

BHUTAN

National Health System Profile

1. TRENDS IN POLICY DEVELOPMENT

'Bhutan 2020: A vision for peace prosperity and happiness' has clearly shown the commitment to improve the quality of life of the people through improving health and education, preserving Bhutan's rich cultural heritage and maintaining its precious environment. The eight five year plan (1997-2002) provides an indication to the stated long-term health services objective as "To promote the health of the whole population so as to enable every citizen to lead a socially and economically productive life and within the broader framework of overall national development to enhance the quality of life of the people through better health care in the spirit of social justice and equity".

The specific health objectives of the eight five year plan are to:

- Intensify population planning activities
- Consolidate and strengthen existing health infrastructure
- Promote self-reliance and sustainability in the health sector
- Strengthen human resource development for effective implementation of health services
- Enhance the quality of health care services
- Extend health care services to the unreached areas, and
- Review the Health-For-All status and make renewed efforts to achieve the remaining goals.

Following are some major policy issues which may have not been written but are understood and implemented:-

- Bhutan is committed to establish a relevant and cost effective health care delivery system based on the PHC approach that effectively delivers health care services to all people of Bhutan.
- Provision of health care is free at the point of delivery. While constant efforts will be made to deliver free health care services on a cost-effective basis, possibilities of introducing some kind of cost-sharing will be explored
- Those aspects of traditional medicine, which are complementary to formal health care will be integrated in the system
- The integrated PHC system will be continued; vertical programmes have been phased out (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding)

2. TRENDS IN SOCIOECONOMIC DEVELOPMENT

2.1 Economic trends

The economy of the country steadily grew from 6.5 percent in 1997/98 to 7.3 percent by 2001/02. Real growth in gross domestic product (GDP) has stabilized at 5.6 percent per annum. In more recent years, GDP is well above the estimated population growth rate of 2.5 percent. The GNP per capita in 2002 was US \$ 835.

The private sector development has been slow. The growth has been constrained by a number of factors such as lack of entrepreneurial expertise, high costs of credits and shortage of both skilled and unskilled labour. Hence even in health, private sector is limited to few pharmacy shops in urban areas.

The health and education sectors comprise 25 percent of public spending with health accounting for around 10 percent in 2003, an increase from 6.5 percent in 1999. (The total health care expenditures represent 3.1 percent of GDP).

Bhutan National Human Development report for year 2000 puts Bhutan in the category of medium human development countries in the South-East Asia region along with Sri Lanka and Maldives with a human development indicator of 0.581 in 1998. According to Human Development Report 2006 shows the HDI 0.538.

The policy of the RGOB (Royal Government of Bhutan) is to pursue and provide free health care services to its population from basic primary to tertiary care.

2.2 Demographic trends

During 2005, the crude birth rate was 20 and crude death rate was 7 per 1000 population. Total fertility rate was 4.7 and there is a general decrease in the population growth rate from 3.1 in 1994, 2.5 in 2002 to 1.3 in 2005. The sex ratio of males per 111 females

In 2005, the population 0-14 years was 33.1 percent; 15-64 years population was 62.2 percent and population 65+ years and above was 4.7 percent.

The Life expectancy at birth is estimated to be 66.1 years with 66.2 years for females and 66 years for males in the year 2000. It has increased by 18 years in past 20 years.

The IMR is reported to be 40.1 per 1000 live births for the year 2005. It has decreased from 102.8 for the year 1984.

The population of the country was estimated to be 637,000 in the year 2006. The population is largely rural with 69.1 percent of the population living in villages despite a growth in the urban drift in the recent years

2.3 Social trends

Literacy: In 2000, Bhutan had one college with 385 educational institutes around the country, which gave the country gross enrolment rate of 89 percent with the adult literacy rate of 47.3 percent. This shows a great progress over the literacy rate of 23 percent in 1980. In 2003, schools were few and far from the homes. Going to school involved travelling through jungles for hours. Hence, initially more boys got chance to go to school, as parents felt that it would be too tough for the girls. Due to this reason, the school enrolment in the first two-three-plan period showed a bias in favour of male student. However, presently the school enrolment ratio between male and female has become almost at par with each other.

There are 252 primary education institutions, 28 secondary and 8 higher education facilities in Bhutan in 1999 (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding).

Food supply and nutritional status

In Bhutan, around 8.5 percent births are low weight among hospital births (less than 2500 gm) (Bhutan Census)

The Royal Government is paying special attention to problems related to nutrition. Several nutrition and micronutrient deficiency studies have been conducted over past decade. In 1999, the national anthropometric study was conducted. The results of the study indicate marked improvement in the nutritional status of the under five children as compared to the 1989 national nutrition survey (refer table)

Table 2.4.1: Percentage of under five children who are underweight, stunted and wasted

Year	1998	2000
Weight for age (under weight)	38	19
Height for age (Stunted)	56	40
Weight for height (wasted)	4.1	2.6

The 1996 IDD study “tracking progress towards sustainable elimination of IDD” revealed Total Goitre Rate (TGR) of 14 percent, Median Urinary Iodine level of 298 μ /L and iodated salt coverage of 82 percent. Micronutrient deficiencies like iodine deficiency disorder has already been eliminated in Bhutan since 2003 as certified by International Council for the Control of Iodine Deficiency Disorder (ICCIDD), UNICEF, WHO. Bhutan is the first country in South East Asia to have eliminated IDD as public health problem (Annual Health Bulletin, 2003, Royal Government of Bhutan, Ministry of Health).

However, iron deficiency is still widely prevalent. According to a haemoglobin study conducted for school children in 2002, 58.6 percent adolescent (school children between the ages 5-15 years) are anaemic.

In the 1990s, 60 percent of pregnant women were also anaemic. To address this situation, the Health Sector adopted the policy of universal iron supplements to all pregnant women during pregnancy and lactation.

It is known that in Bhutan mothers introduce solid food and other feeds early to infants, whereas the ideal practice is to promote exclusive breastfeeding at least for the first four months. National Health Survey 2000 reported that exclusive breastfeeding was practiced in 42 percent of the cases.

2.4 Lifestyle and Risk Factors

Tobacco consumption, chewing and smoking, once very common is now on the decline. It has been made possible due to strong advocacy and intervention activities that the health sector is carrying out.

The complications during pregnancy due to abortion have increased from 5.4 percent in 2001 to 30.54 percent in 2003 (Annual Health Bulletin, 2003, Royal Government of Bhutan, Ministry of Health).

Another health hazardous habit among the people of Bhutan is liberal consumption of liquor. It is also on decline due to the publicity promoting prohibition by the Government.

Basically an agrarian society, people still depend largely on agricultural activities in the districts. In the main towns, people work in Government and private offices and there is a general lack of physical exercise in most of them.

Archery is still the most popular sport although the traditional bamboo bow and arrows are manufactured abroad. Football is played in schools and towns from time to time in particular seasons.

Rice is the main staple diet followed by maize. Wheat, barley, buckwheat are other food items along with vegetables and meat. Traditionally, Bhutanese diet contains more fat from items like pork and butter and most curry items are seasoned with heavy doses of chilli. The fat intake is also getting reduced-especially in towns as the people find it difficult to digest fats with the sedentary lifestyle they lead.

Chewing *dama*, beetle nut with a leaf and some lime, is a common habit, which is a part of the Bhutanese tradition. Most of the formal get-togethers are punctuated with this item. But today this habit is more common with the elderly people, although the younger generation too indulges in this habit.

3. HEALTH AND ENVIRONMENT

3.1 General protection of the environment

Bhutan is one of the rarest countries, where it has been found that the forest cover is increasing over the years. Through special conservation programmes, forest and wild life are protected. There are special pockets in the country that are demarcated as conservation sanctuaries for wild life. Re-plantation is carried out on the slopes that are denuded from landslides and forest fires. Some special areas are marked and protected for growing medicinal herbs for the country's traditional system of medicine.

With the growth of urban areas and industries, the problem of urban and industrial waste is now coming up. Programmes for such waste disposal have been initiated in the major settlements and industrial areas. Initiatives have been taken to develop guidelines for prevention of occupational hazards in work areas.

3.2 Water supply and sanitation

Since the 7th Plan both rural and urban water supply and sanitation has been treated as one of the country's central development themes. Its coverage has now reached up to 80 percent.

During the same decade, as a result of the 1992 Royal Decree, rural household sanitation coverage in terms of latrines has accelerated considerably. The Decree mandated that every household should maintain a latrine. With all the efforts, the country succeed in providing access of safe drinking water to 84 percent of the population in 2003 and covering 93 percent population with improved sanitation in 2003.

4. HEALTH RESOURCES

4.1 Human resources for health

Along with the expansion of health infrastructure, human resources for the Health Sector have also been built steadily over the years, but the country still faces shortage of medical personnel with only 2 doctors per 10,000 populations in 2005. Developing medical doctors is still very difficult as Bhutan has to depend on the neighbouring countries for medical education. Bhutan does not have any medical college. Candidates are sent to Bangladesh, India, Myanmar, and Sri Lanka for their MBBS course.

Table: Trends in HRD indicators

<i>HEALTH PERSONNEL</i>	<i>Year - 2002</i>	<i>Year - 2003</i>
<i>Doctors</i>	<i>122</i>	<i>145</i>
<i>District Health Supervisory Officer (DHSO)</i>	<i>27</i>	<i>24</i>
<i>Health Assistants</i>	<i>173</i>	<i>144</i>
<i>Basic Health Workers</i>	<i>175</i>	<i>172</i>
<i>Nurses</i>	<i>500</i>	<i>493</i>
<i>BSc. Nurses</i>	<i>5</i>	<i>8</i>
<i>General Nurse Midwife/Staff Nurse (GNM)</i>	<i>174</i>	<i>173</i>
<i>Auxiliary Nurse Midwife (ANM)</i>	<i>145</i>	<i>144</i>
<i>Assistant Nurses</i>	<i>176</i>	<i>176</i>
<i>Other Technicians</i>	<i>252</i>	<i>305</i>
<i>Indigenous Physicians</i>	<i>32</i>	<i>29</i>
<i>Indigenous Compounders / Menpas</i>	<i>23</i>	<i>26</i>
<i>Malaria Workers</i>	<i>66</i>	<i>47</i>
<i>Village Health Workers (VHW)</i>	<i>1,202</i>	<i>1,400</i>

Other categories of middle and subordinate level human resource have been developed within the country at the Royal Institute of Health Sciences. This institute has got the WHO's 50th Anniversary Award for Primary Health Care. It is the main contributor to the primary health care development in Bhutan in terms of human resource. The institute trains Health Assistants (HA), Basic Health Workers (BHW), Auxiliary Nurse Midwife (ANM), General Nurse Midwife (GNM), Assistant Nurse (NS), and technicians of various disciplines (laboratory, pharmacy, dental, x-ray, ophthalmology, physiotherapy, operation theatre). With the support of WHO, this institute is now affiliated to La Trobe University in Australia to train nurses at post-basic level.

On the other hand, the National Institute of Traditional Medicines (NITM) trains both full-fledged traditional physicians, *Drungtshos* and the *Menpas* to support them.

In spite of the acute scarcity of human resource, Health Department successfully manages with adequate workforce of different categories who are well trained in various fields such as clinical, managerial and administrative fields both within and outside the country. The Royal Institute of Health Sciences (RIHS) and the Institute of Traditional Medicine Services (ITMS) are the two main institutes, where nurses, paramedical workers, technicians, *drungtshos* (traditional physicians) and *menpas* (traditional compounders) are trained. Although only pre-service training is imparted by these two institutes, both in-service and refresher courses, including up-gradation courses, have been given priority by the Department through the programmes.

The RIHS has been able to conduct B.Sc. Conversion Course for Nurses in collaboration with the Australian La-Trobe University through affiliation. Established in 1974, RIHS has been the nation's premier institute in the production of various categories of human resource that forms the backbone of the primary health care. The NITM is also committed to the training of the required human resource for traditional medical services and research in the traditional medicine.

The NITM has produced 36 drungtsos and 34 Menpas and the RIHS has trained 293 health assistants, 189 Auxiliary nurse midwives, 217 general nurse midwives, 263 basic health workers, 173 assistant nurses and 258 technicians of different categories as of 2002.

Bhutan has 2 doctors and 8 nurses per 10,000 populations. The ratio of nurses to hospital bed is 1:2 (Annual Health Bulletin, 2006, Royal Government of Bhutan, Ministry of Health).

4.2 Financial resources for health – present and projected financial resources for the health system, health care finance and expenditure

An overview of the overall financial resources in Health Sector indicates that external assistance has played a major role in development of health services. The share of external assistance has increased from 45.8 percent in 1995-96 to 65.0 percent in 1998-99 (budget estimate) of the total expenditure on Health in Bhutan (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding)

In Bhutan, public sector (RGOB) provides finance to allopathic and indigenous medicine with the exception of small number of private pharmacies and diagnostic facilities as well as traditional healers.

Financing of health care is through 5 sources:

- Royal Government of Bhutan
- International aid
- Military
- Private firms
- Households

Public financing of health care is through a National Health Service financed by the RGOB through revenues and grants. The Government and donor financing of health services flow through National Budget and Aid Coordination Division. Funds are then released to the Health Division and the Dzongkhags. The Government expenditure (current prices) on health increased from 218.109 million Nu in 1995-96 to 331.574 million Nu in 1997-98. In the financial year 1998-99 (budget), the Government of Bhutan provided 217.629 Nu which is just 35 percent of total health expenditure (budget) (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding).

In Bhutan, total expenditure on health as percentage of GDP has increased from 3.8 percent in 1998 to 3.14 percent in 2003. Bhutan government has recognized the importance of health sector. The public expenditure on health out of the total health expenditure was 84 percent in

2003 whereas, private expenditure on health as percentage of total expenditure on health was 16 percent in 2003 (WHO, the World Health Report, 2006).

Only 2.9 percent of total outlay for the First Plan (1962-1967) was earmarked for health, but the Government recognizes the importance of the social sectors. The current Government allocation for Health is around 10 percent of the total outlay, which comes to 3.1 percent of the GDP.

In the past Plan, donors played a significant role in supporting the health sector. However, to reduce the over dependence on donors, the Government is now taking steps to bear the major portion of the cost. On an average the Government now bears about 49 percent of the total outlay.

The main development partners in the health sector are Government of India, DANIDA, UNICEF, UNFPA, WHO.

4.3 Physical infrastructure for health

(Please distinguish where relevant between public, private for profit, and non-profit services)

The health service is provided through a four-tiered network consisting of a National Referral Hospital, Regional Referral Hospitals, District Hospitals and Basic Health Units. There are total 641 health facilities, including 29 hospitals, 176 basic health units and 514 out-reach clinics at the community level. In addition to this, traditional medicine services are available in all the districts.

In Bhutan, around 1133 beds are available in hospitals. There were 17 hospital beds per 10,000 populations. (Annual Health Bulletin 2007, Ministry of Health).

The health infrastructure expansion took place in the 1970s reaching the peak of expansion activities in the 1980s. In line with the Alma Ata Declaration, the country committed itself to establishing a relevant and cost-effective health care delivery system based on the primary health care approach. Despite the high cost of health care service delivery in a country with a population scattered thinly over the mountainous terrain, Bhutan has managed to establish a fairly uniform spread of Basic Health Units, District Hospitals, and Regional Referral Hospitals.

The district hospitals are the first-level referral institutions and are equipped to provide curative, promotive, preventive and emergency services.

The regional referral hospitals are the second level referral hospitals and provide services of specialists.

The infrastructure development in the past decade has resulted in a near optimum level of health infrastructure at the primary level (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding).

There appear to be no reliable quantitative data on access to health service in Bhutan. The 1994 NHS defined access as being within three hours' walk of a care provider. Using this definition, based on a sample of about 10 percent of the population, it was determined that 90 percent of the population had access to services. In 1996, redefining access as being within two hours' walk from a health facility (including ORC, BHU or hospital), it was estimated from a very quick survey of dzongkhag administrators that, again, 90 percent of the population had access. However, distance to a health facility is one of important factors affecting access.

Services are free of charge in Bhutan and there appear to be no 'informal' payments required from the patient. There are financial costs including the cost of transportation and the opportunity cost of visiting the services but these are not considered to be major barriers (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding).

4.4 Essential drugs and other supplies

The regulatory function is an essential part of public health systems. It has relatively remained underdeveloped. There is no systematic inventory of legal instruments related to health. There is no system in place to ensure the participation of the health sector in the formulation of legal instruments related to health. And there is limited enforcement of those laws, rules and regulations that exist. However, the Medicines Act is being drawn up to regulate the medicines, drugs and other substances in the country, which was endorsed by the national Assembly in 2003.

The Ministry of Health and Education (MOHE) has formed an inter-ministerial standing committee to assume responsibility for coordination of public health regulation. This committee will ensure that:

- Appropriate public health legal instruments have been drafted and passed by National Assembly, and information about them is disseminated,
- Existing and future legal instruments with a bearing on health are compiled and catalogued,
- Health sector input is obtained in the drafting of legislation/regulation that is related to health, and
- Enforcement of regulations is strengthened (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding)

The public drug supply system in Bhutan accounts for more than 90 percent of the expenditure on drugs. It is the responsibility of Medical Supplies Unit (MSU) for supply, quality and other aspects of the management of drugs, non-drug supplies and equipment in the public sector. It is divided into 4 sections: The Essential Drugs Program, the Drugs Section (EDP), the Non-drugs Section, and the Health Equipment Repair and Maintenance Unit (HERM).

The EDP, working within the MSU, aims to ensure a regular supply of safe, effective and need-based drugs of acceptable quality at reasonable cost. Working with the Drugs and Non-drugs

Sections, which are responsible for procurement and distribution, the EDP focuses on training of storekeepers and prescribers at all levels, and in selection of drugs for the national formulary.

Drugs are delivered once a year to hospitals and those BHUs which are accessible by road. For the majority of BHUs, drugs are delivered to drop-off points and from there transported by ponies and porters.

5. DEVELOPMENT OF THE HEALTH SYSTEM

5.1 Health policies and strategies

The overall long-term objective of the Health Ministry is for, “attaining a healthy living standard by the people living within the broader framework of the overall development of the country”. There has been a shift from expansion of services, which was emphasized in the earlier plans, to the quality of services. It entails setting up of standards at various levels of health care delivery system. Strategies have been evolved to reach the un-reached through decentralization of planning and management systems; to strengthen management information system, to develop research and their use which leads logically to one of the Ministry’s most important objectives: *intensifying human resource development for health and establishing a system of continuing education*. To this end, the Ministry has developed the Master Plan for Human Resource as a guide for developing human resource for health.

Intensification of prevention and control of prevailing health problems and dealing with the emerging and re-emerging ones require extra resources and efforts. The Ministry has prepared itself in dealing with this problem. Other objectives that have flowed from the previous plans are intensification of reproductive health services and sustaining population planning activities; promoting community-based rehabilitation, mental health, and finding innovative means to enhance the mental well-being of the people; and maintaining balance between primary, secondary, and tertiary health care so that the higher levels of service can back up the needs created or problems identified by the grass root level health care units.

The Bhutan Medical and Health Council Act has been passed by the National Assembly in 2002. Bhutan Medical and Health Council secretariat was established in 2003 with council members appointed.

Millennium Development Goals (MDGs)

Progress made towards achievement of health related MDGs is given at Annex-2

5.2 Inter-sectoral cooperation

Inter-sectoral coordination at different levels of the Government is achieved through different ways. At the national level, the Planning Commission coordinates the plans of various development sectors and the Department of Aid and Debt Management of the Ministry of Finance coordinates resource allocation. At the district level, the Dzongdag is the overall head

for implementation of plans. All the sector representatives at the district level function under the Dzongdag. Thus duplication of efforts is avoided and the actions are coordinated.

Even at the Department and programme level, there are a lot of coordination mechanisms through Policy and Planning Division of the Ministries. Additionally, individual programmes have their own coordination mechanism with other concerned sectors. Malaria programme, for instance, has direct coordination mechanism with the agriculture and municipal departments. Similarly, environmental health programme liaises with the National Environment Commission, Municipal Corporations of each district and even the police force. The nutrition coordinates its efforts with the Agriculture, Trade, and other relevant sectors. Further, there are the multi-sectoral task forces that also address the issues that cut across many sectors.

5.3 Organization of the health system

The long history of health services delivery in Bhutan is the introduction of modern Allopathic system in early part of the twentieth century with the arrival of the first batch of Indian-trained physicians and paramedics, but its traditional medicare was introduced in the system from Tibetan in the seventeenth century. Traditional practitioners received formal training in Tibet and apprenticed in Bhutan.

The Department of Health Services was set up in 1960. At that time, there were two hospitals and 11 dispensaries. All of these facilities were staffed by doctors and nurses from other countries and very few medical and paramedical personnel were available from local people.

The present development of modern health systems and health infrastructure commenced in 196 with the beginning of the First Five-Year Plan. Basic health units were established in certain areas from the early 1970s, but the main expansion of infrastructure started in the 1980s. Despite the introduction of western allopathic system, traditional medicine has retained a significant role in the provision of health services in Bhutan. As the traditional medicine practiced in Bhutan, *Sowa Rigpa*, is a systematic field of knowledge, traditional medical care is provide side by side with modern allopathic health care. It was recognized as the official medical tradition and included in the national health system in 1967. These two systems are now more or less integrated.

Modern health services are delivered through a four-tiered network consisting of the National Referral Hospital, the Regional Referral Hospitals, District Hospitals and Basic Health Units to outreach clinics at the community level.

The huge infrastructure development in the past decade has resulted in a near optimum level of health infrastructure at the primary level. The district and regional referral hospitals have been significantly increased in number and improved in capacity. However, capacity in surgical and other specialized services is still sub-optimal at the district and regional referral levels (Asian Development Bank: Bhutan-1999 Country Portfolio Review and Country Programming Confirmation for 2000 Mission, Memorandum of Understanding).

The health service system at the district and lower levels depend on the district authorities for their administrative support and on the Health Department at the centre for technical support.

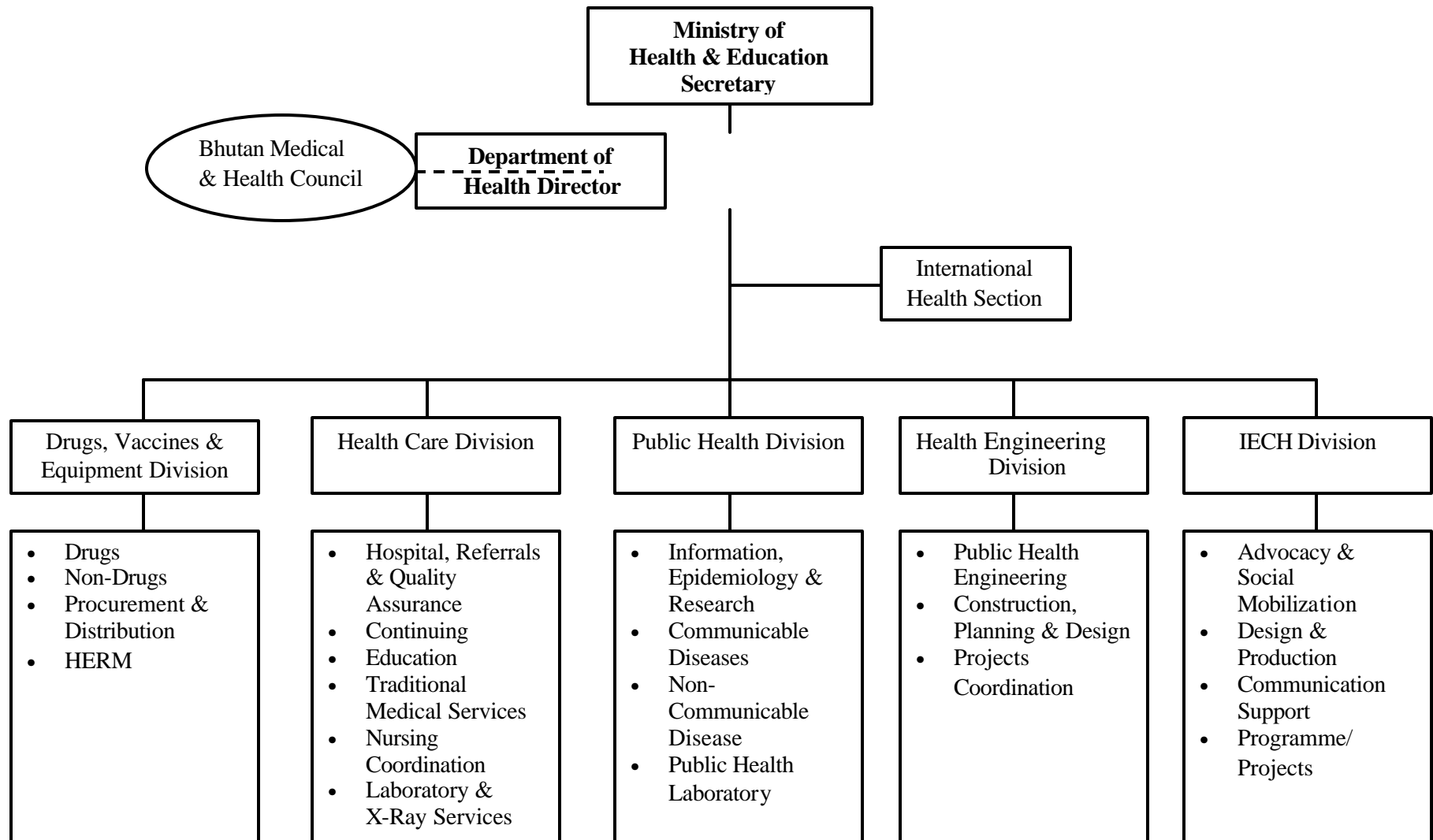
The basic health units submit their case reports directly to the District Supervisory Officers. These officials compile these reports and submit to the Health Department at the national level. However, the diseases under strict surveillance like HIV, Poliomyelitis, etc. that come under the notifiable category are reported directly to the national level immediately.

In the year 2000, a task force was instituted by the Royal Government to critically review the structure of each Ministry and suggest ways to further strengthen the civil service to become more efficient, accountable and transparent.

In the restructured organogram, the Health Division has been renamed as “Health Department”. There are five main “Divisions” and various sections under each. All the previous “Units” are upgraded to Divisions and each headed by a Joint Director. The International Health division has been shown as a separate “Section” by itself (SEARO MEMORANDUM: “Reorganization of Health Infrastructure of the Royal Government of Bhutan”, 28.06.2000).

The Reorganization Chart of Health Department is shown below:

**ORGANOGRAM
HEALTH DEPARTMENT
(After reorganization)**



The basis for Bhutan's health care delivery system is the primary health care system starting with 518 outreach clinics and 176 basic health units at the community level. The districts have the district hospitals set up under the three Regional Referral Hospitals and one of these Regional Referral Hospitals also serve as the National Referral Hospital.

The patients at the basic health unit level are referred to their respective district hospitals for secondary or tertiary health care. The district hospitals likewise refer to their respective Regional Referral Hospitals and that in turn rely on the National Referral Hospital. As it is not yet possible to have very specialized health care in the country, a good number of cases requiring such health care are referred outside the country.

5.4 Managerial process

In line with good governance policy, the Ministry of Health and Education was bifurcated into two separate Ministries viz. Health Ministry and Education Ministry in July 2003. (Please see the organogram in 5.3). With this bifurcation, the structures under the Health Ministry were reorganized and put under the Departments of Public Health and Medical Services. Each of these Departments will then be able to direct the programmes related to their respective areas without distractions from other commitments.

The health services in the districts are directly under the administration of the Dzongdag, district magistrate. The Health Department provides technical support to the districts. The District Medical Officers look after the hospitals and the District Supervisory Officers look after the primary health care concerns in their respective districts. The Basic Health Units at the community level are directly under the administration of the District Health Supervisory Officer.

5.5 Health information system

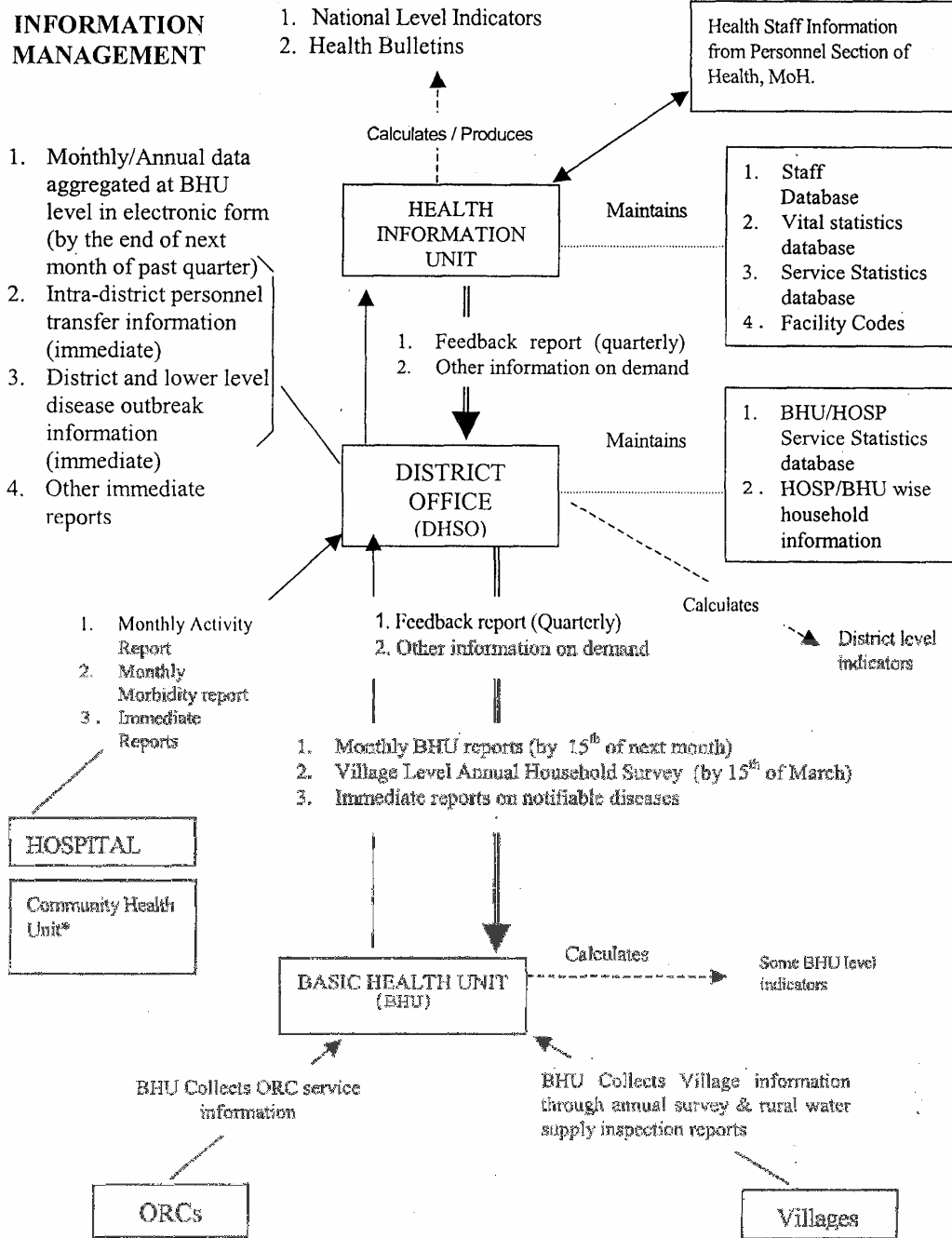
Realizing the importance of information in management, Health Information Unit was established in 1983. Since then the Annual Health Bulletin was compiled on a yearly basis and published. WHO has put in substantial support to develop the Health Information System in the 1990s. During 1999-2000, the information system was reviewed and the Health Information Management System was instituted with support from DANIDA. Presently HMIS is being computerized and experimented.

The basic health facilities have been given standardized reporting forms to report the morbidity, mortality and other health data collected at that level. This is compiled and consolidated every month and submitted to the District Health Supervisory Officers who, in turn, compiles and submits to the national level every quarter. At the national level the Health Information Unit compiles and makes it available to all concerned. However, the human resource for the Health Information Unit has to be further improved both in terms of expertise and numbers to make the Health information System dynamic and helpful for a ground reality-based planning for the future.

The flow of health information at different levels along with feedback report may be seen from the flow of information diagram (Annual Health Bulletin, 2003, Royal Government of Bhutan, Ministry of Health), given here under.

Flow of Information

INFORMATION MANAGEMENT



Note: Some vertical programmes (e.g. TB and Leprosy) reports are directly sent to respective programme head quarters.

** Community Health Unit (CHU) sends same information to DHSO as sent by BHUs. Morbidity data from CHU/ORCs managed by hospitals are added to the hospital morbidity data.*

5.6 Community action

In order to bridge the gap between the organized health service and the community, the Government trains village health workers, who are chosen by the Communities themselves. As of 2000, there are 1500 village health workers, who advocate health to the people and help in bringing the health problem of the people in the communities to the government health workers. They are also taught and allowed to dispense a few basic allopathic medicines.

The communities also look after the development schemes like those for drinking water supplies in their own areas. The programme assists the communities by providing them the necessary training.

There are also the traditional faith healers, astrologers and religious leaders in the community. The Ministry also takes the support of these respected people in imparting specific health messages-ranging from the need to take iodized salt to family planning – to the people in the communities along with their routine work.

In keeping with the principles of primary health care, it was seen necessary to extend universal coverage of health services to the rural population and encourage community participation in health activities and awareness. The Village Health Workers (VHW) Programme was thus initiated in 1978. The VHWs are considered to be the important link between the community and the Government in improving basic hygiene and sanitation, prevention of vaccine preventable diseases, family planning, nutrition, control of diarrhoeal diseases and prevention of sexually transmitted diseases, including HIV/AIDS, especially for communities that do not have easy access to health facilities.

5.7 Health research and technology.

To be able to carry out research for the health sector so that there will be evidence-based health interventions; the country has been building its research units. The Research Unit was formally established in 1995. The key staffs are still being trained abroad.

6. HEALTH SERVICES

6.1 Health education and promotion

The IEC programme supports in the promotion of all other health programmes. Earlier, The IEC activities were initiated but the IECH Bureau was formally established in 1991. Over the years, this programme, through the use of mass media and its own advocacy systems, has been able to educate the general public about health hazards and motivate the public to change gradually to a healthy life style. It also helps in developing health education materials for the other programmes and in documenting their progress.

School children are the most receptive of the IECH target groups. Their adoption to hygiene helps in motivating other family and community members to understand key role of a cleaner life style. The Division also runs a comprehensive health programme for school children.

6.2 Maternal and child health/family planning/adolescent health

Following the Alma Ata declaration of 1978, Bhutan has adopted the Primary Health Care (PHC) approach to the delivery of health care services. Maternal and Child Health Care (MCH) was an important component of the Primary Care Package. Health aspects of human reproduction have been addressed through MCH services.

Over the decades, important social and demographic changes have taken place and they have rendered the concept of MCH approach too narrow to address all concerns in this aspect of health. In response to the changing situations a new broader concept of “Reproductive Health” has emerged that offers a more comprehensive and integrated approach to the current needs of all in human reproduction.

Elements of Reproductive Health

Taking into account the national capacities and available resources, the reproductive health package for Bhutan prioritized the following elements:-

- Family planning
- Safe motherhood
 - Antenatal care
 - Intra-natal care
 - Post-natal care
- Prevention and management of complication of abortion
- Reproductive Tract Infection (RTI) Sexually Transmitted Infection (STI)
- Human Immune Deficiency Virus
- Prevention and management of infertility
- Child survival including care of the new born
- Cancer of reproductive tract and breast

Death during pregnancy and within 6 weeks following delivery is very common among women of reproductive age leading to individual, family and social tragedies. The Government has recognized it and strategies have been evolved to address this problem.

The cause/causes of death vary between home and hospital deaths. Major common causes of death of the women in pregnancy or in postpartum period are as follows:

- Postpartum haemorrhage (PPH) with retained placenta is the most common cause of deaths at home. Out of the 19 women who died because of PPH with retained placenta, only 1 woman died in hospital.
- Complication of septicaemia infection is second most common cause of maternal death. There were 9 deaths due to septicaemia during the study period.
- There were 6 maternal deaths because of Postpartum haemorrhage (PPH) without retained placenta and all 6 occurred at home.
- During the study period 5 women died because of prolonged obstructed labour either at home or on the way to hospital.

- Pregnancy Induced Hypertension (PIH)/Eclampsia accounted for 4 deaths during the study period. Three women died of postpartum Eclampsia and one of ante-partum eclampsia.
- All the deaths except one included in this groups are hospital deaths. There was one death each due to the following causes:
 - (Bacterial/) meningitis/encephalitis
 - RHD with multiple valve involvement with thrombo-embolism
 - Symptomatic heart failure (no identified previous heart condition)
 - Heart failure (3rd pregnancy after replacement of mitral valve)
 - Amniotic fluid embolism
 - Multi organ failure
 - Cerebro-vascular accident

During 2006, deliveries attended by qualified attendant were 57 percent (Annual Health Bulletin 2007). In maternal health, the maternal mortality ratio (per 100,000 live births) was 560 in 1990 and 255 in 2000. In 2000, contraceptive prevalence was 31 percent.

6.3 Immunization

EPI was launched in 1979 with seven antigens. In 1988, the National Assembly passed a resolution, which directed the Health Sector to immunize all children. With continued effort Universal Child Immunization was achieved in 1991. Since then the immunization converge was maintained above 85%. Under one year of age overall Immunization services aimed for effective coverage with all seven antigens aimed at all infants less than one year of age and to all pregnant women (Annual Health Bulletin, 2003, Royal Government of Bhutan, Ministry of Health).

Multi-antigen National Immunization Days (NIDS) were carried out in 1995 (TT, Measles and polio). Since 1996 Sub-national Immunization Days (SNIDS) are carried out. Hepatitis B vaccine was introduced in 1996. Double antigen (Measles & Polio) SNID was carried out in 2000. In the subsequent SNIDS no Measles vaccine was given other than for routine immunization. The coverage of EPI is shown in table given below:

Table: Bhutan National EPI Converge Evaluation Survey (CES), 20002).

S. No.	Antigens	Reported coverage (routine)	Evaluated converge (EPI CES 2000)	
		(Year: 2000)	By card only	By history + card
1.	BCG	93%	94.9%	99.55%
2.	DPT-3	94%	93.5%	98.6%
3.	OPV-3	94%	94.5%	98.6%
4.	Hep. B-3	92%	91.9%	96.3%
5.	Measles	91%	91%	96.3%

The evaluation survey revealed that 89.7 percent of the children are fully vaccinated before their first birthday and 64.6 percent of the fully vaccinated children received valid dose. According to annual health bulletin 2007 of Bhutan shows the immunization coverage for all antigen is 90 percent.

6.4 Prevention and control of locally endemic diseases

Sexually Transmitted Diseases/HIV/AIDS Programme

In Bhutan, so far 50 Positive cases have been diagnosed from about 86190 samples screened, which comprises sentinel population all over the country and also voluntary groups who come forward for testing. Of these 50 HIV cases, 10 have died, 1 due to cerebral malaria and 9 due to ARC.

The programme on sexually transmitted disease started in 1988 with the preparation of a short-term plan of action for prevention and control of HIV/AIDS in Bhutan. Bhutan is one of the few countries where the HIV/AIDS control programme started much before the disease entered the country. The programme has well-charted strategies. Clinical screening of blood from sentinel sites and anti-natal clinics helped to screen the problem. A very strong advocacy programme through IEC helped to make the people and the communities aware of the problem and free distribution of condoms from health facilities helped in preventing the infection and controlling both.

As the disease has shown a rising trend in the recent years, the STD/AIDS programme was reviewed in 2002 to find out the reason and to adjust the control activities for dealing with the problem.

Besides HIV/AIDS, the other sexually transmitted diseases like gonorrhoea and syphilis are also under an effective control, presently.

Tuberculosis Control Programme

According to 1993 survey, Annual Risk of Tuberculosis Infection (ARTI) in Bhutan is 1.5 percent. Based on 1.5 percent ARTI, NTCP estimated to detect 75 sputum positive cases per 100,000 people and about 185 cases of all type of tuberculosis per 100,000 people.

According to the case finding indicators, it is below estimation with 360 (69%) with sputum positive cases are reported and 1026 cases of all type of tuberculosis. Therefore, program encourages district health services to scale up with case detection rate from 69 percent to 80 percent by the end of 9th Five Year Plan.

Tuberculosis is still a major public health concern despite enormous improvement in its control methods. The TB Control Programme was started in 1976. With technical guidance from WHO, DOTS system has been introduced in the country and medical doctors and nurses are now adequately trained in this method. Each hospital has a TB in-charge who is responsible for reporting of new cases and following up on treatment.

Keeping in view of WHO's declaration of TB as a global emergency in 1994, Bhutan adopted Directly Observed Treatment Short Course Chemotherapy (DOTS) strategy throughout the

country from 1997. With the implementation of DOTS strategy, significant progress has been made in the control of TB in Bhutan.

Malaria Control Programme

Malaria caseload peaked in 1994 with 38901 cases and since then has declined by 90 percent in 2003 with 3806 cases. The Slide Positivity Rate (SPR) declined from 39.9 in 1994 to 6 in 2003. The Annual Parasite Incidence (API) also declined from 111.1 in 1994 to 7.2 in 2003. Number of malaria deaths has reduced from 48 in 1994 to 15 in 2003 but the case fatality rate has increased from 3 in 1994 to 8.9 in 2003 which is also a matter of concern to the program (Corrigendum: Royal Government of Bhutan, Ministry of Health, Bhutan).

Perhaps the Malaria Control Programme is one of the oldest health programmes. It was introduced in 1964 with the full support of the Government of India. WHO has continued to provide the required technical support and helped the Government to strengthen programme management, including training and establishing an entomology unit for the programme. Vector control method has undergone substantial change since 1995. For all practical purposes, comparative analysis of malaria data has been worked out taking 1994 as the base year, because the Programme changed its control strategy from Indoor Residual Spraying (IRS) with DDT to Synthetic Pyrethroid which was meant to be a strategy for five years. The IRS was then discontinued in 1997 with the launching of the plan for insecticide treated bed net (ITBN) programme as per the recommendation of WHO in the context of the roll-back malaria (RBM) initiative.

Leprosy Control Programme

The Leprosy Programme was started in 1966 and was consolidated in 1982 and the Leprosy Mission and the Norwegian Santal Mission initially supported it. Initially, it was implemented as a vertical programme but it is now fully integrated into the general health service. While maintaining the achievements and working towards elimination, the Government is also working to strengthen the programme capacity.

According to the past records the number of leprosy cases came down from a total 40 to 33 in 2002. The case detection rate was found to be 0.19 per 10,000 population and the prevalence rate at 0.50/10000 in 2002 as compared to 0.61/10000 in 2001.

6.5 Prevention, control and management of common diseases and injuries

Integrated Management of Childhood Illness

Since diarrhoeal diseases and acute respiratory infections top the list of morbidity in health facilities, the programmes on Control of Diarrhoeal Diseases (CDD) and Acute Respiratory Infection (ARI) were started in 1982 and 1987, respectively. Since the initiation of the WHO's Integrated Management of Childhood Illness (IMCI) strategy, these two programmes have been combined to form the IMCI Programme.

Community-Based Rehabilitation Programme

Although the Health Sector took up the community-based disability and rehabilitation programme only in early 1997, some initiatives were taken much earlier by the Education Department. The Education Department started the Zangley Muenselling School for the visually impaired in Khaling, Eastern Bhutan decades ago. The Health Sector has identified one hospital as rehabilitation centre and recently efforts have been made to develop this centre.

Mental Health Programme:

The Community Mental Health Programme was formulated in 1997 coinciding with the beginning of the 8th Five-Year Plan. WHO and DANIDA played key role in its development by providing both financial and technical assistance. The programme is totally integrated into the general health service. A pilot mental health survey was conducted in 2002. The programme is being further strengthened through developing the key staff and health workers.

Survey carried out in the pilot CBR programme and household survey in Bhutan have estimated that there are about 21,000 persons with disabilities in the country, amounting to 3.5 percent of the total population of Bhutan. These figures are only suggestive and not definitive. A more detailed survey of the different regions may be necessary to correctly assess the extent and degree of disabilities and their causes in Bhutan.

In a quick survey of dzongkhag, it was found that 90 percent of the population had access to a health facility (including ORC, BHU or hospital) within 2 hours of walk as per revised redefining access in 1996.

7. TRENDS IN HEALTH STATUS

7.1 Life expectancy

Bhutanese life expectancy has increased from 48 years in 1984 to 66.1 year in 2003. Even the population growth rate of 3.1 percent, which was a concern for the government, has also dropped to 1.3 percent by 2005 through intensified health education and increased access to contraceptives. There is a nominal difference in life expectancy for male and female as female are supposed to live up to 66.2 years and male 66 years (as per Annual Health Bulletin, 2003, Royal Government of Bhutan, Ministry of Health).

In Bhutan, Healthy life expectancy is 52.9 years for both males and females (as per WHO Core Indicators, 2005).

7.2 Mortality

Infant mortality rate has dropped from 102.9 per 1,000 live births in 1984 to 40 per 1000 live births in 2005. There is no marked difference in IMR for males and females.

Under 5 Mortality Rate (U5MR) has also declined significantly from 162.4 per 1000 live births in 1984 to 61 per 1000 live births in 2005.

Reviews conducted in 1984, 1994 and 2000 revealed good progress in the health sector since the start of the planned development four decades ago. Maternal mortality ratio has decreased from 770 per 100,000 live births in 1984 to 255 in 2000.

The cure rate for tuberculosis is 90 percent and the case fatality rate show steady decline from 48.8 per 1000 cases in 1995 to 45.6 in 2001. DOTS strategy has been used since 1997 and standard reporting and recording system for patients are in place although there are still cases of double recording or patients lost to follow up. However, the increasing number of HIV cases is now challenging this progress.

So far, 50 HIV positive cases have been detected in the country. Out of these, 10 have died - 1 due to cerebral malaria and 9 due to ARC. Taking into account the detected cases, there has been almost 100 percent increase in the cases between 2001 and 2002.

For malaria, capacity for control has certainly been increased with the strengthening of the programme and establishment of an entomological unit. Efforts are now bearing fruit as indicated by the declining number of Plasmodium falciparum and Plasmodium vivax cases (these are the two prevalent types of malaria in the country). Plasmodium vivax was seen as the most predominant infection all through the decade from 1990. However, Plasmodium falciparum cases exhibited a sudden increase to 12,966 in 1991 as compared to Plasmodium vivax cases of 9,160 during the same year.

On the whole, the malaria situation started to get worse from 1990 onwards with Annual Parasite Infection increasing from 53.6 reaching a peak of 111.1 in 1994. After that the annual infection showed marked improvement between 1995 and 2000 with a declining trend from 66.2 to 16.9 with some increase in 1999.

Acute respiratory infections in winter and diarrhoeal diseases in summer still top the list of infant morbidity and also contribute to mortality in the basic health units. This is usually attributed to poor nutrition and living environment of the children in the rural communities, dry atmosphere in the winter, poor quality of drinking water and sanitation in summer. The programmes on Integrated Management of Childhood Illnesses, Water Supply and Sanitation, Nutrition have been introduced to improve the situation but more work is required to coordinate their efforts to have a positive impact on child health.

While some progress has been made in controlling communicable diseases, there is also an ever-growing problem of non-communicable diseases. With the changing of life-style from the agrarian society to more complex modern competitive world, rheumatic heart diseases, diabetes, cancer, especially cervical cancer, are on increase. Even within a peaceful country like Bhutan, preliminary assessments reveal that the situation of mental health is not much different from any other county. Presently, most of cancer cases are referred outside the country, which takes away a large portion of the hospital funds. The government is now initiating actions to have programmes in place to deal with this aspect of health problem.

7.3 Morbidity

In Bhutan, most common cause of morbidity among 10 causes is common cold and then skin infection. The 10 major causes of morbidity are given here under:

Ten most common health problems in Bhutan in 2006

Sr. No	Diseases
1.	Common cold
2.	Skin infections
3.	Diarrhoea
4.	Peptic ulcer syndrome
5.	Acute Pharyngitis/Tonsillitis
6.	Other disorders of skin & subcutaneous tissues
7.	Other musculo-skeletal diseases Excluding arthritis and arthrosis
8.	Other disease of digestive system
9.	Other respiratory & nose diseases
10.	Conjunctivitis
	Total

(As per Annual Health Bulletin, 2007, Royal Government of Bhutan, Ministry of Health).

8. OUTLOOK FOR THE FUTURE

8.1 Overall assessment and strategic issues

In Bhutan, to strengthen the overall health service and decentralize management and services, human resource is required at all levels for programme management as well as promotive and curative services. The situation has been improving with more candidates joining the medical profession in the recent years. The number of specialists trained in medicine and management areas are even less. The situation regarding paramedics is much better, because the training of paramedics is conducted within the country.

The Health Trust Fund initiative has already been launched, but much work remains to be done to accumulate the required capital to invest in a reliable financial institute and regularize the use of the proceedings from the Trust Fund. Only when everything is in place, Bhutan will be able to assess the impact of the Trust Fund initiative has made to make health care services sustainable. On the other hand, the contributing factors to health extend beyond the health sector. Unless due attention is given to coordinate efforts with other important Government organizations like Environment, Trade, Industries, Mines, Agriculture, Education, Municipal corporations, Ministry of Health will face the formidable task of containing the health problems caused by other sectors. This aspect needs to be viewed seriously in order to consolidate the progress that has already been made in various areas of health.

Having achieved the desired level of health coverage, the country is focusing on improving the quality of health care services. There have been cases of enormous civil structures in the districts with no doctor and hence no patients. The situation has steadily improved over the years. Yet there is large scope for improvements. As three people – one health assistant, one assistant nurse midwife, and one basic health worker – staff the basic health units, their functions can hardly be distinguished, as one has to substitute the other every now and then. Similarly, not all the district hospitals have similar facilities. Hence, the next five years will be devoted to set up standards of services and facilities to be made available and for their implementation.

8.2 Future vision

In ‘Bhutan Vision 2020’ document, the Government has set its priorities for all the sectors for the next 15 to 20 years. Eight priorities have been spelled out in this document to guide the Health Sector during this entire period. These long-term priorities are further taken into consideration during the formulation of the Five-Year Plans of the Health Sector.

8.3 Basic Health Indicators including the UN Millennium Development Goals

See Annex-1.

Country reported Data for Basic Health Indicators including health related MDG Indicators

Indicator	Latest available data	Year	Source	Remarks
POPULATION AND VITAL STATISTICS				
Total population	637000	2006	15	
Population density (persons per sq km)	16	2005	15	
Sex ratio (males per 100 females)	111	2005	15	
Population under 15 years (%)	33.1	2005	15	
Population 65 years and above (%)	4.7	2005	15	
Crude birth rate (per 1000 population)	20	2005	15	
Crude death rate (per 1000 population)	7	2005	15	
Natural (population) growth rate (%)	1.3	2005	15	
Total fertility rate (per woman)	2.5	2000	15	
Urban population (%)	30.9	2005	15	
SOCIOECONOMIC SITUATION				
Gross national product per capita (US \$)	835	2002	8	
Adult literacy rate (%)	47.3	2000	9	
Total	61.1			
Male	33.6			
Female				
Prevalence of low birth weight (weight <2500 grams at birth) (%)	8.5	2005	16	
Prevalence of underweight (weight-for-age) in children <5 years of age (%)	18.7 ¹	2001	9	
HEALTH SYSTEM				
INPUTS				
<i>Facilities</i>				
Number of hospital beds	1133	2006	18	
Hospital beds per 10,000 population	17	2005	16	
Number of health centres	719	2006	18	176 BHUs, 29 Hospitals, 514

¹ data refer to 1999

<i>Human resources</i>				
Number of physicians	145	2005	16	
Physicians per 10,000 population	2.3	2005	16	
Nurses per 10,000 population: professional nurses	8.3	2005	16	
<i>Budgetary resources</i>				
Total Expenditure on Health (THE) as % of Gross Domestic Product (GDP)	3.1	2003	19	
Public Expenditure on Health (PHE) as % of Total Expenditure on Health (THE)	84			
Private Expenditure on Health (PvtHE) as % of Total Expenditure on Health (THE)	16			
FUNCTIONS				
Deliveries attended by trained personnel(%)	52	2005	16	
Contraceptive Prevalence (%)	31	2000	20	
Infants reaching their first birthday that have been fully immunized against poliomyelitis (%)	95	2005	21	
Infants reaching their first birthday that have been fully immunized against measles (%)	93			
Infants reaching their first birthday that have been fully immunized against tuberculosis (%)	99			
Environment				
Population with access to improved water source (%) Combined	84	2003	20	
Population with access to improved sanitation (%)	93	2003	20	
OUTCOMES				
Life expectancy at birth (years):	66.1	2000	7	
Infant mortality rate (per 1000 live births)	40	2005	15	
Under-five mortality rate (per 1000 live births)	61	2005	15	
Maternal mortality ratio (per 100,000 live births)	255	2000	3	

GENDER EQUITY				
Life expectancy at birth ratio (females as a % of males)	100.5	2003	13	Computed value
Seats held in parliament (% of women)	8.7	2005	14	
Adult literary ratio (females as a % of males)	55.0	2001/02	9	
Primary school enrolment ratio (females as a % of males)	95	2004	20	

Indicator	Latest available data	Year	Source	Remarks
MDG HEALTH RELATED INDICATORS				
G1.T2.I4 - Prevalence of underweight children (under-five years of age)	19	2001	20	
G1.T2.I5 - Proportion (%) of population below minimum level of dietary energy consumption	3.8	2004	20	
G4.T5.I13 - Under-five mortality rate (probability of dying between birth and age 5)	61	2005	16	
G4.T5.I14 - Infant mortality rate	40	2005	16	
G4.T5.I15 - Proportion (%) of 1 year-old children immunized for measles	93	2005	21	
G5.T6.I16 - Maternal mortality ratio	255	2000	3	
G5.T6.I17 - Proportion (%) of births attended by skilled health personnel	32	2003	7	
G6.T7.I18 - HIV prevalence total population (per 100,000 population)	12	2005	16	
G6.T8.I21c - Malaria prevalence per 100,000	377	2005	16	
G6.T8.I23a - Tuberculosis death per 100,000 population	3	2005	16	
G6.T8.I23b - Tuberculosis prevalence rate per 100,000	133	2004	20	
G7.T10.I30b - Proportion (%) of population with	84	2003	16	

sustainable access to an improved water source				
G8.T17.I46 - Proportion (%) of population with access to affordable essential drugs on a sustainable basis	80	2003	7	

Sources:

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Millennium Development Goals

Bhutan's Development Context and Overall Progress towards MDG Targets

Bhutan is a low income country, and its economy is essentially an agrarian one with 79 percent of the people dependant on agriculture and livestock rearing for their livelihood. At 34 percent of the GDP in 2002, agriculture ² still remains the single largest contributor to the national economy, though this has been declining steadily over the years. The fast growing modern sector, comprising manufacturing, industry, energy and services, today accounts for a major portion of the GDP, and is expected to dominate the economy in the future. The further developments of hydropower and energy-intensive industries are viewed as strategic key elements in unlocking the economic potential of the country and serve as the engines of growth. Tourism is also being increasingly regarded as an important sector as the industry provides more diversity to the economic base and generates valuable foreign exchange and employment opportunities in the country. Based on anticipated performance of these sectors, GDP is forecasted to continue growing rapidly at 7-9 percent annually, well into the next decade. Bhutan has also made significant progress in improving the levels of human development over the decade. This was largely achieved because of the Royal Government of Bhutan's (RGoB's) strong commitment to the principle of development as social transformation and its translation into action through sizeable social sector investments. These social investments are now projected to constitute 24 percent of all capital and recurrent expenditures in the Ninth Five Year Plan.

The significant investments in the social sector have greatly contributed to the overall progress towards attaining the MDG. Bhutan is well on track to achieve several of the MDG Targets, some possibly even before 2015. However, as progress with regard to many of the MDG Targets is assessed in relation to the country's own past national context and since they are not in themselves the highest achievable goals but rather the minimum, the country should not be complacent. There is tremendous scope and need for further improvements in human development in absolute and qualitative terms. Additionally, achieving the MDGs by 2015 would require at the least, sustained, and preferably, higher levels of internal effort and external support as social development increments become progressively more difficult to attain.

The various MDGs relating to poverty, educational attainments, maternal and child health, high-risk diseases and environmental sustainability, are in themselves high priority development themes for Bhutan. National development targets as reflected in the Ninth Plan and the Bhutan Vision 2020 often exceed or closely match MDG Targets. Thus there is strong national political commitment and a generally positive policy environment. However, the overall situation with regard to the data and monitoring environment at both the sectoral and national levels are regarded to be weak and in need of strengthening.

KEY DEVELOPMENT INDICATORS

Indicator	value	Year
Population	637,000	<u>2005</u>
Population growth rate (%)	1.30	<u>2005</u>
Life Expectancy at birth (yrs)	66.1	<u>2000</u>
GDP per capita PPP	1,969	<u>2004</u>
Human Development Index (value)	0.538	<u>2006</u>
Infant Mortality Rate (per 1000 live births)	40	<u>2005</u>
U5 Mortality Rate (per 1000 live births)	61	<u>2005</u>
Underweight U5 children (%)	19	<u>2000</u>
Stunted U5 children (%)	40	<u>2000</u>
Maternal Mortality Rate (per 1000 live births)	2.55	<u>2000</u>
Access to safe drinking water (%)	84	<u>2003</u>
Sanitation coverage (%)	93	<u>2003</u>
Adult Literacy Rate (%)	52.8	<u>2005</u>
Gross Primary Enrolment (%)	79.4	<u>2006</u>
Total land area under forest cover (%)	73	2000

Sources: Statistical Yearbook of Bhutan 2001, Bhutan National Human Development Report 2000 and National Health Survey 2000.

²The agriculture sector includes agriculture, livestock, forestry and logging.

The progress made towards achievement of health related MDGs is given here:

GOAL1: ERADICATE EXTREME POVERTY AND HUNGER

TARGET 2	Halve between 1990 and 2015 the proportion of people who suffer from hunger/malnutrition			
Indicator	1990	2000	2015	Will Goal be met by 2015?
Percentage of population below minimum level of dietary energy consumption	NA	NA	NA	
Percentage of under-weight under-5 children	38% (1989)	19%	19%	Achieved
Prevalence of height/age (stunting)for under-5 children	56% (1989)	40%	28%	Achievable

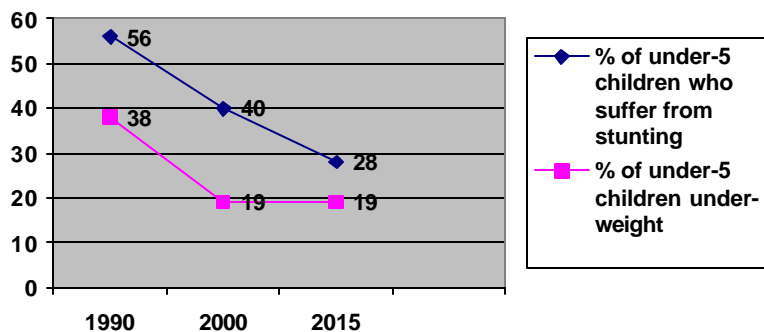
Status and Trends

There is no evidence of widespread hunger in Bhutan, though some studies indicate the incidence of transient food insecurity and seasonal hunger in certain parts of the country, particularly during the planting and harvesting period between May and July.

Food Insecurity: While there is no hunger in the country, some *gewogs* characterised by their poor accessibility occasionally face partial food insecurity particularly relating to grain deficit. The reasons attributed are low cropping intensity and crop productivity, labour shortages, small sized land holdings, inadequate irrigation, damage by predators, pests and plant diseases, poor storage, and insufficient food stocks. Among these, the factor of land holding size appears to have the most impact on food security. The poor utilisation of food, including the diversion of food grain to brew alcohol also contributes to the situation of household food insecurity.

An emerging trend that has significant bearing on food security and nutritional sufficiency is that food procurement appears to be shifting from farm production to purchases from the market and that there are perceptible changes in dietary patterns. Climatic changes and natural calamities, as elsewhere, have as well a significant impact on the food supply situation. Even then, these may be considered exceptions and not indicative of a problematic or widespread situation. Given this, it is considered that the target of halving the numbers of those suffering from malnutrition would be a more relevant and appropriate target for Bhutan.

Percentage of underweight and stunted Under-5 Children



Malnutrition: Levels of grade one or mild malnutrition among children have fallen from 32 percent in 1993 to 18 percent in 1997 (*Bhutan National Human Development Report 2000*). Third degree or severe malnutrition was minimal though not entirely absent. The percentage of under-5 children who were underweight has been halved from 38 percent in 1989 to 19 percent in 2000 and the MD target can be considered already achieved. The progress with regard to the category of under-5 children who suffer from stunting is currently on track. However, as the increments become progressively more difficult to attain, reductions to the levels desired will require significant and sustained interventions. The target of 28 percent can be potentially attained by 2015. In both situations, there are no major gender differences in the nutritional status, and where differences exist, girls are better off.

The micronutrient deficiency situation has improved considerably over the decade. Iodine Deficiency Disorders (IDD) which were once widely prevalent in the country, reflected in the high total Goitre rate at 65 percent, has reduced to a 14 percent prevalence with salt iodination close to 100 percent. With the regular monitoring and evaluation of the Iodine Deficiency Disorders Control Programme (IDDCP) to ensure timely interventions, IDD

prevalence should be reduced even further to minimal levels. A nationwide study of vitamin A deficiency confirms a sub-clinical vitamin A prevalence of 2.6 percent. Iron deficiency anaemia, however, is regarded as a major public health problem, particularly among pregnant women.

The steady improvements in child nutrition are directly attributable to the Nutrition Programme initiated in 1985. Through the programme and subsequent nutrition interventions, several community based nutrition initiatives promoting household kitchen gardens, enhancing livestock rearing and food production were carried out successfully.

Challenges

Food insecurity and malnutrition are more prevalent in the eastern parts of the country and there is a need for increased attention to these areas. Likewise, certain sections of the population are particularly vulnerable to malnutrition, such as children and women, particularly those from lower income groups. The levels of awareness and education are poorer in those regions and among such vulnerable groups. This serves to accentuate the problem.

In terms of women's nutrition, about one fifth of women of childbearing age are malnourished with a high number of them suffering from nutritional anaemia. Under the Ninth Five Year Plan, the health objective is to reduce nutritional anaemia in pregnant women by half to 30 percent, which will pose a significant challenge. Additionally, available figures indicate a very high prevalence of low birth weights, the best indicator of the extent of malnutrition in women and children. Furthermore, the practice of exclusive breastfeeding becomes more and more uncommon, and breast milk substitutes are increasingly made use of. While these specific malnutrition related challenges must be addressed directly, dealing with these constraints with an integrated and multi-faceted approach will in itself pose a significant challenge.

Supportive Environment

Achieving food security has always been an important national policy objective, particularly in the context of an essentially agrarian economy with around 79 percent of its people dependent on agriculture.

The Ninth Five Year Plan acknowledges that the overall nutritional status of the population is unsatisfactory and emphasizes the need for improvements. The sectoral policy also specifically identifies a target of reducing Protein-energy Malnutrition (PEM) in under-five children from 40 percent to 26 percent and to eliminate micronutrient deficiencies by 2007.

Nutrition gaps will be addressed further through the development of a National Nutrition Policy and Integrated Nutrition Information, Education and Communication (IEC) plan. A breast-feeding policy has recently been formulated and launched with a code for marketing of breast milk substitutes.

The successful Nutrition Programme in the communities, which includes promoting school agriculture and kitchen gardening, is to be continued and enhanced further. The new

programme cycle is to be closely linked with the Child Care and Development Programme (CCDP) and the multi-sectoral effort underway to improve nutrition through increasing food production and diversity, and improving food grain storage.

Advocacy activities have been greatly strengthened with the engagement of the monk body in highlighting nutritional deficiencies. 1996 was further designated the Nutrition Action Year with various thematic activities staged across the country.

Monitoring and Evaluation Environment:

Data gathering capacities	Fair
Quality of recent information	Fair
Statistical tracking capacities	Weak
Statistical analysis capacities	Fair
Capacity to incorporate statistical analysis unto policy, planning and resource allocation mechanisms	Weak
Monitoring and evaluation mechanisms	Weak

GOAL 4: REDUCE CHILD MORTALITY

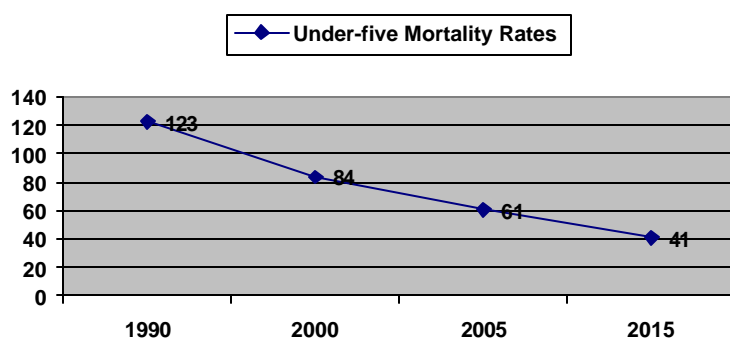
TARGET 5 Reduce by two-thirds between 1990 and 2015, the under-five mortality rate				
Indicator	1990	2000	2015	Will Goal be met by 2015?
Under 5 mortality rate (per 1000 live births)	123*	84	41	Potentially
Infant mortality rate (per 1000 live births)	90	60.5	30	Potentially
Proportion of one year old children covered under immunization programme	84%	85%	95%	Potentially

Source: National Annual Health Bulletins: 1990 & 2000

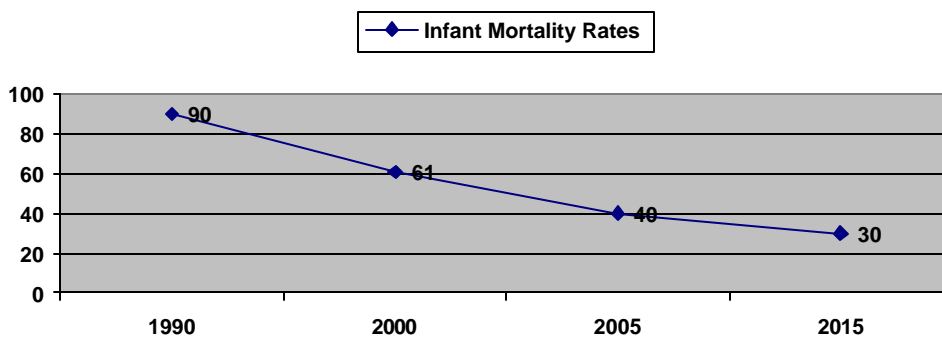
* Linear extrapolation for 1990

Status and Trends

Child mortality, both for under-five and infants, has decreased steadily over the past decade. Under-five and infant mortality rates have both declined by about 32 percent from 1990 to 2000. Attaining the MDG targets to reduce infant and under-five mortality by 2015 appears to be potentially achievable, but will still depend greatly on the levels of interventions maintained, including extending coverage to groups which are difficult to reach.



Acute Respiratory Infections (ARI, including pneumonia) were consistently the leading direct cause of child morbidity and mortality for under-five children. The other major causes for under five child mortality and poor health were diarrhoeal diseases and helminthic infestation, besides inadequate care practices relating to breast feeding, appropriate complimentary feeding, hygiene and sanitation, and care in illness. Incidences of ARI, diarrhoea, dysentery and worm infestation have however reduced progressively over the years. While the direct causes of infant mortality are unclear and need more in depth analysis and systematic studies, it is perceived that closing the knowledge, attitude and behaviour gaps in safe hygienic practices at birth, better nutritional practices and improved sanitation and hygiene conditions, would help further reduce infant mortality.



The significant progress in reducing infant mortality and under-five mortality were largely possible through the expansion of primary health care coverage, control of communicable diseases, particularly measles and tuberculosis, improved nutrition and hygiene, enhanced oral rehydration therapy usage, and the highly successful immunization programme. (See Box)

As early as 1991, Bhutan had achieved universal child immunization (UCI) with 84 percent coverage of all infants vaccinated with the six antigens of BCG, diphtheria, tetanus, pertussis, poliomyelitis, and measles. Hepatitis B immunization was introduced later in 1996, in line with the global immunization policy. The notable public health milestone of UCI was achieved in spite of the great difficulties of the accessibility to children in very remote communities, through the Expanded Programme on Immunization (EPI) provided by the effective network of health units and outreach clinics. Under the EPI programme, Hib burden assessment was carried out and in view of the finding that 44 percent of all meningitis occurs among under-five children, the Hib vaccine is to be approved for introduction until 2005. A nationwide review of the EPI coverage and cold chain system will also be undertaken to assess the achievements, constraints and future needs.

No cases of polio have been reported for more than a decade, with the country enjoying a zero-polio status since 1986. From this it appears that the national goal of eradicating polio by 2005 can be achieved. However, the risk of the virus resurfacing in the country cannot be ruled out entirely as the wild-polio virus is still widely prevalent in the region. Polio immunization and sub-immunization therefore continues to be administered, particularly in the border areas, to cover those missed out, and to bolster the immunities of those already immunized. Additionally, no deaths from neonatal tetanus have been reported since the mid 1990s and it is expected to be eradicated by 2005.

EXPANDED PROGRAMME OF IMMUNIZATION

The Expanded Programme of Immunization, or EPI, was launched in Bhutan on 15 November 1979, coinciding with the International Year of the Child with the objective of reducing vaccine preventable childhood diseases.

Recognizing the relevance of immunization in reducing child mortality, the RGoB has since attached great priority to achieving and maintaining high levels of immunization coverage. EPI services were fully integrated into the general health services and delivered through the extensive health network of existing hospitals, health units and outreach clinics. Bhutan was notably among the first of the countries in the region to achieve universal primary immunization, which it declared in 1991. This is regarded as a considerable achievement particularly in view of the country's difficult terrain and that the majority of people live in rural areas with significant problems of accessibility. Nationwide immunization coverage has since been retained at very high levels in excess of 85 percent, with a recent EPI coverage evaluation survey revealing evaluated coverage at over 90 percent (Annual Health Bulletin, 2001).

The focus of the RGoB now remains on sustaining UCI and this is being carried out under the Immunization Plus programme which in addition to this, seeks to reach those not already covered and work towards polio and neo-natal tetanus eradication in addition to strengthening surveillance and introducing new vaccines and new combinations.

While there is a lack of confirmatory investigations on reported measles cases, recent figures indicate a rise in the incidence of measles. In the 1980s, measles cases dropped significantly, but during the 1990s, there were periodic measles outbreaks with 460 cases in 2000, as compared to 84 in 1999. While measles is still endemic to the country, the mortality arising from measles decreased significantly and no measles deaths have been reported since the mid 1990s.

Challenges

The main challenge in attaining further reductions in child mortality would be to expand primary health care coverage and nutrition, immunization and other relevant health care services to the unreached, marginalized and groups who live in very remote regions. The rugged and inaccessible terrain poses a severe constraint in terms of both the costs and logistics involved in the delivery of health services.

The further reduction of child mortality will depend considerably on how successfully the issues of LBW and other causes of perinatal mortality are addressed through appropriate interventions. Reductions in child mortality rates are also dependant on qualitative improvements in sanitation and hygiene, clean water supply, education and awareness, maternity and primary health care, which require continued and sustained efforts and interventions across several sectors. Tackling the challenge of developing effective inter-sectoral linkages and integrated approaches is likely to have a significant influence on the progress of improving child health in the country.

Impact studies also indicate very low levels of awareness and insufficient knowledge about the spread of diarrhoeal and respiratory infections, the major causes of child mortality. While this has long been identified as a constraint, there is considerable scope for improvement in the levels of information and education among communities on prevention and basic treatment of these illnesses.

Supportive Environment

The Convention of the Rights of the Child (CRC) which Bhutan ratified in 1990 provides the international legal framework for children's rights, including access to adequate health services, clean drinking water, protection from malnutrition, and generally the highest standards of life attainable. These rights of the child are guaranteed by the RGoB and a Child's Rights Task Force exists to oversee, advance and protect the rights and welfare of children in the country.

Besides primary health care, the RGoB has in place several programmes and projects in places which are specifically directed at improving child health such as the EPI, Maternal & Child Health, Nutrition, ARI and diarrhoeal disease programmes. These essential child health care services, including supply of medicines and vaccines, are provided free of cost. Services are to be further intensified and coverage levels expanded under the Ninth Five Year Plan.

The implementation of child health programmes are carried out by the Public Health Division which has adopted the Integrated Management of Childhood Illness (IMCI) strategy to manage child illnesses. Other positive initiatives that have been undertaken to promote better childcare practices are the development of a national policy on breast-feeding, the designation of baby-friendly hospitals, and the expansion of existing Maternal and Child Health (MCH) facilities including "Well Child" clinics.

Priorities for Development Assistance

- *Increasing access to and improving the quality of child care services*
- *Improving institutional & management capacities at national & local levels*
- *Supporting ARI and Diarrhoea management programmes*
- *Supporting the Health Trust Fund for the purchase of vaccines and drugs*
- *Enhancing awareness and education in communities*

Monitoring and Evaluation Environment

<u>Elements of Monitoring</u>	<u>Assessment</u>
Data gathering capacities	Fair
Quality of recent information	Fair
Statistical tracking capacities	Weak

Statistical analysis capacities	Weak
Capacity to incorporate statistical analysis into policy, planning, and	Fair
Monitoring and evaluation mechanisms	Fair

GOAL 5: IMPROVE MATERNAL HEALTH

TARGET 6	Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio			
Indicator	1990	2000	2015	Will Goal be met by 2015?
Maternal mortality Ratio per 100,000 live births	560	255	140	Probably

Status and Trends

The maternal mortality rate (MMR) for 2000 was estimated at 255 per 100,000 live births, a dramatic reduction by over half from the high figure of 560 per 100,000 in 1990². Extrapolating this trend and based on the continuation of appropriate interventions, the MDG target of reducing maternal mortality ratio by three-quarters is likely to be achieved by 2015.

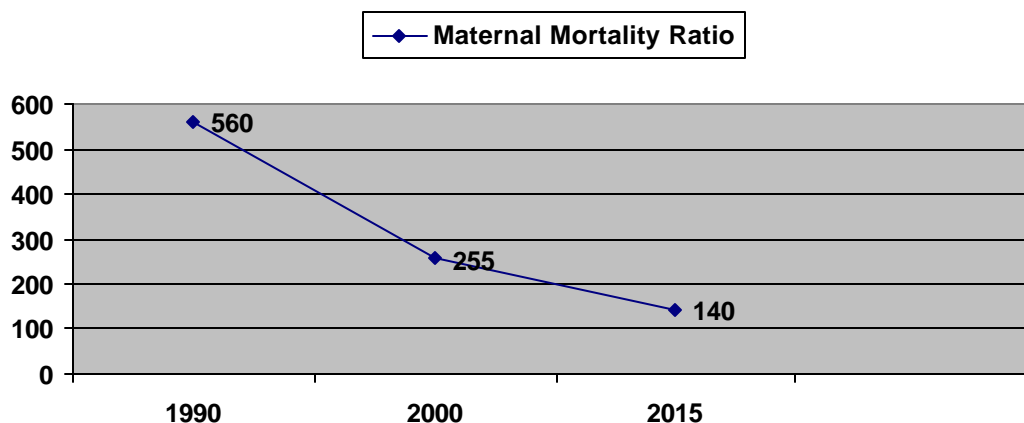
The qualitative improvements in and the increased accessibility to reproductive health services, and related information and awareness thereof, have been identified as the reasons for the steep reductions in the MMR. More specifically, the declines in maternal mortality rates were related to the advocacy and implementation of safe motherhood and pregnancy/ delivery practices, ante and post natal clinical examinations, immunization against tetanus, and the widespread distribution of iron and folic acid tablets to reduce anaemia in pregnant women. The distribution of "*safe-home delivery kits*" was also tried on a pilot basis and replicated nationally from 1998 onwards to help facilitate safe deliveries.

Notwithstanding the progress, MMR levels can be reduced even further. Maternal mortality and pregnancy/labour complications have been linked to mother's anaemia and nutritional deficiencies, haemorrhage, puerperal sepsis, malaria, obstructed labour complications, retained placenta, toxemia, unsafe abortions, malaria and associated hypertensive diseases. Several of these conditional causes of maternal mortality are thought to be easily preventable. Socially, maternal mortality has also been linked to

² The interpretation of MMR for Bhutan needs to be approached with caution, in view of the small number of maternal deaths reported and in view that there are no adequate registration systems of deaths/causes of death, particularly outside institute births.

teenage pregnancies and early motherhood which increase the likelihood of high risk pregnancies and deliveries.

The percentage of deliveries attended by skilled health personnel has increased from 15 percent in 1994 to 24 percent in 2000 to 52 in 2005.



Challenges

While maternal mortality rates can be reduced substantially through the presence of skilled health personnel during deliveries, there is a severe constraint due to the dire shortage of health-trained manpower resources and the lack of adequate equipment and facilities in the country. The situation is further compounded by lack of accessibility to health units particularly in the more remote areas.

An important challenge in reducing maternal mortality will depend to a great extent on the RGoB's ability to expand and further strengthen Emergency Obstetric Care (EmOC) facilities and services and their effective utilization by communities. While such initiatives started in 2000 with a significant increase in the number of basic and comprehensive EmOC facilities. There is a need to further strengthen and expand these services, particularly in the context of the widely dispersed and scattered population settlements and difficult terrain.

Some of the other challenges that the country faces in improving maternal health care and reducing MMR are related to cultural and awareness barriers that inhibit widespread contraceptive usage, early motherhood, increasing teenage pregnancies, unsafe illegal abortions, and the lack of information among Bhutanese women on reproductive health and safe motherhood.

Supportive Environment

There is high level and strong political commitment to further reduce the MMR and improve maternal and reproductive health services. Her Majesty Ashi Sangay Choden Wangchuck, in her role as Goodwill ambassador of the United Nations Population Fund (UNFPA), has played a high profile advocacy role in highlighting important reproductive

health issues of safe motherhood practices, adolescent health and teenage pregnancies, and family planning.

The Bhutan Vision 2020 document emphasizes the need to reduce maternal mortality and bring it at par with the average of all developing countries by 2007. The Ninth Five Year Plan document also highlights the fact that MMRs are still unacceptably high despite significant achievements, and identifies related issues such as safe pregnancy and motherhood, teenage pregnancies and family planning, as key areas deserving renewed focus.

At the programme level, under a National Plan of Action formulated in 1997, several activities support the goal of improving maternal health and reducing MMR. Among the most important of these is the Maternal and Child Health (MCH) programme with the specific objective to contribute to the reduction of MMR. The Safe Motherhood and Reproductive Health programme also seeks to reduce MMRs through activities focused on making health services and facilities more "woman friendly", increasing access to antenatal and postnatal care, and increasing births attended by skilled attendants.

Priorities for Development Assistance

- *Improving access to and quality of Reproductive Health Services, particularly antenatal & postnatal care*
- *Strengthening capacity building, particularly for health service providers in rural areas Increasing presence of skilled health personnel during deliveries*
- *Promoting community participation, education & awareness on safe motherhood & reproductive health issues*
- *Enhancing decentralised, multi-sectoral & integrated approaches*
- *Strengthening EmOC Services*
- *Improving advocacy & monitoring*

Monitoring and Evaluation Environment

Data gathering capacities	Fair
Quality of recent information	Weak
Statistical tracking capacities	Fair
Statistical analysis capacities	Weak
Capacity to incorporate statistical analysis into policy, planning and resource allocation mechanisms	Fair
Monitoring and evaluation mechanisms	Weak

GOAL 6: COMBAT HIV, MALARIA AND OTHER DISEASES

TARGET 7	Have halted by 2015 and begun to reverse the spread of HIV/AIDS			
Indicator	1990	2000	2015	Will Goal be met by 2015?
HIV cases detected	0	38	-	Insufficient Data

Status and Trends

The first two HIV cases in Bhutan were reported in 1993. By 2002, 38 individuals had been identified as HIV positive, with thirteen cases detected in 2002 alone. The prevalence was highest for the age groups between 20 and 34, all of them urban cases. In all but one case, the identified HIV patients had apparently contracted the infection through sex, though none were reportedly transmitted through homosexual activity. From among these cases, seven have died so far.

In view of the rising trend of HIV infection, even as the total numbers of HIV cases remain small; this has attracted wide public attention. It is seen as a potentially major public health concern, particularly in the context of the relatively common incidence of Sexually Transmitted Diseases (STDs), the emergence of sex workers in border towns and the high prevalence of the HIV/AIDS in neighbouring countries.

The Health Division already had in place a National STD/AIDS programme in 1988, well before the first reported incidences of the disease. In 1990, a three-year Medium Term Plan was formulated that evolved into the Strategic Medium Term Plan II of 1995 to continue addressing the prevention of sexual transmission of HIV.

The programme activities so far have essentially focused on preventive and advocacy measures such as informing, counselling and educating vulnerable groups, including youths and sex workers; promoting widespread condom usage and safe sex; training health care workers and monitoring the situation through sentinel surveillance. It is planned that in addition to making condoms widely available, voluntary counselling and testing units and HIV surveillance systems are to be established by the end of the Ninth Five Year Plan in all districts, though this is likely to be constrained by the availability of trained counsellors.

Challenges

As the prevalence of HIV/AIDS in the country is still relatively low, the challenges of dealing with it relate more to monitoring and surveillance, preventive and Information Education and Communication (IEC) aspects and developing coping strategies in the eventuality of a rise in the spread of the disease.

The potential danger of the disease spreading in the country is a real threat as the country is adjacent to areas in the region that have high HIV/AIDS prevalence. The high mobility of people and open cross border movements therefore pose significant and real risks. Additionally, the risks of the spread of HIV infection are heightened by the common prevalence of sexually transmitted diseases and low condom usage. Further, there is a disconcerting increase of sex workers in border towns. Developing bilateral cooperative strategies and coordination to monitor and contain the spread of HIV/AIDS will therefore prove a significant challenge.

As the experience of many countries indicates, youth are a particularly vulnerable group with high HIV/AIDS prevalence. With over 51 percent of the country's population being under 20, the issue has a potential significance. The country is faced with the important and challenging task to sensitize, inform and educate the youth in the country about the dangers of HIV/ AIDS, and on related issues of safe sex, condom usage, and dangers of drug abuse. In conjunction with the wide dissemination of information and education, an even more important challenge is to ensure that these activities effectively translate into appropriate behavioural change among and utilized by the targeted vulnerable groups. This could comprise the development of youth friendly facilities to promote effective utilization of available sexual health services, particularly condom usage by youths.

Supportive Environment

Bhutan as a member of South Asian Association for Regional Cooperation (SAARC), along with the other South Asian countries, issued a strong declaration at the 11th SAARC Summit, acknowledging the debilitating and widespread impact of HIV/AIDS and other transmittable diseases and the imperative to evolve a regional strategy to combat these diseases.

Nationally, the programme enjoys high political support and commitment. Her Majesty the Queen, Ashi Sangay Choden Wangchuck, in her role as the UNFPA Goodwill Ambassador has been campaigning strongly about the control of STDs and HIV/AIDS across all districts. The National Assembly also discussed the issue of HIV/AIDS in 2001 and subsequently passed a resolution to further step up preventive measures and information and awareness to prevent and minimize the impact of the disease. Such high-level advocacy initiatives have had a strong impact. Efforts have been made to include HIV/AIDS awareness into the curricula of schools and teacher training institutes.

The various strategies and activities to combat the disease are implemented through the National STDs/ AIDS Control Programme under the Department of Health. A National AIDS Committee was established in 1994 and is backstopped by a National AIDS Technical Committee. At the district levels, Multi-Sectoral Task Force Committees and Working Committees have been established in all districts to take preventive measures and create awareness, while being prepared to deal with any outbreak of the disease.

While Bhutan does not presently have an independent Policy Directive for HIV/AIDS prevention, the RGoB broadly adheres to the WHO recommendations articulated in its

Global AIDS Strategy document. A Protocol for HIV sentinel surveillance exists, but it is acknowledged to require improvements in order to serve effectively as a tool to contain the spread of HIV.

Priorities for Development Assistance

- *Supporting AIDS programme management*
- *Intensifying prevention activities & measures, particularly at local levels through awareness raising*
- *Strengthening effective monitoring & sentinel surveillance systems*
- *Capacity building at national & local levels Strengthening counselling and care facilities*
- *Integrating HIV/AIDS aspects into national health systems*

Monitoring and Evaluation Environment

<u>Elements Of Monitoring</u>	<u>Assessment</u>
Data gathering capacities	Fair
Quality of recent information	Fair
Statistical tracking capacities	Weak
Statistical analysis capacities	Weak
Capacity to incorporate statistical analysis into policy, planning	Fair
Monitoring and evaluation mechanisms	Fair

TARGET 8	Have halted by 2015 and begun to reverse the incidence of Malaria and other diseases			
Indicators	1990	2000	2015	Will Goal be met by 2015 ?
Number of reported malaria cases	9,497	5,935	-	Probably
Number of reported tuberculosis cases	4,232	1,140	-	Probably

Status and Trends

Malaria

Malaria has long been a major public health problem for Bhutan, and is endemic to five districts in the subtropical regions of southern Bhutan and some of the riverine valleys. Together, the two southern districts of Sarpang and Samdrup Jongkhar account for around 75 percent of all reported malaria cases in Bhutan.

Malaria incidence in the country during the 1990s showed a broad downward trend, though it is sporadic and uneven, indicating periods of small malarial outbreaks and/or resurgences. Reported positive clinical malaria over the decade grew from 22,126 positive cases in 1991 to a high of 38,901 in 1994, but then declined steeply to 6,995 in 1998. In 1999 and 2000, malarial cases were at 12,591 and 5,935 respectively (Annual *Health Bulletin*, 2001). Malaria related mortality/morbidity also broadly follows the caseload trend of overall decline, including the slight resurgence in 1999. While there were 62 malaria caused deaths in 1993, there were only 15 malaria related deaths in 2000. The positive development of a marked reduction in malaria cases between 1995 and 2000 (except for an upsurge in 1999) has largely been attributed to the change in insecticides from DDT to synthetic Pyrethroid.

Of the two varieties of malaria prevalent in the country, *P.vivax* and *Pfalciparum*, there has been a steady overall increase of the latter cases in the last few years from 31.5 percent in 1995 to 53 percent in 2001. The fatality of this most severe form of malaria is well documented in many countries. Additionally, this has serious implications for the future control of malaria, as the *Pfalciparum* parasite is well known to be resistant to anti-malarial drugs such as Chloroquine and SP.

The MDG target of arresting the spread of malaria appears to be achievable. Reversing it, however, may be more difficult in light of the significant fluctuations and resurgences that have occurred, not only in the 1990s, but also consistently through the last three decades. The disease therefore continues to remain a major public health concern with more than half of the county's total population exposed to the risk of infection. The health authorities in the country are also highly doubtful that the disease can ever be eradicated totally, and hence the appropriate change in strategy to containment and control rather than eradication.

Tuberculosis

The number of reported tuberculosis (TB) cases in the country declined significantly and consistently from 4,323 cases in 1990 to 1,140 in 2000. The most noticeable shift appears to have occurred between 1993 and 1994 after which detected cases dropped from over 4,000 to less than 2000 thereafter. TB related mortality rates for the decade, however, were erratic and fluctuated between 23 and 62 deaths a year with no discernible trend either way.

On average, 58 percent of TB patients are in the age group between 15 and 44 years. Most of the TB cases in the country are of the pulmonary kind, making up around 75 percent of all cases. A perceptible trend is the decline in pulmonary TB while cases of extra pulmonary TB have actually seen a slight increase from 1995 to 2000.

In line with the revised global TB control strategy, DOTS (Directly *Observed Treatment Short-Course*) was adopted throughout the country in 1997. This has had a noticeable impact on cure rates, which now stand at over 85 percent, a highly positive trend. Improving access to DOTS and enhancing its utilization is now a significant priority for the RGoB. The Cohort Reporting System was introduced in 2000, which is expected to improve reporting quality and enhance information and data reliability.

The considerable reduction of cases for TB strongly indicates that part of the MDG target of halting the incidence of the disease has been achieved and the process of reversing the trend has already started and is likely to be achieved by 2015.

Challenges

Tackling malaria in Bhutan is constrained to an extent as malarial areas are for the most part in the southern border areas. Conducting prevention and control related activities such as the spraying of breeding sites require concerted joint coordination and efforts. The free movement of people along the border compounds the difficulties and helps to spread the disease. Sporadic cases are also regularly detected in the non-malarial regions of the mountainous North and central zones, caused through the increasing mobility and migration of people.

Some of the other constraints and challenges faced in battling malaria relate to an increasing tolerance and resistance to insecticides and drugs by mosquitoes; shortage of skilled technicians and researchers; lack of resources and adequately equipped health infrastructures; weak inter-sectoral collaboration and programme management at local levels; and the inaccessibility of large tracts of malaria endemic areas due to dense forests.

Progress towards the MDG target of halting and reversing the trend of malarial incidence in the country will also be largely affected by the availability of financial resources related to the procurement of insecticides and treatment drugs, which form a major expenditure for the programme.

Supportive Environment

The National Malaria Eradication Programme (later renamed as the National Malaria Control Programme, or NMCP) was launched in 1964 and has since spearheaded the various activities to fight the spread of malaria in Bhutan, including conducting research on drug sensitivity and entomological aspects. The programme has gone through various stages of evolution from a vertical strategy to a partial integration to a full fledged integration into the general health care delivery system. Control strategies likewise have changed from Indoor Residual Spraying (IRS) with DDT to IRS with synthetic Pyrethroid, and then to the present day Insecticide Treated Bed Net and bioenvironmental control approaches. The programme envisages the need to further strengthen the facilities, related human resources and other capacities at the, various malaria health centres.

At the district level in malaria endemic areas, the health authorities have begun forming Rapid Response Teams to deal with any potential outbreaks of malaria.

Many of the above programme activities and costs for procurement of insecticides and treatment drugs have been supported actively by a bilateral donor. While Bhutan has broadly followed the strategic intervention guidelines of the global Roll Back Malaria (RBM) strategy, it is not comprehensively engaged in the RBM initiative and process as Bhutan is not included among the RBM areas in the region.

Priorities for Development Assistance

- Procuring *insecticides* & treatment drugs
- *Strengthening* of programme management and capacity development for implementation & research
- Enhancing *Insecticide Treated Bed Net coverage*
- Supporting intensification of malaria awareness campaigns and greater community participation ,
- Continuing drugs sensitivity and insecticide susceptibility research
- Enhancing access to DOTS (*Directly Observed Treatment Short-Course*)

Monitoring and Evaluation Environment

Data gathering capacities	Fair
Quality of recent information	Fair
Statistical tracking capacities	Weak
Statistical analysis capacities	Weak
Capacity to incorporate statistical analysis into policy,	Fair
Monitoring and evaluation mechanisms	Fair

GOAL 7: ENSURE ENVIRONMENTAL SUSTAINABILITY

TARGET 9 Integrate the principles of sustainable development into country policies and programmes and reverse loss of environmental resources				
Indicators	1990	2000	2015	Will Goal be met by 2015 ?
Proportion of land area covered by forest	73%	73%	-	Probably
Proportion of land protected through soil, moisture, water and forest conservation to protect biological diversity	23%	26% "	-	Probably

Status and Trends

Bhutan has a rich natural endowment with an extremely abundant forest cover of 73 percent and with 26 percent of its territory established as protected areas to conserve its

rich biodiversity. Additional areas constituting 9 of the total land area have also been designated as biological corridors that connect the protected areas.

Environmental conservation has always enjoyed a high priority in the RGoB's vision of holistic development and the cause continues to be an important and integral consideration in the development agenda. The holistic concept and principles of sustainable development closely match the Bhutanese development philosophy and are integrated into the national policies and programmes. The sensitivity towards and prioritisation of environmental conservation is also reflected in the numerous legislations adopted and in the institutional strengthening and capacity building activities during the 1990s.

The National Environment Commission (NEC), formed in 1990, formulated a National Environment Strategy for the country in 1998, known as the Middle Path. This build-up of the institutional and policy framework was accompanied by the passage of critical environmental legislation. The most notable of these relate to the adoption of the Environmental Assessment Act 2000, the Forest and Nature Conservation Act 1995, the Mines and Minerals Act 1995, and the National Plant Quarantine Act 1993.

The RGoB is also in the process of formulating an important piece of legislation, the National Environment Protection Act (NEPA), which is likely to be enacted and enforced within the Ninth Five Year Plan period. At the international level, Bhutan is a signatory to the Convention on Biological Diversity and the UN Framework Convention for Climate Change.

Challenges

While Bhutan's environmental track record has been enviable, there are certain challenges emerging that could seriously compromise the future state of the environment.

Among the key challenges confronting the goal of ensuring environmental sustainability is the rapid population growth that Bhutan is experiencing. While the growth level has come down from 3.1 percent, the present growth rate of 2.5 percent still poses a serious threat to the country's environmental resources.

With increasing pressures on grazing land, agriculture, and forest resources, the protection of forest lands and conservation of biological diversity are expected to become ever more difficult. Bhutan's fuel wood consumption per capita is particularly high. Overgrazing by domestic livestock has further been identified as a serious environmental threat with great potential to impact forest regeneration and effect changes in natural vegetation. Recently, air and water pollution near industrialised and urban areas have been of concern.

The modernization and economic development of the country invariably require the establishment of extensive road infrastructure. This is an important priority for the RGoB and regarded as vital for alleviating rural poverty. Given the high vulnerability and fragility of mountain eco-systems and the lack of advanced construction techniques and expertise, the building of an extensive network of mountain highways and feeder roads in an environment-

friendly manner will prove to be a major challenge. This would similarly apply to urban and development associated infrastructure building.

Incorporating Environmental Impact Assessment (EIA) and relevant environmental friendly practices in development and industrial projects results in increased associated investment and maintenance costs. The sacrifices of foregoing immediate economic gains to further protect natural resources, and the costs for maintaining and managing environmental conservation, collectively create an enormous burden on scarce resources. Viewed within the context of declining international donor assistance for core environmental management activities, the financial implications form a key challenge and debilitating constraint, which could have severe implications for the future state of the environment.

There are also several capacity related constraints pertaining to the management, monitoring and evaluation of the state of the environment such as the:

- *lack of a nationwide inventory of ecosystems;*
- *paucity of environmental data & research • information;*
- *absence of a set of appropriate environmental indicators; and*
- *shortage of qualified & trained environmental practitioners.*

Supportive Environment

There is full and strong national support for ensuring environment sustainability in the country. This is best exemplified by the mandate of the National Assembly and the pledged commitment of the Royal Government to maintain at least 60 percent of the country under forest cover in perpetuity. The development vision of the country as articulated in the Bhutan Vision 2020 document further places a very high accord to the principles of environmental conservation and sustainable development.

The various policies, institutional, legislative and regulatory developments already outlined in the status and situational context, serve as the important supportive framework for achieving the MDG target. Additionally, the NEC introduced mandatory EIAs for all large-scale projects and is in the process of applying this requirement for all physical infrastructure projects, to be monitored by the EIA unit in the Commission. EIAs are therefore being effectively integrated into the development planning and the environmental management process. Watershed management has also been identified as an important tool through which environmental conservation can be furthered. The Wang Watershed Management Project is already under implementation and there are plans to undertake similar projects for the four other major watersheds. Processes to develop a national watershed management strategy are also underway.

Bhutan Trust Fund for Environmental Conservation

The Bhutan Trust Fund for Environmental Conservation (BTF), the world's first environmental trust fund, was launched in 1991 with the intent to help the country sustain its environmental conservation activities. The trust fund, with an endowment of US\$ 35

million, contributed by a consortium of donors and the RGoB, finances from its income various projects and activities in:

- environmental & conservation education*
- integrated conservation and development*
- biodiversity inventory & information*
- systems*
- planning & management of protected areas*
- strengthening national environmental institutions*

The BTF has laid the foundation for an effective long-term and sustainable conservation programme in Bhutan, and also serves as a global model that is being replicated elsewhere.

The RGoB developed some innovative funding mechanisms such as the Bhutan Trust Fund for Environmental Conservation (BTF) (see box above) and the unique multi-partnership of countries under the Sustainable Development Agreement, which have greatly enhanced the financial and long-term sustainability of environmental conservation activities.

Priorities for Development Assistance

- *Strengthening capacities in information systems and research; institutional development & popular participation; policies & legislation; training & education; and monitoring and evaluation & enforcement at all levels*
- *Strengthening institutional capacities to undertake EIAs*
- *Improving environment databases and mitigation options for all sectors towards implementing effective and appropriate responses to climate change*
- *Formulating & implementing the National Environment Action Plan to implement recommendations of the National Environment Strategy*
- *Preparing and implementing watershed*

- *Management plans*
- *Developing a nationwide inventory of eco-systems Supporting the BTF*
- *Participating at international conferences and implementing activities and enforcing the provisions of these conventions*

Monitoring and Evaluation Environment

Elements Of Monitoring	Assessment
Data gathering capacities	Weak
Quality of recent information	Weak
Statistical tracking capacities	Weak
Statistical analysis capacities	Fair
Capacity to incorporate statistical analysis into policy, planning and resource allocation mechanisms	Weak

Monitoring and evaluation mechanisms

Fair

TARGET 10	Halve, by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation			
Indicators	1990	2000	2015	Will Goal be met by 2015 ?
Percentage of population without access to safe drinking water sources ³	55%	22%	27%	Achieved

Status and Trends

78 percent of Bhutan's population had access to safe drinking water in 2000 as compared to 45 percent in 1990. In the urban areas, access to safe drinking water as of 2000 is at 97.5 percent, while in the rural areas it is estimated to be around 75 percent. However, while coverage in rural areas has increased significantly, many people still have to walk long distances to fetch water from streams and springs, thus limiting water use.

The Rural Water Supply and Sanitation (RWSS) Programme was initiated in 1974 to improve the health of the rural population by reducing the incidence of water-borne and related diseases. Under the programme, 2,300 water supply schemes, mostly of the gravity fed type, have been constructed to provide safe drinking water to about three fourths of the rural population. The notable improvements in the health standards of people in rural areas can be attributed, to a certain extent, to this programme, which has greatly reduced water and sanitation related diseases.

The RGoB's target is that by the end of the Ninth Five Year Plan in 2007, 100 percent of the population will enjoy access to safe drinking water. This will require the annual construction of 130 new schemes, in addition to rehabilitating and maintaining numerous old schemes.

The six major towns in the country have been provided with proper and modern water supply schemes, and the issues are more related to qualitative and quantitative supplies of water than access. In order to enhance conservation and the awareness of the cost and value of water supplies, nominal charges were levied to urban water consumers after the completion of the urban water supply schemes.

As the overall percentage of people without access to safe drinking water decreased from 55 percent in 1990 to 22 percent in 2000, the MDG target has already been achieved.

Challenges

³ Safe drinking water in the Bhutanese context is defined as water from piped or protected spring sources.

Increasing and maintaining access to safe drinking water is a more pressing issue in rural than in urban areas. A critical challenge in maintaining and further enhancing safe and improved water coverage to rural populations will depend greatly on the maintenance and rehabilitation of older water supply schemes. It is estimated that around 800, or roughly one third of existing schemes, must be repaired to avoid contamination and total dilapidation of the structures. Meeting the goal of attaining complete safe water coverage will not only require the annual construction of many more new schemes, but the rehabilitation of at least 150 older schemes every year until the end of the Ninth Five Year Plan.

There is a need to identify and use alternative technologies for areas where water sources are scarce, and to develop simple treatment facilities that can be operated and maintained by communities without clean water sources. Given the significant costs and community inputs required for maintaining and repairing rural water supply schemes, the durability, lifespan and simplicity of the appropriate technology would be a prime concern in considering such alternatives.

Enhancing community participation in building, monitoring and maintaining rural water supply schemes is integral to the success of the RWSS programme. However, this is constrained by the lack of capacity and a feeble sense of ownership of the schemes that is further compounded by communal disputes over water rights. The burdens of cost sharing for communities through labour contributions are also increasingly felt as development activities increase, and are exacerbated by the steady migration of young people from villages to towns.

While the Royal Government continues its commitment to build water and sanitation infrastructure in rural institutions such as schools, basic health units and religious institutions, their coverage level remains lower than the national average. Attaining universal coverage for institutional water supply will thus prove a significant challenge.

Supportive Environment

A royal decree was issued in 1992 that stressed the great importance of access to and use of safe drinking water and sanitation facilities as an integral component of sustainable development. This has greatly spurred on the initiatives to improve the water supply and sanitation situation in the country.

While no administrative policies or legislative framework on water supply and related rights exists as yet, the Bhutan Water Vision, Water Act and Water Policy are being formulated to create an enabling environment for the integrated and efficient management of water resources. Processes to develop a national watershed management strategy are also underway.

In 1997, the first pilot National Baseline Water Survey was conducted to estimate national water quality standards. Reflecting the growing concerns of water pollution near urban and

industrial centres and mines that were found in the survey, water monitoring programmes are to be undertaken on a periodic basis.

Institutionally, the Public Health Engineering section of the Department of Health now implements the activities relating to rural water supply. At the community level, water management committees have been formed and water caretakers trained to oversee the operation and maintenance of the water schemes. This, however, has not proved to be very successful, judging by the many schemes that are poorly maintained and in dilapidated condition, with water quality monitoring aspects largely ignored.

The ultimate objective would involve the full transfer of the implementation and management of the RWSS schemes to the communities themselves, with relevant technical backstopping and resources. However, this is currently seen as impractical given the lack of appropriate capacities in communities and the absence of a legal and policy framework.

Priorities for Development Assistance

- Increasing clean & improved water supply coverage in rural areas through the RWSS programme
- *Rehabilitating existing water supply schemes*
- *Strengthening community participation & capacity building to plan, manage & maintain rural water supply infrastructure*
- *Developing & implementing alternative clean water source technologies*
- *Planning & implementing urban water supply for remaining urban & satellite towns*
- *Establishing & monitoring water quality standards through surveys and programmes*
- *Formulating & subsequently implementing the mandate of the Water Act/Policy.*

Monitoring and Evaluation Environment

Elements Of Monitoring	Assessment
Data gathering capacities	Fair
Quality of recent information	Fair
Statistical tracking capacities	Weak
Statistical analysis capacities	Weak
Capacity to incorporate statistical analysis into policy, planning and	Fair
Monitoring and evaluation mechanisms	Fair

LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
BHU	Basic Health Unit
BTF	Bhutan Trust Fund for Environmental Conservation
CPR	Contraceptive Prevalence Rate
EFA	Education For All
EIA	Environment Impact Assessment
GYT	Geog Yargay Tsogchung (Block Development
HDI	Human Development Index
HIES	Household Income and Expenditure Survey
HIV	Human Immunodeficiency Virus
IDD	Iodine Deficiency Disorder
IEC	Information, Education and Communication
IMR	Infant Mortality Rate
KAP	Knowledge, Attitude, Practice variation KABP with
MCH	Maternal and Child Health
MDT	Millennium Development Target
MMR	Maternal Mortality Rate
MRE	Most Recent Estimate
M+E	Monitoring and Evaluation
n.a.	Not available
NCD	Nature Conservation Division
NEC	National Environment Commission
NES	National Environment Strategy
NHDR	National Human Development Report
NHS	National Healthy Survey
NMCP	National Malaria Control Programme
Nu	Ngultrum, the Bhutanese currency
NWAB	National Women's Association of Bhutan
PHES	Public Health Engineering Section
PEM	Protein Malnutrition
STD	Sexually Transmitted Diseases
TB	Tuberculosis
TBA	Trained Birth Attendant
U5MR	Under-Five Mortality Rate
RGoB	Royal Government of Bhutan
RNR	Renewable Natural Resources
TFR	Total Fertility Rate
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VHW	Village Health Worker
WFP	World Food Program
WHO	World Health Organization