this approach long before it was even articulated at a global health conference at Alma Ata in 1978 by world health leaders. The system is not over-medicalized nor doctor-dependent. Prevention at the family and community level is given great emphasis, over curative care. Drugs are basically limited to an essential drug list, which prevents overprescribing. Immunization, control of diarrheal disease, reproductive health/family planning, nutrition and water and sanitation are all promoted. Using the BHU as a base, several outreach clinics (ORCs) are conducted on fixed dates monthly at satellite service posts. Primary health care is literally brought to the people. Besides implementing a comprehensive PHC program, Bhutan has managed to integrate traditional health beliefs into the modern medical model. There are indigenous health services available alongside hospitals and BHUs, which honors and maintains the traditional medicine system.

BHUs are the primary level institution in the health care system, each serving a population ranging from 1,500-5,000 persons. The majority of Grade II BHUs are staffed by a Health Assistant (HA), Auxiliary Nurse Midwife (ANM) and a Basic Health Worker (BHW). The BHU also has facilities for basic laboratory tests and short-term observation of sick patients. It is the focal point for community health services such as ORCs. Each BHU has an average of 3 Out Reach Clinics through which services to the most distant villages are delivered. Upgraded BHUs (Grade 1) are usually situated in a district headquarters and have a Medical Officer (physician) in addition to the above-mentioned staff. District hospitals are the first level referral institutions and are equipped to provide curative, promotive, preventive and emergency services. Second level referral facilities are located at the regional level (Eastern, Western and Central) and are called Regional Referral Hospitals. A National Referral Hospital is the apex hospital in the country and is located in Thimphu.¹

Currently, morbidity and mortality for under-five years old children is mainly caused by acute respiratory illness (ARI), followed by skin infections, diarrheal diseases, worm infections, malaria (in the Southern region) and other fevers.¹² (See Annex 10 for further details.)

1.4 Eastern Bhutan Development Context

Eastern Bhutan comprises six districts - Mongar, Lhuntsi, Trashiyantse, Trashigang, Pemagatsel and Samdrup Jongkhar. The region is bordered in the north by China (Tibet), to the East and South by India, and to the west by Bhutan's Bumthang and Shemgang Districts. The total area is 24.8% of Bhutan. In 1992, the population of the 6 Eastern Districts was estimated to be 170,000, representing 28% of the national population. Of 60 Gewogs in the Eastern region, 25 have benefited from present project activity.

A central point in Eastern Bhutan (Trashigang) is a road distance from Thimphu of 550km, yet the journey takes 2 days. Furthermore, the road can often be blocked for days by landslides or snow. Virtually all the commodity movements into and out of the region pass through the Indian border town in the south, Samdrup Jongkhar. All district Headquarters are now linked

" Royal Institute of Health Sciences, Human Resource Development, Euro Health Group, 2000.

¹² National Health Bulletin 1999.

by road and the feeder road network is expanding. The average walking distance from farm to roadhead is about two hours, although for some of the remote blocks, this distance can be two or four days. There is now an east-west microwave telephone link between all district **headquarters** and Thimphu. At the time of project development, with the exception of the transport sector, other infrastructure development in the project region was minimal. At that time, the region featured only: 29.3% of the national road network, 6.4% of national telephone connections, 0.51% of national installed electricity capacity; and little industrial development.

The eastern region has one of the highest population densities in the country, despite extremely isolated settlements. Basic health, hygiene education and literacy are all dependent on the people's access to the institutions where these services are provided.

In 1993, there were 58 community and 57 primary schools in the 6 Eastern Districts, with enrolment representing 63% of the number of community schools and 40% of the total number of primary schools in Bhutan. The gross enrolment figure was 21,837. (*See Table 1 below*).

Table 1- Community and Primary Schools in east Bhutan, 1993

District	Community School	Primary School	Gross Enrolment
Lhuntsi	8	4	1,869
Mongar	10	10	3,501
Pemagatsel	6	5	2,500
Samdrup Jongkhar	7	11	4,600
Thrashigang	19	19	7,300
Trashiyantse	8	7	2,067
Total	58	57	21,837

At that time, many primary schools were dark, with sub-standard classroom sizes and excessively large classes, particularly at the lower levels. In many cases, the classrooms and dormitories were structurally unsound with deplorable hygiene conditions. Good latrines and safe drinking water were practically non-existent. In 1990, girls represented only 38% of primary school pupils. Lack of facilities, including lack of sanitation and bathing places for girls, was a disincentive for parents to send girls to schools.

Yet, despite the condition of the physical facilities, teachers and administrators were observed by the project formulation mission to be using their minimum resources efficiently and with effective impact on students.

At the same time, most of the BHUs were hosted in old buildings not originally designed as health facilities. The buildings lacked preventive and corrective maintenance and only emergency repairs were done. The roofs were often leaking, the walls cracking and windows and doors needed repair. Latrines were not covered.

The existing hospitals, dispensaries, BHUs and Indigenous Medical Units in Eastern Bhutan, at the time of project formulation, are presented in *Table 2* below. Compared to the national number of medical facilities, the Eastern Region presented the following situation: 30.8% of the hospitals, 35.1% of the BHUs, 23.2% of the dispensaries, and 28.5% of the indigenous medical units for 51.4% of the total number of patients in Bhutan.

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Table 2: Health Facilities in Eastern Bhutan, 1993

District	Hospital	BHU	Disp.	Indig.	No. patients
Lhuntsi	1	4	3	-	2,300
Mongar	1	-	2	1	48,300
Pemagatsel	1	9	1	-	5,800
Samdrup Jongkhar.	2	10	2	-	51,000
Trashigang	3	9	2	1	43,300
Trashiyangtse	-	3	-	-	13,000
TOTAL	8	26	10	2	183,700

1.5 Project Development History

Within the Government's Seventh Five-Year Plan (1992-1997)(7FYP), better health and education were perceived as an important means in achieving human resource development with the aim of ensuring the spiritual and emotional well being of the country's population. Given the government's policy to ensure development services reach the people especially in least developed and isolated regions, coupled with experimentation in decentralized governance, and given the condition of health and education infrastructure in Eastern Bhutan and the lack of other donors supporting this area, the present project formed an essential part of UNDP/UNICEF's program strategy to support the 7 FYP goals in Eastern Bhutan..

Following an initial UNCDF Preparatory Project Planning and Identification Mission in 1991, a Memorandum of Understanding (MOU) between RGOB and UNCDF was signed in February 1992 outlining UNCDF support over the plan period. The MOU included proposals for two projects totaling US\$5 million over five years, for the construction of 30 Primary Schools and 20 Basic Health Units in Eastern Bhutan, in a phased manner. An evaluation was planned to be conducted at the completion of Phase I, prior to the development of the Phase II design. Along with the *Permanent Works for Feeder Roads Project* signed in July 1993, UNCDF's capital assistance aimed to complement the efforts of other donors in the area, including UNICEF's *Support for Teacher and Basic Health Worker Training* and WFP's *Food Supply to Schools, Hospital and Road Worker Project*.

School and BHU survey missions were conducted in May-June 1992 followed by a Project Formulation Mission in May/June 1993. The PFM team (one Architect Consultant and one Socio-Economist) visited 26 of the proposed 29 Phase I sites and produced a detailed 3 volume report describing the project objectives, activities, implementation and management arrangements; and included socio-economic data; maps; cost-estimates; work plans; budgets; and architectural plans and profiles. The earlier proposed separate school and health projects were combined into one project. Project costs were estimated on the

basis of the Standard Bhutan Schedule of Rates, indexed by 24.3% for projected costs in 1995.

On the basis of the Project Formulation Report, a Project Agreement (PA) was prepared and signed by UNDP, UNCDF, UNICEF and RGOB in April 1994, with a total cost of US\$ 3,630,731. Full details of the project design are provided in Chapter 2.

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2. PROJECT DESCRIPTION ¹³ 2.1

Project Rationale

As noted above, the present project formed an essential component of UNDP/UNCDF's program strategy for the eastern Zone for the 7th Five Year Plan. Given the zone is the least developed and most isolated in the country, the rehabilitation, upgrading and construction of Primary Schools and Basic Health Units was expected to contribute to the enhanced living standards of children and patients in remote areas. Rehabilitation of health and education infrastructure was seen as a pressing need to improve school enrolments and to provide better supporting facilities for the primary health care units, without significantly increasing the need for already scarce personnel for new facilities.

2.2 Project Objectives

Development Objective

To assist the Royal Government of Bhutan in improving the human development status of Eastern Bhutan, specifically in both education and health sectors, in accordance with the Government's Seventh Five-Year Plan. Specifically:

- i) to increase the literacy rate through a larger primary school enrolment (especially of girls) from the current 57.9 percent of primary aged children (aged 6-12 or above) to the projected 81 percent in 1997; and
- ii) to extend primary health care coverage to the entire population by improving the network of Basic Health Units, and thereby, to enhance the life expectancy noticeably by cutting the infant mortality rates.

Immediate Objectives

- i) to assist the RGOB in achieving its objective to increase primary school enrolment and extend primary health care coverage in the rural areas by expanding the network of primary schools and BHUs in the Dzongkhags of Lhuntsi, Mongar, Trashigang, Trashiyangtse, Pemagatsel and Samdrup Jongkhar;
- ii) through the rehabilitation, upgrading, reconstruction, relocation and new construction of these social facilities, to promote a sustainable construction as well as suitable and cost effective designs, that will also substantially reduce the maintenance costs so it

- can be replicated and implemented by the Government to any outreached area of Bhutan;
- iii) to strengthen the institutional capacity of the Department and of the Dzongkhags to deal with construction programs of this kind in a cost-effective manner; and
 - iv) to create a community-based system of regular preventive maintenance, emphasizing the primary responsibility to the community/school supervisory management boards.

¹³ According to Project Agreement, April 1994.

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2.3 Project Outputs

- Reconstruction, rehabilitation, relocation, new construction of 14 primary schools (PSs) and 15 basic health units (BHUs), while promoting an improved design;
- Community-based maintenance system;
- Strengthened engineering capabilities in six dzongkhags.

2.4 Project Inputs, Cost and Duration

The planned project inputs and cost contribution of the different project partners is summarised in Table 3 below. The proposed project duration was 33 months, with completion anticipated by January 1997.

Table 3: Project Inputs x Donor x Cost*

Donor	Input	Budget (US\$)*
RGOB	Purchase of sites/registration, office space, furniture for PSBHUs, medical equipment/supplies x BHUs, 1 x project Director and 8 x Assist. Civil Engineers;	502,000
UNCDF	Architecture/Engineering and site survey/soil mechanic studies; Civil works x	2,919,441
UNDP	execution of water supply schemes; PSBHUs, equipment/supplies x technical teams	155,200
UNICEF	subsequently Provision materials for water schemes	54,000
TOTAL	training)	3,630,731

* according to cover page of PA (NB. Slightly different allocation UNCDF/UNDP reflected in PA p.32.)

A grant of US\$ 100,000 was subsequently provided in 1998 by the Nordic Trust for the solar electrification of 14 BHUs and 8 primary schools.

2.5 Project Implementation and Management Structures

Four District Supervision Units (DSUs) were to be established, in Trashigang; Lhuntsi; Mongar/Trashiyangtse; and SJ/Pemagatsel, comprising 2 Site Supervisors (SSs), 2 national Civil Engineers/Technicians, and 2 draftspersons, to work in close coordination with the District Engineer and Section Officers. The SSs were to: supervise the tender exercise; assist in the preparation of monthly disbursement schedules to record measurement of quantities executed at site by contractors and certify the same for payment; produce site

masterplans; provide periodic on-the-job training to strengthen the technical skills of national technicians; train local contractors in basic management and construction techniques; train beneficiaries in preventive maintenance; and prepare regular civil works progress reports.

The Project Support Office (PSO) was to be established in Trashigang, staffed by a National Project Director (RGOB), Project Manager (UNDP) and support staff, with responsibility for coordination and technical backstopping of the 4 DSUs; assisting the Dzongkhag Administrations in the tendering exercise and preparation of annual budget estimates; quality control; checking running account bills and final bills submitted by contractors for civil works; and coordination of training for contractors and for beneficiaries.

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The MHE and Dzongkhag Administrations had overall responsibility for implementation, with technical support from the PSO. A Project Steering Committee, located in Thimphu, was responsible for overall coordination and policy guidelines, convening at least once/year, and comprising representatives of Ministry of Finance (Chair), MHE, DWH, 6 Dzongkhags, UNDP, UNCDF, UNICEF. Funds were disbursed from UNDP to MOF, and subsequently to the Dzongkhag, who make payment to contractors. See Annex 5 for Project Management Structure.

2.6 Project Components and Activities

The proposed Project Components and Activities, as described in the Project Agreement, are summarized in Table 4, below.

Table 4: Project Components and Activities	
<i>C.1.1</i>	<i>BHUs and PS land acquisition</i>
	Each Dzongkhag admin, with DEO and DHSO, complete land acquisition and official registration, before floating tenders.
<i>C.1.2</i>	<i>Water scheme rehabilitation or implementation</i>
	Rural water scheme & sanitation personnel complete rehabilitation or new construction of permanent water scheme for PSs and BHUs, with financial / technical input from UNICEF.
a	
<i>C.2.1</i>	<i>Detailed Standard architectural and civil engineering designs produced for both PS & BHU modular structures</i>
	<p>Architecture and Engineering Team to be appointed.</p> <p>PS design, adapted from design used in UNICEF project in Eastern region. BHU design based on standard module of PS design - to serve as basis for detailed architectural study.</p> <p>PS basic modular blocks include: 1) large classrooms; 2)small classrooms; 3)admin block with stores, library, science room; 4)warder's quarters, sickroom, student hostel; 5)student hostel blocks; 6)large bath-house; 7)small bath-house; 8) dining and assembly hall; 9)kitchen with storage; 10) headmaster's house; 11) ventilated improved pit latrines;</p> <p>BHU modular blocks included: 1) basic health unit block; 2) patient's ward; 3)kitchen with storage; 4) staff quarters; 5)ventilated pit latrine.</p>

C.2.2	<i>Detailed cost estimates & tender documents produced for each modular block & included in standard design</i>
	Completed set of docs to be forwarded to UNCDF for approval.
C.3.1	<i>Protect staff recruited</i>
	TA to be recruited by RGOB, assisted by selection committee, including UNDP. Regional consulting firm to be contracted for recruitment of Chief Architect, Site Survey and Soil Mechanic team. Project Manager to be recruited through separate regional consulting firm.
C. 3.2	<i>Project Implementation Unit (PIU) established in Trashigang</i>
	<i>4 District Supervision Unit (DSU) established - in Trashigang</i>
C.3.3	
C.4: -/-	Sibs Surveys" OA 06kaStudies
	Site Survey and Soil Mechanics Team to be appointed
C4.1	<i>Topographical survey x 29 sites</i>

C4.2	<i>Detailed survey x sub-soil composition, soil mechanics behaviour, technical drawings, etc_</i>
C.4.3	<i>Detailed cost estimates of earthworks, retaining walls, other physical works</i>
	<i>29 detailed base maps produced with identification of land topography/physical features.</i>
C.5.1	Constitution of PSs & BHUs Management Boards
	Responsible: Gups, in coordination with Dzongkhag admin; Pre-requisite to civil works, to coincide with site survey/soil mechanic studies; Headmasters, teachers, parents, students, under supervision of management board, to be organized/educated by site supervisors while civil works implemented, in order to subsequently perform preventive maintenance.
C.5.2	Preparation & Signature of Management Agreement
	Maintenance Agreement (English) written by PTU in coordination with Dzongdags (approved by UNCDF HQ) sent to each Gewog . Local approval/signature by respective Gup and PS/BHU management board being pre-requisite for civil works implementation. Dzongdags to certify to Steering Committee that agreements are signed prior to floating tender docs.
C.5.3	Preventive Maintenance Training
	During civil works, Site Supervisor to train Headmaster and school board-designated individuals, to supervise/execute preventive maintenance tasks - based on UNESCO manuals
C.6. I	Production of specific architectural masterplans
	District Supervision Units (DSUs) develop masterplans for each site, based on site survey maps/soil mechanic studies, including precise layout building blocks and site developments.
C.6.2	Final cost estimates & tender documentation of each x 29 sites
	DSUs adjust site documentation to detailed specific info and in coordination with engineers site base maps/soil mechanic studies, plus district Supervision Unit masterplans

C.6.3	<i>Floating of tenders, analysis, and final award of contract</i>
	Dzongkhag admin, plus Selection Committee, undertake tendering exercise & sign contracts. I selection committee per Dzongkhag, comprising: Dzongdag, Nat. Proj Dir, Proj. Manager, Site Supervisor, Works/Housing Sectional officer. Rules/regulations of Construction Board of Bhutan govern policies/procedures for awarding civil works contracts. NB Contracts to be awarded to min. Class 'C' contractor, working at no more than 2 sites simultaneously, nor responsible more than Nu.3.5 million. Class C contractors to employ local labour at village site.
C.7.1	<i>First constructions to serve as demonstrations for contractors</i>
	Each contractor spending up to 1 week with site supervisor. Establishment solid relationship with local Gup, to secure support, ensuring permanent provision local labour/porters, etc. Every site supervisor in charge of 3-5 sites, monitoring monthly progress. Dzongkhag authorities make payments to contractors, after certification by site supervisors.
C.7.2	<i>Civil works activities executed by contractors in compliance with construction documents</i>

For an assessment of the Project Design, refer *Chapter 5 Critical Issues*.

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3. PROJECT IMPLEMENTATION

3.1 Implementation -Actual versus planned

Project Mobilization - Recruitment of Project

Personnel

While the PDD was signed in April 94, the National Project Director was appointed in November 1994 and the Project Manager commenced duties in May 1995. The Project, through UNDP/UNCDF, commenced a bidding process for consultancy services in Jan 1995, but encountered difficulties obtaining suitably qualified, experienced technical staff as specified in the Project Agreement (PA). Recruitment through a regional consulting firm proved unsuccessful, with the lowest price being 29% above the project budget. A decision was made to cancel a number of project positions and increase the workload of the Project Manager and RGOB staff. Recruitment then proceeded locally.

Some Site Supervisors recruited did not fully meet the original qualification requirements of the PA (i.e. Diploma in Civil Engineering rather than Degree) but were considered capable of performing duties. The final team of Site Supervisors (SSs) and Section Officers (SOs) only came together by June 96, 14 months after the anticipated commencement of technical teams¹⁴.

The PA work plan was tight, anticipating project commencement immediately upon signing of the agreement, and assuming no delays in recruiting technical staff.

Non-availability of technical staff led to delays in project implementation. While the surveying/estimating work was carried out during this period by the RGOB Section Officers, under the guidance of the Project Manager, other work including assessment of existing structures and preparation of site master plans, estimates of site development requirements, and preparation of tender documents, could only be carried out with the appointment of the SSs.

Site Surveys, Preparation Detailed Designs and Tender Process

The project document had proposed the appointment of a Site Surveyor and Soil Mechanics Engineer who would prepare the detailed topographical surveys of all sites, soil mechanics studies and cost estimates of earth works and retaining walls, over a 12-month period.

Although site surveys were conducted for each site by Section Officers (over a much reduced time period), the detailed site plan was not prepared. Lack of drawing details prevented accurate calculation of the earthwork, foundations, and retaining walls, resulting in underestimation of quantities.

Tender documentation was prepared by the Project Support Office, in line with the RGOB Financial Manual. Given the fact that the project had been delayed for almost two years due to initial staff difficulties, it was decided to tender all the sites as quickly as possible and simultaneously, rather than in a phased manner, as originally intended. This caused a serious

^f *Project Manager I - Completion Report, July 1998.*

time constraint to the limited staff to prepare all the tender documents, BOQ, drawings and at the same time to evaluate all the bids. Additionally, some clauses were not included in the documentation, such as the secured advance clause and special conditions of contract. Construction implementation subsequently revealed a number of further omissions and errors in the tender documents. (Refer *Contract Variation Orders* below.)

Nevertheless, the tendering was generally considered successful, until the award of Nagor Primary School in August 1996, which took the committed cost of the project above the UNCDF budget allocation. Tendering, or award of work, of the remaining 6 sites was delayed until after December 1996 when UNCDF New York approved a budget increase.

Tendering for some of the sites was done in phases, with the works split into smaller components to provide opportunities to the local entrepreneurs with petty contractor licenses, and in the absence of any large contractors able to absorb the entire work. The categories of the contractors engaged for the works were: Class A(1); Class B (5); Class C(19) and Class Petty(15), several of whom have since been upgraded to Class C on the basis of work completed under the project. ¹⁵

Construction Design Changes

The PS design included in the PA was adapted from the design that had been used in the UNICEF-funded schools at Uzarong and Thangrong in the Eastern region, utilizing local materials/technologies. The PA design was considered to: facilitate simple, effective site supervision/construction, reduce capital investment, enable low recurrent costs for preventive & corrective maintenance, use a minimum amount of wood and imported materials and be adjusted to local labour skills and the remoteness of sites. However after the construction of the Uzarong PS, MHE considered the design not suitable for major replication. The present team notes that while the design had some weaknesses, the poor performance of the contractor concerned appears to have influenced the assessment of the facilities.

Subsequent design modifications agreed by a UNCDF Mission in Nov 1995¹⁶ and incorporated in the final design included:

- Construction of large classrooms only - the smaller classrooms were found to be under-utilised due to space limitations. This change contributed to the standardization of school design;
- Minor modification of the windows in hostel block - this was a practical solution to the insufficient lighting from smaller windows;
- Construction of *enclosed* dining/assembly hall - the covered open space proposed in the project document had been trialled elsewhere in Bhutan and found to be ineffective due to maintenance difficulties, limited utility in varying climatic conditions, and limited acoustic capacity for cultural functions.

¹⁵ *Project Manager I, Completion Report 1998, p. 1/.* is Refer Inception Report Dec 95

Some further changes were made to the primary school design during implementation. For example, the hostel blocks were provided with attached toilets and showers. This change was made primarily to increase security for use by girls at night. It also helps to keep the hostel surroundings clean, because students would have had the tendency to use the open space at night rather than travel some distance to the detached toilets.

It was also agreed that the BHU design would be changed from that proposed in the PA to the standard MM Health Engineering Cell (HEC) U-shaped Grade II BHU design, regardless of population or location of the site. To standardize the equipment and facilities all over the country, this move was found to be genuine.

While rehabilitation had featured significantly in the original project design, during implementation it was found that most of the structures were not economically viable for investment of considerable additional funds. The Project therefore decided to demolish such structures and construct new ones. Those buildings which were more recently built

and required less expenditure, were rehabilitated, improving their functionality in a cost-effective manner.

Construction Delays

Delay in the commencement of construction from that anticipated in the project agreement ranged from 10 - 22 months. This set the project back almost 2 years at some sites. The majority of site construction commenced within a 2-month period in 1996.

While the Project Agreement estimated a 15-20 month time period for primary school construction, in reality, actual construction ranged from 21 - 56 months. Excluding three extreme cases (Nganglam-40m; Minjiwoong-41m; and Thungkhar-56m), the average construction time for 11 primary school sites was 27 months.

For BHUs, the Project Agreement estimated a construction period of 8-12 months, whereas the actual construction time for BHUs ranged from 11 - 52 months. Again, excluding 5 extreme cases (Nganglam-52m; Thungkhar-52m; Yanbari-35m; Minjiwoong-32m; Dungmein-30m), the average construction period for 9 BHUs was 17 months.

The original project agreement had anticipated all sites to be completed by October 1996. In reality, 3 sites were completed in 1997, 12 were completed in 1998, 10 were completed in 1999, 1 was completed in 2000 and 2 await completion in early 2001.

As suggested above, construction at Thungkhar, Nganglam, and Minjiwoong were seriously delayed, and in the case of Thungkhar, construction extended over a four year period. The main causes for delays were negligence of the contractor, roadblocks, floods and landslides (preventing access to locally available materials and/or sites), design changes, relocation of sites, and the political situation at Samdrup Jongkhar Dzongkhag (preventing purchase of materials). In the case of Nganglam, the contractor was said to be a timber supplier who had been awarded the job on the basis of a written guarantee from a wealthy friend. Other debts prevented him from investing the needed capital into the project construction.

In response to the problems encountered at Thungkhar and Nganglam, the second Project Manager instituted a changed modality of contractor management. This involved: the project team assisting the contractor in the purchase of materials and assisting in overall work planning **and supervision of construction; the concerned Section Officer estimating the quantities of** materials required and submitting requisitions for onward purchase; materials being purchased by the Contractor with on-the-spot payment; material transportation coordinated by the contractor and supported by the Section Officer; the Contractor making payment to laborers in the presence of project staff; the Project staff strictly quantifying the standard weight and monitoring daily laborers working at sites, to control the overall increase in material transportation; all advances required from Dzongkhag to be approved by the Dzongdag and advance payment to be received by Contractor and project team; and cash advance to the contractor not permissible without

concerns of project. This appears to have been successful in the case of Nganglam, which was finally completed during 2000. Completion of Thungkhar BHU and PS is **anticipated** by March/April 2001.

The team noted the delay at Thungkhar has also caused detrimental effects on the lives of day laborers from India, who in January 2001 were anxiously awaiting the completion of the project and compensation for work already conducted over the past year. It is understood that resolution of the situation at Thungkhar is now at hand.

When the project office closed in March, 2000, 3 constructions remained incomplete - namely Nganglam PS, SJ and Thungkhar PS and BHU in Trashigang. Section Officers were assigned to continue supervision of these sites until completion and the Project Manager, although transferred, was directed to continue to monitor progress and scrutinize final bills from contractor. The Project Manager was also instructed to compile the Final Project Completion Report, which has been delayed to date, pending completion of all sites.

The overall delay in project implementation contributed to the escalation of project management costs. The original project budget had included provision for a Project Support Office for a period of 24 months. In fact, the PSO continued for 63 months.

The second Project Manager argued against imposing penalties on contractors, given the Project's intention to help build the capacity of mostly class C and petty contractors and given a considered lack of fairness to impose such a penalty mid-project on some contractors, and not on others. The contractors were considered already penalized, in that they were operating in 1999/2000 on the basis of costs quoted in 1996. The evaluation team considers this position reasonable, given the project had intentionally targeted inexperienced petty contractors, and yet had provided them with little technical assistance. The evaluation team is of the view that more planned capacity building assistance could and should have been provided to the petty contractors to better enable them to prepare workplan schedules, manage cash-flows, and to anticipate and manage risk. Project managers should have been more proactive *earlier* to respond to the difficulties which some petty contractors were [^]cing.

Furthermore, the delay in construction was but one factor that contributed to overall project implementation delay - as other project stakeholders can equally be said to have shared

responsibility, in their own relative areas of influence, for the range of factors that contributed to the overall project implementation delay.

Contract Variation Orders (CVOs), Deviation and Advances

Following the award of contracts and the commencement of works, many Contract Variation Orders (CVOs) were subsequently awarded.

The Contract Clause 12 under *Alterations, Omissions, Additions and Substitutions of Work* of the Contract Agreement delegated the full authority to the site supervisors for making any necessary changes, alterations, additions or substitutions from the original designs, specifications and drawings, without any limit to the expenditure implicated. This clause and authority contributed to uncontrolled cost escalations, by making changes in isolation without appreciating the cumulative cost implications for the entire project. While it is understood that in practice, site supervisors would normally seek higher approval prior to issuance of CVOs, this does not appear to have occurred at the outset in this project. The Ministry of Finance did subsequently institute controls to minimise the award of CVOs.

Table 5 below summarises the variations by type and the reasons these were required⁷. While these changes resulted in cost escalation, they are considered justified in terms of contribution to better quality, functionality, stability and availability of materials.

Table 5 - Summary of Contract Variations

Contract Variation	Reason Required
Window bars in BHUs	Increased security risk since time of tender
RRM (random rubble masonry) to CRM (course rubble masonry)	Easily accessible stone more suited to RRM than CRM; different finish to reflect quality of stones
Timber to concrete flooring	MHE policy change
Mud to Cement Mortar	MHE policy change
Attached Toilet/showers	MHE policy change/ security
Increase wall height	Dzongkhag, Ed Div - for hot conditions
Classroom converted to science room	MHE request
Timber ceiling to plywood	Shortage of timber
Additional quantities for rehabilitation	Quantities difficult to estimate accurately
Increase in labour rate	Ministry of Home Affairs policy
Glass to acrylic	Prevent breakage during transportation
Miscellaneous design changes	Item of required work not included in Bill of Quantities or under estimated; error/omissions in tender or contract docs
Additional site development I jungle clearance	Need for walls to stabilize sloped; steps to connect buildings; extent of excavation/site drainage underestimated, omitted, or changed.

Suitability of design and materials for the selected sites

In general, the primary school buildings are suitable for the sites and function, although a number of flaws have been detected, including lack of room for the library.

Refer Project Manager (I) Completion Report June98

The multi-purpose hall is used for both dining and cultural functions. However, for cultural functions, the presence of the columns on the two sides of the hall obscures view to the stage. The stage is too small and the stage ceiling height is too low. The design for the multi-purpose hall requires modification prior to further replication.

The toilets are aqua privy type and the system can function well if properly used, but in many cases maintenance is inadequate due to lack of awareness of the working system. The need for regular letting out of the sludge to the decomposition chamber is not well understood by school authorities. This is partly due to transfer of staff without corresponding regard for knowledge transfer on such matters.

The project adopted the Health Engineering Cell modular BHU Grade II design. While the facilities currently appear large compared to their patient load, anticipated future demand has been taken into account. However, analysis of the functions and flow of the services, space requirements and availability, would suggest revision of the services in each room would result in better functionality of the space. Presently, the first two rooms on the left are a retention ward and a labor room. These would remain the same, although the toilet at the labour room would be better accessed through an entrance door from inside the room. The middle three rooms are small and are currently being used for various purposes, but mainly for OPD and Maternal and Child health (MCH). The sixth room is a large room for the laboratory. but is much too large for this purpose. It might best be used for MCH activities (preventive, health education activities). The seventh room is often used as an office with a large desk and displays of statistics and mapping and the records and registers. It is a large space, which might better be used as an examination room for patients seeking curative care and requiring an exam.

Replicability of the designs

The team believes the same designs can be followed for future projects but with some modifications, as outlined below:

- Walls: The change from the mud masonry to stone masonry with cement mortar does not have sufficient justification and therefore has to be further analysed. The use of mud masonry embedded within a cement mortar finish is recommended, as the materials for mud masonry are locally available, the local community has the necessary construction expertise and transportation cost would be reduced. The cement rendering provides a good and maintainable finish.
- Timber flooring to cement flooring: If it is impossible to find timber, cement flooring can be used given no other alternatives. Timber flooring is preferable for all school constructions in both tropical and temperate areas and should be cheaper where head load is involved. For all BHUs, cement flooring is preferred for maintenance of hygienic conditions.
- Ceilin : Most of the sites have plank ceilings, which is in line with the indigenous material. However some sites have used ply wood ceiling due to non-availability of timber. If the material has to be transported from elsewhere, a better choice is required, as plywood is very susceptible to humidity and will decay rapidly due to roof leakages.

- Windows: The window shutters for BHUs are too big resulting in breakage of glass panes by even the normal winds, with consequent maintenance problems. The shutter size provided for the classroom blocks are found to be adequate. ;
- Floor to ceiling height: should be increased for the tropical sites for more air circulation and also as a future provision for fans.
- Paint: The doors and windows have Bhutanese painting with mud paint, which already shows the signs of fading away. Use of enamel paint is recommended, as it is longer lasting and will act as wood preservative.
- Eaves covering: The gap between the wall and the roof is open, creating a passage for the birds which start residing in the ceiling. Bird droppings are already a problem in some of the schools and BHUs. Eave coverings should be provided all round to prevent the entry of birds.
- Inside Walls: Inside BHUs, the white-washed are rapidly deteriorating, as white washed walls cannot be cleaned with water easily and white washing cannot be done regularly. It is recommended that the bottom portion up to window sill (1m height) be finished with colour-pigmented cement.
- Multi-Purpose Hall: Review design in order to remedy problems arising from side columns, stage size and ceiling height.

Water supply and solar electrification

The water supply scheme for the BHUs and PSs was funded by UNICEF and implemented by the Public Health Engineering Division, MHE under the Rural Water Supply Program. The water supply is a gravity system fed by streams or springs. A covered intake is constructed at the source and the water is taken by HDPE/GI pipes buried underground. Ferro cement reservoir tanks are constructed, depending on the population size, from which water is distributed to the beneficiaries. Tapstands are generally centrally located to the houses, schools or BHUs. As PSs and BHUs have internal plumbing, the water supply is connected to the buildings. The water supply activities of the project are now complete.

Solar electrification was a later addition to the project sites with solar electrification kits procured for 14 BHUs and 8 PSs in 1999. It was planned that the kits would be installed by community members, who would have participated in the project's maintenance training activities. On-site supervision was to be carried out by the Dzongkhag Engineering staff, with assistance from the Department of Power. The present evaluation team was unable to confirm the extent to which the community members designated to install the solar panels benefited from the maintenance training provided. No further information was available to the team from the project files, progress reports or 'discussion held with project personnel, as to the detail of the solar panel installation process. As indicated elsewhere, project reporting is considered less than satisfactory.

At the time of the present evaluation, all solar electrification panels have been installed, except for those at Minjiwoong and Thungkhar BHTUs and primary schools, however, the evaluation team understands that some of them are not working. The Rural Electrification and Solar Lighting Division, Department of Power, expressed a problem of sustainability, due to: lack of trained people to maintain the system; lack of spare parts; difficulties of

attending to

maintenance due to the remoteness of the sites; misuse of the facilities (ie. connecting to taperecorders and using for festivals); and lack of adequate funds.

Maintenance

The project intended to establish a community-based maintenance strategy for the ongoing maintenance of the facilities once they were handed over to the users at Dzongkhag and Gewog level. It was intended that communities would sign Maintenance Agreements (MA) as a prerequisite to the commencement of civil works. This did not transpire as communities were reluctant to make commitments until the works were completed.

Maintenance is divided into routine/preventative maintenance and major corrective maintenance. For the routine maintenance, it was intended that the community would assume responsibility, with coordination from the DEOs and DHSOs through the Gup. The major maintenance requiring bigger investment would be carried out by the Dzongkhag. It was felt that rather than carrying out the work through the School Management Board, it would be more effective through the GYT, given the number of communities involved and their distance to school.

The MA process was trialed in Trashiyantse in 1997. The MA outlined the responsibilities of the users for maintaining the buildings along with confirmation from the Dzongkhag Administration that support would be provided for more substantial works. The Project Director subsequently forwarded copies of the draft MA and details of the Trashiyantse experience to all Dzongkhags, requesting that a similar process be initiated at each site, commencing with the next GYT meeting, and requesting receipt of signed copies of all Maintenance Agreements.

The project intended that the Site Supervisors would conduct on-site maintenance training for each community. This did not occur. Two Maintenance Training activities were conducted under the project at Trashiyantse (1997) and Khaling (1998) covering masonry, carpentry, plumbing and electrification (with some maintenance equipment distributed) however it is not clear whether all project sites were included and there is no indication of their effectiveness or impact. The facilities already show signs of requiring routine maintenance, including broken glass panes, tower bolts, handles, sliding bolts, and basin waste pipes, which need replacing.

The UNESCO Maintenance Manuals were translated in 1998 *after* the 2 maintenance workshops had been completed. It is not clear to what extent they have been distributed or whether any further training has been provided in their use. The Project Office did distribute a *Use and Maintenance Manual* for aqua privies but this does not appear to have been effective. One head-teacher interviewed (and who had been appointed to his school after the construction) was unaware of the maintenance requirements for the sewerage facilities.

At the time of the present mission, 11/2.9 Maintenance agreements had been received. No ready explanation was apparent for the delay in receipt of the Maintenance Agreements for the other sites. Further, at this post-project office stage, it is not clear whether anyone is following

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up on the completion of Maintenance Agreements at all sites, or whether those in place are actually being implemented and to what effect.

The Maintenance aspect of the project appears to have received less than adequate

attention. **3.2 Inputs -actual versus planned**

Technical Assistance

Significant changes were made to the project staffing subsequent to that specified in the Project Agreement, as summarised in Table 6 below. It is understood that these changes were a response to the difficulties encountered in recruiting the specified project staff within the available budget. No summative statement of human resource inputs was available to *the* evaluation team.

The Project Agreement anticipated Project Director and Project Manager inputs of 30 p/m each. The final periods for each were 65 and 58 person months. There was a turnover in both positions in 1997 and 1998 respectively. In the case of the Project Manager, a national appointment replaced the initial locally-engaged international officer. The Architect and Engineering Team and Soil Mechanic/Survey Team were not appointed.

Three District Supervision Units were established, at Lhunsi, Trashigang and Samdrup Jongkhar, rather than four as specified in the PA. The PA had also anticipated the appointment of 8 Site Supervisors for periods of 28 months each. There was considerable turnover of Site Supervisors - with 11 individuals completing a total of 351 person months, against the original project provision of 224 person months. One of these was terminated after 6 months; two others resigned after 4 and 12 months respectively, with input of the remainder ranging from 24-60 months.

No staff appraisal assessment details were available to the team to facilitate consideration of Site Supervisor performance. The first Project Manager's Project Completion Report (June 98) commented that while generally hard working and conscientious, the relative inexperience and basic technician level of Site Supervisor's led to some implementation problems. A Site Supervisor's Meeting was held in December 1997, calling for more stringent procedures for site supervision. A memo to SS's at this point reprimanded SSs for not reporting cost increases as they occurred, for implementing design changes without approval, for not spending enough time at their sites or in the District Office; and for not adequately supporting the Dzongkhag Administrations in their administration of

project sites.

	Duration	Source	Actual
Project Implementation Unit			
National Project Director	30 p/m	RGOB	
Project Manager	30 p/m	UNDP	
Accountant	30 p/m	UNDP	
Secretary	30 p/m	UNDP	
Driver	30 p/m	UNDP	
Architecture and Engineering Team			
Consultant Architect	2 p/m (pt)	UNCDF	Understood to have been locally engaged
Site Survey / Soil Mechanics Team			
Site Survey	12 p/m	RGOB	
Assist. Soil Mechanics Engineer	12 p/m	RGOB	
3 draftspersons	12 p/m	UNCDF	1 engaged
Secretary	12 p/m	UNCDF	Cancelled
Driver	12 p/m	UNCDF	-
4 District Supervision Units			1 DSO cancelled – 'not required'
(2) Architect or Civil Engineer Site Supervisors (total 8)	28 p/m x 8 (224pm)	UNDP	11 different site supervisors completed total 351 person months
(2) Assist. SS (total 8)	28 p/m	RGOB	7 appointed
2 draftspersons (total 8)	28 p/m	UNDP	4 appointed, 4 cancelled
1 secretary (total 4)	28 p/m	UNDP	3 appointed, 1 cancelled
1 driver (total 4)	28 p/m	UNDP	Assume appointed

Table 6: Technical and Support Staff Inputs'''

PD I and II : Total 65 p/m; 11/94-3/00 PM I and II : Total 58 p/m; 5/95-3/00 Not available
 Not available
 3 appointed - duration not available

Source: Project Inception Report, December 1995.

Project Equipment

The project equipment specified in the Project agreement was procured during 1995. Equipment was transferred to RGOB in early 2000.

Training

Training inputs were neither specified nor budgeted in the Project Agreement, with the exception of the Maintenance Training. UNDP funds were subsequently provided for

regional training including:

- 2 month Evaluation/Monitoring Short-Course in Bangkok in 1996 x Project Director 1;
- Project Management short course at AIT Bangkok in 1996 x Project Manager I;

rx Refer Project Inception Report December 1995

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- Construction Industry Study Tour to Singapore in 1997 x Project Manager I;
- 3-week Project Management and Planning (Construction), Singapore, 1998 x Project Manager II;
- Construction Quality Assessment Training, Bangkok 1996 and 1997 x 7 Section Officers.

In addition at least one Contractor's workshop on Quality, and two Maintenance Training Workshops were held in country.

The evaluation team did not locate any Training Reports in the project files. There appears to have been no detailed documentation of training needs analysis or expected outcomes of the training, justification of specific training requests, details as to how the persons trained would utilize their skills in the workplace after completion of training or how training impact would be monitored and assessed. (See *Section 4.1, iii* for 'further discussion on the relevance and effectiveness of training provision.)

Civil Works (See Section 3.3

below.) **3.3 Actual costs and cost-**

effectiveness

One of the most significant issues plaguing the project was that of cost escalation. The planned budget and actual expenditure for the project is summarised in Table 7 below.

Table 7 -Actual Expenditure

	Planned	Actual	Comment
UNCDF	2,919,441	4,417,345	Based on UNCDF BHU/92/C01 Bud Rev J (Jan 2001)
UNDP	155,290	426,415	Based on UNDP BHU/92/C09 Bud Rev K (Jul 1999)
UNICEF	54,000	54,000	Details actual expenditure N/A
RGOB	502,000	832,564	Exact US\$ amount dependent on exchange rate
TOTAL	3,603,731	5,730,324	

See Annex 8 for details of project expenditure against project agreement allocations.

The first disbursement of project funds took place in September 1995, and by December that same year the need for supplementary funds was already apparent. The original

UNCDF budget of \$2,919,441 was first increased by \$1,387,903 (Bud Rev E) in December 1996 and again by another \$95,000 (Bud Rev H) in February 1999, for civil works activities. With a further increase of \$US15, 000 in January 2001 for the final evaluation, the total UNCDF contribution was \$4,417,345. The UNCDF civil works final expenditure was \$3,757,422 against the original budgeted amount of \$2,172,287, an increase of 73%.

The UNDP expenditure tripled over the life of the project due to increased project management costs and training activities not originally budgeted, together with inflation.

The RGOB contribution also increased by N gultrum 12 million as a result of RGOB n.~ _~ the cost of final additional civil works expenditure after the UNCDF budget expired.

The total project cost increased by 59% of original budgeted amount.

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A UNCDF consultant fielded in 1996¹⁹ to review cost escalation reported that the project was well managed with no evidence of over-spending and that the standard tender process generally produced fair contract prices, often with negligible differences between the closest bids. Cost escalation was considered due either to flaws in the initial project costing or to project implementation changes, and represented a true reflection of actual construction costs.

The first major budget increase was justified on the basis of:

- Start-up delays and lack of appropriate indexation of initial base costs upon which civil works budget developed during formulation (constituting the greatest factor influencing cost escalation);
- Under-estimation of transportation costs in initial design;
- Too optimistic calculation of site development costs;
- Lack of detailed assessment of rehabilitation works;
- Design changes;
- Building material changes (although the use of steel, concrete, CGI sheets is reported to have had little impact on the budget); and
- Increases in labour rates.

A subsequent UNCDF technical adviser mission in June 1998²⁰ added to the list:

- uncontrolled contract variation orders (CVOs) issued by inexperienced Site Supervisors; &
- institutional and implementation arrangements that made financial and management control almost impossible to implement.

To meet site development costs, the original project had budget allowed 5% of construction costs. In reality, site development as a percentage of construction costs, reached 26.7% at Thungkhar and Yongphula PSs; 23.2% at Chaskar PS; 22.8% at Tomiyangtsa BHU and 19.8% at Kheni PS.²¹

Transportation costs had been estimated in the range of 15-25% of construction costs. In the case of Nagor PS, Dunkhar PS and Yangbari BHU, transportation amounted to 142°/6, 71 and 71 % respectively. 22

¹⁹ UNCDF (1990) - BHU/92/CO1- Technical Review Mission Report, November 1996, Thimphu. (John Malmberg Architect Consultant).

²⁰ Cittati, Antonio - UNCDF Technical Review Mission March 1998 - Back to Office Report; June 4, 1998 ²¹ Refer, Project Manager Completion Report June 1998, Appendix 4.

²² Project Manager Completion Report June 1998, Appendix 4.

4. PROJECT ACHIEVEMENT 4.1

Achievement of project outputs

The project has been tremendously successful in that it has achieved the construction/rehabilitation of 14 primary schools and 15 BHUs²³ in remote locations of six districts of Eastern Bhutan and thereby has contributed to the consolidation of basic health care and primary education systems in these areas. This is major and significant achievement, given the remoteness of locations, the difficulty of access to the sites, the relative inexperience of the contractors and the development context of Bhutan. Project achievement is consistent with national priorities and the ongoing plans of MHE for health and education expansion.

The project was ambitious and a forerunner in its endeavour to deliver basic services to some of the remotest communities in Bhutan, using locally engaged contractors. Many valuable lessons have thus been gained that may inform the development of subsequent similar development assistance initiatives (refer *Lessons Learnt in Chapter 6* below).

While this outcome was achieved at the expense of significant time and cost over-runs (discussed above), the actual expenditure is considered commensurate with the value of the work, compared to a grossly under-estimated original budget.

Furthermore, almost the entire project budget has been expended within Bhutan. Remote communities are benefiting not only from improved education and health infrastructure, but also from work-experience and income-generated from project-related employment and/or business activity.

4.2 Achievement of immediate objectives

- i) To assist the RGOB in achieving its objective to increase primary school enrolment and extend primary health care coverage in the rural areas by expanding the network of primary schools and BHUs in the Dzongkhags of Lhuntsi, Mongar, Trashigang, Trashiyangtse, Pemagatsel and Samdrup Jongkhar.*

The project has not expanded the network of primary schools or BHUs in the target districts, as in both cases the project rehabilitated or reconstructed existing schools and health units. The extent to which primary school enrolment and primary health care coverage has increased is discussed below.

Primary School Enrolment

While primary school enrolment has increased in project schools, it is difficult to say to what extent the enrolment increase is a result of project interventions when primary school enrolments are increasing nationally at the rate of 6-7% annually. Nevertheless, the enrolment increase in project schools is significant, and especially that of girls, with an overall increase

²³ One of each is still incomplete, with completion anticipated in early 2001.

from 1993-2000 in project schools of 69%, with boys' enrolment increasing at 55.8% while that of girls is 98%. This is a tremendous achievement. It should be noted however, that with the change of government policy extending basic education upward from Class VI to VIII, and the upgrade of 8 of the 14 project schools to Junior High Schools in 2000, the above-mentioned enrolment increases include enrolment in Classes VII-IX in 2000 (in some schools) compared to just classes PP-VI in 1993. If we compare 1993 and 2000 enrolment statistics in classes IVI only, we find an overall enrolment increase in project schools of 39% (25% for boys and 68% for girls). Refer Annex 9 for enrolment details.

In some cases, the catchment areas of primary schools has reduced, as new community schools have been established to serve remote communities.²⁴, which reflects MHE policy for continued expansion of community schools to increased access for children in remote communities to the lower primary grades.

On the other hand, increased school facilities in project schools are being utilized by the new intakes of students in classes VII and VIII, reflecting MHE's expanded basic education policy. Given that 8 project schools had a total enrolment of 812 students (523 boys and 289 girls) in Classes VII/VIII in 2000 (of which 36% were girls), compared to nil enrolment in these grades in 1993, we can say the project has definitely contributed to the expansion of access to Grades VII and VIII, and especially so for girls.

At the same time, while not measurable, the project may be considered to have contributed to improved quality of education, in that the improved facilities are likely to impact on the

quality of teachers (attracting better teachers to remote schools), staff morale, the quality of teaching, and the learning and living environment of children. No other agencies have gone to such remote locations.

Primary Health Care Coverage

Although Primary Health Care coverage was not clearly defined by the project, it most likely refers to access to basic health services. As all of the BHU sites selected by this project existed pre-project, it is difficult to ascertain if access has improved. Nevertheless, while facilities were available before, the upgraded facilities are more attractive, not only to the clients but to the staff as well. This leads to increased utilization of improved facility-based child health services. BHUs serve as a hub from which outreach activities radiate, indirectly improving rural access to PHC. Improved BHUs have also strengthened the referral system. Typical barriers to access found in many developing countries are virtually non-existent in Bhutan. Direct costs, poor quality of care and negative attitudes of health staff are not evident. Health care is free and the quality of care is high, as are staff attitudes in general.

When comparing the outpatient volume over years, the attendance fluctuated over the past three years. This may be a factor of catchment areas changing (the population to be served varied over the years). The figures from 1992 to 2000 were incomparable given the large differences in the population served. Also there were not enough years of data to do a trend

²⁴ For example, Kerong and Kulikutta now have their own community schools, whereas previously they were within Nganglam PS catchment area, although 5 and 7 hour walking distance from the school.

analysis. The last three years may present a high incidence of a particular disease (i.e. diarrheal outbreaks) which will affect the OPD utilization.

The improved BHUs enhanced the image of health services, but this evaluation cannot determine if the products/services have also improved. Baseline information on health worker performance was not collected prior to program implementation. The BHU in Thungkhar, which has not yet been completed, has forced the BHU activities to be conducted in two small staff quarters rooms. In fact, the attendance levels were not comparatively different from the new, improved BHU facilities that had already been completed. However, the region has experienced significant reductions in infant mortality which can be attributed to increased access to basic health services.

During interviews with BHU staff, it is clear that the staff are well trained and knowledgeable of primary health care interventions and implementing the correct protocols. The BHU staff also exhibit an incredible dedication to outreach which is extraordinary given the difficult terrain and distances between households. In order to conduct ORCs, the BHU staff walk to far-flung corners of their catchment areas to provide basic services (immunizations, growth monitoring, family planning and curative care) on a monthly basis. They truly embody the nature of the "barefoot doctor", by leaving the facility to provide services in remote villages. Even with a low client base, (

some ORCs immunize 2-3 children a month), the staff do not minimize the value of the need to reach every child. The spirit of "Health for All" and equity are truly embraced in Bhutan.

It is difficult to isolate health outcome improvements and primary school enrolment increase and attribute these to this project. There were many inputs from RGOB over the life of the project, which happened concurrently and led to improved health and education status nationally. This is however not to say that present project interventions cannot be considered contributing factors, amongst other.

ii) Through the rehabilitation, upgrading, reconstruction, relocation and new construction of these social facilities, to promote a sustainable construction as well as suitable and cost effective designs, that will also substantially reduce the maintenance costs so it can be replicated and implemented by the Government to any outreached area of Bhutan;

Considering the remoteness of the sites, the design sufficiently covers the natural lighting, space requirement, stability and to some extent the insulation and acoustic properties thereby increasing the comfort and efficiency of the building to the users. The development of standard design was achieved.

The Project aimed at designing facilities for the optimum use with cost effective construction. The initial design included the use of local materials as much as possible to reduce the initial capital investment and to facilitate easy and cheaper future maintenance. The considerable cost over run of the civil works ^{pities} was not due to the ineffective design but due to "lack of detailed estimates, low provision for site development works and delays in the process of implementation. The team believes that the actual cost incurred was appropriate to achieve the civil works outcomes. The use of simple design with mostly local materials makes it cost

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effective for replication even though the specifications of some of the materials were changed during the implementation period. The team notes that the change from mud mortar to cement mortar increased the initial capital cost investment given the additional expense of transporting cement and sand. Furthermore, the cost of ongoing maintenance is enhanced.

In general, the quality of construction is very good, considering the location of the sites and the limited prior experience of the contractors. The outside finish varies from site to site depending upon the availability of stone. Some sites have cement plaster where the quality of stone was not good for pointing. The pointing also varied (flush pointing, sunk band, v-shaped etc) again **depending on the** quality of stones.. In terms of the rehabilitated buildings, while not at par with the new designs, they are sufficiently good to meet the present requirement.

Overall, the team believes the same designs can be followed for future projects but with some modifications. (See Chapter 5 for details.)

iii) *Strengthened institutional capacity of the Department and of the Dzongkhags*

While the project included '*strengthened capacity of the Department and Dzongkhag staff*' as an immediate objective, '*capacity*' was not defined in the project agreement, capacity weaknesses and capacity enhancement targets were not identified, capacity enhancement and institutional strengthening strategies and activities were not included nor measurement indicators. The project has been designed purely as a construction project, wherein Dzongkhag authorities played a role in *facilitating* implementation at district level and yet, project staff were appointed with specific *implementation* responsibilities. It was assumed that capacities would be enhanced as a by-product of project implementation at the Dzongkhag level.

In terms of the MHE staff and the petty contractors, capacities are likely to have enhanced as a result of participation in project activity including the short-term regional training opportunities for project management and section officers, but without access to course information or training reports, and without a basis upon which to compare pre-training to post-training competencies, it is difficult to comment on the impact of project training.

The evaluation team, nevertheless, is of the view that any one-off short training course, delivered in isolation, without follow-up, can have limited impact. Training should not be viewed as an end in itself, but a means to another end, which needs to be specified. Training needs to be fully integrated into other project processes, whereby training outcomes (skilled personnel) become themselves inputs into the achievement of other project outcomes. It may be more cost-effective to deliver a targeted training course in-country rather than in a third country, in order to promote broader participation, to ensure that the content is tailored directly to the immediate project context, that skills are applied to project issues and that there is follow-up and reinforcement of skills acquisition and application. Workplans to this effect should be developed as part of the training process.

Taking *Quality* as an example, there was a need in this project (although not anticipated in the Project Agreement) for the development of a Construction Quality Assessment Strategy. This was not achieved, and yet considerable project expenditure was invested in all the Section officers attending a Construction Quality Assessment Training in Bangkok. Perhaps the Project

Manager should have also have attended this training and a practical task of that training could have been the development of a Strategy for Quality Construction within the project, including an implementation plan for the trialling and adjustment of that strategy, and also a training plan for the conduct of appropriate training for the project contractors. In this way, the benefit deriving from the participation in a specific short-course would be concrete, specific, enhanced and monitorable.

Similarly, for the in-country Maintenance Training, no documentation was located as to the objectives, content, outcomes, anticipated or actual follow-up to this training. The current

maintenance needs observed by the evaluation team at the sites visited, gives cause for concern as to the utility of the training that was provided.

In terms of the Dzongkhag administration, the team is of the view that limited change would have occurred as a result of project intervention, as no project training activities were directed to Dzongkhag staff and no institutional strengthening targets were defined.

In summary, the evaluation team considers that the training activities undertaken within the project could have been more carefully planned, delivered and monitored, in order to maximize (and assess) the impact of that training on the achievement of project objectives.

The team considers achievement of this immediate objective to be limited, although this is not surprising in view of the constraints imposed by the project design.

iv) *Community-based system of regular preventive maintenance*

An effective community-based system of regular preventive maintenance does not appear to have been achieved. See Section 5 -Critical Issues below.

4.3 Achievement of development objective

As noted in Chapter 2 above, the development objective was to assist RGOB in improving the human development status of Eastern Bhutan, and specifically to:

- increase the literacy rate through a larger primary school enrolment (especially of girls) from the current 57.9 percent of primary aged children (aged 6-12 or above) to the projected 81 percent in 1997; and
- *extend primary health care coverage to the entire population by improving the network of Basic Health Units, and thereby, enhance life expectancy noticeably by cutting the infant mortality rates.*

Increased primary school enrolment and expansion of BHU coverage have been discussed above.

While the project has no direct influence on the achievement of increased literacy and life expectancy or reduced infant mortality rates, these indicators have certainly improved nation

wide over the life of the project (*see Table 8 below*) and we can assume project outcomes could represent but one input into that change, however precise measurement of direct relationship is not possible. There were many other factors influencing national health, and education systems outcomes.

	Adult Literacy	Life Expectancy	Infant Mortality
1984	23%	47.4years	142/1000
1991	35.2%	56	-
1994	47.7%	66	70.7/1000
1998	54%	66	30/1000 (year 2000)

4.4 Resourcing of facilities

BHUs: PHC activities and the operation of the facilities are efficiently performed by the staff. Charts are displayed on the walls and kept meticulously updated, stores are provided with essential drugs, kerosene refrigerators are systematically working and keeping stable temperatures. Dispensaries and dressing rooms are well organized and provide the necessary materials. The dispensaries were well stocked and none of the BHUs visited had experienced stock-outs in the last year. None of the 7 BHUs visited had a complete set of minimum equipment required to conduct simple laboratory tests due to lack of reagents of equipment. These are planned to be procured by RGoB.

Not all the BHUs however are fully staffed. Female ANM and GNM were not found in 5 of the 7 BHUs, which compromises Maternal and Reproductive Health services. It is difficult to place a single woman in such a rural area, which entails a great deal of trekking to reach villages. Therefore, unless the female health worker is married to one of the BHU staff, it is not always feasible to have female staff. There were two married couples in the seven BHUs visited who were both staff members (HA and ANM). There was a woman, trained as a RN who was married to a HA, yet not employed at the BHU. If she could be provided further training to step into the job of ANM, it would be quite beneficial.

There is some replication of tasks among the existing staff, as HAs and BHWs basically perform the same tasks when in the BHU. Their training is exactly the same, although a HA has completed Grade 10, whereas a BHW has completed Grade 8. When BHWs are home visiting and collecting data, they are performing tasks which could be done by the VHWs. In view of the distances between villages, BHWs have reduced their household visits from twice a year to once a year. BHWs are an essential link between the community and the BHU. Perhaps providing them with more skills in health education and communication skills would enhance their role. However, this is by design as well, since the BHW usually goes to the villages and the HA stays at the facility, but if the HA does go, the BHU remains functioning with a trained staff member. There are plans to possibly abolish the BHW position. The function of the BHW is critical to effective outreach activities. ²⁶

²⁵ *UNDP Human Development Report 2000.*

²⁶ *UNFPA - Third Cycle of Assistance to Bhutan 2000.*

Staff are under-utilized at this time of year. This may be a function of the school holidays but the patient load was very low. The team did not see one patient in 7 days of visiting 7 BHUs sites. This greatly hindered the evaluation team's ability to evaluate, staff

performance or interview patients. However, achieving economies of scale is not possible in Bhutan with such extreme logistical barriers. Therefore, inefficiencies can be expected. Although each facility appears underutilized at this time, it may be a function of the season. The facilities are geared to serve larger populations over time.

Primary Schools: Schools were well stocked with an impressive quantity of teacher / student teaching and learning materials and most schools have some furniture.

While year 2000 teacher numbers in project schools are greater than those in 1993 (in most cases), the staff increase does not correspond to the increase in student numbers. In half of the project schools, the average teacher/student ratio in 2000 was over 1:55. At Martshala, it was 1:87, at Nagor it was 1: 70 and at Miniwoong it was 1:66.

Teacher shortage is Bhutan's major education challenge, despite progress achieved to date. Bhutanese teachers are gradually replacing the expatriate teachers who were earlier recruited to meet teacher supply demands. In 1999, 20% of teachers at the primary level were expatriate, compared to 36% in 1986.²⁷ While capacity for teacher training doubled in the past decade, demand still surpasses capacity. In 1998, the two teacher training institutes could accommodate 600 teacher trainees a year, compared to less than 300 ten years earlier.

Nevertheless, teacher training and skill upgrade has been emphasized in the current five year plan and will be a continuing priority in the next plan period. Future plans include the staffing of all primary schools with trained teachers at a 1:32 ratio by the year 2007, with teacher training capacities at the national institute of education expanding by 30% of the existing capacity.²⁸

Given RGOB's goal of Gross National Happiness and national commitment to the well-being of the population, it is anticipated that the coming years will witness further improvements in national education and health indicators, alongside increased capacity to fund and maintain quality service provision.

¹ UNICEF - Draft Bhutan Situation Analysis 2000, p. 134.

² RGOB - Education Sector Strategy - Realising the Vision 2020, as outlined in Kuensel February 10 2001, p.5 - A Vision for the Education Sector

5.CRITICAL ISSUES

5.1 Construction Issues

Construction Preparatory Work

As noted above in Chapter 3 above, numerous errors and omissions were later identified in the tender and contract documentation, relating to the scope of the work, quantities involved, construction specifications and other. This resulted in considerable numbers of Contract Variation Orders being issued, contributing to the cost escalation.

It is difficult to isolate the reasons for these errors - whether they derived from inadequate initial site surveys, inaccurate estimate of quantities, insufficiently detailed working drawings, inexperienced officers, inadequate supervision and checks, limited staff working under-pressure, or a combination of these and other factors.

What is apparent is the need for adequate preparatory work, adequate allocation of time for the same, appointment of suitably qualified technical and supervisory staff, with an accompanying quality assurance strategy, to ensure high quality tender and contract documentation is produced.

Latrine use and maintenance

The aqua privy latrines are externally located. At schools, these need to be locked during vacations. At some schools, doors have been carelessly left open, with subsequent use by the public, resulting in unhygienic conditions and blockages. Decomposition chambers constructed for all aqua privies for de-sludging have to be used appropriately. The fact that some schools have maintained these toilets very well, would suggest that use and maintenance is the problem rather than design or location. Similarly, many of the toilets at the BHUs visited were blocked with sewerage, sticks and stones, as a result of improper use. Liquid waste from basins in examination areas and sinks in the laboratories discharged into open drains, internally and externally. Clinical waste disposal is inadequate, generally relying on unprotected shallow pits. Further instruction in appropriate use and maintenance is required.

Construction Maintenance

As noted earlier, the project has not achieved its objective of establishing an effective community-based maintenance strategy. Project management does not appear to have given enough attention to the maintenance component, with inadequate monitoring, review, impact assessment, adjustment or follow-up. Ongoing maintenance of the facilities remains an issue. While it is understood that maintenance is currently being addressed within MHE and is anticipated to be included in RGOB's 9th Five Year Plan, there is need for immediate action at the Dzongk~,• _ level iii terms of rev- _wing the statu., and effectiveness of exisiting maintenance strategies, ensuring communities are fully versant with and accept their responsibilities in this regard, ensuring adequate budgetary allocation from the Dzongkhag administration, revising the strategy as appropriate and monitoring maintenance effectiveness.

Deviations

The tender BOQ was prepared at the initial stage with limited design details and lack of information. This led to assumptions of quantities which were less than the executed quantities. Therefore, in deviation of items, there were two types of cost increases. Firstly the quantity increased thereby increasing the cost. Secondly, there was a clause for the payment of deviated items (clause 14), which stated the contractor was entitled to claim at the market rate if the quantity increased by more than 20%. The market rate at the time of execution of the work was more than the quoted rate (in most of the cases). However, this was not paid to the contractors.

Advances

Contractors were paid mobilization advances and secured advances, in order to alleviate the financial burden of small contractors. The advances were recovered from the contractors' running bills proportionately. However in some cases due to the negligence of the Site Supervisor, the secured advances paid were more than the value of materials purchased. This led to over payment, with resulting difficulties in adjusting the contractors' *running bills*.

Nganglam Primary School is one such case, where there was not only the problem of over payment but also of the contractor considerably delaying the work. Although the work is now completed, the account is still not closed due to failure of the concerned parties to reach a settlement on adjustment of the outstanding discrepancy between advance paid and actual cost.

Hindrance

Normal occurrences resulting in disturbance of construction should not be counted as hindrance, as rainfall, reasonable roadblocks, snowfall occur every year and should be anticipated. Therefore hindrance on this basis should not be considered, as it will unnecessarily

prolong construction period. The hindrances in real terms are earthquake, disease outbreak, famine etc. that is beyond human control and not normal occurrence.

5.2 Capacity-building Issues

While the project provided *experience* to both contractors, communities and district-level government officials in BHU construction, it did not make a concerted effort to improve the ability of a person or group to meet their objectives and perform better through training and development. Capacity building objectives and indicators were not articulated in the project design, greatly weakening any capacity-building efforts.

Dzongkhag Capacity-Building

As noted earlier, the team believes the project has resulted in limited capacity-building of

r) dzongkhag Administrations²⁹. Project progress reports (for example July-Sept 1997) did

'9 The evaluation team did not have the opportunity to meet any Dzongdags who were in place during project implementation. Only one Dzongdag was met and he was appointed subsequent to project implementation.. The views expressed here are anecdotally derived from discussions with other stakeholders and document review.

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comment on the project's contribution to the institutional development of Dzongkhag Administrations through the provision of systems for monitoring and evaluating works and budgets. A presentation by project management at the second Steering Committee Meeting stated the management arrangements had been successful in introducing the Dzongkhag administration to the management of externally-funded projects; the management of project funds; reporting on progress; analysing information contained in reports; achieving quality from local contractors through close supervision; training staff and contractors; methods for efficient construction and approaches to implementing desired design changes within technical and financial constraints.

The **evaluation** team is doubtful that any significant capacity building occurred. This is **demonstrated in at least** one Dzongkhag, where the Dzongdag expressed concern to the Steering Committee over the transfer of the projects' technical officers in 1999, commenting that Dzongkhag staff were not in a position to take over responsibility for the completion of the works, given insufficient technical manpower. As those Section Officers who had been involved from commencement were considered the only ones versant with the detail of all the design changes and capable of overseeing construction completion, a request was conveyed for retention of the Section Officers until project conclusion.

The project provided opportunities for extensive lessons to be learnt with regard to construction management and implementation in remote communities, which could have fed into improved procedures and practice at the Dzongkhag Administration level. It is not apparent that this has occurred at any institutional level.

The limitations of the present project in terms of capacity building were recognized by project management and a paper presented at the second steering committee meeting proposed enhanced capacity-building activities in the anticipated second phase of the project.

Capacity-building requires careful planning and resource allocation in its own right. The ongoing UNCDF-funded project *Strengthening Capacity for Development Management and Decentralisation* is timely, considering the evolution of *decentralization* in Bhutan, requiring more refined human resource skills to manage an increasingly complex local level development process. That project provides an integrated framework for initiating institutional capacity building at the Dzongkhag Administration, Dzongkhag Development Committees, and Geog Development Committees - including a review of the framework supporting decentralization and community participation and conducting a broad series of administrative skills training.³¹

Indicators of institutional capacity enhancement at the Dzongkhag level could have included: construction management procedures in place, construction monitoring and evaluation system in place, maintenance monitoring system in place; quality assessment checklists in place, or other.

³⁰Refer letter from Samdrup Jongkhar Dzondag to Chairman, Steering Committee, May 1999. ³¹Project Agreement signed May 1998. End of pilot phase evaluation scheduled for early 2001.

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Local Contractor Capacity-Building

Tender submissions required the contractors to prepare implementation schedules and **complete the Bill of Quantities, involving analysis of the Bhutan Schedule of Rates** - all complex activities for inexperienced contractors. At the same time, there was no requirement for contractors to visit sites to collect accurate information to inform their bids.

Additional support for contractors in preparation of tender submissions would have been a useful capacity building activity in its' own right and would have facilitated management planning on the part of contractors.

While it is understood that the local contractors benefited from on-the job advice from Site Supervisors, and there was at least one Contractors Training on Construction Management and Quality, the team believes the project could and should have done more to enhance the capacity of local contractors. As it was, some contractors survived and thrived while others sank.

Rather than expecting *experience* alone to provide increased capacity, training and skills transfer would have enhanced the capacity of the contractors and avoided some of the pitfalls.

RGOB Capacity-Building

The Project Director, Project Manager and Section Officers benefited from one-off short overseas training in construction management and quality. As discussed in Section 4 above, while it can be assumed that capacities were accordingly enhanced, no training reports were available to assess the impact or application of this training.

Community Capacity-Building

As indicated earlier, two Maintenance Training activities were conducted for a limited number of community participants rather than on-site training for all communities as construction was in progress. It is not apparent how the change in strategy transpired. The impact of this training is unknown. Further work is required to determine the most

effective approach to community capacity building with a view to ongoing maintenance.

5.3 Project Design Issues

The evaluation team considers the project design described in the initial Project Agreement contained a number of weaknesses which impacted on project implementation and achievement. These include the following:

Overlap / lack of clarity between development objectives, immediate objectives and outputs

There is alternatively some redundancy/overlap and gaps in the definition of project objectives, outputs and component activities. There is no relationship between outputs and objectives. Better articulation of a projects' objectives, components, outputs and activities allows

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establishment of realistic targets, ensures the project emphases are as intended and facilitates management, monitoring and measurement of achievement.

Unrealistic expectation of capacity building

The project was designed as a construction project. The expectation of capacity enhancement of Dzongkhag Administration and/or District Engineers was unrealistic given the lack of definition, activities and resources for this purpose. An institutional strengthening adviser on the design team may have avoided this shortcoming.

A further objective that could have been specified, related to capacity-building, would have been the establishment of effective construction management procedures, which could have been achieved at little additional cost by merely adopting a critical and reflective approach to the construction management procedures pursued.

Lack of performance indicators

The project design did not specify appropriate indicators to assess impact (against development objective), outcome (against immediate objectives) or output. Development of a logframe matrix specifying verifiable indicators, means of verification and assumptions for each objective, output and even activity, is a useful tool for establishing the project logic and can provide an effective monitoring framework. Preparation of a logframe matrix for the present project would have been the next step (if not the first step) in developing the project design, and would have assisted in unraveling some of the inherent design difficulties. (See Annex 11 for Sample Logframe Matrix Framework based on present project structure. Adjustment to this would have been required.)

Indicators need to be realistic, verifiable and reliable. The project did specify *expected outcomes*, but these were not easily comparable over the years given the lack of baseline

preproject data. For example, it was expected that "patient contacts would increase by 8% after the project completed and 37% by the year 2000". In Muhang BHU, the OPD number of contacts rose from 1998 to 2000 by 44%. In Patpatchu there was a decrease of 35% during the same period. The populations served changed and thus, the client base also changed. As mentioned earlier, the number of outpatient numbers is a poor proxy for health status. A large number of OPD may also reflect a failure of preventive strategies. Other health indicators serve as better indicators of health outcomes. Certainly, the facility utilization rate is an important indicator to monitor. The number however is relative to the catchment area's population.

As a baseline for the project, prior to project implementation, it would have been useful to conduct an initial KPC survey on access and utilization of BHUs, as well as knowledge, practice and coverage of the populations served by the BHUs. It includes qualitative measures such as health seeking behaviors and family level practices. This would have given the formal evaluation more of a foundation to bare the health outcome changes that occurred during the life of the project. A post-KPC survey could then have been conducted during the final evaluation in order to compare the results.

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Unrealistic time frame and inadequate consideration of risk

The project timeframe was over ambitious with 29 sites in 33 months. Slippage was not anticipated. The project design failed to include any risk analysis or risk management strategy with contingency plans.

Major under-estimation of project cost

The project design process included inadequate detailed preparatory work to enable realistic costing of civil works activities. The project budget under-estimated transportation, site development, project management, technical advisor and construction delay costs. The PA does not include any units costs (value or quantity) that formed the basis **for the costings**.

Inadequate assessment of availability of appropriate technical expertise

The project design does not provide any analysis of the local availability of technical expertise, nor justification for the staffing strategy proposed. If the proposed regional recruitment of project personnel was due to lack of appropriate local expertise, then the recruitment of international experts should have been accompanied by a strategy of skill transfer to local counterparts.

5.4 Project Management

Issues Recruitment of Technical

Advisers

It is not very clear to the evaluation team what contributed to the considerable delay in the recruitment of technical advisers through a regional consulting firm at the outset of the project, other than the fact that the lowest bidder was almost 30% over the budgeted amount. The resulting change in staffing structure amounted to a significant overturn of that proposed in the project design, although there is no documented evidence of analysis of the anticipated implications of that change. At this late stage it is not clear whether it was decided that the proposed staffing model was inappropriate or it was simply under-cost, and, if the latter, whether a budget increase was at all considered. It is understood that the UN Office for Project Services (OPS) was involved in the initial recruitment efforts, but subsequently withdrew involvement when regional recruitment was abandoned and local recruitment adopted.

The resulting delay in implementation by almost two years does not reflect well on initial management practice. The subsequent time and cost overruns contributed to the 'loss' of the second phase of the project.

Project Management Structure

The project appears to have suffered from lack of clarity as to the roles, responsibilities and authorities of the various project management players, especially the respective roles of the Project Support Office (PSO), the Dzongkhag administration, the Ministry of Health and education and the Project Steering Committee. There was initial and perhaps ongoing

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opposition to the establishment of the PSO, as it was considered an unwanted additional administrative level between RGOB and the Dzongkhags.

The Dzongdag, the District Engineer and the District Finance Officers along with the Site Supervisors and Section Officers were responsible for the implementation of the works. However, it was difficult for the Dzongkhag Administration to realize implementation responsibility, when project resources (vehicles, equipment, technical staff) were administered from the central project support office. Concern was expressed at the first Steering Committee Meeting that the Site Supervisors were hired by and responsible to the PSO while the Dzongdags were accountable for their work. There appears to have been some communication breakdown between the Dzongkhags and the PSO, with the PSO said to have been left out of

the reporting loop, and especially the financial reporting loop. Dzongkhag administrations do not appear to have considered themselves accountable to the Project Support Office.

Furthermore, the role of MHE in the project management structure is not clear. One of the problems of cost overruns related to MHE instructs the districts on the design of the infrastructure without looking at the cost implications.

The role of the Project Director appears to have been more that of a Project Support *Office*

Administrator rather than overall Project Director. Neither the Project Director nor Project Manager were responsible for the entirety of project implementation or financial management. If the Project Director represented MHE, then the Project Director's lack of financial management responsibility is reflected in the implementation of MHE design changes made without regard for the budget implications and budget limitations.

The Chairman of the Steering Committee, the Minister of Finance, also assumed considerable, although not absolute, authority.

Project management did not establish any system of checks and balances that would have ensured timely feedback on implementation difficulties. The infrequent Steering Committee meetings and poor project reporting (see below) would not have facilitated this process. Design problems were never picked up and there is no documentation of any discussion or consideration of adjustment to the project strategy. Both Steering Committee Meeting minutes and project progress reports gloss over issues of significance.

Role of Project Manager

As noted earlier, the Project Manager changed midway through 1998 from a locally-engaged international consultant to a national appointment. It is difficult to comment on the performance of the first Project Manager and the impact of the change to a national officer, at this late stage. While anecdotal comments were made to the team concerning the qualifications and performance of the first Project Manager, without any concrete evidence the evaluation team is not positioned to make any definitive statements about effectiveness. Nevertheless, implementation difficulties encountered in the early years of the project could suggest inadequate technical monitoring.

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The subsequent appointment of a national Project Manager was appropriate, however, an effective hand-over from the first to the second Project **Manager** does not appear to have occurred, despite an overlap in appointments by several months. The team was advised that the first Project Manager's computer crashed when he left and **without any back-up** discs, no electronic copies of any project-related documentation generated during the first project manager's period in office were available after his departure.

It would have been perhaps more profitable had a national Deputy Project Manager been in place from project commencement, as a counterpart to the international officer, who could have performed a mentoring role. This would have provided a good opportunity for skills transfer and would have enabled the national *officer* to input in appropriate systems development from the beginning.

In fact, the appointment of a deputy was approved by UNDP early in the project, although not necessarily intended to be a national appointment for the above-mentioned purposes. However, no officers were appointed. Sharing of the responsibilities with a Deputy would also have enabled the Project Manager to attend to quality assurance and capacity-building tasks.

Quality Assurance

The project attempted to implement a Quality Assurance Strategy, whereby the Site Supervisors were to conduct a joint inspection with the contractor, of finished works. A standard format was prepared, providing scope for documentation of necessary defects and contractor commitment to accept responsibility for rectification, with the final signature of the SS confirming that all work had been completed as per the design and specifications, and that the quality was acceptable. The date the form was signed by the SS was to equate with the completion of the site, and carried over to the Completion Certificate, with the maintenance period commencing from this date. The PSO did not receive any copies of completed forms and it appears that this process was neither implemented nor followed up. No further information was available to the evaluation team to determine why the proposed quality assurance strategy was not pursued, whether or not it was appropriate, whether it was feasible and achievable within given financial, human resource and geographic constraints, or whether it was accepted by-stakeholders. The particular persons involved were no longer available, and others consulted could provide no further clarification. The point is however, that the development of a quality assurance strategy should have been pursued, trialled, adjusted as required, monitored and reported, with achievement reviewed in Project Steering Conunittee Meetings. This did not occur.

Financial Management

The project suffered from lack of clear lines of accountability for financial management. The project should have made a greater conscious effort to establish effective, transparent, accountable and efficient financial management strategies at the outset. As indicated above, one person was responsible for ensuring project implementation within budget limitations. The Dzongkhags were not informed of the overall budget amounts, although they were responsible for the approval of budgetary requests from their district. This lack of transparency led to

plans being approved locally, without knowledge of the total bottom-line available. In the early stages of construction implementation, the dzongkhag administrations appear to have **requested (and received)** funds released from the Ministry of Finance, without recourse to the **Project Support Office** for approval. Consequently, earlier implemented construction sites have had more site development than later sites (which only have the absolute essential), as funds were released at request in the early stages of the project when funds were available. It took depletion of the original budget for more strict financial control measures to be instituted.

A Royal Audit Authority report for the project support office for the year ending December 31, **1999**, **noted** financial aspects were as per the project agreement and adequate controls had been instituted to ensure funds were used for project-related purposes. The Audit Report further noted disbursements had been made in accordance with the project agreement & financial rules, regulations, practices and procedures of the RGOB and UN;

program/project disbursements were supported by adequate documentation; program/project financial statements presented a fair and accurate financial position at end of the period audited; equipment management was proper; and an appropriate financial management structure, internal controls and record-keeping systems were maintained by project management.

In July 1998, a letter was sent from the Joint. Director, National Budget/Aid Coordination Division, MOF, to the Royal Audit Authority, requesting an audit to be carried out for the financial years 96-97, and 97-98 of the concerned Dzongkhags for sites under the project, given fact that almost 90% of available budget for civil works had been released to Dzongkhags, that a substantial amount of advances paid to contractors and yet progress in some locations was lagging behind. The outcome of this request was not available to the present team. Similarly, a similar request was again sent in October 1999 to National Audit Authority advising sites in 3 Dzongkhags were complete and completion of rest anticipated Dec 1999, requesting commencement of the audit of completed sites before project staff transferred. It was not confirmed to the team whether this audit took place.

It could be that these audits were included within the ambit of routine annual Dzongkhag audits and that no information was readily available as no significant issues had arisen.

It was not possible to do a thorough analysis of project costs, as expenditure statements do not provide a breakdown of unit costs.

Monitoring and Coordination

Only three Steering Committee Meetings were held over a 7-year period, from 1994 to the present time, despite the project being large, complex and innovative, with significant cost and time over-runs. The first Steering Committee meeting was held in January 1996. The next Steering Committee Meeting was eighteen months later in June 1997. Commenting on the delay, the Chairman noted the 'lack of urgent issues at stake,'³² despite the need for an additional IT\$1.5 million having emerged during this period. UNDP/UNCDF confirmed in that meeting that further funds for Phase II would not be available. The third meeting was held in July 1998. There have been no further meetings since. No other forum was established to

³² Refer Steering Committee Minutes - 2^d Meeting, July 1997.

progressively review implementation achievement or lessons learnt. The Completion Report of the first Project Manager, which included considerable discussion of progress, issues, and recommendations, does not appear to have been formally considered.

Regular meetings with other donors supporting related activities in the health or education sectors have not been held. Other funders of BHU construction during the project period included UNFPA (22 BHUs) and DANIDA (30 BHUs). While the efforts were complementary without any overlap, common hindrances were faced by all. Meeting to discuss similar problems may have provided a forum for overcoming similar barriers and

seeking common solutions.

Reporting

Project progress reports, prepared on a timely and regular basis, contained mostly quantitative information with qualitative commentary lacking. There was no regular reporting of implementation progress against workplan targets, analysis of issues or explanation or documentation of changes in project implementation strategy. A description of both enhancing and hindering factors would have proved meaningful. At the same time, there appears to have been some misconception as to the purpose of reporting, ie. 'if there is no progress, there is nothing to report'. If there is no progress, there should be plenty to report.

Project Review and Evaluation

UNCDF fielded a Technical Adviser in October/November 1996 to review the cost escalation issues. Several UNCDF HQ monitoring visits have also taken place (1998 and 1999). No other evaluations have been conducted. A mid-term review in 1998, prior to departure of first Project Manager would have been useful.

The present project completion evaluation was earlier anticipated to proceed in the last quarter of 1999, in order to specifically review implementation arrangements and the capacity of district administrations in financial management and construction supervision. The present timing is late. One year after the project office had closed with implementers and project support office files no longer available, the project momentum lost and human resources diverted to other activities/priorities, the opportunity to fully capitalize on lessons learned has been diminished.

Phase II

UNCDF support for Phase II of the project was dropped due to changes in funding priorities over the period of project implementation, as confirmed in the second and third Steering Committee Meetings.

The need for expanded and improved school facilities remains. There is need to renovate / reconstruct other non-project schools and upgrade them to accommodate Classes 7 and 8; together with need to establish more community schools to serve the unserved areas. The need

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for additional BHUs is not an issue as coverage is almost complete and BHU infrastructure is now close to saturation point.

5.5 Sustainability Issues

Post-construction, there is an accompanying pressure to staff the PSs and BHUs and to develop adequate human resources and services to best utilize the space. There is a second

pressure to maintain the facilities. Both of these aspects are integrated within the 8th Five Year Plan (1997-2002) which is currently in the process of its mid-term review. So although infrastructure seemingly is an up front capital investment, there are many hidden recurrent costs which need to be addressed. There are recurrent costs in terms of human resource development, maintenance costs, and stocking the facilities with adequate equipment, materials and supplies.

Government commitment to education and health remains considerable with government budgets increasing significantly since 1990. It is understood recurrent costs requirements are being addressed to the extent possible within current RGOB budgetary constraints.

DANIDA, as well as the UN, are committed to human resource development. A Health Trust Fund is being explored as a possible means to sustain PHC nationwide. This would be a trust fund contributed by outside donors and matched one to one by RGOB. The fund would be used to fund vaccines, essential drugs and needles and syringes. This would allow RGOB to redirect the national health budget to other key areas, such as developing human resources and strengthening monitoring and surveillance systems. ³³

6. FINDINGS, LESSONS LEARNT AND RECOMMENDATIONS 6.

1 Findings

Assessment of Project Design

The evaluation found the project design demonstrated a number of *weaknesses*, which impacted on project achievement. These included: lack of clarity as to project structure with some overlap between objectives and outputs; unrealistic expectations of capacity building given project activities and resources; lack of performance indicators; lack of risk assessment; lack of justification for technical *staffing* strategy; unrealistic timeframes and gross under-estimation of cost.

Assessment of Project Achievement

Nevertheless, project achievement has been considerable. The project succeeded in its primary objective - the construction of targeted schools and BHUs in remote locations in Eastern Bhutan using local contractors and laborers. These facilities are now being fully utilized and are resourced to the full extent of current RGOB capacity. The network of primary schools and BHUs has not expanded, as the project strategy involved reconstructing existing facilities.

Literacy and life expectancy have increased, and infant mortality reduced, over the project period, although not directly nor solely resulting from project interventions.

As enrolment in primary schools is increasing nationally annually, so also enrolment in project schools has increased, with girls' enrolment increasing outstandingly. While access cannot be said to have increased significantly in lower grades, over and above the national average, enrolment increase in project schools in Classes VII and VIII is considerable. While gender gaps remain, great advances have been made in increasing the enrolment of girls.

While it is difficult to assess whether access to basic health care has improved as a result of the project, the upgraded facilities are more attractive to both clients and staff, which leads to increased utilization of facility-based health services.

The project has confirmed the suitability of primary school and basic health unit designs for remote locations, and identified a number of modifications that are appropriate. On the job experience and limited training opportunities have been provided for inexperienced contractors in Eastern Bhutan, several of whom have been upgraded as a result of project experience. Efforts were made towards establishing a community-based maintenance system and although further work is required in this area, valuable lessons have been learnt. Capacity enhancement of dzongkhag administration for construction management was less than anticipated, although commensurate with project effort to this end.

Overall, many lessons have been learnt in terms of appropriate project design and management strategies which may inform future project development and implementation in Bhutan.

Assessment of Project Efficiency

Despite the overall achievements of the project, the project was not managed or implemented **in an efficient manner** - with an initial delay of almost two years post conclusion of the project agreement and prior to effective implementation, and subsequent significant cost and time over-runs.

Assessment of Project Relevance

'Thee project was and remains highly relevant. With regard to education, the future RGOB strategy includes the continuing expansion of basic education to the entire population, improving quality and relevance, and developing a highly motivated and competent teaching cadre. It is planned that all children will be enrolled in primary school by end of the 9th 5 year plan in 2007, with particular regard for girls. Achieving this goal will require, amongst other, establishing more community schools in currently underserved remote locations, increased dormitory facilities at existing schools and generating increased numbers of trained teachers. In this context, the project has been highly relevant.

With regard to health, Bhutan's national health system exemplifies an *ideal model* in primary health care. It is a well-thought out, well-planned system that actually works. The present project certainly embraced the mainstay of the system, through the upgrading, renovating and partly newly constructing fifteen health centers in the Eastern region of the country. Infrastructure is one of the central necessities of development to promote accessibility and equity. This project assisted in this endeavor and succeeded.

Furthermore, it is a tribute to this project's extraordinary commitment to rural development that it took on the tremendous challenge of working in rural areas, far from the road. It is much easier to build BHUs and schools at road heads which are highly visible, easy to access to build, and easy to access for evaluations! This project was a major player in developing remote areas in the Eastern region. The RGOB's concept behind building such large and standardized facilities is to have them serve as focal points around which the population will gravitate towards and create rural infrastructure. It is hoped this will slow migration to urban centers such as Thimphu or Phuntsoling.

Assessment of Sustainability

Beyond infrastructure, there is the ongoing need for resourcing and maintenance of facilities. As in most developing countries, RGOB is operating within severe budgetary constraints. However, the commitment to the delivery of high quality education and health services equitably to the population at large, is impressive, as reflected in budgetary allocations, which have increased over consecutive five-year plans. The **current** national total expenditure on health is now 10%, compared to 8% in the 7 five-year plan period. The **current allocation** for education is 11%. At the same time, there is concern about the increasing costs of education and health services and finding ways to further finance the system without jeopardizing quality. Given the development of the hydroelectric power plants, and the sale of power to

3rd Education Sector Strategy - Realising the Vision 2020 (2nd draft Report, 2001)

India, the consequent growth of non-tax revenues should support **increased budgetary allocations to both sectors in the next plan periods to facilitate achievement of their respective sectoral goals.**

6.2 Lessons Learnt

Project Design

- That for future construction projects, an extended project preparatory phase should be considered, amounting to a mini-project in its own right, to enable thorough and complete site surveys, documentation, costing and preparation of project document. (Much of the preparatory work included within present project could have been done prior to finalisation of project document and budget.) This pre-project phase should be conducted at least 3-6 months prior to project start-up.
- That inadequate initial site surveys can result in under-estimation of the actual costs and under-budgeting of the entire project, which can have negative consequences for the scope of the project.
- That project design documents should include a logframe matrix, detailing a clear relationship between project objectives, outputs and activities in a logical manner (with measurement indicators and means of measurement defined for each, and a corresponding workplan), as a basis for more effective implementation and monitoring.
- That there is great need for adequate local-level consultation with all stakeholders during the project design phase, to ensure planned strategies, activities, outcomes, and anticipated longterm roles and responsibilities are clearly understood and agreed by all parties.
- That project design documents should clearly specify assumptions, and take these into account in the development of a risk assessment matrix and risk management plan.
- That health and education performance indicators should be ones that can be measured over the life of a project, rather than long-term development goals, such as lowering IMR, increasing life expectancy, and increasing literacy rates, which are difficult to change over a project's life. For example, health outcomes that could be tracked are increased immunization coverage, improved nutritional status and expanded family planning acceptance. These are attainable and measurable, and themselves contribute to lowered IMR and increased life expectancy.
- That MHE officials and appropriate donors plan for the placement of health and education staff as required by the improved infrastructure. Without a clear plan for filling the openings with trained human resources, or plans to grow into the new structures, there is a risk of under-staffed facilities, which diminishes the impact on the development goals and objectives. There should be a firm commitment from the MHE to honor these plans.

- That inadequate scoping and costing of project management and technical assistance requirements can result in delays in recruitment of suitable staff, which can result in significant delays in implementation, which can impact on project costs and further result in decisions to make up on lost time, which may have consequences on project quality and outcomes.
- That capacity building objectives require definition of 'capacity building', clarification of whose capacity is to be built, specification of capacity building targets, and inclusion of specific activities, resources, monitoring and impact assessment, to this end.
- That technical assistance provision should contribute to skills transfer, with inclusion of specific targets and activities to this end.
- That institutionalisation of 'transparency, accountability, efficiency, participation and equity' procedures should be included as explicit capacity building targets, amongst other.
- That overseas and in-country short-term training (and selection of participants for the same) should be justified in terms of a clearly identified training need related to a specific development objective; with an associated workplan for the post-project application of skills learnt in a particular project or institutional development context, and with monitoring of both application of skills and impact of the same.

Project Management

- That there is need for simple but effective financial management and accountability procedures.
- That procedures for project management and implementation should be clearly and widely understood, with clear lines of responsibility, operating, as far as possible, through existing government structures.
- That regular Project Steering Committee meetings need to be conducted at appropriate intervals to ensure close and ongoing monitoring of project progress.
- That there is a need for a clearly defined exit strategy to bring closure to each construction site and overall project completion.
- That all project personnel (including managers) require definition of specific roles, responsibilities, reporting requirements, performance assessment indicators and means of measurement.
- That the Project Steering Committee should ensure the performance of all project personnel is effectively monitored.

- That there is a need to establish a systematic process to progressively review progress, to identify lessons learnt in the process and to feedback into ongoing quality improvements
- That project reporting formats should include both qualitative and quantitative reporting of progress against planned activities, ongoing discussion of issues and a cumulative statement of project status against workplan targets.
- That UNCDF should maintain an *active* partnership role in monitoring project **implementation** progress, to ensure *timely* consideration of project design adjustments if achievement of project objectives is unlikely within given implementation strategies.
- That it would be useful if periodic joint meetings be conducted with other donors and government agencies active in a particular sector, to share experiences and discuss common concerns.
- That projects should include activities that work to establish environments, systems and capacities that will ensure sustainability of project outcomes post-project.

Bhutan Construction-specific

- That project preparatory work should include detailed site plans indicating the layout of the buildings, with level difference, site development works.
- That attendance at a pre-bid meeting and site visits should be included as an essential precondition for submission of tenders for construction activities, and with failure to do so resulting in rejection of the bid.
- That construction projects involving petty contractors should include enhanced capacity building activities, including: ensuring contractor's are fully aware of tender and cost implications; providing assistance in the preparation of tender documentation; assisting successful contractors in preparation of workplans, cash-flow management, risk management, and other.
- That there is a need to develop and implement a construction quality assessment strategy.
- That there is a need to develop a community sense of *ownership* of new facilities, at the planning, design and construction stages, to ensure subsequent maintenance responsibility.
- That there is need for adequate surface run-off (drainage). When the ground profile is disturbed due to construction there is the likelihood of rainwater collection for temporary streams which pose threat to soil erosion and land slides.

- That stepping of retaining walls (with shorter heights) could be constructed with dry walls or semi dry walls to avoid huge foundations.

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- That mud mortar walls with cement plastering be constructed in the remote areas, with additional supervision to ensure quality, in line with the local technology, to eliminate the transportation cost of cement and to enable community maintenance.
- That a few construction sites should be piloted to establish lessons to inform subsequent expansion, rather than starting all construction simultaneously and replicating implementation problems on a larger scale.

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6.3

Recommendations

Project Completion

1. That UNCDF initiate the conduct of a *final* Project Steering Committee Meeting, within one month of receipt of the final Evaluation **Report**, in order to i) review project status, achievement, outstanding matters; ii) take action, assigning responsibilities and deadlines, to ensure: the immediate completion of Thungkhar BHU and PS; the appropriate closure of all accounts; the conduct of the final audit of project activity; and the review of the completion of these outstanding matters; iii) consider the Project Completion Evaluation Report Findings and Lessons Learnt (and their implications for other current or forthcoming activities) (Sections 6.1 and 6.2) and iv) consider the Recommendations and agree on follow-up actions, assigning responsibilities and deadlines. ***Persons Responsible:*** *UNCDF, Project Steering Committee, Bhutan Audit Authority, MHE* ***Timeframe:*** *PSC meeting one month after receipt of final report; completion of all outstanding activities three months later.*

Construction

2. That the functional use of BHU space be reviewed, with due consideration of the following proposed sequence of seven rooms from left to right in the U-shaped building as follows: - 1. Retention ward; 2.Labor and Delivery; 3.Store (BHW)*; 4.Dispensary (BHW)*; 5. Laboratory (BHW)*; 6.Maternal & Child Health (Prevention)-Weighing, EPI, family planning, health education (ANM); 7.Outpatient Department (Curative)-examinations, prescriptions (HA). (*These rooms are close to each other so 1 BHW could staff all three.) This scheme keeps healthy clients separated from unhealthy patients, clearly delineating the space used for curative and that for preventive services. ***Persons Responsible:*** *MHE, Dzongkhag Engineers, DSHO* ***Time frame:****within six months*
3. That MHE prepare 'as-built' drawings for future maintenance purposes.
Persons Responsible: *MHE, Dzongkhag Engineers* ***Timeframe:*** *within six months*

4. That MHE reviews the status and effectiveness of Maintenance Agreements initiated under this project.
Persons Responsible: MHE, Dzongkhag Engineers Time frame: within four months
5. That the Dzongdags prepare Maintenance Monitoring Plans to ensure ongoing monitoring of implementation of BHU and PS Maintenance Agreements. Persons Responsible: Dzongkhag Engineers Time frame: within four months
6. That MHE evaluate the type of toilet facilities, which would be most practical and realistically maintained.
Persons Responsible: MHE, Dzongkhag Engineers Time frame: within six months
7. That MHE review and reiterate the need for safe disposal of clinical waste.
Persons Responsible: MHE, Dzongkhag Engineers Time frame: within six months

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8. That sanitation and waste disposal training is provided to all BHU staff, maintenance and management committees.
Persons Responsible: MHE, Dzongkhag Engineers Time frame: within six months
9. That eaves covering be provided to prevent birds entering into the ceilings.
Persons Responsible: MHE, Dzongkhag Engineers Time frame: within six months

Education

10. That District Education Officer and Head teachers utilize the population statistics collected by BHU staff, to assess numbers and location of out-of-school children in school catchment area, to inform school planning.
Persons Responsible: MHE, District Education Officers, Headteachers Time frame: Coinciding with annual school data collection
11. That MHE monitor the home location of children enrolled in schools to assess coverage of schools and changes in access from an equity perspective Persons Responsible: MHE, District Education Officers, Headteachers Time frame: Coinciding with annual school data collection
12. That once identified, District Education Officer and Head Teachers target out-of-school student populations, and especially girls, and make concerted social marketing efforts to bring these children to school. That DEO's liaise with DHSO, and Headteachers with BHU staff, to ascertain the possibility for BHU staff to advocate for primary school enrolment and attendance, and to monitor the same, on their routine community visits. Persons Responsible: MHE, District Education Officers, Headteachers, BHU staff Time frame: Coinciding with annual school data collection

13. That MHE, in collaboration with Dzongkhags, prepare five-year District Education Plans detailing local socio-economic, geographic and demographic contexts, current education situation, and forward education goals, strategies, development activities, budgetary allocations, and monitoring framework, for the achievement of *education for all* targets at the district level.

Persons Responsible: MHE, District Education Officers, Headteachers,
Communities Timeframe: Coinciding with 9th Five Year Plan.

Health

14. That MHE consider launching a larger campaign about the benefits of BHU services through *social marketing* to promote BHU services, involving religious leaders, Gups and other formal and informal leaders. This would be the next step after achieving access - to ensure utilization.

Persons Responsible: MHE, Dzongdags, District Medical Officers, BHU staff
Time frame: Consider at Project Steering Committee (refer Recommendation I above)

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15. That MHE conducts a *Health Facility Assessment (HFA)* to measure the quality of
BHU

service delivery and client satisfaction. There are many tools available:

- Integrated Health Facilities Assessment (BASICS)
- Safe Motherhood Needs assessment (WHO)
- Service Provision Assessment (MEASURE)
- Maternal Care Situational Analysis (Population Council)
- Monitoring Quality of Care (MEASURE)

Persons Responsible: Initiated by MHE; Implemented by independent health consultant. Timeframe: Conduct in 2-3 years

16. That the "Model Village Concept" be extended to the BHUs. *Model BHUs* would be the exemplary BHUs, which are well-run and well-maintained and functioning to their maximum capacity. BHUs are "health" units and must be healthy models in and of themselves. Environmental sanitation, clean disposal of excreta and clinical waste, and hygienic conditions must be maintained in order to be considered a unit of health. By creating a healthy competition between BHUs within a District, individual BHUs may have an added incentive to improve. The criteria for the competition would be set by staff and beneficiaries. By facilitating cross visits of the staff to the "Model BHU", BHU staff would be "trained" through example. (Also consider extension to PSs - establishment of model primary schools in terms of school facility maintenance.)

Persons Responsible: MHE and Dzongkhags Time frame: Beginning of Bhutan New Year

17. That *BHU Staff Awards* be awarded to recognize good performance by the Dzongkhags as an added incentive to the BHU Staff. Creation of a "Health Assistant of the Year Award" based on performance and specific health outcomes should assist BHU staff to feel recognized for their extra efforts. Criteria would have to be agreed upon beforehand

by stakeholders, including policy makers, implementers, service providers and clients.
Persons Responsible: MHE and Dzongkhags Time frame: Beginning of Bhutan New Year

Lessons Learnt

18. That UNCDF input lessons learnt from present project into a *Lessons Learnt Database*, and bring the same to the attention of future project design and project design appraisal teams. Persons Responsible: UNCDF HQ Time frame: as soon as practically possible
19. That UNCDF consider including the input of project design specialists either within project design teams or for subsequent appraisal of draft project designs, to ensure appropriate quality of project design and documentation.
Persons Responsible: UNCDF HQ Time frame: as soon as practically possible
20. That *integrated* construction projects could be considered for future funding, including 'good governance', 'capacity building' and 'community development' components, alongside construction. (The community development aspect could include, amongst u, .ler, promotion of savings/investment from income earned through project activities.)
Persons Responsible: UNCDF HQ Timeframe: as deemed appropriate by UNCDF