

**FINANCIAL SUSTAINABILITY PLAN**

**FOR**

**THE EXPANDED PROGRAMME OF**

**IMMUNIZATION**

Vaccine Preventable Disease Programme

Department Of Public Health  
Ministry Of Health  
Royal Government of Bhutan  
THIMPHU : BHUTAN

## Table of Contents

Executive Summary		4
<b>Section 1: Macroeconomic and Health sector context</b>		
1.1	Macroeconomic context	
1.1.1	Country background:	9
1.1.2	Socio-economic status:	9
1.1.3	Economic forecast:	12
1.1.4	Political stability:	13
1.2	Health sector context	13
1.2.1	Health trends:	14
1.2.2	Trends in financing for the health sector:	16
1.2.3	Health sector reforms:	17
1.2.4	Financing essential drugs and vaccines:	19
1.2.5	Global Fund:	20
1.2.6	Government and donor relations:	20
1.2.7	National health policy:	21
1.2.8	Constraints of the health sector:	21
<b>Section 2: Programme objectives and strategies</b>		
2.1	Main programme objectives:	24
2.2	Main programme strategies:	24
2.3	Trends in programme performance	
	2.3.1 Coverage trends:	25
	2.3.2 Vaccine wastage trends:	25
	2.3.3 EPI disease trend:	26
2.4	Emerging vaccine preventable diseases	
	2.4.1 Rubella:	27
	2.4.2 GAVI support for DTP-HepB-Hib:	27
	2.4.3 Japanese Encephalitis:	28
	2.4.4 Dengue and Dengue Hemorrhagic Fever:	28
2.5	Strategy to reach the un-reached:	28
2.6	Challenges	
	2.6.1 Wastage:	29
	2.6.2 Reaching the un-reached:	29
	2.6.3 Good coverage and target reporting:	30
2.7	Immunization and GAVI:	30
2.8	Partner involvement in EPI:	31

Section 3: Past costing and financing	
3.1	Overview of program costs: 32
3.2	Overview of past program cost indicators: 33
3.3	Overview of past program financing: 33
3.4	Overview of past program financing indicators: 34
Section 4: Future resource requirements, financing and gaps:	35
4.1	Calculation of target infants for immunization 35
4.2	Assumption of wastage rates 35
4.3	Scenario Analysis 35
4.4	Sources of Secure / Probable Funding 38
Section 5: Financial Sustainability Strategies	
5.1	Current Situation 42
5.2	Bhutan Health Trust Fund 42
5.3	Scenario Analysis 43
5.4	Opportunities for generating program resources 43
5.5	Improving the reliability of existing resources 46
<b>References</b>	<b>47</b>
Section 6: Stakeholder Comments:	48

## **Executive Summary**

### **Introduction:**

The Kingdom of Bhutan is a small landlocked South Asian country located in the Eastern Himalayas, covering an area of 38,394 square kilometres. More than 72.5% of the area is covered by forest. The total GDP estimated in 2003 was Nu 24,895 million, and the GDP per capita was USD 775 in the same year. Bhutan has an average GDP growth rate of 6.6%.

The socio-economic development in Bhutan started with the launching of the First Five Year Plan in 1961 and ever since, modern health care delivery system has also been gradually expanded throughout Bhutan. The health infrastructure has improved both in number and quality through successive Five year Plans and by now a well established infrastructure and service delivery network is in place. The consistent and systematic expansion of the health services with focus on primary health care, education and safe water supply provision has had major impact on the overall health and well being of the people. Today Bhutan has a gross primary school enrolment rate of 84.2%, life expectancy of 66.1 years, and adult literacy of 54%. Bhutan was ranked 0.551 on the Human Development Index in 1998 (Bhutan National Human Development Report).

Bhutan signed the Alma Ata Declaration in 1978 and adopted primary health care (PHC) approach to health delivery in 1979. Currently, the health care is provided free of cost to all the people in the country through a network of 29 hospitals, 166 Basic Health Units (BHUs) and 455 outreach clinics (ORCs) which are spread throughout the country.

### **The development policy of Bhutan:**

The central unifying development concept that is preferred above all others to guide Bhutan's future direction is the goal of maximizing gross national happiness. This concept propounded by His Majesty King Jigme Singye Wangchuck has always been at the core of the nation's development philosophy and will provide the underlying rationale for development objectives in the future. The ultimate development vision of gross national happiness is to be achieved partly through the promotion and implementation of policies and programmes that aim at expanding human potential, opportunities, choices and well being of all people. Significant achievements have been made in bringing social services to the population since the start of the First Five Year Plan.

The long-term objectives of the health services is to improve the quality of life by promoting the health of the population and providing better health care in the spirit of social justice and equity.

## **The Expanded Programme on Immunization:**

The Expanded Program on Immunization was first launched on 15 November 1979 coinciding with the International Year of Child with the objective of reducing the seven vaccine preventable diseases (TB, Diphtheria, Pertussis, Tetanus, Polio, Measles & HepB). Tetanus Toxoid (TT) immunization of pregnant mothers was introduced in 1983. And in 1987 the National Plan of Action for the acceleration of EPI was formulated. The strong government commitment and the community mobilization resulted in the achievement of the Universal Child Immunization (UCI) in 1991.

Bhutan joined the Global Polio Eradication programme in 1995. National & Sub-National Immunization days were implemented from, 1995-2002. Bhutan has been able to maintain “Zero” polio status since 1986. In mid 1996 Hep B vaccine for children under one year of age was introduced as an integral part of the programme. Neonatal tetanus has not been reported in the country since 1994 clearly indicating that immunization in Bhutan has been a very successful public health intervention. Encouraged by the success of the programme, the government has taken a decision to add newer vaccines into the child immunization schedule, if indicated by the disease burden.

EPI services have been fully integrated into the general health services and mainly with Maternal Child Health/Family Planning in particular. It is delivered through existing Hospitals, BHUs and ORCs. Overall immunization services are aimed for effective coverage with all seven antigens aimed at all infants less than one year of age and to all pregnant women and women of child bearing age.

## **Partner Involvement in EPI:**

WHO and UNICEF are key partners in delivering immunization service to the mothers and children of Bhutan. Their support to the EPI program is mainly in the areas of consultancies and short-term human resource development focusing on updating knowledge and skills in vaccine delivery and cold chain management. Vaccines & injection equipments are procured through JICA and GAVI support. However, there is no agreement signed between UNICEF, JICA and Ministry of Health specifying the period of support for immunization service. JICA provides support on request through UNICEF.

Vaccines are procured annually through UNICEF-Japan multi-bilateral assistance to EPI program for Bhutan based on the immunization requirement and as per the National Essential Medicine List using WHO/UNICEF recommended forms. The firms are required to produce the necessary pharmaceutical related documents in order to qualify for the international bids. Prior to calling for bids, the recommended firm negotiates with the National Drug Regulatory Authority (NDRA) of the Ministry of Health. Competent officials based on the competitive price, pack size of vaccines, shelf life, possession of necessary documents and route of shipment make the selection of vaccine.

## **Indicators for the Health sector:**

The health sector has made remarkable progress in all areas of health developments over the last four decades since the modern health service was introduced in the country. The Infant Mortality Rate has reduced from 102.8 in 1984 to 60.5 in 2000, and Maternal Mortality Rate has reduced from 7.7 in 1984 to 2.55 in 2000. Population Growth Rate also has seen a marked decrease from 3.1 in 1994 to 2.5 in 2000. The life expectancy at birth has increased remarkably from 47.5 in 1985 to 66.1 in 2003 (Statistical Yearbook of Bhutan 2003). These vital indicators speak well of the rapid socio-economic development in the country.

## **Government-Donor relations:**

In the past, donors played a significant role in supporting the health sector. However, to reduce over dependence on donors, the Government is now taking steps to bear the major portion of the cost. On an average the Royal Government now bears about 50% of the total budget outlay. The main development partners in the health sector are Government of India, DANDIA, UNCIEF, UNFPA and other international Non Governmental Organizations.

The Royal Government has maintained good relations with the development partners all through the years. There never has been a policy shift that risked the government and donor relations. In health, the working relationship with the partners have been exceptionally good, and its outcome is well reflected by the fact there has been increasing external assistance over the years. However, the nature of donor assistance is changing from direct program support to budget support. For instance DANIDA, one of the major donors' assistance to health is now channelled through Ministry of Finance as budget support, in which case, the public health programs traditionally dependent on external program support loose out in competing priorities. This change is being instituted basically to give a balanced fund allocation to all programs proportionate to the set priorities. And as such, this policy shift will not impact negatively on the immunization service since Vaccine Preventable Disease Program (VPDP) continues to receive government's topmost priority. In fact the Ministry of Health is intending to move a budget head for the immunization service with full justification for priority share from the donor budget support provision in the next round of annual budget proposal to the government. In view of the priority importance attached to the immunization service by the government, it is expected that the proposal will be given favourable consideration.

## **Debt relief prospects:**

Given Bhutan's preference for grant aid and its caution about incurring debt even on concession terms, its overall debt situation has been relatively comfortable with debt servicing at manageable levels. Bhutan's debt policy has been judicious and the Royal Government of Bhutan (RGOB) chooses to maintain its borrowing comfortably within its capacity to service debt, and avoid taking loans not meant for development programmes. To this end the Royal Government also adopted certain strict evaluation procedures and criteria that take into account grant elements, repayment schedules, foreign exchange risks, hidden costs, economic rates of return, and viability. Therefore, Bhutan is not considered a Highly Indebted Poor Country (HIPC) country, and for the same reason, will not benefit from the multilateral World Bank debt relief scheme. The national debt to GDP ratio is around 67% and debt services ratio is under 4%.

The development of hydropower and power intensive industries are expected to grow to become an important sector that not only will provide a much needed diversification of the economy but will also contribute significant foreign exchange earnings and creates employment opportunities. Hydro power has been the country's largest export for the last fifteen years and now accounts over 40% of the country's total revenue. The powerful and fast flowing rivers afford the country enormous hydropower potential estimated at 30,000 MW, which remains still largely untapped. One of Bhutan's mega hydro projects, Tala Hydro Project, which has a capacity of generating 1020 MW of electricity is expected to be commissioned by March 2005. The export of power from this project is expected to boost the GDP and help to reduce the dependency on foreign aids. Similar types of hydro projects are in the pipeline.

During the 9th Five Year Plan (9FYP), Ministry of Health and Education has been allocated 10.7% the total planned outlay of Nu 70 billion. Health will receive 6.4% of the planned budget during the 9FYP. And for sometime in the future Bhutan is expected to continue receiving substantial bilateral and multilateral aid.

## **Bhutan Health Trust Fund:**

A highly relevant issue to for the Health sector is that of the future sustainability of health care in the country, particularly with regard to the most critical components of primary health care. In order to ensure the future sustainability and availability of a permanent source of fund to meet the cost of essential drugs and vaccines for the primary health care system in the country, the Government has established a Health Trust Fund. The Bhutan Health Trust Fund (BHTF) has been created with the noble objective of providing basic health care free of cost to the Bhutanese citizens at all times. This is in keeping with the

desire of His Majesty the King. Of the targeted capital fund of US\$ 24 million, the contributions to the fund now stand at US\$ 17.9 million. The income generated from the fund will be used to purchase the most essential vaccines and medicines required for the hospitals and BHUs. Therefore the operationalization of the Bhutan Health Trust Fund represents an important activity that will help achieve an equitable and a sustainable primary health care system in the country.

### **Political Stability:**

Bhutan enjoys a relatively stable political situation in the region. The Bhutanese citizens have enjoyed peace and prosperity since 1907 with the crowning of His Majesty the King, Sir Ugyen Wangchuck as the first hereditary king of Bhutan and it was because of this stable environment that Bhutan has been able to make rapid socio-economic development progress in a short span of time.

### **Government's prioritisation:**

The Royal Government of Bhutan has been placing priority on the Health services and as such, the Ministry of Health and Education was bifurcated in July 2003, thus laying a better focus on the health services in the country. In pursuit of sustainability, the Health Trust Fund was established to finance essential drugs and vaccines. The fund has passed US\$ 17 million mark and is slowly approaching the targeted US\$ 24 million. Resource mobilization for this noble cause is a continuing process.

The Government has always accorded a high priority to the social sector. Policy of self-reliance and sustainability will be pursued in view of limited resources generated by the government and high dependency on external aid.

It is expected that the present trend in financing and supporting the health sector by the government and donors will continue. It is also assumed that traditional collaborating partners like GOI, DANIDA, WHO, UNICEF, UNFPA, JICA, etc will continue to provide financial and technical assistance.

# **Bhutan – Financial Sustainability Plan**

## **Section 1 - Macroeconomic and Health Sector Context**

### **1.1 - Macroeconomic Context**

#### **1.1.1 Country Background**

The Kingdom of Bhutan is a small landlocked South Asian country located in the Eastern Himalayas, covering an area of 38,394 square kilometres. More than 72.5% of the area is covered by the forest. From the rolling plains of India, the mountains of Bhutan rise to their misty heights. The southern border touches with four Indian states of Sikkim in the far west, West Bengal, Assam, and Arunachal Pradesh in the far East. In the north, the mighty and majestic Himalayas form the natural border with the Tibetan Province of China.

Administratively, the country is divided into 20 Dzongkhags (districts) and these are further divided into 202 geogs (blocks). Each Dzongkhag is headed by a Dzongda (governor) appointed by the central government. The Dzongda is the overall in-charge of over all socio-economic development activities in the Dzongkhag.

Bhutan is the least populated country in the South East Asian Region. In 2003 (NSB) the total population of Bhutan was estimated to be 734,340 with the growth rate of 2.5%. On an average 79% of the population reside in the rural areas. The average size of the household estimated in 2000 was 5.53. The next round of census is scheduled for 2005.

#### **1.1.2 Socio-Economic Status**

The total GDP estimated in 2003 was Nu 24,895 million, and the GDP per capita was USD 775 in the same year. Bhutan has an average GDP growth rate of 6.6%.

Bhutan is predominantly a subsistence agrarian economy where 80% of the population is engaged in agricultural farming. The share of agriculture to the GDP remains at 34.3% as on March 2003. GDP has increased by 6.5% during 2003. Inflation rate has decreased to 1.3% compared to 2.7% during 2002. A total foreign reserve of USD 366.71 million provides sufficient security to cover around 22 months of imports including an Indian rupee reserve of 3,575.920 million as of December 2003.

The consistent and systematic expansion of the health services with focus on primary health care, education and safe water supply provision has had major impact on the overall health and well being of the people. Today Bhutan has a gross primary school enrolment rate of 72%, the life expectancy of 66.1 years, and adult literacy of 54%. Bhutan ranks 0.551 in 1998 (Bhutan National Human Development Report) on the Human Development Index.

**Table 1: Comparative Socio-Economic Indicators for Bhutan**  
(National Statistical Bureau)

Indicators	June 1998	March 2003	March 2004
<b>INCOME (2002)</b>			
GDP in Million Nu	11,714	24,895	29,086
Per capita GDP in US\$	551	755	835
Average GDP growth rate (%)	6.7	6.6	6.7
Share of agriculture to GDP	38.6	34.3	32.7
Savings as % of GDP	26.3	20	28.5
Investment as % of GDP	44.4	48	49.7
Export of goods & Services as % of GDP	30.3	23.3	20.8
Import of goods & services as % of GDP	38.6	43.3	40
Inflation rate (%)	6.6	2.3(*02)	1.55(**)
Foreign exchange reserves (MUS\$) @ US\$	210.7	303.9	344.97
Rupees 4,168.31 mill	165.9	244.5	252.89
(Exchange base rate US\$=Nu 45.27)	44.8	59.3	92.08
<b>PUBLIC FINANCE (Budget Appropriation for Financial year 2003/2004)</b>			
Government Revenue receipt (M Nu)	2,931.5	5,100.2	5,100.2
Tax revenue	1,360.9	3,086.6	3,086.6
Non tax revenue	1,570.6	2,013.6	2,013.6
Govt expenditure (M Nu)	2562.7	4,597.3	4,863.8
Current	3,662.1	6,318.8	6,024.2
Capital	449.5(*98)	28.3	73.6
Net Lending	-	240.3	240.3
Repayments	-	147.9	185.8
Dollar loan (Million US\$ as of Dec. 2003)			
<b>HUMAN RESOURCE</b>			
Estimated Population In 2003	6,00,000	7,16,424	734,334
Population growth (%)	3.0	2.5(d)	2.5(d)

Given Bhutan's preference for grant aid and its caution about incurring debt even on concession terms, its overall debt situation has been relatively comfortable with debt servicing at manageable levels. Bhutan's debt policy has been judicious and the Royal Government of Bhutan (RGOB) chooses to maintain its borrowing comfortably within its capacity to service debt, and avoid taking loans not meant for development programmes. To this end the Royal Government also adopted certain strict evaluation procedures and criteria that take into account grant elements, repayment schedules, foreign exchange risks, hidden costs, economic rates of return, and viability. Therefore, Bhutan is not considered a Highly Indebted Poor Country (HIPC) country, and for the same reason, will not benefit from the multilateral World Bank debt relief scheme. The national debt to GDP ratio is around 67% and debt services ratio is under 4%.

The Government of Bhutan has initiated a Poverty Reduction Strategy Paper (PRSP) process as a part of the broader ongoing efforts to combat poverty. The main objectives of the PRSP are to strengthen the strategic framework for poverty reduction, improve donor coordination, and to build support for new initiatives in public expenditure management and poverty monitoring and assessment system. To institutionalise Poverty Monitoring and Assessment System, the Government has identified the Department of Planning as the focal agency responsible for poverty monitoring and assessment that will be integrated within the overall Planning and Information Network system being developed in the Department of Planning.

To this effect, a series of surveys like the Household Income and Expenditure Survey 2000, Bhutan Poverty Assessment and Analysis 2000 and The Bhutan Living Standard Survey 2003 have been conducted. Based on the surveys, strategies for the delivery of social services include the following:

- (a) Continuation of the policy of free universal primary education and basic health care;
- (b) In the Health sector, the strategies include the targeting of health services to the hitherto un-reached communities. In addition, intensification of reproductive health services and safe motherhood and child survival programs will receive priority.
- (c) Other interventions focus on intensifying prevention and control of prevailing (eg Malaria, TB and ARI) and emerging (e.g. heart disease) problems.
- (d) Innovative means of enhancing the mental well being of the disadvantaged will be promoted through community based rehabilitation and mental health services.

The strengthening of the poverty monitoring and assessment system is a long-term process but is central to the effective implementation of poverty reducing programs. The improvements of statistical capacity in the years ahead will provide a sound underpinning for future PRSP activities.

### 1.1.3 Economic Forecast

Good economic forecast for the future- Bhutan's GDP expected to grow by around 7% after 2004. The country's future growth areas are in the modern sector. The development of hydropower and power intensive industries are expected to grow to become an important sector that not only will provide a much needed diversification of the economy but will also contribute significant foreign exchange earnings and create employment opportunities. Hydro power has been the country's largest export for the last fifteen years and now accounts over 40% of the country's total revenue. The powerful and fast flowing rivers afford the country enormous hydropower potential estimated at 30,000 MW, which remains still largely untapped. One of Bhutan's mega hydro projects, Tala Hydro Project which has the capacity of generating 1020 MW of electricity is expected to be commissioned by March 2005. The export of power from this project is expected to boost the GDP and help to reduce the dependency on foreign aids. Similar types of hydro projects are in the pipeline.

Bhutan's goal of economic self-reliance will be within reach. The key driver for growth will be the development of Bhutan's hydroelectric power and construction projects connected to this industry, when the Tala Project begins to export electricity to India. The next service sector that will make significant contribution to the country's revenue is the tourism.

Consequent upon the fall in the price of rice and low inflation rate in India, Bhutan is currently enjoying the lowest inflation rate recorded since 1980. Bhutan's currency, the *ngultrum*, will remain tied at parity to the Indian *rupee*, and India will become an even more important source of funding for Bhutan.

**Table 2: Selective Economic Indicators for Bhutan**

	1999	2000	2001	2002	2003
GDP at market prices (NGU Millions)	19,161	21,911	25,278	29,086	33,159
GDP (US\$ Millions)	\$430.6	\$574.6	\$507.7	\$571.5	\$711.9
Real GDP growth (%)	7.70%	5.50%	7.10%	6.70%	6.50%
Consumer price inflation (average %)	6.90%	4%	3.40%	2.50%	1.60%
Population	646,134	662,287	678,844	695,816	713,211
Total external debt (US\$ Millions)	\$183.8	\$203.3	\$265.2		
Exchange rate (average NGU:US\$)	43.06	44.94	47.19	48.61	46.58
GDP Per Capita (US\$)	\$666	\$868	\$748	\$821	\$998

Public expenditures have risen by 3% from 2002/03. Health alone will account for 11 % of total public budget allocation for the 2004-2005 fiscal year. During the 9FYP Ministry of Health and Education has been allocated 10.7% the total planned outlay of Nu 70 billion. Health will receive 6.4% of the planned budget during the 9FYP. And for sometime in the future Bhutan is expected to continue receiving substantial bilateral and multilateral aid.

#### **1.1.4 Political Stability**

Bhutan enjoys a relatively stable political situation in the region. The Bhutanese citizens have enjoyed peace and prosperity in the since 1917/1907. And it was because of this stable environment that enabled Bhutan to make rapid socio-economic development progress in a short span of time. In the early 1990's however, there were political disturbances and acts of terrorism in southern Bhutan that began after Royal Government attempted to stem out illegal immigration. The serious security situation posed by the anti-national activism then prompted the government to close down most of the service centres including hospitals and schools. As a result of this untoward political development, immunization services saw a major drawback during that period. As the situation improved, the developmental activities were resumed with greater impetus than ever before in order to make up for the lost time.

A more recent cause of concern and security threat to Bhutan's stability was posed by the incursion of insurgent militants from Assam into the southern belt of Bhutan. These militants, camped deep inside Bhutan's dense jungles along the border with Assam, operated across the border against the government of India, and on numerous occasions also terrorized Bhutanese citizens. The ensuing security threat, therefore, affected the immunization services in the country once again. Now that the Indian militants are successfully flushed out from their camps in December 2003 by the Bhutanese security forces, the public services are being delivered as usual. But the security situation along the border continues to be at risk because of the potential militant threats from across the border. This uncertain security situation will continue to affect the health services to the people of southern Bhutan for some time in the future.

Considering Bhutan's economic potentials, the economic forecast and prospects for Bhutan are looking bright. This should have a positive impact on health budgets whereby increasing fund allocations for immunization service will be a matter of certainty. The immunization program will continue to receive top priority under the overall health sector. Presently, the programme receives 2% of the total health budget outlay.

#### **1.2 Health Sector Context**

Bhutan adopted Primary Health Care (PHC) approach to the health delivery system in 1979. Currently, the health care is provided free of cost to all its citizens including foreign nationals working in the country through a network of 29 hospitals, 166 Basic Health Units (BHUs) and 455 outreach clinics. These health facilities, spread throughout the country, covering almost all the remotest population pockets are manned by doctors, nurses, paramedics and technicians. At the community level, village health workers assist regular health staff in reaching out healthcare to the communities particularly in the far flung areas of the country.

The Royal Government initiated decentralization policy in 1981, and since then health has been in the forefront in implementation of the decentralization policy. Today the health service is fully decentralized to the dzongkhags and all primary health care programs are integrated into dzongkhag health care delivery system. Through this far-reaching health service delivery reforms, today, over 90% of the population are accessible to health services. The challenge now is to cover the remaining population groups, and the Ministry of Health is fully committed to reaching out to the un-reached population.

The Expanded Program on Immunization was first launched on 15 November 1979 coinciding with the International Year of Child with the objective of reducing the seven vaccine preventable diseases (TB, Diphtheria, Pertussia, Tetanus, Polio, Measles & HepB). Tetanus Toxoid (TT) immunization of pregnant mothers was introduced in 1983. And in 1987 the National Plan of Action for the acceleration of EPI was formulated. The strong government commitment and the community mobilization resulted in the achievement of the Universal Child Immunization (UCI) in 1991.

Bhutan joined the Global Polio Eradication programme in 1995. National & Sub-National Immunization days were implemented from, 1995- 2—2. Bhutan has been able to maintain “Zero” polio status since 1986. In mid 1996 Hep .B vaccine for children under one year of age was introduced as an integral part of the programme.

Neonatal tetanus has not been reported in the country since 1994 clearly indicating the immunization in Bhutan has been very successful public health intervention. Encouraged by the success of the programme, the government has taken a decision to add newer vaccines into the child immunization schedule, if indicated by the disease burden.

EPI services have been fully integrated into the general health services and mainly with MCH/FP in particular. It is delivered through existing Hospitals, BHUs and ORCS. Overall immunization services are aimed for effective coverage with all seven antigens aimed at all infants under one year of age and to all pregnant women and women in child bearing age.

### **1.2.1 Health Trends:**

The health sector has made remarkable progress in all areas of health developments over the last four decades since the modern health service was introduced in the country. The Infant Mortality Rate has reduced from 102.8 in 1984 to 60.5 in 2000, and Maternal Mortality Rate has reduced from 7.7 in 1984 to 2.55 in 2000. Population Growth Rate also has seen a marked decrease from 3.1 in 1994 to 2.5 in 2000 (see table 3). The life expectancy at birth has increased remarkably from 47.5 in 1985 to 66.0 in 2003 (Statistical Yearbook of Bhutan 2003). These vital indicators speak well of the rapid socio-economic development in the country. However, the top ten disease morbidity trend and EPI coverage trends over the past five year remained same despite marked improvement in safe water supply provision, sanitation and hygiene and immunization services (see table 4 & 5). This is an obvious challenge to health professionals, and as such, programs have affected major program revisions and strategies to address these issues.

**Table 3: Key Health Indicators (National Health Survey 2000)**

Type of Indicator	1984	1994	2000
General Fertility Rate	169.60	172.7	142.7
Total Fertility Rate	NA	5.6	4.7
Crude Birth Rate (per 1000 population)	39.1	39.9	34.09
Crude Death Rate (per1000 population)	13.4	9	8.64
Infant Mortality Rate (per 1000 population)	102.8	70.7	60.5
U5 MR (per 1000 live births)	162.4	96.9	84.0
Maternal Mortality Rate (per 1000 live births)	7.7	3.8	2.55
Population Growth Rate	2.6	3.1	2.5
Contraceptive Prevalence Rate	NA	18.8	30.7
Doctors per 10,000 population	NA	NA	1.7

**Table 4: Morbidity trend for top ten diseases over the past five years**

Sl No.	Diseases	1999	2000	2001	2002	2003
1.	Cough and cold (ARI)	212,277	217,237	207,347	259,083	270,559
2.	Skin diseases	99,082	102,610	115,276	99,637	90,219
3.	Diarrhoea/dysentery	88,546	92,075	90,228	68,641	105,163
4.	Peptic ulcer syndrome	60,982	65,648	70,797	53,640	57,095
5.	Conjunctivitis	54,421	48,737	49,612	47,906	54,635
6.	Worm infestation	46,168	39,277	34,897	27,697	23,606
7.	Diseases of Teeth & Gums	35,516	39,508	44,548	29,474	28,062
8.	Urinary tract infection	31,406	16,698	18,147	15,763	18,186
9.	Otitis media	22,110	21,824	24,892	23,472	19,354
10.	Nutritional deficiency	21,381	21,426	22,994	4,657	4,404

**Table 5: EPI trend over the past five years(number of infants covered)**

Year	BCG	Polio	DPT	Measles	Hep.B
1999	12,493	12,303	12,228	10,757	11,864
2000	12,197	12,429	12,330	10,721	12,088
2001	13,958	13,818	14,061	13,317	13,682
2002	13,746	13,711	13,389	12,805	13,889
2003	13,720	13,571	13,363	12,434	12,976

## 1.2.2 - Trends in Financing for the Health Sector

Although only 2.9% of total outlay for the First Plan (1992-1967) was given for health, the Government recognized the importance of the social sectors. The current Government allocation for health is 10% of the total budget outlay, which comes to 4% of the GDP. This is perhaps highest for health in the Region.

In the past plans, 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 Royal Government now bears about 49% of the total budget outlay. The main development partners in the health sector are Government of India, DANDIA, UNCIEF, UNFPA and other international Non Governmental Organizations.

**Table.6 Total health sector allocation in ninth five-year plan**

<b>Programme</b>	<b>Recurrent</b>	<b>Capital</b>	<b>Total</b>	<b>Proportion of total health sector allocation</b>
Central	2802.426	1703.409	4505.835	68.94
Dzongkhag	1131.37	551.028	1682.39	25.74
Geogs	0	229.846	229.846	3.52
HRD (RCSC)	0	118	118	1.81
<b>TOTAL</b>	<b>3933.791</b>	<b>2602.283</b>	<b>6536.074</b>	

**Table.7 Central Health Budget Allocation in ninth five-year plan**

<b>Particulars</b>	<b>Revenue</b>	<b>Capital</b>	<b>Total</b>	<b>Proportion of Total budget</b>
Ministry of Health and Education	4,581.09	2893.41	7,474.50	10.7
Department of Health	2,802.43	1703.41	4,505.84	6.4

**Table.8 EPI in central health budget allocation in ninth five-year plan**

<b>Particulars</b>	<b>Total allocation (Nu in million)</b>	<b>Proportion of central health budget</b>
Department of Health	4505.1	
Communicable Disease Division	410.4	9.11
EPI	139.9	3.11

**Table.9 : Analysis of Government spending on EPI**

Year	Nu in million						Proportion of total expenditure on EPI					
	2002-03	2002-04	2004-05	2005-06	2006-07	Total	2002-03	2002-04	2004-05	2005-06	2006-07	Total
<b>Establishment cost</b>	1.08	1.19	1.31	1.44	1.59	6.61	4.61	4.22	4.35	4.97	5.45	4.72
Vaccine supply	2.44	2.58	2.67	2.77	2.86	13.31	10.40	9.12	8.86	9.54	9.82	9.51
Hep B vaccine	1.70	1.80	1.80	1.90	2.00	9.20	7.25	6.37	5.97	6.55	6.88	6.58
Hib Vaccine	1.70	1.80	1.80	1.90	2.00	9.20	7.25	6.37	5.97	6.55	6.88	6.58
IEC advocacy	1.00	1.00	1.00	1.00	1.00	5.00	4.26	3.54	3.32	3.45	3.44	3.57
SNID operational cost	8.16	8.98	9.87	10.86	11.86	49.73	34.78	31.79	32.77	37.46	40.79	35.55
SNID with TT	0.00	3.17				3.17	0.00	11.22	0.00	0.00	0.00	2.26
SNID with Measles	0.00	0.00	3.17	0.00	0.00	3.17	0.00	0.00	10.52	0.00	0.00	2.26
<b>Total Current cost</b>	<b>19.66</b>	<b>22.80</b>	<b>24.12</b>	<b>23.88</b>	<b>24.04</b>	<b>114.50</b>	<b>83.81</b>	<b>80.73</b>	<b>80.05</b>	<b>82.37</b>	<b>82.69</b>	<b>81.85</b>
Cold chain equipments	2.23	2.14	2.13	1.88	1.73	10.11	9.51	7.57	7.08	6.47	5.96	7.23
Vaccination equipments	0.37	2.58	2.68	2.84	2.90	11.37	1.57	9.15	8.89	9.78	9.98	8.13
<b>Total Capital</b>	<b>3.80</b>	<b>5.44</b>	<b>6.01</b>	<b>5.11</b>	<b>5.04</b>	<b>25.40</b>	<b>16.19</b>	<b>19.27</b>	<b>19.95</b>	<b>17.63</b>	<b>17.31</b>	<b>18.15</b>
<b>Total</b>	<b>23.46</b>	<b>28.24</b>	<b>30.13</b>	<b>29.00</b>	<b>29.08</b>	<b>139.90</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

### 1.2.3 Health Sector Reforms

Royal Government of Bhutan initiated decentralization process since the early eighties. And health sector was one of the government sectors that took pioneering steps in implementing the government's decentralization policies. As of now, the health care service is decentralized right down to the geogs. All plans and programs in the health sector are dzongkhag based, and as the dzongkhag capacity keeps improving, the areas currently under central authority will gradually be transferred to the dzongkhag health sector. Some of the major health sector reforms undertaken under the guiding philosophy of the decentralization policies are as follows:

#### *(a) Community Participation*

In order to bridge the gap between the organized health service and the community, the Government trains village health workers (VHWs) who are chosen by the communities themselves. As of 2000, there were 1,327 village health workers who advocated health to the people and who help in bringing the health problem of the people in the communities to the 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. Programs assist the communities by providing them the required training.

Then there are the traditional faith healers, astrologers and religious leaders in the communities. 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.

***(b) Health Information system***

Realizing the importance of information in management, Health Information Unit was established in 1983. Since then the Annual Health Bulletin is compiled and published on yearly basis. 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 (HIMS) 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 (DHSO) who, in turn, reviews 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 number to make the HMIS dynamic and helpful for evidence-based planning for the future.

***(c) Inter-sector coordination***

Inter-sector coordination at different levels of the Government is achieved through different ways and means. At the national level, the Planning Commission coordinates the plans of various development sectors and the Department of Aid and Debt Management (DADM) of the Ministry of Finance coordinates resource allocation. At the district level, when the plans are implemented, the Dzongda is the overall head over seeing and reviewing the implementation process. 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 program level, there are a lot of coordination mechanisms through Policy and Planning Division of the Ministries. Additionally, individual programs have their own coordination mechanism with other concerned sectors. Malaria program, for instance, has direct coordination mechanism with the agriculture and municipal departments. Similarly environmental health program liaises with the National Environment Commission, Municipal Corporations of each district and even the police force. The nutrition program coordinates its efforts with the Agriculture, Trade, and other relevant sectors. Furthermore, there are the multi-sector task forces (MSTF) that also address the issues that cut across many sectors.

#### ***(d) Emergency Preparedness***

Of the numerous emergency situations, the one that concerns the country most is the traffic accidents. Flash floods and landslides also contribute to the problem. The country being in an earthquake zone, severe earthquake is also read about in its history but it is less frequent. Glacial flood also cause damage to the life and property. A rough study in the recent years revealed numerous glacial lakes that are potentially dangerous to the country. Also, of late the presence of the militants from across the southern border poses an enormous threat to the national peace and security. In order to deal with all these eventualities, the Ministry of Health has established a rapid response team consisting of several relevant sectors. An emergency medical team further backs this establishment.

#### ***(e) Health research***

Health research is comparatively new for Bhutan although Bhutan has been a participant to WHO's research consultations in the South East Asia Region. 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 unit. The Research Unit was formally established in 1995. The key staffs are still being trained abroad. The unit has played crucial roles in conducting vital studies for health in the recent years. It has contributed in the conducting of the National Health Survey in 2000 and in carrying out the survey on mental health in 2002

Coming to the area of other kinds of research, the pharmaceutical and Research Unit at the National Institute of Traditional Medicines conduct research to indigenous medicines. Further it is also documenting the medicinal plants and herbs that are found in Bhutan.

#### **1.2.4 Financing Essential Drugs & Vaccines**

Bhutan has no modern pharmaceutical industries and relies on imports for its entire requirements. Traditional medicine is manufactured at the Pharmaceutical and Research Unit of the National Institute of Traditional Medicine. As Bhutan is dependent on the outside world for the medicines, vaccines and reagents, Bhutan relies on WHO collaborating laboratories in the region for testing the quality of imported drugs and vaccines.

In order to sustain achievements in Primary Health Care and to reduce the dependency on donors, the Royal Government has created the Bhutan Health Trust Fund (BHTF). It was formally launched in Geneva on 12<sup>th</sup> May 1998 with the objective to raise the fund with the target of USD 24 million. As of today, BHTF has secured USD 17 million. As per the Royal Charter of the Health Trust Fund, the Royal Government matches, on a one-to-one basis, any donor contribution to the fund. The fund is maintained in US dollars and invested in reliable financial institutions abroad. The Management Board consisting of high-level member representatives from the relevant Ministries and organizations govern the BHTF Board. This initiative is expected to support the Royal Government's policy of providing free basic health care.

The purpose of the Charter is to govern the management of the Trust Fund investments and program activities for the sustainability of primary health care services through the provision of continued and uninterrupted supply of core primary health care supplies of vaccines, essential drugs, needles, syringes, cold chain equipment and other related drugs/equipment; strengthen programme management and human resources development through staff training in the storage and management of drugs & vaccines, repairs and maintenance of health equipment; develop and implement management plans for drugs and vaccines, and strengthen monitoring capacity on the proper use of drugs and vaccines and other activities related to primary health care that the board might recommend.

### **1.2.5 Global Fund**

Bhutan's Global Fund proposals for Malaria and Tuberculosis have received approval by the GFATM Board in Round 4. The proposals are submitted as separate components with the estimated budget of USD 1,737,190 for Malaria and USD 994,298 for Tuberculosis respectively over a five-year period. Currently the programs are in the process of completing the background assessment of the Principal Recipient (PR) capacity and the sub-recipient's implementation capacity by KPMG, the Local Fund Agent (LFA). The actual negotiation of the grant agreement is expected to take place by November end or early October 2004. The project implementation is expected to begin from January 2005.

### **1.2.6 Government and Donor Relations**

The Royal Government has maintained good relations with the development partners all through the years. There never has been a policy shift that risked the government and donor relations. In health, the working relationship with the partners have been exceptionally good, and its outcome is well reflected by the fact there has been increasing external assistance over the years. However, the nature of donor assistance is changing from direct program support to budget support. For instance DANIDA's assistance to health is now channelled through Ministry of Finance as budget support, in which case, the public health programs traditionally dependent on external program support loose out in the competing priorities. This change is being instituted basically to give a balanced fund allocation to all programs proportionate to the set priorities. And as such, this policy shift will not impact negatively on the immunization service since VPDP continues to receive government's topmost priority. In fact the Ministry of Health is intending to move a budget head for the immunization service with full justification for priority share from the donor budget support provision in the next round of annual budget proposal to the government. In view of the priority importance attached to the immunization service by the government, it is expected that the proposal will be given favourable consideration.

The procurement process makes the best use of limited resources as per the prevailing procurement procedures. The main constraint for the immunization programme is the unsecured fund. JICA provides funding support only on request. Moreover it has no earmarked budget for the immunization program. The GAVI support for DPT-Hep B

combination and injection equipments for all vaccines, which may continue up to 2007, is seen as a starter for making proper procurement for the immunization program. Hence, the sustenance and further improvement of the program plans and policies greatly hinges on the wishful expectation of the donor support.

### **1.2.7 National Health Policy**

The concept of health in Bhutan must be seen in the context of the overall development strategy that, defines development as the preservation of spiritual and emotional, as well as economic well being. Therefore, the health sector policy objectives reflect the national ones: equity, social justice, sustainability and efficiency, in the context of preservation of national culture. The long term objective of the health services is to “facilitate, through a dynamic professional health care, the attainment of a standard of healthy living by the people of Bhutan to lead a socially, mentally and economically, enhanced quality of life of the people in the spirit of social justice and equity”. The focus of health sector has been to increase the accessibility to health care. Basic health care service and essential drugs are provided free of charge to all Bhutanese citizens and foreign nationals working for the Royal Government of Bhutan.

### **1.2.8 Constraints of the Health Sector**

#### ***(a) Shortage of human resource***

Shortage of human resource has been one of the most deriding factors in the health development system. To strengthen the overall health service and particularly the decentralized management of health services, human resource is required at all levels be it for program management and promotional areas or curative services. The government has been able to train only about 3-5 medical doctors annually that can barely meet the attrition due to retirement, transfer to other ministries, etc. of medical doctors. The situation has been improving with more candidates joining the medical line in the recent years. The number of specialists trained in medical and management areas are even less. As the training of paramedics can be carried out within the country, the situation is much better in this area. It is this category of people who manage the primary health care system as well as service delivery. It is also mainly this category of people who manage most of the public health program in the department of health services. Because of the same reason of human resource shortage, one or two program personal have to cover a lot and many times it leads to inefficiency and managing the program.

As the government's own fund is limited, the ministry relies much on collaborating partners to develop human resources for health. However, as many collaborating partners do not want to commit funds for long-term training, it will take a long time to achieve self-sufficiency in human resources for health and unless the gap in this key component is filled, the programs will continue to suffer.

***(b) Geography and scattered settlement***

Bhutan is situated in one of the worlds most rugged surfaces and hence, the settlements are scattered and far-flung. This makes delivery of health and other social services extremely difficult and expensive. Coupled with the lack of qualified specialists at the district and regional levels, this poses a great challenge to efforts in curbing mortality that could have been prevented with timely care. In order to overcome this problem, the Government, with support from DANIDA and WHO, initially started the solar-powered radio communication system to link the basic health units (BHUs) to the district hospitals. To complement this initiative, the government has then embarked upon the telemedicine program in collaboration with WHO and the Japanese government. As electricity and the basic telecom infrastructure were also getting developed slowly at that time, the progress in this area has been slow but the country has been able to connect at least one of the two Regional Referral Hospitals to the National Referral Hospital and improving the referrals and consultations between them. The facility is also being used by the hospital staff to access important health literature. But much needs to be done, and materials required for this program are usually very expensive.

***(c) Dependency on imports for all health requirements***

Be it equipment or drugs and vaccines, the country has to depend on supplies from outside the country. Even if the quality of drugs and vaccines can be assured by purchasing them from WHO authenticated suppliers in the region, the hospital equipment and other supplies are a problem. The long time taken to procure the equipment or their spare parts and consumables (like reagents and x-ray films) continues to hinder surveillance and other vital works at the hospitals.

***(d) Political disturbance***

This little country has not been spared from the political disturbance in the region. Ethnic Bodo and Ulfa militants in the northeast India who are fighting for independence have taken unauthorized refuge in the forests inside Bhutan in the southern districts. Service delivery at times is disrupted in these districts by their interference.

***(e) Shift from coverage to quality of services***

Having achieved the desired level of coverage by health, the country now focuses on improving the quality of health care services. There have been cases of enormous structures in the districts with no doctor and hence, patients. The situation has been steadily improved over the years yet large rooms for improvements remain. As three people – one health assistant, one assistant nurse, 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 whole of next five years will be devoted to setting standards of services and facilities and working towards fulfilling them.

***(f) Double burden of diseases***

While the battle would continue against HIV/AIDs, Tuberculosis, Malaria and the like emerging diseases, especially non-communicable ones, will entail strengthening their surveillance and development and following strategies for prevention and control. At the tertiary care level facilities need be expanded to deal with the problem of rheumatic heart diseases, cancer, diabetes, etc.

***(g) Sustainability of development in the health sector***

Although Health Trust Fund initiative has been launched already, much work remains to be done to accumulate the required capital, invest it to a reliable financial institute, and regularize the use of the proceeding from the Trust Fund. Only when everything is in place, Bhutan will be able to assess how much impact the Trust fund initiative has made on making 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 and Mines, Agriculture, Education, Municipal corporations, Ministry of Health will land up containing the problems caused by other sectors and this aspect is viewed seriously in order to consolidate the progress that has already been made in various areas of health.

***(h) Meeting the Challenges***

When Bhutan first started its development process, the Ministry of Development contained all social sector departments. Later, the Ministry of Social Services established in 1985 included Health, Education, Culture, and Public Works Departments, concentrated mainly on Health and Education Departments. To give full attention to these two most important public welfare sectors, the government bifurcated the Education and Health Sector in mid 2003. Today Education and Health have separate ministries.

With the major challenges in mind, the Government has already looked two decades ahead and developed its vision for the future. In the document, Bhutan Vision 2020, 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 same document to guide the health sector during this entire period. These long-term priorities are further taken into priority consideration during the formulation of the Five-Year Plans of the Health Sector.

## **Section 2 - Programme Objectives and Strategies**

### **2.1 Main Programme Objectives**

The overall objective of the programme is to reduce the seven vaccines preventable diseases to a level at which they are no longer a public health problem by maximising opportunity, minimising risk and increasing acceptability and reaching of immunization programme in the un-reached areas.

- 2.1.1 To sustain the high national immunization coverage level at or above 90% for the children of one year of age
- 2.1.2 To achieve poliomyelitis certification by 2005
- 2.1.3 To eliminate maternal and neonatal tetanus by 2005
- 2.1.4 To achieve 90% reduction of measles cases
- 2.1.5 To increase the safety of injection used for all EPI vaccines through the use of auto-disable syringes for all injection by the end of 2004
- 2.1.6 To develop sustainability in the EPI programme through national capacity building
- 2.1.7 Establishing and strengthening surveillance for EPI diseases
- 2.1.8 Sustainable inclusion of newer vaccines in the EPI, if indicated by diseases burden studies.

### **2.2 Main Program Strategies**

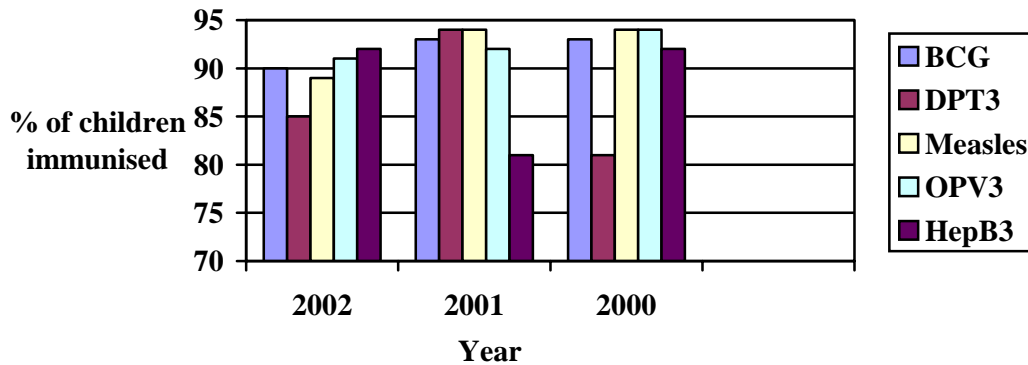
- 2.2.1 Immunization service delivery as a part of comprehensive primary health care
- 2.2.2 Capacity Development to maintain a critical mass of trained immunization managers, technicians and service providers as specified in the Human Resource for Health Master Plan
- 2.2.3 Efficient vaccine logistics management
- 2.2.4 Develop and implement guidelines for immunization service delivery, immunization safety, logistics management, surveillance and out breaks response
- 2.2.5 Advocacy and programme communication
- 2.2.6 Periodic evaluation of coverage, cold chain and overall programme functioning
- 2.2.7 Develop and implement medium and long term plans

## **2.3 Trends in Program Performance**

### **2.3.1 Coverage Trends**

The reported immunization coverage (0-11 months) for 2002 in Bhutan as reported in the Annual Health Bulletin 2002 is as shown in the chart below.

**Graph 1 : EPI coverage trends**



The EPI coverage trend over 3 year period from 2000 to 2002 are as follows:

1. BCG 90%,
2. Measles 85%
3. DPT3 89%
4. OPV3 91%
5. Hep B 80%.

The reported coverage is consistent with the assessed coverage study conducted in early 2002.

### **2.3.2 Vaccine Wastage Trends**

Bhutan is reported to have one of the highest vaccine wastage rates in the world. It is as much a serious concern to the Health Ministry as it is for the external donors. The program is trying various strategies to reduce the waste rate, but the nature of the difficult geographic terrain and sparse & scattered communities poses a limiting factor. The fact can only be comprehended by experiencing the situation in Bhutan's context. The current wastage rate for BCG at 80% is the highest while DPT at 41% is the lowest among the antigens (see table 10S).

**Table 10: Vaccine Wastage Rates**

Vaccine	Wastage Rate (%)	Wastage Factor
BCG	80	5
Measles	72	4
OPV	45	2
DPT	41	2
TT	67	3
HepB	49	2

Vaccine wastage rate, however, has not been calculated in the past years, and therefore, no target was set for wastage reduction. In the absence of the wastage trend it is difficult to see how the program has fared in terms of reducing the vaccine wastage over the years. But with the preparation of FSP in immunization, annual target wastage rates for different antigens are being set, and the strategies are developed for reducing the wastage as per the set targets (see table 11).

**Table 11: Target Vaccine Wastage Rate**

Vaccine	Estimated wastage	Target wastage rate	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BCG	90	60	90	80	70	65	60	60	60	60	60	60
DPT-Hep.B	60	40	60	50	40	40	40	40	40	40	40	40
OPV3	60	40	60	50	40	40	40	40	40	40	40	40
Measles	80	60	80	70	60	60	60	60	60	60	60	60
TT2	60	20	60	50	40	30	20	20	20	20	20	20

### 2.3.4 EPI Disease Trend

The EPI program was first launched in 1079 coinciding with the International Year of Child with the objective of reducing and preventing the six vaccine preventable diseases namely, Tuberculosis, Diphtheria, Pertusis, Tetanus, Polio and Measles. HepB was introduced in 1983, and Tetanus Toxoid (TT) immunization of pregnant mothers in 1987. Bhutan's successful implementation of the EPI program resulted in achieving Universal Child Immunization (UCI) in 1991. Since 1986 Bhutan maintained "zero" polio status. Neonatal tetanus has also been not reported since 1994. Over the past five years from 1999 to 2003, there has been no case of Diphtheria and Pertusis (see table 12). Measles cases (clinical diagnosis) reported in 1999, 2000 and 2001 could have been rubella because measles cases when subjected to laboratory diagnosis for measles and rubella in 2003 and 2004 confirmed rubella. The test was negative for measles.

**Table 12: EPI case report**

Year	Polio	Measles	Diphtheria	Pertusis	Neonatal Tetanus	Rubella
1999	0	350	0	0	0	0
2000	0	460	0	0	0	0
2001	0	682	0	0	0	0
2002	0		0	0	0	0
2003	0	0	0	0	0	350

## **2.4 Emerging Vaccine Preventable Diseases**

### **2.4.1 Rubella**

Despite achievement of 85 %–90% coverage of measles vaccine, a substantial number of clinically diagnosed measles cases continued to be reported every year (see table 8). In the absence of the capability for laboratory diagnosis of measles, clinical judgement was respected and the cases were recorded as measles. But with the establishment of the laboratory diagnostic facility for measles and rubella in the Public Health Laboratory in Thimphu in April 2003, suspected measles cases were routinely subjected to measles IgM and rubella IgM tests. Between April to November 2003, a total of 159 serum specimens were tested both for measles and rubella. Of these, 33% tested IgM positive for rubella and none for measles (WHO, IVB/VAM, 1 March 2004). This finding is a clear evidence that rubella infection has been prevalent in the communities for a long time, and that all suspected measles cases reported thus far were in fact cases of rubella. Knowing the serious consequences of Congenital Rubella Syndrome (CRS), the Ministry of Health has completed the Rubella Vaccination Strategy to be implemented by 2005.

Bhutan conducted the Hib Rapid Assessment study in 2002. A retrospective review of laboratory and clinical records at Jigme Dorji Wangchuck National Referral Hospital in Thimphu (JDWRH) and Mongar Regional Referral Hospital for the eastern region was undertaken to identify children under 5 years with purulent or confirmed bacterial meningitis. The study yielded 100 possible cases of meningitis. Of the 100 specimens 27 met the definition of purulent meningitis and 19 met the definition for confirmed case definition (as defined by Hib Rapid Assessment Tool) using worksheets 2 of Hib Rapid Assessment Tool. The estimate of the national burden of Hib disease was generated based on the observed Hib meningitis incidence and by extrapolation from meningitis incidence to pneumonia incidence. Using the estimate incidence of 15 cases of Hib meningitis/100,000 it was estimated that there are approximately 96 cases of Hib meningitis and pneumonia and 13 deaths each year under 5 children. GAVI has therefore, granted conditional approval for providing DTP-HepB-Hib vaccine on the submission of the reports of 2002 EPI coverage survey, EPI review and Hib burden disease study.

### **2.4.2 GAVI support for DTP-HepB-Hib**

### **2.4.3 Japanese Encephalitis (JE)**

Bhutan has not reported Japanese Encephalitis (JE), and in the absence of JE case, no standard case definition has been adopted. However, there is a possibility of encountering occasional suspected cases. Through routine surveillance & reporting of malaria cases, the data gathered so far indicate the existence of epidemiological factors conducive for JE. JE vectors (*Cx vishnui*, *Cx pseudovishnui* and *Cx tritaeniorhynchus*) are present in high density along with malaria vectors in all malaria endemic areas. Therefore, the threat of JE outbreak looms large over all malaria endemic areas of the country.

### **2.4.4 Dengue & Dengue Haemorrhagic Fever (DHF)**

Suspected Dengue/DHF outbreak was first reported in Phuntsholing in 1997, but failed to confirm due to lack of laboratory diagnostic facility. In the first week of July 2004, suspected Dengue/DHF was again reported from Phuntsholing. Serum samples sent to referral laboratories Kolkata, New Delhi and Bangkok confirmed the outbreak as Dengue/DHF. And by the time the outbreak was declared contained and controlled in the second week of August, a total of 2544 cases compatible with Dengue/DHF were reported. Of these, only 123 cases had to be hospitalised. There was no mortality in this outbreak.

Phuntsholing, situated in the foothill plain bordering with Jalpaiguri district of West Bengal state of India, is Bhutan's major financial and commercial centre of Bhutan. Vectors for Dengue/DHF (*Aedes aegypti* & *Aedes albopictus*) are found abundant in all townships located in the southern part of the country. Therefore, there lies the perpetual risk of Dengue/DHF outbreak in the townships in the southern dzongkhags particularly in malarious areas.

## **2.5 Strategy to reach the Un-reached**

All hospitals and BHUs have their own annual work plans covering at an average of three to four Out-Reach Clinics (ORC) per month by each health centre depending on the size of the area and the population. The number and the site of ORCs is based on the remoteness of the community and the estimated clients. The date for the clinic is fixed as per the convenience of the local population and are conducted once a month. Coverage of the seasonal mobile population groups are affected in close coordination between and among the concerned dzongkhag health authorities. A day long clinic covers the immunization, antenatal and postnatal check ups, health education services and general treatment for the patients in the locality. In the capital town, Thimphu, satellite clinics have been started essentially to provide better EPI coverage for mothers and children resident in the capital but often remaining inaccessible to the health services.

## **2.6 Challenges**

The difficult terrain and the sparsely populated areas of the country pose daunting challenges in providing equitable access to health service to all the citizens. One of the major challenges are bringing vaccine wastage reduction to an internally acceptable level and reaching the un-reached populations.

### **2.6.1 Wastage**

Many factors affect vaccine wastage starting from vaccine to vaccinator, Vaccine & syringe related factor, procurement practices factor and immunization related factors.

These vaccine wastage factors will be encountered by adopting the following tools:

- (a) Changing vial size by assessing all the factors and cost per immunized child,
- (b) Encouraging multi dose vial policy adoption,
- (c) Vaccine vial monitoring use should be encouraged and staff must be trained to interpret the same,
- (d) Avoiding programmatic errors such as toxic shock.
- (e) Practising first expiry first out (FEFO) formula
- (f) Improving procurement practices, right quantities at right time with adequate cold chain space.
- (g) Ensuring more number of children per session than number of session.
- (h) Preventing freezing of vaccines.
- (i) Implementing safe immunization practices
- (j) Improving vaccine management practices.
- (k) Prevention of vials submerging in water.

### **2.6.2 Reaching the un-reached**

Special attention shall be given to mobile population and migrant workers, children, as they are likely to miss routine immunization and are also at risk of importing vaccine preventable diseases. To reach these children, each facility shall map out the mobile population and migrant workers camps. Each facility shall then make special outreach micro-plans to deliver at least four doses of OPV to these children each year and together with that, all other vaccines. Special focus is given to seasonal migratory groups that move from one place to another through traditional routes and stay in usual places. The immunization service to such mobile population groups is well coordinated by the concerned health authorities in the dzongkhags.

The standards required for quality health services and the simultaneous changing need of various programmes and projects have resulted in numerous changes and modifications in the recording and reporting procedures of Health Information System over time. As a consequence, it had only amounted to duplication of efforts and resources, but also has become unmanageable to deal with, ultimately leading to the degradation of quality of information. The Information Unit, under the spearhead of Planning and Policy Division of Health, reviewed the entire recording and reporting system of the various programmes and developed Bhutan Health Management & Information System (BHMIS), a computerized record keeping of routine reporting system for the districts and the centre. The system was developed with the following objectives:

- (a) to bring the system in line with current priorities in the health sector,
- (b) to streamline recording and reporting where possible, and
- (c) to take advantage of information technology to make data management and information use more efficient and effective.

### 2.6.3 Good coverage and target reporting

Procedure manual has been produced which is a self-learning material for the health staff. The Information Unit has trained all the In-charges of BHUs, Hospital in BHMIS, and the system is functioning as desired.

## 2.7 Immunization and GAVI

GAVI has awarded DTP-HepB and Injection safety for all vaccines from the year 2003 to 2007. An amount of \$439,500 for new and underused vaccines with \$29,000 for injection safety (see table 13) and a sum of \$100,000 for other support, which has been donated to the Bhutan Health Trust Fund. The Fund is an organisation with an aim to provide vaccines to the Bhutanese people. GAVI has also awarded conditional approval for DTP-HepB-Hib.

Prior to the introduction of the new vaccines, training for all health workers on the usage and administration of the new vaccine was conducted. DANIDA used to provide Hep B vaccines from 1996-2002, but with the emergence of GAVI, DANIDA has withdrawn its support for the vaccine and is now supporting the Health Ministry through budget support.

**Table 13: GAVI award for DPT-HepB**

Country	Surviving Infants at first approval	DTP3 coverage at first approval	5 years New and Under-used vaccine Support	5 years Immunization Services Support	3 years Injection safety support	Other support	5 years New and Under-used vaccine Support	Vaccine presentation
Bhutan	15,902	88%	439,500		29,000	100,000	439,500	DTP-hepB 2003; C for DTP-hepB+Hib

## **2.8 Partner Involvement in EPI**

WHO and UNICEF are key partners in delivering immunization service to the mothers and children of Bhutan. Their support to the EPI program is mainly in the areas of consultancies and short-term human resource development focusing on updating knowledge and skills in vaccine delivery and cold chain management. Vaccines & injection equipments are procured through JICA and GAVI support. However, there is no agreement signed between UNICEF, JICA and Ministry of Health specifying the period of support for immunization service. JICA provides support on request through UNICEF.

Vaccines are procured annually through UNICEF-Japan multi-bilateral assistance to EPI program for Bhutan based on the immunization requirement and as per the National Essential Medicine List using WHO/UNICEF recommended forms. The firms are required to produce the necessary pharmaceutical related documents in order to qualify for the international bids. Prior to calling for bids, the recommended firm negotiates with the National Drug Regulatory Authority (NDRA) of the Ministry of Health. The selection of vaccine is made by competent officials based on the competitive price, pack size of vaccines, shelf life, possession of necessary documents and route of shipment.

## Section 3 - Past Costing and Financing

### 3.1 - Overview of past program costs

The total program cost over the years (pre-VF year 2001 and 2002 + VF year 2003) are given in table 14:

**Table 14: Costing table for Bhutan for the years 2001 and 2003**

	<b>2001</b>	<b>2003</b>
Total spending	\$1,031,657	\$836,585
% Gov. funding	52%	67%
Cost per DTP3 child	\$38.68	\$38.66
Total spending (% total health expenditures)	5%	5%

Routine immunization spending has increased between 2001 and 2003. Campaigns conducted in 2001 and 2002 incurred substantial expenditure: about 30% of total spending on immunization. Transport cost reflection appears low because most of it is a shared cost. Personnel expenses is by far the largest cost driver. Much of the expenditure is being incurred on travel and per diem because of the nature of the country's difficult terrain and thinly scattered population. These require covering long distances on foot and riding pony particularly in attempts to reach the far-flung communities. The cost per DTP3 child is roughly estimated to be about US\$41 per child. The amount of importance the Government allocates to the EPI programme can be seen from the fact that the government is the largest contributor from 52% of the total cost activities in 2001 to 67% in the year 2003. The high spending in the year 2001 reflects the polio campaign conducted which accounts for US\$293,615.

As per WHO standards, any country having hepatitis B virus rate higher than 2% should integrate Hep.B vaccine within existing EPI programme. Sero-survey study conducted in 1994/95 found that the Hep.B prevalence rate was 5%, and therefore, DTP-HepB was introduced in September 2003 through GAVI support. Since it is a new vaccine being introduced recently, the cost impact is not yet fully accounted.

Graph 2 above shows trend in Past Cost by category, the costing in US\$ (million) for the years 2001 and 2003 is:

**Table 15: Past costing by category**

<b>Category</b>	<b>2001</b>	<b>2003</b>
Traditional Vaccines	0.0618	0.0557
New & Underused vaccines	0.0187	0.0505
Personnel	0.3833	0.4025
Other routine recurrent costs	0.0582	0.0931
Vehicles	0.0148	0.0232
Cold chain	0.0422	0.0445
Polio campaigns	0.2936	-
Other optional information	0.1449	0.1509

### **3.2 Overview of Past Program Cost Indicators**

The cost per DPT3 child is around \$41. The growth rate in program costs is 16% between 2002 and 2003 (with GAVI). In 2001 and 2002, campaign represented 30% of total spending on immunization. The total spending on immunization as a percentage of GDP is less than 0.2% while total spending on immunization as a % of total expenditure on health is between 4-5%.

### **3.3 Overview of Past Program Financing**

Government financing for EPI has increased between 2002 and 2003 while UNICEF financing has decreased during the same period as a result of campaigns (see table 16). DANIDA fund is now directed towards budget support to the Ministry of Health.

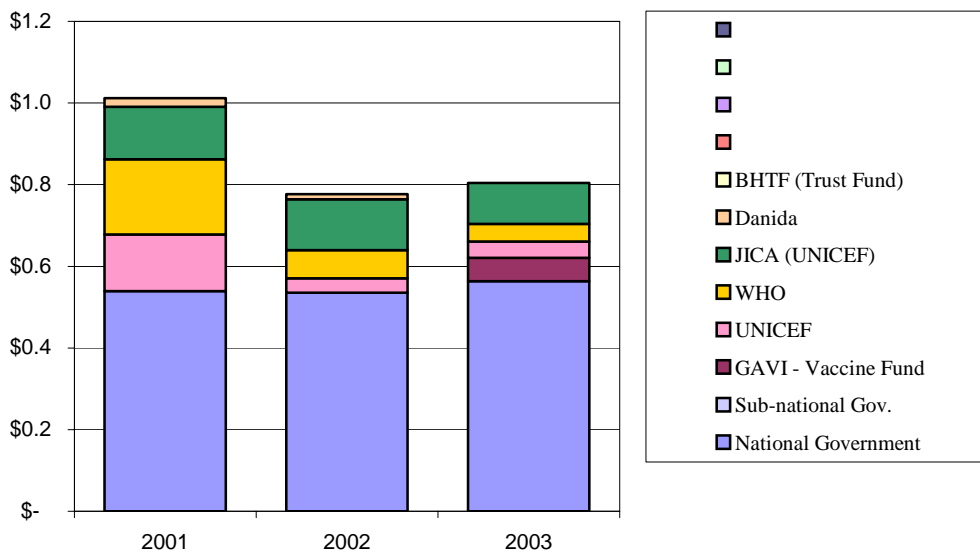
**Table 16: Past Program Financing**

<b>Secure Funding</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
	<b>US\$</b>	<b>US\$</b>	<b>US\$</b>
Government	\$ 538,968	\$ 535,118	\$ 563,667
GAVI – Vaccine Fund	\$ -	\$ -	\$ 57,219
UNICEF	\$ 139,214	\$ 35,745	\$ 40,043
WHO	\$ 184,175	\$ 68,586	\$ 100,139
JICA (UNICEF)	\$ 128,481	\$ 124,840	\$ 62,394
DANIDA	\$ 20,778	\$ 12,229	\$ -

### **3.4 Overview of Past Program Financing Indicators**

The government financing for immunization represents about 50%. UNICEF is the largest multi-lateral donor especially in 2001, 2002 with the polio campaigns. WHO and JICA (UNICEF) are among the traditional partners in the immunization programme in Bhutan. The DANIDA support to the programmes directly has been stopped and is now emphasizing on budget support to the Health sector as a whole.

**Graph 3: Trend in Past Financing by Source (US\$ Millions)**



## **Section 4 - Future Resource Requirements, Financing and Gaps**

The resource requirements are critically dependent on three parameters: size of target population, percentage of target population to be covered, and wastage rates. It of course also depends on a variety of costs like personnel, investment on cold storage etc, but the variation in these costs are minor and not likely to change the costs figures critically.

### **4.1. Calculation of target infants for immunization:**

The size of target population is based on Government of Bhutan's official data on district-wise reporting of target infants for immunization for the year 2004. The coverage rates in the tools have been adjusted to reflect the actual target population size. While Bhutan has already started the work on the latest census, the results from this are yet to come out. It is hoped that once this data is out, better estimates of target population will be available.

### **4.2. Assumptions for Wastage rates:**

As for wastage rates, from 2006 onwards, a wastage rate of 10-40% for T-series vaccines (depending on the vial size) and 60 percent for lyophilized vaccines has been assumed, which has been decided in concurrence with GAVI. The government plans to use a 2-dose DTP plus Hep B vaccine to reduce the vaccine wastage rate which are over 50 percent currently to bring them down to 10 percent. It is also assumed that there are no additional storage costs for storing the 2 dose vaccines due to existing excess capacity of cold storage.

### **4.3 Scenario analysis:**

The cost analysis is done based on three alternative scenarios:

1. Routine EPI which includes six antigens
2. Routine EPI plus Rubella (given with Measles)
3. Routine EPI plus MR plus Hib

There are some additional assumptions that have been made for the cost calculations: the Rubella vaccine will be administered along with Measles from 2006. Also, it is assumed that Hib will be administered from 2006, if approved, as a combination of DTP-HepB-Hib. There are no additional costs of implementation and administration of these vaccines as these are being given along with traditional vaccines. Thus, the only costs that change across scenarios are vaccine plus injection costs.

The cost of MR is assumed to be \$ 0.48 cents per dose and that of DTP-HepB-Hib is assumed to be \$3.65 per dose (from UNICEF procurement lists).

Based on these assumptions, the itemized annual costs have been calculated and are given in Table 17, across the three scenarios. Table 18 is a consolidated account of the total costs across the three scenarios.

**Table 17: Summary Cost Projection across three scenarios in US\$**

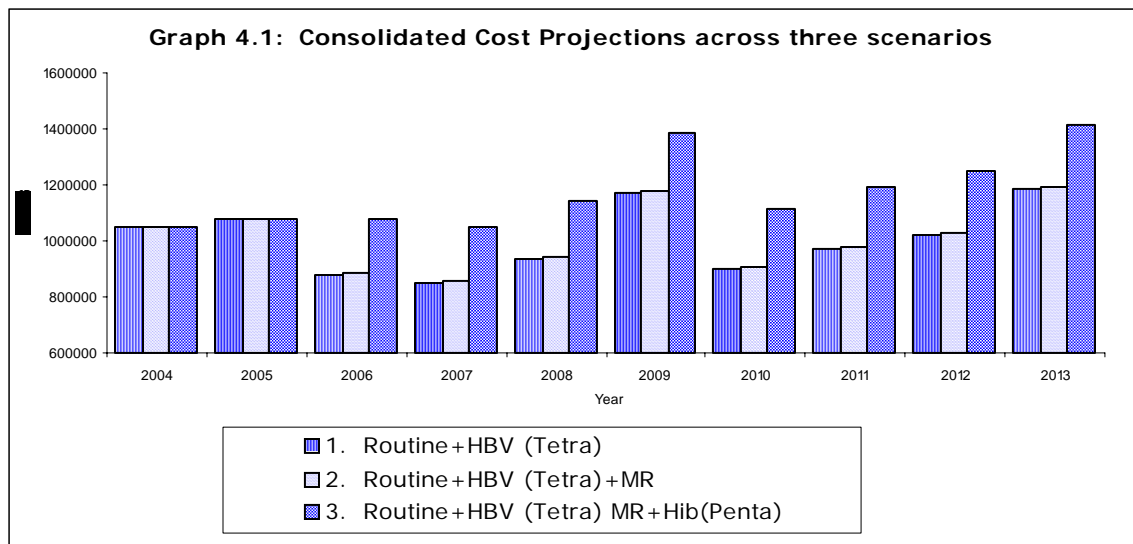
<b>Scenario - I (DTP+HBV 2dose)</b>										
<b>Cost Category</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Personnel	413354	428079	436640	445374	454280	463366	472634	482086	491728	501563
Vaccines	200954	164125	114099	113162	114615	117613	120554	123568	126657	129823
Building	153919	156998	160138	163340	166607	169939	173338	176805	180341	183948
Vehicles	74194	0	38627	0	0	81982	0	42647	0	0
Cold Chain equipment	68086	181468	16361	8497	79101	196427	8466	17626	86924	212619
Injection Supplies	24914	25766	26652	27786	29053	29919	30667	31433	32219	33025
Maintenance &OH	19834	39360	24861	25838	30308	48076	28423	29191	33333	52047
Training & IEC	18783	19159	19542	19932	20332	20738	21153	21576	22007	22447
Transportation	12697	12952	11968	12207	11157	11381	11609	11840	12077	12319
Supervision, Monitoring	7029	10305	10511	10722	10936	11155	11378	11605	11838	12074
Other misc. expenses	2486	2536	2586	2638	2691	2744	2800	2855	2913	2971
<b>Total</b>	<b>996250</b>	<b>1040748</b>	<b>861985</b>	<b>829496</b>	<b>919080</b>	<b>1153340</b>	<b>881022</b>	<b>951232</b>	<b>1000037</b>	<b>1162836</b>

<b>Scenario - II (DTP+HBV 2dose+MR)</b>										
<b>Cost Category</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Personnel	413354	428079	436640	445374	454280	463366	472634	482086	491728	501563
Vaccines	200267	163412	143888	143967	146570	150367	154126	157980	161929	165977
Injection Supplies	24888	25740	28061	29230	30557	31460	32247	33053	33879	34726
Cold Chain equipment	68086	181468	16361	8497	79101	196427	8466	17626	86924	212619
Transportation	12697	12952	11968	12207	11157	11381	11609	11840	12077	12319
Vehicles	74194	0	38627	0	0	81982	0	42647	0	0
Supervision, Monitoring	7029	10305	10511	10722	10936	11155	11378	11605	11838	12074
Training & IEC	18783	19159	19542	19932	20332	20738	21153	21576	22007	22447
Maintenance &OH	19834	39360	24861	25838	30308	48076	28423	29191	33333	52047
Building	153919	156998	160138	163340	166607	169939	173338	176805	180341	183948
Other misc. expenses	2486	2536	2586	2638	2691	2744	2800	2855	2913	2971
<b>Total</b>	<b>995537</b>	<b>1040009</b>	<b>893183</b>	<b>861745</b>	<b>952539</b>	<b>1187635</b>	<b>916174</b>	<b>987264</b>	<b>1036969</b>	<b>1200691</b>

Scenario - III (DTP+HBV 2dose+MR+HiB)										
Cost Category	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Personnel	413354	428079	436640	445374	454280	463366	472634	482086	491728	501563
Vaccines	169,860	165,044	255,597	255,238	256,019	262,836	269,407	276,143	283,046	290,122
Injection Supplies	8,851	25,530	27,964	29,136	30,317	31,511	32,299	33,107	33,934	34,783
Cold Chain equipment	68086	181468	16361	8497	79101	196427	8466	17626	86924	212619
Transportation	12697	12952	11968	12207	11157	11381	11609	11840	12077	12319
Vehicles	74194	0	38627	0	0	81982	0	42647	0	0
Supervision, Monitoring	7029	10305	10511	10722	10936	11155	11378	11605	11838	12074
Training & IEC	18783	19159	19542	19932	20332	20738	21153	21576	22007	22447
Maintenance & OH	19834	39360	24861	25838	30308	48076	28423	29191	33333	52047
Building	153919	156998	160138	163340	166607	169939	173338	176805	180341	183948
Other misc. expenses	2486	2536	2586	2638	2691	2744	2800	2855	2913	2971
Total	949093	1041431	1004795	972922	1061748	1300155	1031507	1105481	1158141	1324893

**Table 18: Total costs over 2004-2013 for the three scenarios**

Scenario	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1. Routine+HBV (Tetra)	996250	1040748	861985	829496	919080	1153340	881022	951232	1000037	1162836
2. Routine+HBV (Tetra)+MR	1002264	1045831	898026	866440	957351	1192568	921230	992446	1042281	1206136
3. Routine+HBV (Tetra) MR + Hib(Penta)	949093	1041431	1004795	972922	1061748	1300155	1031507	1105481	1158141	1324893



Graph 4.1 indicates that alternatives 1 and 2 do not have much cost differences, but the major change comes from alternative 3, which adds Hib to routine immunizations (including HBV) plus MR.

#### **4.4. Sources of secure/probable funding**

**National Government:** The Royal Government of Bhutan is committed to support mother and child programme in the country through its own resources to the extent possible. While in the past its contribution has been about 50 percent, it aims to increase this to as much as possible to reduce dependence on donor support. With this in mind, the Royal Government has set up the Bhutan Health Trust Fund, which is discussed below.

**Bhutan Health Trust Fund (BHTF):** in order to sustain its Primary Health Care aims and objectives, the Royal Government has set up the BHTF, with the primary objective of bringing down the dependency on donors. For every dollar of fund received from a donor, the Royal Government puts in a matching contribution. Once the core funding reaches \$24 million, BHTF will become operational (currently it has \$18 million), and will be used to pay for essential drugs and vaccines. This is slated to be a major source of funding for immunization in the coming years.

**DANIDA:** DANIDA used to be one of the major donors for the programme, but has since then changed its funding priorities, and is giving support to the Finance Ministry directly for a wider range of health activities like water and sanitation.

**UNICEF:** UNICEF directly supports via technical support and training programmes etc. It also gives a small amount for maintenance of cold chains. However, the total direct support given by UNICEF out of its own resources is low.

**JICA/UNICEF:** JICA is now one of the major donors of the immunization programme in Bhutan. It lends support to the programme through UNICEF, mainly for vaccine procurement. There is no formal agreement signed between UNICEF, JICA and the Ministry of Health specifying the period of support for immunization; JICA provides support on an annual request from the government of Bhutan through UNICEF as and when routine non-GAVI supported vaccines and syringes are to be bought.

**WHO:** WHO only lends technical support as it has no budget for programme support.

**GAVI-Vaccine Fund:** Bhutan has received support from GAVI for new and under-used vaccines for 2004-2007 for \$439,000. It has also donated \$100,000 to BHTF. As of now, GAVI is not being listed as part of the future probable funding sources, though it continues to be one of the sources that the national government would explore if the need arises.

The estimated secure and probable funding sources are described in Tables 19 and 20.

As can be seen, the source of secure funding continues to be the government; the GAVI vaccine fund contributes significantly over 2004-2007, but the new allocations are not yet made, and therefore no estimates of funding have been given for GAVI after 2007. As for the government's own sources, till the Tenth plan allocations are finalized, the funding is not being termed secure, and is put under probable sources instead. The other small contributors are UNICEF/JICA and WHO who are put under probable funding instead, since no final commitments have come been yet finalized.

However, under probable sources of funding, apart from the government, which continues to be the most important source, JICA via UNICEF is the main source of fund. Also, the Bhutan Health Trust Fund, is assumed to become majorly operational by 2008, and will be able to contribute significantly to the immunization programme.

**Table 19: Estimated Secure Funding Sources & Gap**

(in US\$ Million)

<b>Secure Funding</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Government	0.58	0.63	0.22	0.20	0.21	0.21	0.21	0.22	0.22	0.23
GAVI-VF	0.22	0.19	0.16	0.17	-	-	-	-	-	-
UNICEF	0.03	0.01	-	-	-	-	-	-	-	-
WHO	0.01	0.01	-	-	-	-	-	-	-	-
JICA/UNICEF	0.13	-	-	-	-	-	-	-	-	-
DANIDA	-	-	-	-	-	-	-	-	-	-
BHTF (Trust Fund)	-	-	-	-	-	-	-	-	-	-
<b>Total secure funding</b>	<b>0.96</b>	<b>0.84</b>	<b>0.39</b>	<b>0.37</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<b>0.22</b>	<b>0.22</b>	<b>0.23</b>
<b>Total resource requirement across scenarios</b>										
1. Routine+HBV (Tetra)	1.00	1.04	0.86	0.83	0.92	1.15	0.88	0.95	1.00	1.16
2. Routine+HBV (Tetra)+MR	1.00	1.04	0.89	0.86	0.95	1.19	0.92	0.99	1.04	1.20
3. Routine+HBV (Tetra) MR+Hib (Penta)	0.95	1.04	1.00	0.97	1.06	1.30	1.03	1.11	1.16	1.32
<b>Funding Gap Scenario 1</b>	<b>0.03</b>	<b>0.21</b>	<b>0.48</b>	<b>0.46</b>	<b>0.71</b>	<b>0.94</b>	<b>0.67</b>	<b>0.73</b>	<b>0.78</b>	<b>0.94</b>
<b>Funding Gap Scenario 2</b>	<b>0.03</b>	<b>0.20</b>	<b>0.51</b>	<b>0.49</b>	<b>0.75</b>	<b>0.98</b>	<b>0.70</b>	<b>0.77</b>	<b>0.81</b>	<b>0.97</b>
<b>Funding gap Scenario 3</b>	<b>-0.01</b>	<b>0.21</b>	<b>0.62</b>	<b>0.60</b>	<b>0.86</b>	<b>1.09</b>	<b>0.82</b>	<b>0.89</b>	<b>0.94</b>	<b>1.10</b>

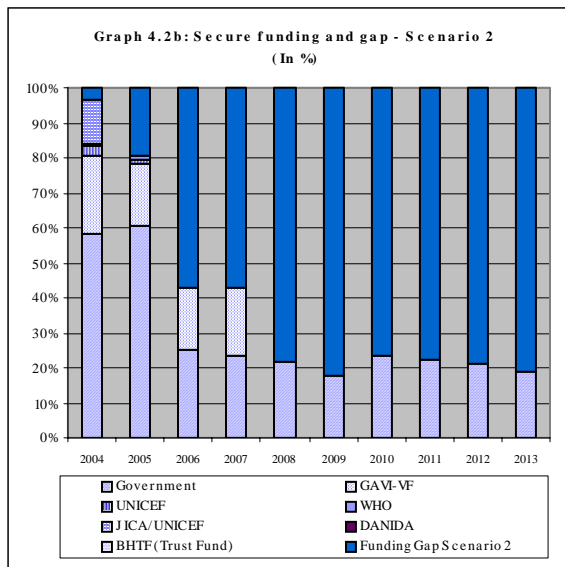
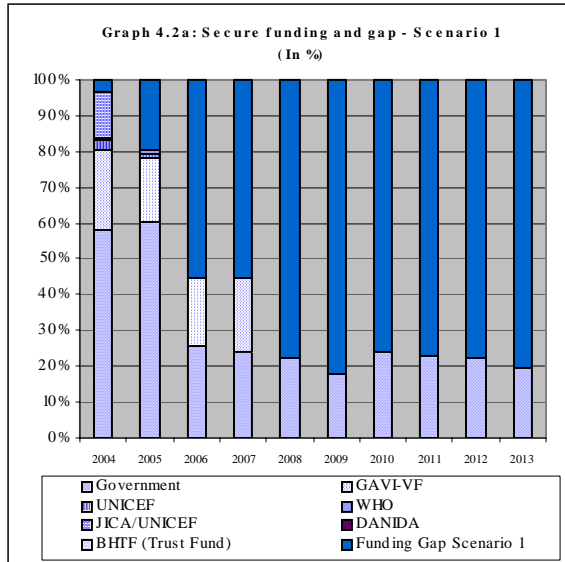
**Table 20: Estimated Secure + Probable Funding Sources & Gap**

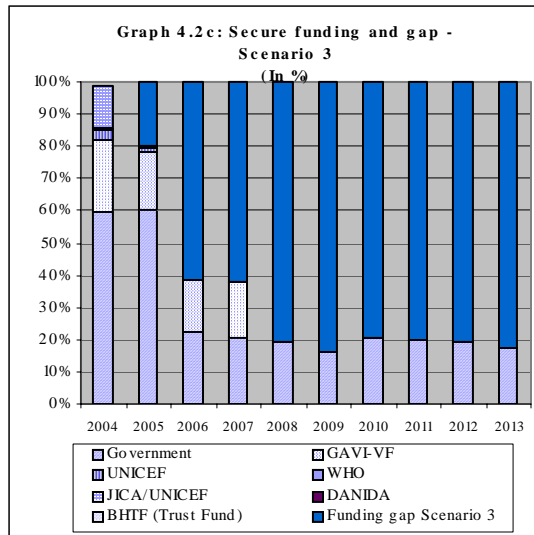
(in US\$ Million)

<b>Secure + Probable Funding</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Government	0.58	0.63	0.63	0.64	0.66	0.69	0.68	0.69	0.71	0.74
GAVI-VF	0.22	0.19	0.16	0.17	-	-	-	-	-	-
UNICEF	0.03	0.02	0.03	0.01	0.01	0.02	0.01	0.01	0.03	0.01
WHO	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.03	0.01
JICA/UNICEF	0.13	0.22	0.05	0.04	0.13	0.23	0.06	0.05	0.12	0.25
DANIDA	-	-	-	-	-	-	-	-	-	-
BHTF (Trust Fund)	-	-	-	-	0.16	0.18	0.16	0.18	0.19	0.19
<b>Total secure funding</b>	<b>0.96</b>	<b>1.06</b>	<b>0.89</b>	<b>0.87</b>	<b>0.96</b>	<b>1.13</b>	<b>0.92</b>	<b>0.95</b>	<b>1.08</b>	<b>1.21</b>
<b>Total resource requirement across scenarios</b>										
1. Routine+HBV (Tetra)	1.00	1.04	0.86	0.83	0.92	1.15	0.88	0.95	1.00	1.16
2. Routine+HBV (Tetra)+MR	1.00	1.04	0.89	0.86	0.95	1.19	0.92	0.99	1.04	1.20
3. Routine+HBV (Tetra) MR+Hib (Penta)	0.95	1.04	1.00	0.97	1.06	1.30	1.03	1.11	1.16	1.32
<b>Funding Gap Scenario 1</b>	<b>0.03</b>	<b>-0.02</b>	<b>-0.03</b>	<b>-0.04</b>	<b>-0.04</b>	<b>0.02</b>	<b>-0.04</b>	<b>0.00</b>	<b>-0.08</b>	<b>-0.05</b>
<b>Funding Gap Scenario 2</b>	<b>0.03</b>	<b>-0.02</b>	<b>0.00</b>	<b>-0.01</b>	<b>-0.01</b>	<b>0.05</b>	<b>-0.01</b>	<b>0.03</b>	<b>-0.04</b>	<b>-0.01</b>
<b>Funding gap Scenario 3</b>	<b>-0.01</b>	<b>-0.02</b>	<b>0.12</b>	<b>0.11</b>	<b>0.10</b>	<b>0.17</b>	<b>0.11</b>	<b>0.15</b>	<b>0.08</b>	<b>0.12</b>

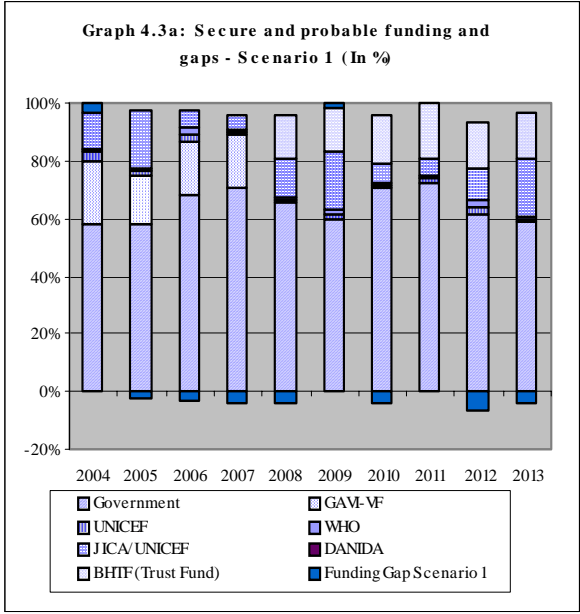
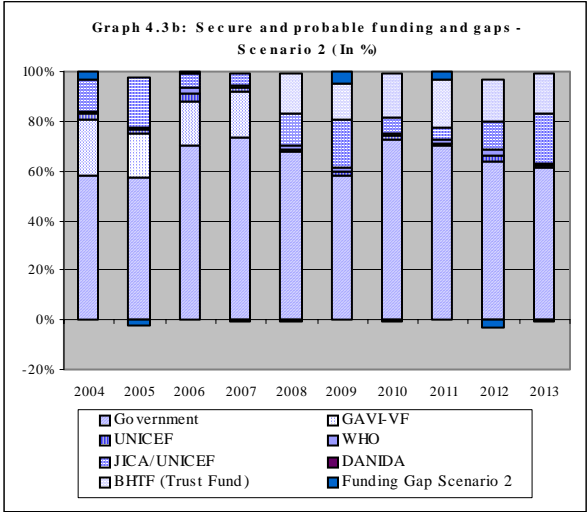
Given this funding scenario, what kind of funding gap exists across the three scenarios?

Graphs 4.2a-4.2c show the funding gap with only secure funding given in Table 4.2. It is very clear that substantial gap exists especially in the latter years for all the scenarios, if only secure funding is taken into account.

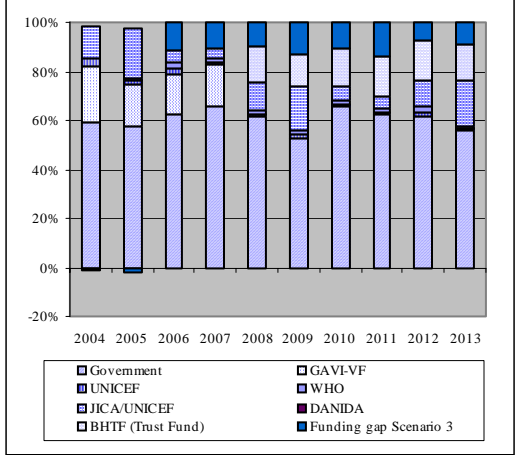




However, when one looks at secure as well as probable funding together, as displayed in Graphs 4.3a-4.3c, it is clear that the gap disappears, and in fact at times there are surpluses left. The maximum gap is about 17 percent, which is low enough to not be a major source of concern. Considering the present partners and the national government's involvement in the EPI programme, this scenario seems realistic if optimistic at times. The main effort would lie in making the probable sources, secure in the near future, so that there is no uncertainty of funding, even in the enhanced immunization programme with newer vaccines. Plans to reduce the gap in terms of reducing vaccine wastage, improving monitoring and supervision and human resource capacity building have been formulated and would help in the overall strategy to reduce the gaps in financing.



Graph 43 c: Secure and probable funding and gaps - Scenario 3 (In %)



## **Section 5 - Sustainable Financing Strategy, Actions and Indicators**

This section examines the challenges and opportunities for programme resources. It then presents the strategy for moving toward financial sustainability in the resources of the national immunization programme.

### **5.1. Current situation:**

There is a strong political commitment to the EPI programme in Bhutan and there is no “threat” to the basic funding of this preventive service.

The current government allocation for health is 9% of the total budget outlay in the 9<sup>th</sup> Five Year Plan, which comes to 4% of the GDP, up from the 2.9% of the total outlay in 1962-67, reflecting government’s commitment to health. This is perhaps the highest for health in the region.

The National Budget for the financial year 2005-06 released by the Ministry of Finance in June 2005 indicates an outlay of 30% for “Social Services” of which, health sector allocation is a very creditable 12%.

All health services in Bhutan are free and government supported. Government of Bhutan is currently exploring levying user fees for health services on a selective basis by setting up optional private cabins in government hospitals to augment its resources. Immunization, however, is being kept out of its purview for the time being.

The only concern is that there may be delays in the provision of the additional funding from national government that is required to meet all the objectives in the multi-year plan. This situation could arise from a reduction in national economic growth or increased demands from health and other sectors (e.g., HIV/AIDS, other chronic diseases, re-emerging disease threats such as TB, for the expanding demands of the curative care in general or for strengthening of public utilities like clean drinking water, sanitation etc.).

### **5.2. Bhutan Health Trust Fund (BHTF):**

The Bhutan Health Trust Fund (BHTF) has been created with the noble objective of providing basic health care free of cost to the Bhutanese citizens at all the times. This is in keeping with the desire of His Majesty the King. The BHTF has a mandate to fully fund “ essential drugs as recommended by WHO, as well as *vaccines, needles and related paraphernalia*, with the interest generated from the Fund”.

The BHTF currently has a corpus of \$18 million and has a target of reaching \$24 million. The Government of Bhutan puts in a matching contribution for all contributions received for BHTF. The BHTF, once fully operational, is expected to pay for essential drugs and vaccines from the income generated.

### **5.3. Scenario Analysis:**

Bhutan's immunization program is fully covered and there is practically no "gap" for the first two scenarios of continuing with the "tetraivalent" vaccine and introduction of "MR" vaccine. Funding gap, however, appears with the third scenario of including "HiB" by replacing the tetraivalent vaccine with pentavalent vaccine. Even here, the gap ranges only between 8-14%, considering both probable and secure funding, and the government of Bhutan would be confident about managing this gap and sustaining the program, in view of increasing government commitment and existence of BHTF.

Nevertheless, the projected funding "gap" does suggest that there is a definite need to mobilize more funding for immunization services and to realize any efficiency gains that lower costs. This is particularly so if the ambitious objectives in introducing newer vaccines are to be realized.

### **5.4. Opportunities for generating program resources:**

The options for dealing with these funding risks are: (i) Reviewing / prioritizing objectives and possibly reducing the speed in which newer vaccines are introduced; (ii) Accelerating the potential improvements in programme efficiency; (iii) Lobbying for a firmly committed share for immunization from the BHTF; (iv) Exploring various additional funding sources such as development loans (eg, from the World Bank or ADB) that would allow programme improvements to occur.

- (i) Government's share in immunization financing is about 50% currently. The government plans to steadily increase its share in immunization to about 74% by 2007 with 16-18% additional projected inflows from the BHTF significantly reducing government of Bhutan's dependence on donors (as projected in the FSP and ratified by Finance Ministry).
- (ii) There is every likelihood that JICA will continue support for EPI beyond FY 2005 with an increased visibility and more direct involvement.
- (iii) Government is also laying great stress on improving program management to reduce vaccine wastage rates with more accurate vaccine demand forecasting and efficient vaccine logistic systems. This will help in cutting costs significantly.

Table 21 below summarizes the major strategies to achieve financial sustainability.

**Table 21: Major strategies and indicators to achieve financial sustainability**

Strategies	Indicators
<b>1. Domestic resourcing for immunization services</b>	
<b>1.1 Enhancing Government Funding for EPI</b>	<p>Government health budget over the years increases by at least 10% in real terms per year. However, the precise level of required future increases will depend on the extent to which donor assistance is increased and the extent to which all the objectives in the multi-year plan are pursued.</p> <p>Firm allocations made in the forthcoming 10<sup>th</sup> Plan to fully cover all components of multi-year plan</p> <p>Firm allocations made by BHTF for routine immunization services on a long term basis.</p>
<b>1.2 Enhancing longer term government funding commitment to various new initiatives</b>	<p>The proportion of health sector expenditure on EPI out of total expenditure (central and district levels) increases to the point where all components of the multi-year plan are fully funded by 2010.</p>
<b>1.3. Explore private sector support</b>	<p>Possible contribution to immunization by private sector e.g. Bhutan Chamber of Commerce &amp; Industry, which is a member of the ICC.</p>
<b>2. External Resources</b>	
<b>2.1. Project grants from the existing pool of bilateral or multilateral agencies like JICA, UNICEF and explore newer donors.</b>	<p>Evidence of discussions held (as appropriate) especially with JICA for the proposed assistance and plans are finalized for determining the share of immunization</p>
<b>2.2 Additional resourcing from GAVI/ Vaccine Fund explored</b>	<p>Evidence of documentation from Ministry of Health (by 2006 end) made for exploring continuation of support from GAVI.</p>
<b>2.3. Development loans such as IDA credit from World Bank and ADB are explored -</b>	<p>Evidence of discussions and plans finalized with these funders (as appropriate).</p>

<b>3. Increasing efficiency of existing resources</b>	
<p><b>3.1. Reduction of vaccine wastage rates</b></p> <ul style="list-style-type: none"> <li>i) Improved stock management,</li> <li>ii) Introduction of a multi dose open vial policy,</li> <li>iii) Introduction of smaller vial sizes wherever possible</li> </ul>	<p>.</p> <p>Evidence of Vaccine Wastage rate brought down across the board to following levels by the end of 2007.</p> <p>BCG&amp; Measles - 60%, T-Series Vaccines – 40% (10 dose vials) &amp; 10% ( 2 dose vials), OPV-40%</p>
	<p><b><i>Decentralization:</i></b></p> <p>Dzongkhak (district) Medical Officer to be made fully responsible for immunization services. Decentralization to be completed by the end of 2005.</p> <p><b><i>Supervision &amp; Monitoring:</i></b></p> <p>More effective and supportive supervision . Plan for systemized visits with checklists for all levels should be developed by the end of 2005.</p> <p>Facility based micro planning system developed and implemented by 2006.</p> <p><b><i>Trainings:</i></b></p> <p>Refresher trainings to program managers to be completed by 2006.</p>
	<p>Cold Chain equipment inventory and replacement plan established by 2005 and availability of cold chain facilities expanded by 2007.</p> <p>Effective vaccine logistics systems instituted at central and district levels to avoid stockouts and excess stocking</p> <p>Scaled up contractual arrangement with local transport companies for use of vehicles, which can reduce transport costs to rationalize and optimize vaccine delivery systems.</p>
<p><b>3.3 Rationalize IEC/ social mobilization spending to achieve savings</b></p>	<p>Greater reliance on inter-personal communications rather than mass media.</p>

<b>4. Improving reliability of existing resources:</b>	
	Evidence of lobby with Ministry of Finance for creation of an EPI budget head for sustained, increased government funding of EPI
	Evidence of high level advocacy with traditional donors for continued funding support and explore new donors.
	Commitment from BHTF for longer-term support immunization.

### 5.5 Improving the Reliability of Resources

The Policy and Planning Division (PPD), MoH, will advocate for creation of a budget head for immunization service, and pursue the matter with the MoF commencing from the 2005-2006 fiscal year. It is expected that when Tala Hydel Project gets commissioned, the revenue situation of Bhutan will improve further and budget head could sustain the combo vaccines currently supported by GAVI.

MoH will also advocate with BHTF for a firm commitment for longer-term support to immunization in keeping with fund's mandate.

JICA's support of the immunization program is currently through UNICEF. In order to improve the reliability of its continued support, the program will JICA's input much more visible in the government and as well as in the communities at large through available media focus. High level advocacy will be carried out in an effort to garner enhanced JICA support for the immunization program.

Currently, there is not enough information available with MoH related to budget implementation for EPI. MoH will strive to institute systems for improving the flow of information related to EPI budget and revenues.

Although this analysis is suggestive of some risk to the financing of immunization services, part of the risk is simply due to the long length of the forward time commitment covered by the analysis. It is a basic fact that neither donors nor Governments can commit to funding so far out into the future which is why even Government funding is shown as probable starting 2006 onwards.

However, it is an accepted fact that fixed costs like personnel, which constitute almost 50% of the total immunization costs, will continue to be entirely supported by the government. It is also rational not to entirely pre-commit the health budget in this way as it allows for some flexibility in being able to divert health funding to emerging crises such as newer disease threats. As such there is no threat of basic funding to immunization services in Bhutan.

## References

Annual Health Bulletin 2003, Royal Government of Bhutan, Ministry of Health

National Health Survey 2000: A Report. Department of Health Services, Ministry of Health and Education, Royal Government of Bhutan.

National EPI Services Manual. Public Health Division. Department of Health Services. Ministry of Health and Education.

Statistical Yearbook of Bhutan 2004. National Statistical Bureau. Royal Government of Bhutan.

Ninth Plan Sector Document (2002-2007). Health Sector. Policy and Planning Division (Health). Ministry of Health and Education.

Expanded Programme on Immunization (EPI) Bhutan. Multi-Year Plan of Action 2002-2006. Public Health Division. Department of Health Services. Ministry of Health and Education.

DANIDA in Bhutan : Liaison Office in Denmark.

Health Trust Fund: Partnership for sustainable Primary Health Care. Royal Government of Bhutan.

Bhutan National Human Development REPORT 2000: Gross national happiness and human development - searching for common ground, The Planning Commission Secretariat, Royal Government of Bhutan

Bhutan National EPI Coverage Evaluation Survey, 2002 : Public Health Division, Department of Health Services, Ministry of Health & Education, RGB, Thimpu

WHO/UNICEF Review of National Immunization Coverage 1980-2003, Bhutan, August 2004

Bhutan EPI Fact Sheet, 2004 : World Health Organization, SEARO – IVD

Proposal to GAVI, June 2000 : The Royal Government of Bhutan

## **Section 6 - Stakeholders Comments**

Dialogue with the traditional collaborating partners could not get any funding commitment as far as the secured funding for immunization services are concerned. The reason being that they to have no budget for a definite time period as the fund is usually obtained on an annual request basis. From the discussions thus far, it appears that the traditional partners will continue supporting the EPI program and not withdraw their support abruptly. It can therefore, be construed that they would not down grade their support for the next few years. Other stakeholders expressed their interest and willingness to support the program, but short of making any commitment in terms of actual funding commitment. Bhutan Chamber of Commerce and Industries (BCCI) represented in PCM by its General Secretary, has already made a substantial contribution to the BHTF.