



# BHUTAN



## SAARC DEVELOPMENT GOALS

Mid-Term Review Report  
2011

Gross National Happiness Commission  
Royal Government of Bhutan



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#### **Acknowledgement**

The Gross National Happiness Commission would like to thank the representatives from the sectors for their valuable comments and feedback. We would also like to extend our appreciation to Research and Evaluation Division, GNHC for successfully publishing this report.

## Acronyms

AIDS	Acquired Immune Deficiency Syndrome
AFS	Annual Financial Statements
BMIS	Bhutan Multiple Indicator Survey
CFCs	Chloro-Fluoro-Carbons
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
HDI	Human Development Index
HDR	Human Development Report
HIV	Human Immunodeficiency Virus
ICT	Information & Communication Technology
IDD	Iodine Deficiency Disorders
IMR	Infant Mortality Rate
ISACPA	Independent South Asian Commission on Poverty Alleviation
LFS	Labour Force Survey
MDGs	Millennium Development Goals
MoAF	Ministry of Agriculture and Forests
MMR	Maternal Mortality Ratio
NEC	National Environment Commission
NFE	Non Formal Education
NER	Net Enrolment Ratio
ODS	Ozone Depleting Substance
PAR	Poverty Analysis Report
PHCB	Population and Housing Census of Bhutan

SDGs	SAARC Development Goals
STD	Sexually Transmitted Disease
SYB	Statistical Year Book
TB	Tuberculosis
U5MR	Under-Five Mortality Rate
UN	United Nations
UNDP	United Nations Development Programme



# ཀླུ་ཡོངས་དགའ་སྐྱིད་དབལ་འཛོམས་ལྷན་ཚོགས། Gross National Happiness Commission



## Foreword

The SAARC Development Goals – Mid-Term Review Report 2011 is the first publication by Bhutan on the progress of SDGs. This publication is a testament of Bhutan's full commitment in achieving SDGs. The socio-economic development policy in Bhutan is guided by the philosophy of Gross National Happiness, which places equal importance to other areas of development such as health, education, justice, environment and poverty. The report takes stock of the progress made thus far in each of the 22 goals and identifies issues and concerns that require more attention. It is also intended to raise awareness among the decision makers and renew political commitments to these important goals.

The SDG report 2011 shows that Bhutan is on track on most of the indicators. Under the livelihood theme, Bhutan has fared well in the areas of reducing poverty and hunger, reducing inequality, increasing rural infrastructures, increasing access to justice, and in mainstreaming concerns of women and children. Challenges, however, remain in addressing rising unemployment, especially among the youth. With regard to the health theme, the report reveals that child and maternal health have improved. Incidences of tuberculosis and malaria have also decreased while access to safe drinking water and sanitation has increased. However, shortage of doctors continues to be a problem.

In the area of education, gross enrolment ratio has exceeded 100 % with 117 % in 2010. Bhutan has achieved gender parity at both primary and secondary levels. However, the adult literacy rate was low with only 52.8 % in 2005. With respect to environment conservation, 72.5 % of the land area is covered with forest, out of which 51.32% of the land area is designated as protected areas and biological corridors. The quality of air, water and soil is not a major concern. However, solid waste disposal is increasingly becoming an environmental problem, especially in the urban areas of Thimphu and Phuentsholing.

Lastly, I would like to take this opportunity to extend my sincere appreciation to representatives from the sectors for their valuable feedback and comments and I commend the Research and Evaluation Division, GNH Commission for successfully publishing this important report.

(Karma Tshiteem)  
Secretary

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## Executive Summary

### Livelihood SDGs

- Poverty reduction has always been an important objective of Bhutan's development policies and plans. Bhutan adopted poverty reduction as the overall objective of the 10<sup>th</sup> Five-Year Plan (2008-2013). In addition, targeted programmes such as the Rural Economy Advancement Programme and the Land Rehabilitation Programme are being carried out.
- Malnutrition in children under five years of age was reduced from 17 % in 1999 to 12.7 % in 2010. In case of stunting, it was reduced from 40 % in 1999 to 33.5 % in 2010. With regard to wasting, it increased from 2.6 % in 1999 to 5.9 % in 2010.
- The proportion of population living below minimum level of dietary energy consumption increased from 3.8 % in 2003 to 5.9 % in 2007. Similar increase was also seen at the rural level from 4.7 % in 2003 to 8 % in 2007. However, both studies in 2003 and 2007 showed that a very negligible proportion of urban population lived below minimum level of dietary energy consumption.
- Proportion of population living under poverty line was reduced to 23.2 percent in 2007 from 31.7 percent in 2003. About 98.1 percent of the poor population lived in rural areas. Therefore, poverty in Bhutan continued to be a rural phenomenon.
- The Gini coefficient at national level decreased from 0.416 in 2003 to 0.352 in 2007, which reflected the decrease in inequality. Similar improvement was also seen at both urban and rural levels.
- Under the school feeding programme, WFP supports the programme by providing two meals a day to students in both primary and secondary schools with boarding facilities. The government supplements the programme by providing stipend to cover the third meal. 41,003 students in 2007 and 36,160 students in 2009 benefitted from the school feeding programme.
- In terms of iodine deficiency disorders, Bhutan effectively brought down goiter occurrence from 65.4% in 1983 down to less than 5% in 2005.
- The early initiation of breastfeeding in 2010 was 59 percent. In case of exclusive breast feeding for 6 months, BMIS reported it to be 48.7 % in 2010.

- Unemployment rate steadily rose over the years. In 2001, unemployment rate was only 1.9 %. However, according to the Labour Force Survey 2011, the unemployment rate increased to 3.1 % with female unemployment higher at 4.5 % as compared to male unemployment at 1.8 %. Rural unemployment had risen from only 0.6 % in 2001 to 2.1 % in 2011. Similarly, urban unemployment also increased from 4.1 % in 2001 to 5.8 % in 2011. In addition, in 2011 youth unemployment was high at 9.3 % with female youth (20-24 age group) unemployment at 12.1 %.
- Local government expenditure as percentage of total government expenditure steadily increased with increasing capacity of the local governments. It increased from 17.9 % in 2001 to 22.9 % in 2010. In addition to the local government expenditure, most of the expenditure of central sectors and agencies were incurred for the programmes that directly benefited districts and the rural population.
- The Government places highest priority to road connectivity among other development activities in addressing concerns of the rural poor. There were 529.5 km of feeder road and 251.5 km of feeder road in 2004. With vigorous implementation of development plans, there were 910.8 km of feeder road and 1980.3 km of farm road in 2010.
- Since electricity is the most important element that contributed to better livelihood of the rural population, government pledged to electrify all households by 2013 under rural electrification project. According to Mid-Term Review Report of 10<sup>th</sup> Five-Year Plan, 73 % of the households in rural areas were electrified as of March 2011, which is a significant increase from only 54 % in 2007.
- In addition to fixed telephone connectivity, Bhutan achieved 100 % mobile connectivity to rural areas by the end of September 2011.
- Bhutan is signatory to Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) since 1981 and is also a signatory to Convention on the Rights of the Child (CRC) since 1990. The National Commission for Women and Children (NCWC) was established in 2004 as an agency to monitor and coordinate all policies and activities related to protection of rights of women and children. In addition, many other institutions were established.

- According to BMIS 2010, about 18.4 % of children aged 5-14 were working as per the definition of child labour used by UNICEF. It was also reported that child labour was more common in rural areas at 22.2 percent as compared to 8.7 % of children in urban areas.
- According to Labour Force Survey Report (LFSR) 2011, there was no gender disparity in terms of overall employment with 98.2 % for males and 95.5 % for females.
- According to Bi-Annual Civil Service Statistics Reports, there was steady increase in the number of females in the civil service from 21.23 % in September 2000 to 31.62 % in June 2011. However, the number of females at decision levels is still very low.
- BMIS 2010 reported that 30.8 % of the women aged 15-49 years were married before they attained 18 years of age. It was also revealed that 6.7 % of the women married before the age of 15 years.
- The establishment of courts in all the 20 districts and the 15 sub-districts made access to Justice easier and affordable to the people.
- There was a steady increase in the number of cases decided in less than 108 days from 3753 cases in 2000 to 6643 cases in 2009. Percentage of cases pending in all level of courts was negligible at only 13.8 %.

### Health SDGs

- With increased births attended by skilled personnel, institutional delivery and other ante natal care services, there was significant achievement in reducing maternal mortality ratio from 560 per 100,000 live births in 1990 to 255 per 100,000 live births in 2000.
- With constant advocacy and campaigning, percentage of births attended by skilled personnel increased from 24 % in 2000 to 64.5 % in 2010.
- With sustained targeted advocacy campaigns on family planning, total fertility rate remarkably reduced from 4.7 in 2000 to 2.6 in 2010.
- The immunization coverage increased from 85 % in 2000 to 94.5 % in 2008.
- Under-5 mortality rate significantly declined from 84 % in 2000 to 69 % in 2010. Similarly, infant mortality rate was reduced from 60.5 % in 2000 to 47 % in 2010.

- According to Bhutan National Health Accounts 2009-2010, household expenditure on health services accounts for 11 % of the total household expenditure. Similarly, government expenditure on providing health services accounts for 3.68 % of GDP. Major portion of the budget for health were allocated to primary health care with 58 % in 2010.
- Ratio of doctors per 1000 people did not increase much with 0.13 in 2005 to only 0.26 in 2010.
- Access to safe sanitation increased from 88 % in 2000 to 93 % in 2010.
- The number of HIV cases detected gradually increased from only 38 in 2000 to alarming figure of 246 in 2010.
- The incidence of tuberculosis was 190 per 100,000 in 2010.
- Malaria cases significantly declined from about 87 cases per 10,000 in the year 2000 to only 7 cases per 10,000 in the year 2010. Similarly, the number of deaths caused by malaria was also contained with only 1 death in the year 2010 as compared to 15 deaths in the year 2000.

### Education SDGs

- Bhutan achieved universal gross primary enrolment ratio in 2007 with 106 %. In 2010, gross primary enrolment ratio further rose to 117 %. In terms of Net Primary Enrolment Ratio, Bhutan progressed well from 62 % in 2000 to 93.7 % in 2010.
- Gender parity at both primary and secondary levels has significantly improved. The ratio of girls to boys at primary level increased from 82 % in 2000 to 99.40 in 2010. The ratio of girls to boys at secondary level was only 78 % in 2000, while it already surpassed the target with 103.50 % in 2010.
- Primary completion rate (Pre-Primary to class VI) significantly progressed from 75.8 % in 2007 to 98 % in 2010.
- According to Population and Housing Census of Bhutan 2005, the adult literacy rate in 2005 was 52.8 %. There was gender disparity in adult literacy, wherein male adult literacy was 65 % and female adult literacy was only 38.7 % in 2005.

## Environment SDGs

- With strong environmental conservation policy and institutions in place, 72.5 % of the land area is covered with forest according to the current record.
- As of June 2011, Bhutan had 313 community forests covering an area of 36,600 ha and involving 14,700 households.
- The quality of water resources at the macro level was very high. However, there were localized water pollution problems due to contamination along the banks of streams and rivers.
- Government policies support the protection and conservation of soil quality in the country.
- The analysis of the recorded data from June 2004 and May 2007 showed an average respirable particulate matter (PM10) concentration of 20 µg/m<sup>3</sup>, which was considerably lower than international (PM10) concentration levels.
- Industry sector was the largest source of CO<sub>2</sub> emission at 133.69 million kg. The second largest source of CO<sub>2</sub> emission was from vehicles at 42.99 million kg followed by domestic source at 27.18 million kg. In total, CO<sub>2</sub> emissions accounted for 228.46 million kg in 1994.
- According to Population and Housing Census of Bhutan (PHCB) 2005, 37.3 % of the total households in Bhutan used firewood as the primary source of energy for cooking.
- 51.32% of the land area is under protected areas and biological corridors.
- The Forest and Nature Conservation Act of Bhutan 1995 lists a total of 30 species of wild animals and plants in Schedule I as totally protected species.
- Thimphu and Phuentsholing have accumulated 36.7 and 24.7 tons of municipal solid waste respectively in a day at the landfill sites in 2005 (RSPN 2005). In terms of per capita solid waste accumulation at the landfill per annum, it was estimated to be 168 kg for Thimphu and 438 kg for Phuentsholing.
- Recognizing the emerging problem of municipal solid waste generation, Bhutan enacted Waste Prevention and Management Act of Bhutan, 2009

## Introduction

The SAARC Leaders during the Thirteenth Summit (Dhaka, 12-13 November 2005) endorsed the SAARC Development Goals (SDGs) as recommended by the Independent South Asian Commission on Poverty Alleviation (ISACPA). SDGs have 22 goals, which are divided into four themes of livelihood, health, education and environment.

The Twenty-seventh session of the Council (Dhaka, 1 – 2 August 2006) agreed that the SDGs would be achieved in next five years starting from the year 2007, and a mid-term review on the attainment of SDGs would be undertaken towards the end of the third year. The meeting on the 'Inter-Governmental Mechanism for Mid-Term Review on the Achievement of the SDGs and Plan of Action on Poverty Alleviation' was held at Kathmandu on 28-29 September 2010. During the meeting, draft framework for the SDGs report prepared by India was approved and agreed to prepare the report as per the framework.

In addition to SDGs, Bhutan is also a signatory to the UN Millennium Declaration in 2000 committing to achieve Millennium Development Goals (MDGs) by 2015.

In realizing the above commitments, Bhutan declared the overall goal of the 10<sup>th</sup> Five-Year Plan (FYP) (2008-2013) to alleviate poverty and contribute towards achieving SDGs and MDGs. As a result, the SDGs and MDGs were mainstreamed in all the sector plans and programmes of the 10 FYP. With more than half way through to 10 FYP, the mid-term review of the 10<sup>th</sup> FYP was successfully completed in 2010.

Therefore, it is timely and required by the twenty-seventh session of the Council (August 2006) to prepare mid-term review report of SDGs. The report highlights the progress made thus far and identifies notable issues and concerns in each of the 22 goals. The report will help raise awareness among the decision makers and renew political commitments in achieving SDGs. While we have tried to go by the indicators as laid down by ISACPA, some of the indicators had to be localized in terms of national context and availability of the information.

The report is organized into sections based on four themes of livelihood, health, education and environment. The progresses of SDGs under each theme are reviewed.

## SDGs Framework: Goals and Indicators

### Livelihood SDGs

<b>Goal 1</b>	<b>Eradication of Hunger Poverty</b>
<b>Indicator 1</b>	Percentage of underweight children under 5 yrs
<b>Indicator 2</b>	Proportion of population below minimum level of dietary energy consumption
<b>Goal 2</b>	<b>Halve proportion of people in poverty by 2012</b>
<b>Indicator 1</b>	Head Count poverty ratio based on nationally determined poverty line
<b>Goal 3</b>	<b>Ensure adequate nutrition and dietary improvement for the poor</b>
<b>Indicator 1</b>	Number of beneficiaries of school feeding programme (WFP)
<b>Indicator 2</b>	Iodine Deficiency Disorders (Goiter Occurrence)
<b>Indicator 3</b>	Exclusive breastfeeding for 6 months
<b>Goal 4</b>	<b>Ensure a robust pro-poor growth process</b>
<b>Indicator 1</b>	Budgetary expenditures of the local governments as % of total govt. expenditures
<b>Indicator 2</b>	Reduction of income/consumption inequality (Gini Coefficient)
<b>Indicator 3</b>	Unemployment rate
<b>Goal 5</b>	<b>Strengthen connectivity of poorer regions and of poor as social group</b>
<b>Indicator 1</b>	Transport connectivity for the poor in rural areas
<b>Indicator 2</b>	Mobile connectivity
<b>Indicator 3</b>	Percentage of rural population having access to electricity
<b>Goal 6</b>	<b>Reduce social and institutional vulnerability of the poor, women and children</b>
<b>Indicator 1</b>	Percentage of children ( age 5-14) who are working
<b>Indicator 2</b>	Employment rate of women
<b>Indicator 3</b>	Early Marriage
<b>Indicator 5</b>	Birth registration

**Indicator 6** Sex ratio at birth

**Goal 7 Ensure access to affordable justice**

**Indicator 1** Average time required in disposal of legal disputes

**Indicator 2** Access to alternate disputes resolution

**Indicator 3** Access to free legal aid for the poor

**Goal 8 Ensure effective participation of poor and of women in anti-poverty policies and programmes**

**Indicator 1** Percentage of women in civil services

**Indicator 2** Gender Responsive Budgeting

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**Health SDGs**

**Goal 9 Maternal health**

**Indicator 1** Maternal Mortality Ratio (per 100, 000 live births)

**Indicator 2** Percentage of births covered by skilled attendants

**Indicator 3** Total fertility rate

**Goal 10 Child health**

**Indicator 1** Immunization coverage

**Indicator 2** Under 5 mortality rate (U5MR)

**Indicator 3** Infant Mortality Rate

**Goal 11 Affordable health care**

**Indicator 1** Percentage of total household expenditure

**Indicator 2** Total government expenditure on health as a % of GDP

**Indicator 3** Proportion of budget allocated to primary health care vis-à-vis total health budget

**Indicator 4** Number of doctors per 1000 population

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<b>Goal 12</b>	<b>Improved hygiene and public health</b>
<b>Indicator 1</b>	Percentage of population with access to safe drinking water
<b>Indicator 2</b>	Percentage of population having access to sanitation
<b>Indicator 3</b>	HIV cases detected
<b>Indicator 4</b>	TB cases per 100,000
<b>Indicator 5</b>	Malaria incidences per 10,000

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#### Education SDGs

<b>Goal 13</b>	<b>Access to primary/community schools for all children, boys and girls</b>
<b>Indicator 1</b>	Gross primary enrolment ratio
<b>Indicator 2</b>	Net primary enrolment ratio
<b>Indicator 3</b>	Gender parity at primary level
<b>Indicator 4</b>	Gender parity at secondary level
<b>Goal 14</b>	<b>Completion of primary education cycle</b>
<b>Indicator 1</b>	Primary completion rate (pre-primary to class VI)
<b>Goal 15</b>	<b>Universal functional literacy</b>
<b>Indicator 1</b>	Adult literacy rate
<b>Goal 16</b>	<b>Quality education at primary, secondary and vocational levels</b>
<b>Indicator 1</b>	Percentage of trained teachers
<b>Indicator 2</b>	Students teacher ratio

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<b>Environment SDGs</b>	
<b>Goal 17</b>	<b>Acceptable level of forest cover</b>
<b>Indicator 1</b>	Percentage of forest cover
<b>Indicator 2</b>	Number of community forests
<b>Goal 18</b>	<b>Acceptable level of water and soil quality</b>
<b>Indicator 1</b>	Chemical fertilizers/ pesticides consumption per ha of arable land
<b>Indicator 2</b>	Percentage of contaminated wells/water sources
<b>Goal 19</b>	<b>Acceptable level of air quality</b>
<b>Indicator 1</b>	Carbon dioxide emissions (million kg)
<b>Indicator 2</b>	Particulate matter (PM <sub>10</sub> ) in the major metropolitan centers
<b>Indicator 3</b>	Percentage of total households using firewood for cooking
<b>Goal 20</b>	<b>Conservation of bio-diversity</b>
<b>Indicator 1</b>	Number of protected areas out of the total land area (with management plan)
<b>Indicator 2</b>	Percentage of protected areas out of the total land (with management plan)
<b>Indicator 3</b>	Number of protected species
<b>Goal 21</b>	<b>Wetland conservation</b>
<b>Indicator 1</b>	Area of paddy harvested (wetland) in acres
<b>Goal 22</b>	<b>Ban on dumping of hazardous waste, including radio-active waste</b>
<b>Indicator 1</b>	Solid waste generation per capita (kg p.a.) in Thimphu
<b>Indicator 2</b>	Regulatory framework for hazardous waste treatment in place

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## LIVELIHOOD SDGs

## Goal 1: Eradication of Hunger Poverty

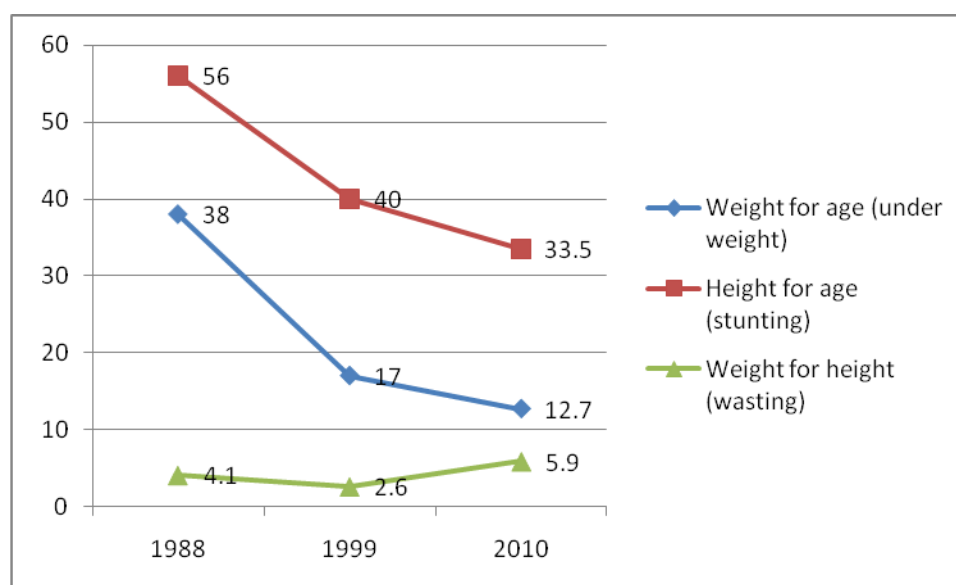
Indicators	2000	2007	2010	2012
1. Percentage of underweight children under 5 yrs	17 % ('99)	-	12.7%	9 %
2. Proportion of population below minimum level of dietary energy consumption	3.8 % (03)	5.90 %	-	1.90 %

Source: Annual Health Bulletin 2002, PAR 2004, PAR 2007, BMIS 2010

### Underweight, stunting and wasting

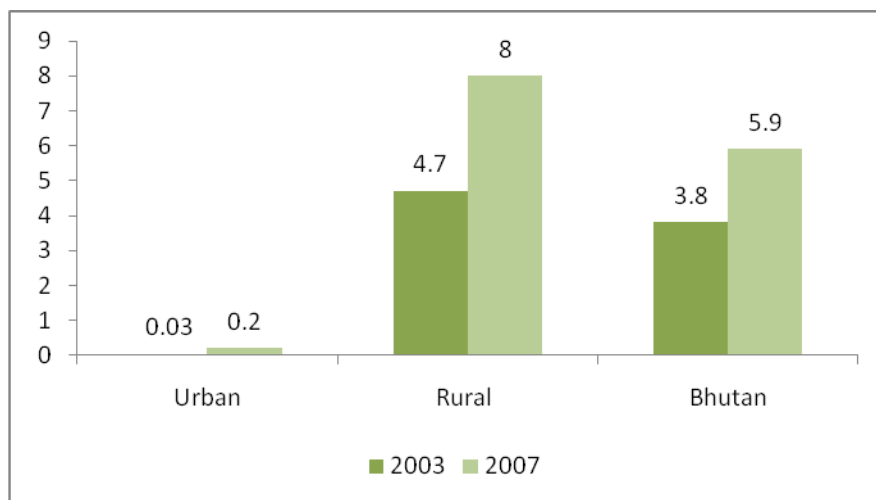
Malnutrition in children under five years of age was reduced from 17 % in 1999 (Ministry of Health 2002) to 12.7 % in 2010 (BMIS 2010). In case of stunting, it was reduced from 40 % in 1999 to 33.5 % in 2010. With regard to wasting, it increased from 2.6 % in 1999 to 5.9 % in 2010. However, it should be noted that since methodologies used during 1999 and 2010 were different, the figures may not be directly comparable in terms of trend.

**Figure 1: Percentage of under five children who are under weight, stunted and wasted**



Source: Annual Health Bulletin 2002, BMIS 2010

**Figure 2: (Percent of Population) Subsistence headcount ratios in 2003 and 2007**



*Source: PAR 2004, PAR 2007*

### **Dietary energy consumption**

The proportion of population living below minimum level of dietary energy consumption increased from 3.8 % in 2003 (PAR 2004) to 5.9 % in 2007 (PAR 2007). Similar increase was also seen at the rural level from 4.7 % in 2003 to 8 % in 2007. These increases in the proportion of population below minimum level of dietary energy consumption may be attributed to the increase in the number of food items in estimating food consumption for Bhutan Living Standard Survey (BLSS) 2007 as compared to BLSS 2003. However, both studies in 2003 and 2007 have shown that a very negligible proportion of urban population live below the minimum level of dietary energy consumption.

## Goal 2: Halve Proportion of People in Poverty by 2012

Indicators	2003	2007	2010	2012
1. Head Count poverty ratio based on nationally determined poverty line	31.70%	23.2%	-	15%

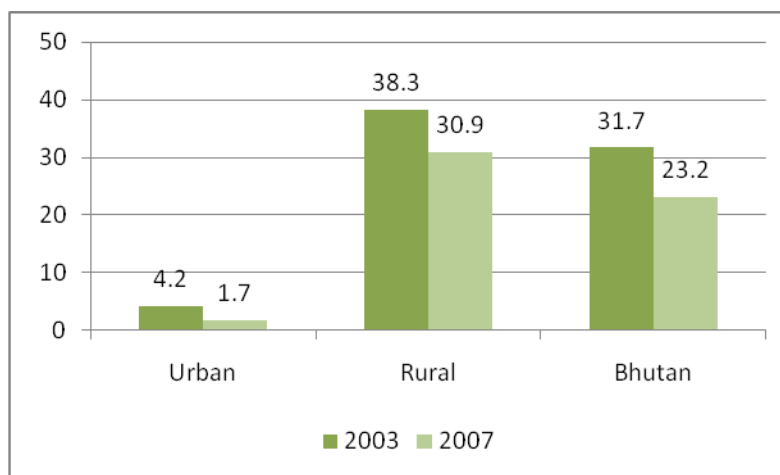
Source: PAR 2004, PAR 2007

### Incidence of poverty

Poverty line in Bhutan was formed by setting a food poverty line and a non-food poverty allowance. The total poverty line in 2003 was established at Nu. 740.36 per person per month. Based on this poverty line, it was estimated that 31.70 percent of the population lived under poverty in 2003.

However, in 2007, Bhutan revised total poverty line to Nu. 1096.94 per person per month, according to which, 23.2 percent of the population live under poverty.

**Figure 3: (Percent of Population) Poverty headcount incidences in 2003 and 2007**

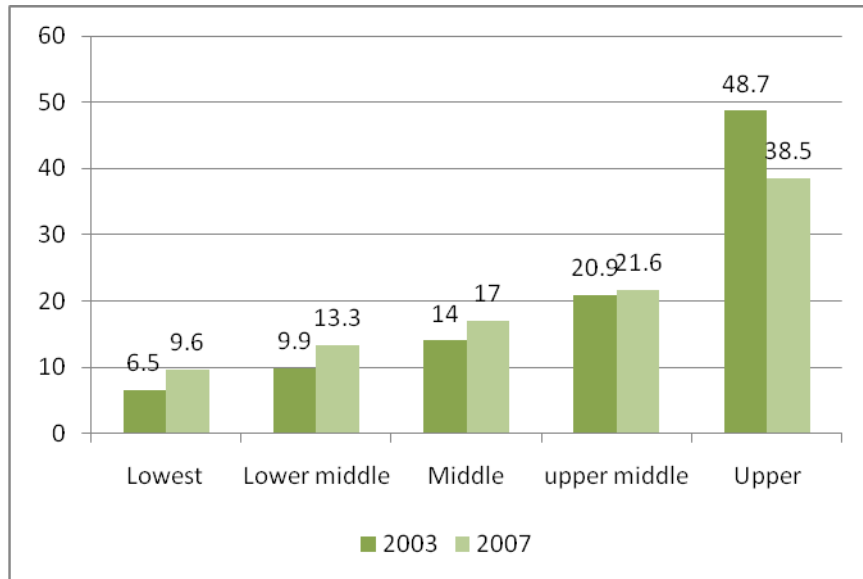


Source: PAR 2004, PAR 2007

From the above figure 3, it can be noted that poverty headcount incidences significantly declined in both rural and urban areas. However, it may also be noted that there were higher incidences of poverty in rural areas with 38.3 percent in 2003 and 30.9 percent in 2007, while only 4.2 percent and 1.7 percent urban population were poor in 2003 and 2007 respectively. According to PAR 2007, about 98.1 percent

of the poor population lived in rural areas. Therefore, poverty in Bhutan continues to be a rural phenomenon.

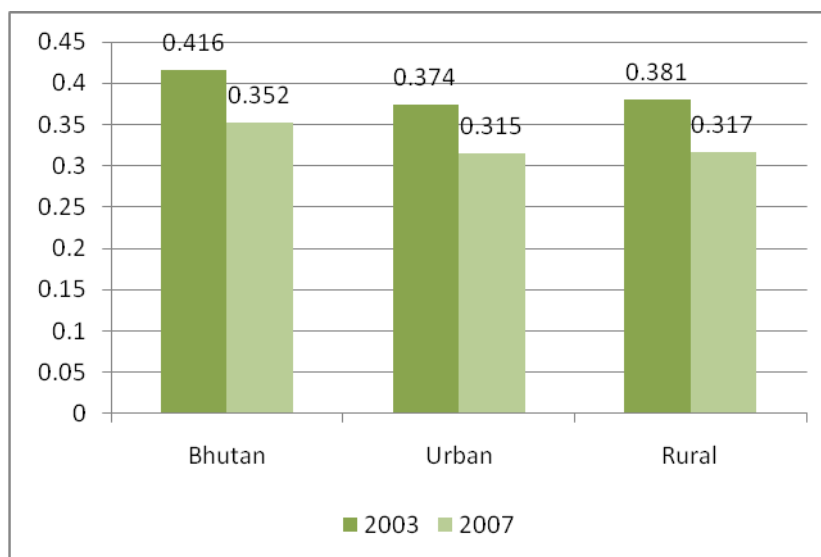
**Figure 4: Shares of national consumption by population per capita consumption quintiles in 2003 and 2007**



*Source: PAR 2004, PAR 2007*

The figure 4 above shows the shares of national consumption by population per capita consumption quintiles in 2003 and 2007. It was reported that the ratio of fifth to first quintile decreased from 7.6 in 2003 to 6.7 in 2007, which suggests the improving trend in consumption inequality. It can also be seen in the figure above that the shares of lowest to upper middle quintiles increased while share of upper quintile decreased during the year 2007 as compared to the year 2003.

**Figure 5: Gini Coefficients in 2003 and 2007**



*Source: PAR 2004, PAR 2007*

As can be seen from the figure 5 above, the Gini coefficient at national level decreased from 0.416 in 2003 to 0.352 in 2007, which reflects the decrease in inequality. Similar improvement was also seen at both urban and rural levels.

### Goal 3: Ensure Adequate Nutrition and Dietary Improvement for the Poor

Indicators	2000	2007	2010	2012
1. Number of beneficiaries of school feeding programme (WFP)	-	41003	36160 ('09)	-
2. Iodine Deficiency Disorders (Goiter Occurrence)	65 % (83)	5 % ('05)		
3. Exclusive breastfeeding for 6 months	-	10.4 % ('08)	48.7 %	

Source: Annual Education Statistics 2009, MDG 2005, BMIS 2010

#### School feeding programme

Under the school feeding programme, the World Food Programme (WFP) supports the programme by providing two meals a day to students in both primary and secondary schools up to grade VIII with boarding facilities. The Royal Government funds the programme and provides stipend to cover the third meal for students at this level and all three meals at the Middle and Higher Secondary level. This programme has helped improve access to education particularly to those from poor and food insecure families in remote areas. In addition to its effect of increasing enrolment and attendance rates and reducing the dropout rates, the school feeding programme has also helped improve the short term nutritional status of school going children. As given above in the table, 41,003 students in 2007 and 36,160 students in 2009 benefitted from the school feeding programme.

#### Micronutrient supplements

Recognizing the importance of nutritional wellbeing, Bhutan adopted World Declaration and Plan of Action for Nutrition in 1992 (MoH 2000). A community based nutrition programme was also initiated to improve nutritional status of the Bhutanese.

Since then, Bhutan has been successful in combating micronutrient deficiency. In terms of Iodine deficiency disorders, Bhutan has effectively brought down goiter occurrence from 65.4% in 1983 down to less than 5% in 2005 (MDG 2005). This huge success can be attributed to the health regulation, whereby all table salts imported or produced in Bhutan are required to be iodized.

## **Breast feeding**

The national nutrition survey 2008 conducted by Ministry of Health showed that the early initiation of breast feeding was 81%. However, BMIS 2010 showed a decline in the early initiation of breastfeeding in 2010 with only 59 percent. BMIS 2010 also showed that 92.9 % of the newborns were breastfed within one day of birth in 2010, which is a remarkable progress. In case of exclusive breast feeding for 6 months, national nutrition survey 2008 reported it to be 10.4 % and BMIS 2010 reported it to be 48.7 % in 2010. The study conducted by Ministry of Health showed that early initiation of breast feeding and exclusive breastfeeding reduced infant mortality rate by 13% and optimal complementary feeding would reduce child mortality by another 6%. BMIS 2010 also found out that 92.7 % of children aged 12-15 months were still being breast fed and 65.7 % of the children aged 20-23 months were being continued to breastfed.

#### Goal 4: Ensure a Robust Pro-Poor Growth Process

Indicators	2000	2007	2010	2012
1. Budgetary expenditures of the local governments as % of total government expenditures	17.9 % ('01)	19 % ('08)	22.9 %	-
2. Reduction of consumption Inequality (Gini coefficient)	0.416 (04)	0.35	-	-
3. Unemployment rate	1.9 % ('01)	3.7 %	3.1 % ('11)	-

Source: PAR 2004, PAR 2007, LFS (2001, 2007, 2010, 2011), AFS (2002, 2008, 2010)

#### Five- year plan and targeted poverty programmes

Poverty reduction has always been an important objective of all development policies and plans. Bhutan adopted poverty reduction as the overall objective of the 10<sup>th</sup> Five-Year Plan (2008-2013), wherein all sector and local plans are geared towards alleviating poverty.

Poverty in Bhutan is being addressed by two broad strategies. The first strategy is by way of broad based mainstream five-year development plans. The overall objective of 10<sup>th</sup> Five Year Plan is to alleviate poverty, wherein all sector and local government plans are geared towards alleviating poverty. Specifically, the objective of 10<sup>th</sup> Five-Year Plan is to reduce proportion of population living under poverty line from 23.2 % to 15 % by 2013. About 16 percent of the total capital outlay for the 10<sup>th</sup> FYP was allocated to the local governments. The resource allocation between the local governments was based on a formula (resource allocation formula) that included population, poverty, and geographic size as the determinants. Poverty carried a weight of 25 percent, whereas population and geographic size carry a weight of 70 percent and 5 percent respectively. This is expected to help direct more resources to the poorer and more vulnerable areas and communities in the country. In addition, programmes of international organizations are also mostly in line with poverty alleviation.

The second strategy is by way of targeted poverty alleviation programmes. Under these programmes, there are several targeted poverty initiatives such as the Rural Economy Advancement Programme (REAP), the Land Rehabilitation Programme and poverty programmes of NGOs. The targeted approach deliberately attempts to provide benefits directly to the poor based on a good understanding of

localized poverty and development conditions in the various Dzongkhags and Gewogs. Approximately 1.4 percent of the total capital outlay in the tenth five year plan (10th FYP) was allocated for the targeted poverty reduction programme.

### **Rural Economy Advancement Programme (REAP)**

The Rural Economic Advancement Programme (REAP) seeks to target extreme poverty that may not be adequately addressed through mainstream development in the 10th FYP. Under REAP phase I, poverty interventions are being carried out in 10 poorest villages and is scheduled to be complete by July 2012. Under REAP II, about 116 poorest villages are selected from across the country using objective selection criteria based on multi-dimension poverty index (MPI) taking into account other important aspects of poverty. Interventions under REAP II are expected to commence by 2012.

#### **Key Features of REAP II**

- ✓ Objective village selection Criteria
- ✓ Multi-Dimension Poverty Index (MPI)
- ✓ Logic Model
- ✓ Identification of areas of interventions based on MPI
- ✓ Evaluation of Programme
- ✓ Village Participatory Planning Process
- ✓ Innovative interventions

### Key Features of Land Rehabilitation Programme

- ✓ Land grant to landless and socio-economically disadvantaged on free hold
- ✓ Land size granted based on criteria
- ✓ Housing support
- ✓ Agriculture, education, health, water and electricity services
- ✓ Income generating interventions
- ✓ Voluntary

### Unemployment

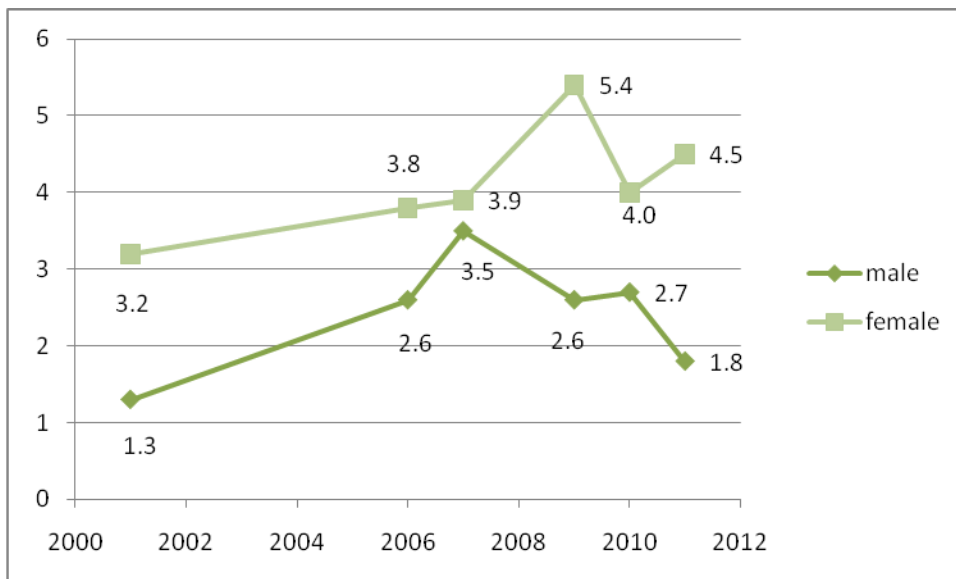
Unemployment rate rose steadily over the years. In 2001, unemployment rate was only 1.9 %. However, unemployment rate increased to 3.1 % in 2011. Rural unemployment rate rose from only 0.6 % in 2001 to 2.1 % in 2011. Similarly, urban unemployment rate also increased from 4.1 % in 2001 to 5.8 % in 2011. In addition, youth unemployment has become an emerging issue. It increased from just 2.6 % in 1998 to 9.3 % in 2011. However, looking at the trend given in the figures below, it shows that there was increasing trend from 2001 till 2009 and it declined from the year 2009. Therefore, if this trend continues, there is possibility of containing the unemployment issues by continuing the existing programmes and policies to address unemployment issues.

**Table 1: Unemployment rates**

Indicators	2001	2006	2007	2009	2010	2011
<b>Unemployment rate by gender</b>						
male	1.3	2.6	3.5	2.6	2.7	1.8
females	3.2	3.8	3.9	5.4	4.0	4.5
<b>Unemployment rate by residential sector</b>						
urban	4.1	4.9	6.8	7.5	5.1	5.8
rural	0.6	2.5	2.8	3	2.6	2.1
<b>Total</b>	<b>1.9</b>	<b>3.2</b>	<b>3.7</b>	<b>4.0</b>	<b>3.3</b>	<b>3.1</b>

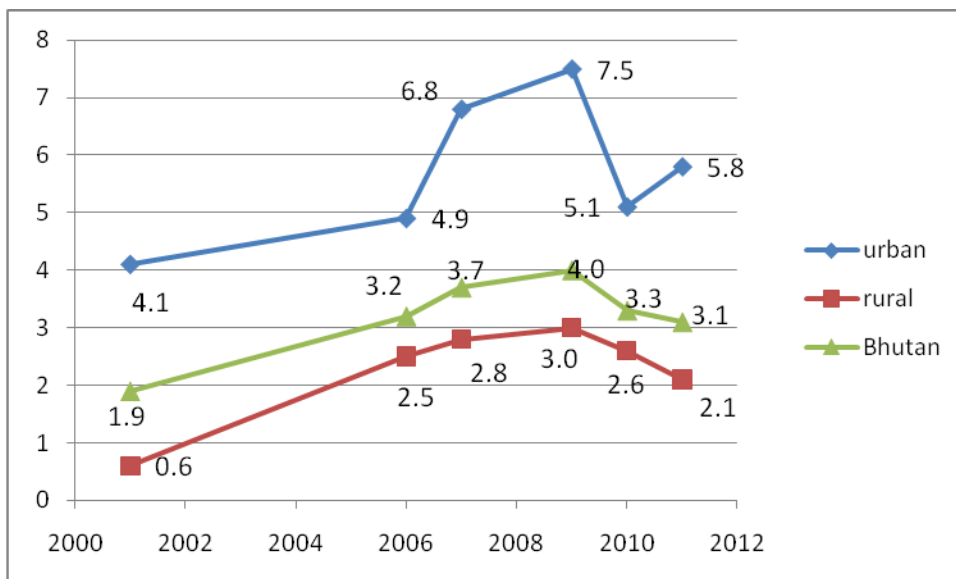
Source: LFS (2001, 2009, 2010, 2011), BLSS 2007

Figure 6: Unemployment rate by gender



Source: LFS (2001, 2009, 2010, 2011), BLSS 2007

Figure 7: Unemployment rate by residential sector and Bhutan



Source: LFS (2001, 2009, 2010, 2011), BLSS 2007

### **Local Government Expenditure**

Local government expenditure as percentage of total government expenditure steadily increased with increasing capacity of the local governments. During the fiscal year 2001-2002, the local government expenditure as percentage of total government expenditure was 17.9 % and it increased to 19 % during the fiscal year 2007-2008. With more decentralization of fiscal power to the local governments, the local government expenditure as percentage of total government expenditure increased to 22.9 % during the fiscal year 2009-2010.

In addition to the local government expenditure, most of the expenditure of the sectors and agencies were incurred for the programmes that directly benefited districts and the rural population.

## Goal 5: Strengthen Connectivity of Poorer Regions and of Poor as Social Group

Indicators	2000	2007	2010	2012
1. Transport Connectivity for the Poor in Rural areas (*feeder and **farm road)	*529.5 km ('04)  **251.5 km ('04)	*812.7 km  **716.9 km	*910.8 km ('09)  **1980.3 km	-
2. Mobile Connectivity – Percentage of gewogs (sub-districts) connected with mobile services	-	47.8 ('08)	100 % ('11)	-
3. Percentage of rural population having access to electricity	-	54 %	73 % ('11)	100 % ('13)

Source: 10<sup>th</sup> FYP, MTR 2011, MoIC Annual Report 2010-2011, SYB (2007 and 2010)

### Transport Connectivity to rural areas

Both the Government and rural population have acknowledged that road connectivity is vital in improving access to market and services. Given the mountainous terrain, construction of road infrastructure is difficult and expensive. However, the Government places highest priority to road connectivity among other development activities in addressing concerns of the rural poor. While farm roads are constructed to connect remote villages, feeder roads are constructed to link farm roads. In addition, power tiller tracks are also constructed in villages to help mechanize farming and as an alternate to farm roads.

According to statistical yearbook of Bhutan 2007, there were 529.5 km of feeder road and 251.5 km of feeder road in 2004. With vigorous implementation of development plans, there were 910.8 km of feeder road and 1980.3 km of farm road in 2010. A remarkable achievement was made in terms of construction of farm roads, which benefited rural population in boosting their socio-economic activities.

As shown in the table 2, it can be noted that the increase in length of roads, which includes highways, feeder roads and farm roads, are higher in the poorer regions. For example, there was higher increase in length of roads in Monggar, Samtse and Trashigang Dzongkhags, which had the highest number of poor as compared to other well off Dzongkhags.

**Table 2: Road infrastructure development by Dzongkhags and level of poverty**

Dzongkhag	Poor (PAR 2007)	Total Roads (2006)	Total Roads (2009)	Net Increase in kms
Samtse	26100	129.6	176.3	46.7
Monggar	17000	289.3	425.0	135.7
Trashigang	14000	321.8	364.6	42.8
Chukkha	13700	439.7	296.8	-142.9
Samdrup Jongkhar	13300	195.4	194.3	-1.1
Zhemgang	10400	230.1	255.2	25.1
Sarpang	7800	216.9	250.8	33.9
Lhuentse	6700	133.5	173.8	40.3
Pemagatshel	6200	80.6	131.4	50.8
Dagana	5900	143.6	179.8	36.2
Wangdue	5700	277.3	304.4	27.1
Punakha	4000	135.4	263.4	128.0
Trongsa	3200	222.7	263.6	40.9
Tsirang	2600	114.9	149.9	35.0
Trashigang Yangtse	2600	99.6	135.3	35.7
Thimphu	2100	220.1	146.7	-73.4
Bumthang	1800	227.3	267.0	39.7
Haa	1700	81.6	85.2	3.6
Paro	1400	250.9	339.4	88.5
Gasa	200	29.6	45.4	15.8

Source: Annual Information Bulletin 2006 and 2009, MoWHS

### Mobile Connectivity

In addition to fixed telephone connectivity, government recognized the importance of mobile connectivity to empower rural people in terms of socio-economic development. Therefore, government invested huge amount of resources to ensure 100 % connectivity of rural areas by end of 2011. By end of September 2011, Bhutan achieved 100 % mobile connectivity to rural areas, which is a significant increase from only 47.8 % in 2008. Currently, there are two mobile service providers. In addition to increasing access to mobile services, several innovative ways were explored in increasing the affordability and utilization of mobile services, which included reduction of service charges.

### **Access to Electricity**

Since electricity is the most important element that contributed to better livelihood of the rural population, government pledged to electrify all households by 2013 under rural electrification project. According to Mid-Term Review Report of 10<sup>th</sup> Five-Year Plan, 73 % of the households in rural areas were electrified as of March 2011, which was a significant increase from only 54 % in 2007.

## Goal 6: Reduce Social and Institutional Vulnerability of Poor, Women and Children

Indicators	2000	2007	2010	2012
1. Percentage of children ( age 5-14) who are working	-	-	18.4 %	-
2. Employment rate of women	96.8 %	96.1 %	96.0 %	-
4. Early marriage ( % of girls married before legal age)	-	-	30.8% (BMIS 2010)	-
5. Birth registration (% of children registered)	-	-	99.9% (BMIS 2010)	-
6. Sex ratio at birth (males per 100 females)	106.6	111 ('05)	-	-

Source: BMIS 2010, LFS 2010, Annual Health Bulletins 2006 & 2007

### Institutions protecting women and children

#### 1. National Commission for Women and Children (NCWC):

Bhutan is signatory to Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) since 1981 and is also a signatory to Convention on the Rights of the Child (CRC) since 1990. The National Commission for Women and Children (NCWC) was established in 2004 as an agency to monitor and coordinate all policies and activities related to protection and promotion of rights of women and children.

#### 2. National Plan of Action for Gender:

To identify the specific gender interventions, the National Plan of Action on Gender (NPAG) was developed for the period 2008-2013 in consultation with National Gender Focal Points (GFPs) and other key stakeholders. The NPAG aims to promote and achieve gender equality in areas such as good governance; economic development with a focus on employment; education and training; health; ageing, mental health and disabilities; violence against women; and prejudices and stereotypes.

### 3. Gender Focal Points

All ministries, government agencies and the private sector have Gender Focal Points (GFPs). The GFP has a terms of reference (TOR) endorsed by the Royal Civil Service Commission, based on which they function. The main objective of having GFP is to ensure that gender concerns are mainstreamed in sectoral plans and policies. The progress, issues, constraints and challenges are discussed during annual and biannual meetings of GFPs.

### 4. Constitutional rights of women and children:

The protection of women and children are enshrined in the Constitution of the Kingdom of Bhutan 2008 as the fundamental rights of the Bhutanese citizens. Article 8 (5) of the Constitution states that a person shall not tolerate or participate in acts of injury, torture or killing of another person, terrorism, abuse of women, children, or any other person and shall take necessary steps to prevent such acts. More specifically, Article 8 (18) of the Constitution states that the State shall endeavor to take appropriate measures to ensure that children are protected against all forms of discrimination and exploitation including trafficking, prostitution, abuse, violence, degradation treatment and economic exploitation.

### 5. Penal Code 2004:

Child-related provisions on the child abuse offences and specific procedures for dealing with juvenile delinquency are included in the Penal Code 2004. Under Chapter 9 of Penal Code 2004, juveniles are not convicted by law who are ten years and below, while juveniles above 10 years of age are sentenced to only half of the prescribed offence. It also specifies that juveniles shall be kept in other appropriate facilities and correctional institutions in lieu of imprisonment.

The Chapter 14 of Penal Code 2004 provides for dealing with sexual offences, which includes sexual abuse of a child. Sexual abuse of a child is severely dealt by law and can be charged up to felony of the first degree. Rape is also categorized in different forms and penalties assigned as per the severity of the crime.

## 6. Labour and Employment Act 2007:

Child labour of any form is prohibited by Labour and Employment Act 2007. It establishes the minimum age for employment at 18 years of age. Chapter II of Labour and Employment Act 2007 specifically prohibits child labour for prostitution, recruitment in arm forces, trafficking, and unsafe work places.

## 7. Woman and Child Protection Unit

In collaboration with the National Commission for Women and Children, Royal Bhutan Police established a Woman and Child Protection Division in 2007 with the mission to enforce laws protecting the rights of women and children. In addition to law enforcement, Woman and Child Protection Division collaborates with civil society and other agencies in educating on rights and providing support to women and children in need. The Division also maintains database on violence against women and children. The Division is now expanding itself by establishing units in other Dzongkhags depending on frequency of cases.

## 8. RENEW

A non-governmental organization, RENEW (Respect, Educate, Nurture, and Empower Women) was founded by Her Majesty the Queen Mother Ashi Sangay Choden Wangchuck in 2004 to empower women and girls in Bhutan, especially the victims and survivors of domestic violence. As a NGO, it is actively involved in preventing domestic violence and helping the abused get back to the communities as independent and productive members of the society. In addition, services such as counseling, temporary shelter, legal assistance, and skills development trainings are provided to the victims of the domestic violence.

### **Child Labour**

According to BMIS 2010, about 18.4 % of children aged 5-14 were working based on the definition of child labour used by UNICEF. It was also reported that child labour is more common in rural areas at 22.2 percent as compared to 8.7 % of children in urban areas. BMIS 2010 found that child labour depended on wealth of the family with 28.7 % for poorest wealth index quintile and 5.3 % for richest wealth index quintile.

### **Share of Women in Employment**

According to Labour Force Survey Report (LFSR) 2011, there was no gender disparity in terms of overall employment with 98.2 % for male and 95.5 % for females. LFSR 2010 pointed out that women had dominance in agriculture and forestry economic activities with 65.3 % of females and 54.0 % of males. In terms of major occupation, most of the women were employed in service and sales occupation next to agriculture with 9.3 % (LFSR 2010).

### **Early Marriage**

BMIS 2010 reported that 30.8 % of the women aged 15-49 years were married before they attained 18 years of age despite the legal age for marriage being 18 years for women. It was also revealed that 6.7 % of the women married before the age of 15 years. However, BMIS 2010 reports that there was a decreasing trend of early marriages, particularly in urban areas.

## Goal 7: Ensure Access to Affordable Justice

Indicators	2000	2007	2010	2012
1. Access to alternate dispute resolution.	In Court settlement in civil cases	In Court settlement in civil cases	In Court settlement in civil cases	
2. Access to free legal aid for the poor	Provided	Provided	Provided	

*Source: Case Statistics, Royal Court of Justice*

### Access to Justice

The establishment of courts in all the 20 districts and the 15 sub-districts made access to Justice easier and affordable to the people. Appeals to decisions from the districts and sub-districts are reviewed by the High Court and the Supreme Court. The Supreme Court of Bhutan was established on 21<sup>st</sup> February 2010 and is the highest appellate authority to review appeals.

### Judicial Forms

To ensure quality and exhaustiveness of hearings and to enhance transparency and accountability in the judicial mechanism, judicial forms were introduced. Forms perform simple and repetitive tasks with more speed and accuracy at a lower cost. In addition, the standardized forms avoid omissions of relevant facts and facilitate faster processing of cases.

### Legal disputes disposal

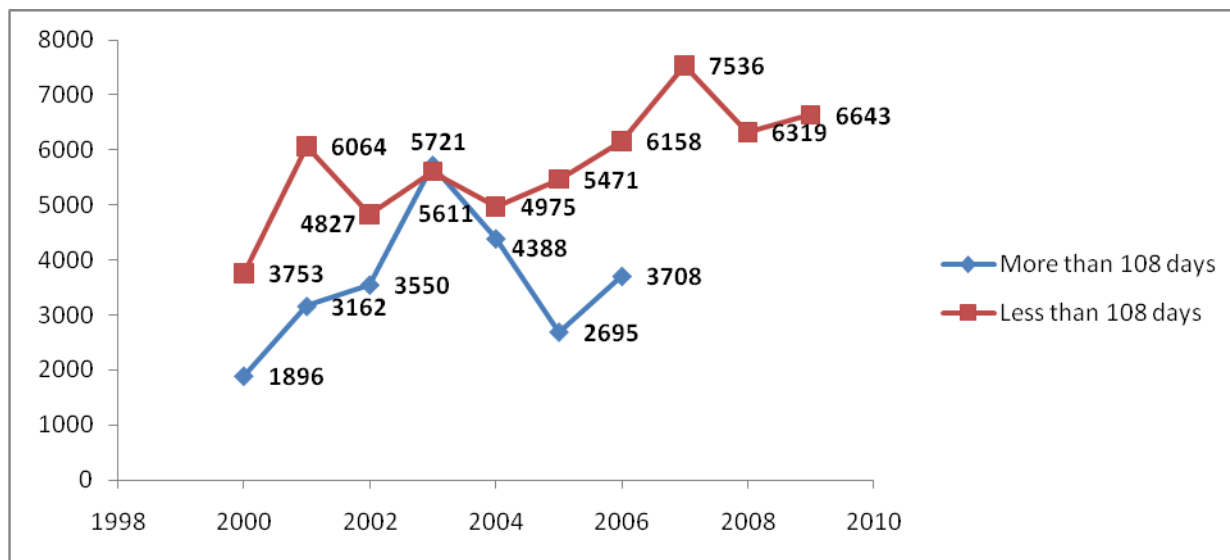
Article 21 (1) of the Constitution of the Kingdom of Bhutan requires the Judiciary to uphold and administer Justice fairly and independently without fear, favour or undue delay in accordance with the Rule of Law to inspire trust and confidence and to enhance access to Justice. In addition, the guiding policy of Royal Court of Justice is to make judicial process responsive, effective, faster, better and easier.

Annual evaluation is conducted on the statistics of yearly cases, duration and timeliness of the cases, stages of hearings, etc. In criminal cases, the courts are mandated to convene the preliminary hearing within 10 days of registration and within 108 days in civil cases. Individual bench clerk is responsible for processing the cases, so that the cases are decided within 12 months as per the resolution of 18<sup>th</sup>

National Judicial Conference, 2007. The case information report segregates the decided cases into two parts; cases that are decided within 108 days and beyond 108 days. The pending cases beyond 12 months are monitored by the Chief Justice of Bhutan.

As given in the figure below, there was a steady increase in number of cases decided in less than 108 days from 3753 cases in 2000 to 6643 cases in 2009. With regard to number of cases decided in more than 108 days, it increased from the year 2000 with 1896 cases decided and dropped sharply from the year 2003 until year 2005 and continued to rise. However, looking at the latest statistics of 2010, percentage of cases pending in all level of courts was negligible at only 13.8 %. In absolute numbers, out of 12,245 new registered cases and 1935 cases brought forward at all levels of courts in the year 2010, a total of 12518 cases were decided and only 1689 cases were left pending.

**Figure 8: Number of cases decided in less than 108 days and in more than 108 days**



*Source: Case Statistics, Royal Court of Justice*

### **Alternate dispute resolution**

Article 21 (16) of the Constitution of Kingdom of Bhutan provides for establishing impartial and independent Administrative Tribunals as well as Alternative Dispute Resolution Centres. However, these formal systems are yet to be established.

In absence of formal alternate dispute resolution system, many disputes are resolved privately or through local mediators such as heads of the villages or sub-districts in rural areas and *Jabmis* in urban areas.

The option of resolving a dispute through mediation is incorporated in section 150 of the Civil and Criminal Procedure Code, 2001. While mediation on all disputes of civil nature are legally accepted, mediations on divorce cases where parties do not have marriage certificates and without the leave of the court and criminal cases involving non-compoundable offenses are not legally accepted . In cases of compoundable offenses, parties may mediate on the issue of compensatory damage but parties cannot mediate on the issues of sentencing.

### **Legal aid for the poor**

The guiding policy of Royal Court of Justice is to administer justice impartially and fairly irrespective of language, religion, race or social class and to make courts user friendly.

To ensure effective access to justice, legal aid is made available to those who do not have sufficient resource in the interest of justice in accordance with section 34 of the Civil and Criminal Procedure Code, 2001. An indigent accused is guaranteed with legal aid from the State.

### **Court Fees**

In an effort to provide equal access to Justice, a minimal court fee of Nu. 100 is charged at the Supreme Court and the High Court, and Nu. 50 is charged at the District and Sub-District Courts.

## Goal 8: Ensure effective participation of poor and of women in anti-poverty policies and programmes

Indicators	2000	2007	2010	2012
1. Percentage of women in Civil Service	21.23 %	29.01 %	31.62 %	
2. Gender Responsive Budgeting	-	-	-	

Source: Civil Service Statistics Report (2000, 2007 and 2011)

### Women in Civil Service and Parliament

According to Bi-Annual Civil Service Statistics Reports, there was steady increase in the number of females in the civil service. Percentage of females in the civil service has increased from 21.23 % in September 2000 to 31.62 % in June 2011. Although the overall gender parity in the civil service has been improving over the years, the number of females at decision making levels is still very low. As of June 2011, only 4.76 % are females at executive level in the civil service. Similarly at professional and management level, only 31.65 % are females. Even in the Parliament, women representation remains low with only 8 % in the National Assembly and 24 % in the National Council.

### Gender Responsive Budgeting

Recognizing the importance to ensure that public resources are allocated in an effective manner to advance gender equality and women's empowerment, Bhutan is currently drafting strategic framework and action plan for gender mainstreaming and gender responsive budgeting. The strategic framework will be implemented in two phases, wherein the phase I will mainly look to expedite the implementation of activities of the National Plan of Action on Gender (NPAG) and launch gender responsive budgeting (GRB) as an effective tool for this.

Under phase II, a gender and development plan will be formulated through consultative process to provide strategic direction for GRB and gender mainstreaming. Through this two phase approach, it is expected to be able to initiate and institutionalize the GRB mechanism into the planning and budgeting processes.

## HEALTH SDGs

## Goal 9: Maternal Health

Indicators	2000	2007	2010	2012
1. Maternal Mortality Ratio (per 100, 000 live births)	255	-		140
2. Percentage of births covered by the skilled attendants	24%	55.9%	64.5% (BMIS 2010)	90%
3. Total fertility rate	4.7	2.6	2.6	-

Source: National Health Survey 2000, PHCB 2005, BMIS 2010

### Maternal mortality

With increased births attended by skilled personnel, institutional delivery and other ante natal care services, there was significant achievement in reducing maternal mortality ratio from 560 in 1990 to 255 in 2000. Since 2000, information on maternal mortality ratio is not available owing to complexity in calculating accurate mortality ratio. However, Ministry of health has been keeping track of actual number of maternal deaths to monitor maternal health programmes.

### Skilled Birth Attendants

Given the difficult geographic terrain and scattered nature of settlements, it remains a challenge for institutional delivery and skilled attendant at delivery in homes. However, with constant advocacy and campaigning, percentage of births attended by skilled personnel increased from 24 % in 2000 to 64.5 % in 2010.

### Total Fertility rate

With sustained targeted advocacy campaigns on family planning, total fertility rate remarkably reduced from 4.7 in 2000 to 2.6 in 2010. In addition, this can also be attributed to rise in living standards, improved health care system, increased level of education and literacy rate, and increased prevalence of contraception.

## Goal 10: Child Health

Indicators	2000	2007	2010	2012
1. Immunization coverage	85%	90%	94.5 % ('08) (MoH)	100
2. Under 5 mortality Rate	84	62	69 (BMIS)	35
3. Infant Mortality Rate	60.5	40 ('05)	47 (BMIS)	25

Source: PHCB 2005, MDGR 2007, Annual Health Bulletin (2008, 2011), BMIS 2010

### Immunization

Immunization programme has significantly contributed in reducing the infant mortality in the country. Since the introduction of expanded programme for immunization in 1979, Bhutan witnessed significant decline in child mortality rate. The country's achievement of Universal Child Immunization (UCI) in 1991 was marked by national immunization levels focused on wide vaccination coverage for major diseases like BCG, diphtheria, tetanus, pertussis, poliomyelitis, measles and hepatitis B.

The coverage for these antigens for children with proper immunization cards showed that 90% of all children were fully vaccinated while 10% remained partially vaccinated. Rubella vaccine was successfully introduced in the year 2006 with mass national rubella vaccination campaign. Looking at the overall coverage trend, immunization coverage increased from 85 % in 2000 to 94.5 % in 2008.

### Child Mortality

Under-5 mortality rate significantly declined from 84 % in 2000 to 69 % in 2010. Similarly, infant mortality rate reduced from 60.5 % in 2000 to 47 % in 2010. According to Bhutan Multiple Indicator Survey 2010, infant and under-5 mortality rates were higher in eastern Bhutan than in Central Bhutan. The study also showed that child mortality was significantly different in terms of educational levels and wealth, wherein a child born to the poorest family in rural areas and with uneducated mother was more likely to die by the age of five as compared to a child born to a rich and educated family in an urban area.

## Goal 11: Affordable Health Care

Indicators	2000	2007	2010	2012
1. Percentage of total household expenditure	-	-	11	-
2. Total government expenditure on health as a % of GDP	-	-	3.68	-
3. Percentage of budget allocated to primary health care vis a vis total health budget	-	-	58	-
4. No. of doctors (per 1000 of population)	0.13 ('05)	0.24	0.26	

Source: Bhutan National Health Accounts 2009-10, Annual Health Bulletin 2010, SYB (2005, 2010)

### Health budget

Major portion of health care system in Bhutan is financed from the revenues of the Royal Government of Bhutan. Public financing of health care system accounts for nearly 90 percent of the total health expenditures in the country.

The Royal Government expenditure on providing health services accounts for 3.68 % of GDP. 88% of the resources were financed by the Royal Government and 11% of the total resources were contributed by households. Nearly 30 % of the total resources were allocated to districts under the decentralized system. In addition, Bhutan national health accounts 2009-2010 reported that 58 % of total health budget was allocated to primary health care system. External assistance played a considerable role in financing the health care system in the country, which accounted to about 18% of the total government spending on health.

### Ratio of Doctor per 1000 people

Ratio of doctors per 1000 people did not increase much from 0.13 in 2005 to only 0.26 in 2010. However, the Government's commitment to provide at least three doctors in all district hospitals was partially achieved. At present, 10 districts have at least 3 doctors each, 6 districts have 2 doctors each and the remaining 4 have 1 doctor each. The progress on this front was slow due to difficulty in new recruitment coupled with a number of existing doctors undergoing specialization training programme

abroad. The Ministry also instituted a mechanism to send gynecologists once a month to those hospitals with no gynecologists in order to facilitate wider coverage of these services.

## Goal 12: Improved Hygiene and Public health

Indicators	2000	2007	2010	2012
1. Percentage of population with access to safe drinking water	68 ('01)	81 ('06)	96 % (BMIS)	100
2. Percentage of population having access to sanitation	88	90 ('06)	93 % (MoH) 58.4 (BMIS)	95
3.HIV cases detected	38	144 ('08)	246	-
4.TB case per 100,000	168	150	190	-
5. Malaria incidences per 10,000	87	11	7	-

Source: SYB 2005, MDGR 2005, Annual Health Bulletin 2007, Annual Health Bulletin 2011, BMIS 2010,

### Safe Drinking Water

Royal Government places highest importance in ensuring access to safe drinking water. As a result, Bhutan has seen remarkable achievement in providing safe drinking water especially to the people in rural areas. The proportion of population with access to safe drinking water increased from 78 % in 2000 to 96 % in 2010. According to BMIS 2010, there was slight variation in access to safe drinking water by rural and urban with 95 % in rural areas and almost 100 % in urban areas. In terms of geographic disparity, western region had 92 %, eastern region had 90 % and central region had 82 % of coverage.

BMIS 2010 showed that use of safe drinking water depended on education level of the household head and wealth index of the household, wherein richest quintile was more than three times likely to use safe drinking water than the poorest quintile.

### Sanitation

Access to safe sanitation, one of the health indicators in MDGs was reported to be achieved in 2005 as per MDG Report 2005. Access to safe sanitation increased from 88 % in 2000 to 93 % in 2010. However, BMIS 2010 reports that access to safe sanitation was only 58.4 % in 2010. This does not mean the reduction in actual access. This in fact is due to difference in definition of access to sanitation. According

to BMIS 2010, use of improved sanitation facilities related positively with education level of the household head and wealth index of the household.

### **HIV/AIDS**

The number of HIV cases detected gradually increased from only 38 in 2000 to alarming figure of 246 in 2010. Most infected are between 25 to 39 years of age, who are the most economically productive age groups. According to a study, almost 90 % of infections were through unsafe sex with multiple partner and increased casual sex.

Recognizing the importance of preventive measures in combating HIV/AIDS, Royal Government took various initiatives to reach out and communicate to all sections of Bhutanese society. A multi-sectoral task forces comprising of all stakeholders were created in all 20 districts to coordinate and implement HIV/AIDS prevention and control activities at the community level. As for treatment, free anti retro viral (ARV) treatment is provided to HIV/AIDS patients.

Nevertheless, according to BMIS 2010, 16.3 % of women aged 15-49 years did not hear about HIV/AIDS. It was also reported that 34 % of women aged 15-49 did not know that HIV/Transmission could be prevented by using condom. BMIS 2010 also reported that less than half of rural women received counseling on HIV/AIDS compared to two third of women in urban areas. Therefore, women in rural areas are more vulnerable to HIV infections.

### **Tuberculosis**

With successful integration of tuberculosis (TB) programme with the general health services and intensive implementation of advocacy and campaigning programmes, Bhutan had been able to keep incidence of TB under control. The incidence of TB was only 168 per 100,000 in 2000 and 190 per 100,000 in 2010. Although the incidence of TB appears to be low, it is a serious public health concern given its infectious nature and vulnerability to HIV/AIDS. The incidence of deaths caused by TB was also reduced with introduction of early diagnosis system and Directly Observed Treatment Short course (DOTS).

## **Malaria**

Malaria cases significantly declined from about 87 cases per 10,000 in the year 2000 to only 7 cases per 10,000 in the year 2010. Similarly, the number of deaths caused by malaria had also been remarkably contained with only 1 death in the year 2010 as compared to 15 deaths in the year 2000. These significant results could be attributed to various preventive measures such as information dissemination, increasing use of insecticide treated bed nets, early diagnosis system and effective treatment.

However, according to Annual Health Bulletin 2010, it reports that Bhutan experienced abnormal outbreak of malaria in the year 2009 with 972 positive cases. This was mainly attributed to abnormal rainfall patterns coupled with high infection rates across the border in India.

# EDUCATION SDGs

### Goal 13: Access to Primary/Community Schools for all Children, Boys and Girls

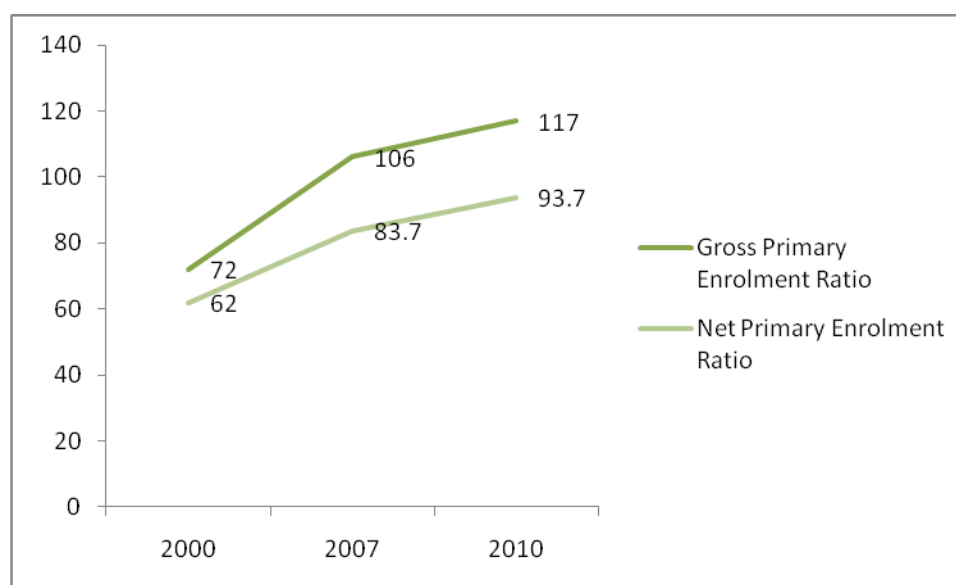
Indicators	2000	2007	2010	2012
1. Gross Primary Enrollment Ratio	72 %	106 %	117 %	100 %
2. Net Primary Enrollment Ratio	62 %	83.70 %	93.7 %	100 %
3. Gender parity at primary level	82%	99.50 %	99.40 % (MoE) 102 % (BMIS)	100 %
4. Gender parity at secondary level	78 %	97.20 %	103.50 % (MoE) 103 % (BMIS)	100 %

Source: Annual Education Statistics (2007, 2010), MDG Report (2005, 2010), BMIS 2010

#### Enrolment rates

Bhutan's gross primary enrolment ratio exceeded 100% for the first time in 2006 with 106%. In 2010, gross primary enrolment ratio further increased to 117 % (Annual Education Statistics 2010). In terms of net primary enrolment ratio, Bhutan progressed well from 62 % in 2000 to 93.7 % in 2010.

**Figure 10: Gross Primary Enrolment Ratio and Net Primary Enrolment Ratio**



Source: Annual Education Statistics (2007, 2010), MDG Report (2005, 2010)

### **Gender Parity in Education**

Gender parity at both primary and secondary levels has significantly improved. The ratio of girls to boys at primary level increased from 82 % in 2000 to 99.40 % in 2010 (Annual Education Statistics 2010). According to BMIS 2010, the gender parity index at primary school was 1.02 (ratio).

Comparatively, gender parity at secondary level has made better progress. The ratio of girls to boys at secondary level was only 78 % in 2000, while it already surpassed the target with 103.50 % in 2010 (Annual Education Statistics 2010). Similarly, BMIS 2010 also reported the gender parity index at secondary school to be 1.03 in 2010.

## Goal 14: Completion of Primary Education Cycle

Indicators	2000	2007	2010	2012
1. Primary completion rate (Pre Primary – Class 6)	-	75.8 %	98 % (MoE) 90.1% (BMIS)	100 %

Source: General Statistics 2007 (MoE), Annual Education Statistics 2010, BMIS 2010

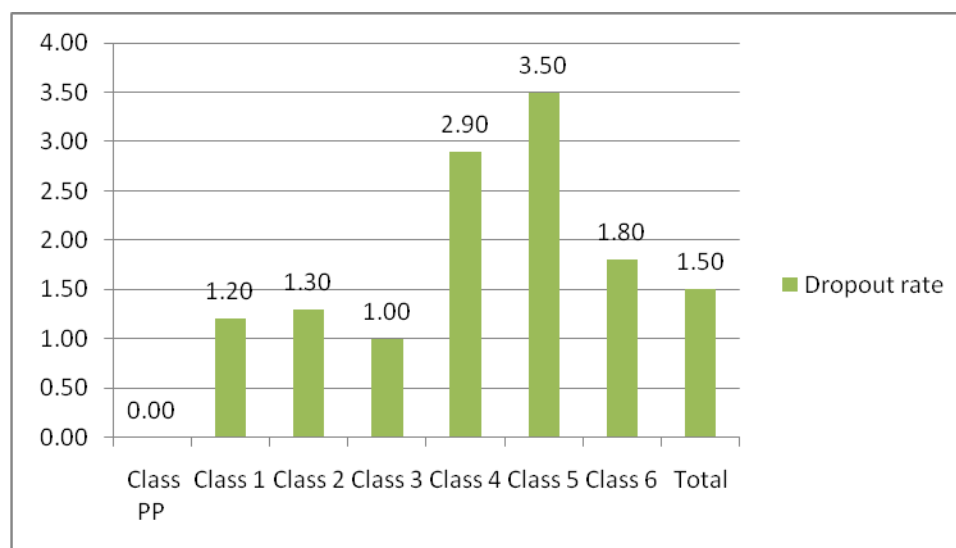
### Primary Completion Rate

Primary completion rate (pre-primary to class VI) significantly progressed from 75.8 % in 2007 to 98 % in 2010 (Annual Education Statistics 2010). However, BMIS 2010 reported it to be 90.1%. The difference in the data for 2010 could be attributed to the difference in methodology used. Nevertheless, both the sources showed a remarkable achievement in terms of primary completion rate.

### Dropout rate

The figure below shows the dropout rates in class PP to class VI for the year 2008-2009. There was no drop out in class PP, while the dropout rate was highest in class V with 3.50 %. The average dropout from class PP to Class VI was 1.50 %.

Figure 11: Dropout rates in 2008-2009



Source: Annual Education Statistics 2010

## Goal 15: Universal Functional Literacy

Indicators	2000	2007	2010	2012
1. Adult literacy rate	-	52.8 % ('05)	-	65 %

Source: PHCB 2005, 10<sup>th</sup> Five Year Plan

### Adult Literacy Rate

According to Population and Housing Census of Bhutan (PHCB) 2005, the adult literacy rate in 2005 was 52.8 %. There was gender disparity in adult literacy, wherein male adult literacy was 65 % and female adult literacy was only 38.7 % in 2005.

No information on adult literacy is available prior to 2005 and post 2005 to study its trend. However, Bhutan Living Standard Survey to be held in 2012 will collect the information on adult literacy to assess the status of adult literacy. Given its importance, Bhutan will continue to collect information on adult literacy periodically.

### Non Formal Education

Given the difficult terrain and limited resources, it is difficult and expensive for the government to establish formal schools in every community. This led to some section of the society with no education. In addressing this issue, government introduced non formal education (NFE) programme in the country. The NFE programme was first introduced by National Women Association of Bhutan (NWAB) in 1992 and it was taken over by Ministry of Education in mid 1994. The NFE programme provides basic education with the objectives to provide functional and skill-based literacy training in Dzongkha, promote national language, increase literacy rate, and provide post literacy and continuing education programme. NFE programme is undertaken at three levels, which being basic literacy programme, post literacy programme and self learning programme.

As of September 2011, there were about 894 NFE centres across the country with 12,557 learners enrolled in the NFE programme. 70 % of the learners were females. There are 913 instructors teaching the programme currently.

## Goal 16: Quality Education at Primary, Secondary and Vocational Levels

Indicators	2000	2007	2010	2012
1. Percentage of trained teachers	94.5 ('05)	94 %	88.5 %	100 %
2. Students teacher ratio (STR)	30.7 ('05)	28.3	24	-

Source: Statistics 2005 (MoE), General Statistics 2007, Annual Education Statistics 2010

### Trained teachers

The quality of education has always been an important priority for the Royal Government. There are two colleges of education, which offer training programs for teachers in education.

In an effort to enhance the quality of teachers, the entry qualification is raised from class X to class XII. Moreover, the two-year primary teaching certificate programme (PTC) was phased out in 2003 and replaced by a three year Bachelor's of Education, which was subsequently enhanced to a four-year course in 2009.

In addition, in-service teachers with primary teachers certificate (PTC) are being provided with opportunities to upgrade both their academic and professional qualification through a continuing education programme and a distance education programme. Teachers have the opportunity to upgrade their academic qualification and get a higher secondary school certificate through the continuing education programme, which was initiated in 2006. The distance education programme, introduced in 1995, is offered by both the Colleges of Education and enables teachers to upgrade their professional qualification to the Bachelor in Education and Master in Education levels. With such institutions in place, percentages of trained teachers remained high with 94.5 % in 2005 and 88.5 % in 2010. With regard to student teacher ratio, it has improved over the years from 30.7 in 2005 to 24 in 2010.

The figure given below details the number and percentage of trained teachers by degree as of March 2010. The table shows that more than half of the teachers have qualification with bachelor degree and very small number of teachers have qualification with PhD.

**Table 3: Number and Percentage of trained teachers by degree, March 2010**

Academic Degree	Trained as Teacher		Not Trained as Teacher		Total Teacher	
	Number	Percentage	Number	Percentage	Number	Percentage
<b>PhD</b>	12	0%	-	-	12	0%
<b>Masters</b>	377	6%	147	18%	523	7%
<b>Bachelors</b>	3,368	54%	333	41%	3,702	52%
<b>Diploma</b>	2,052	33%	254	31%	2,306	33%
<b>PG Diploma</b>	446	7%	79	10%	524	7%
<b>Total</b>	<b>6255</b>	<b>88.5%</b>	<b>812</b>	<b>11.5%</b>	<b>7067</b>	<b>100%</b>

*Source: Annual Education Statistics 2010*

## ENVIRONMENT SDGs

## Goal 17: Acceptable Level of Forest Cover

Indicators	2000	2007	2011	2012
1. Percentage of forest cover	72.5 %	72.5 %	72.5 %	72.5 %
2. Number of community forests	1	57	313	-

Source: MoAF (2002, 2010)

### Forest Coverage

Environmental conservation always received highest priority from the government. The Constitution of the Kingdom of Bhutan states that, “Every Bhutanese is a trustee of the Kingdom’s natural resources and environment” The Constitution further charges the Government to ensure that a minimum of 60 % of country’s land area should be maintained under forest cover for all time.

In addition, conservation of environment is recognized as one of the four pillars of Bhutan’s development philosophy, Gross National Happiness (GNH). Following this, all policies and development programmes are cautiously aligned with the concept of conserving environment and striving to cause minimal damage to the environment during the development activities.

In an effort to reinforce government’s commitment to conserve forest, ‘National Forest Policy of Bhutan 2011’ is drafted. With strong environmental conservation policy and institutions in place, 72.5 % of the land area is covered with forest according to the current record. However, in order to estimate the current forest coverage, Ministry of Agriculture and Forests will start carrying out the national forest inventory by June 2012.

### Community Forests

The draft National Forest Policy of Bhutan 2011 has included a section on ‘community forest’ with the objective of empowering rural communities to manage forests sustainably for socio-economic and environmental benefits, poverty reduction and to contribute to overall sustainable forest management at national level. It also estimates that 4 % of the forest land will be designated as community forest by the end of 2013 and about 20 % by 2020.

As of June 2011, Bhutan had 313 community forests covering an area of 36,600 ha and involving 14,700 households. This is a remarkable achievement, wherein number of community forests increased from merely one in the year 2000 to 313 by June 2011.

## Goal 18: Acceptable Level of Water and Soil Quality

Indicators	2000	2007	2010	2012
1. Chemical Fertilizers /pesticides consumption per ha of arable land	NA	NA	NA	-
2. Percentage of contaminated wells/water sources	NA	NA	NA	-

### Water Quality

In 1997, National Environment Commission Secretariat (NECS) conducted baseline water quality survey and monitoring along major rivers and tributaries. The study showed that quality of water resources at the macro level was very high. However, there were localized water pollution problems due to contamination along the banks of streams and rivers. The bio assessment of rivers in Bhutan was done under a project called the ASSESS-HKH (Assessment of Ecological Status of streams/rivers in Hindu Kush Himalayan region). The assessment of rivers led to the discovery of a relict species of dragon fly larvae, *epiophlebia laidlawi*. The presence of this species indicates that the quality of water is pristine with no anthropogenic impact. This species was found in the headwaters of DreyChhu stream above Dechencholing, Thimphu and in LamchelaChhu stream in Chendebji, Trongsa. Various species of stoneflies which are also indicator of good quality of water were detected in several streams in Bhutan.

### Soil Quality

Government policies and legal instruments support the protection and conservation of soil quality in the country. Chapter VI (21 A) of Forest and Nature Conservation Act of Bhutan, 1995 provides that the Royal Government may declare any land in the country to be a national park, wildlife sanctuary, wildlife reserve, nature reserve, and strict nature reserve for the preservation of areas of natural beauty of national importance, protection of biological diversity, management of wildlife, conservation of soil and water and related purposes. In addition, Chapter VIII (30 B) of Forest and Nature Conservation Act of Bhutan, 1995 provides that where the head of the department of forest determines that land located in the Government Reserve Forests is suffering from soil erosion or other environmental degradation, he may, after consultation with the appropriate local authority, order that grazing on such land be stopped for a specified time or be permitted only under specified conditions.

## Goal 19: Acceptable Level of Air Quality

Indicators	2000	2007	2010	2012
1. Carbon dioxide emissions (million kg)	228.46 ('94)	-	-	-
2. Particulate matter (PM <sub>10</sub> ) in the major metropolitan centres (Thimphu)	20 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>	23 µg/m <sup>3</sup> ('11)	20 µg/m <sup>3</sup>
3. Percentage of total households using firewood for cooking	-	37.3 % ('05)	-	20 %

Source: State of Environment Report (2004, 2005) (NEC)

### Ambient Air Quality/Particulate matter

Although air quality in Bhutan is regarded as relatively clean in most part of the country, the recent rapid developmental activities in the major urban cities like Thimphu and Phuentsholing could deteriorate the quality of air.

With growing concern over the quality of air, National Environment Commission first initiated in 2004 to measure PM<sub>10</sub> in Thimphu. Data on ambient air quality is, however, very limited at the present. The analysis of the recorded data from June 2004 and May 2007 showed an average respirable particulate matter (PM<sub>10</sub>) concentration of 20 µg/m<sup>3</sup>, which was considerably lower than international (PM<sub>10</sub>) concentration levels. The United States Environmental Protection Agency's (US-EPA) guideline has set the PM<sub>10</sub> concentration level at 50 µg/m<sup>3</sup> while the European Union's (EU) guideline has set it at 40 µg/m<sup>3</sup> for 24 hours concentration. The recent analysis of the recorded data in 2011 showed a slight increase in particulate matter concentration to about 23 µg/m<sup>3</sup>.

Recorded ambient air quality data for Thimphu show that the concentration of oxides of sulphur and nitrogen are presently below detectable level. On the basis of analysis of ambient air quality data for Thimphu, it can be said that ambient air quality in most other places will be even more pristine because of smaller population, fewer vehicles, and less industrial activities, with exceptions to few industrial towns.

## **Carbon Dioxide Emissions**

A first greenhouse gas emission inventory for Bhutan was prepared in 2000 for the year 1994 by National Environment Commission (NEC). According to the inventory, carbon dioxide (CO<sub>2</sub>) made about 90 % of Greenhouse Gas emissions in Bhutan in 1994. Findings also showed that industry sector was the largest source of CO<sub>2</sub> emission at 133.69 million kg. The second largest source of CO<sub>2</sub> emission was from vehicles at 42.99 million kg followed by domestic source at 27.18 million kg. In total, CO<sub>2</sub> emissions accounted for 228.46 million kg in 1994.

## **Firewood consumption**

According to PHCB 2005, 37.3 % of the total households in Bhutan used firewood as the primary source of energy for cooking. Use of firewood for cooking was more in rural areas with 56.4 % of the households using firewood, while only 4.3 % of the households were using firewood for cooking in the year 2005.

However, use of firewood as source of lighting was very minimal with only 2.6 % of the total households using firewood. This could be attributed to the usage of other forms of energy such as solar power and kerosene. Nevertheless, with government's policy to provide electricity for all households by 2013, the usage of firewood for cooking and heating will be significantly reduced.

## Goal 20: Conservation of Bio-Diversity

Indicators	2000	2007	2010	2012
1. Number of protected areas out of the total land area (with management plan)	5	5	10	-
2. Percentage of protected areas out of the total land (with management plan)	26 %	29 %	51.32 %	
2. No. of protected species	30	30	30	-

Source: MoAF 2010, Forest and Nature Conservation Act of Bhutan 1995

### Protected Area of Forests

A total of 42.71 % of its land area is designated as protected areas, covering an area of 16,396.43 square kilometers. In addition, 8.61 % of land area is designated as biological corridors. In total, 51.32% of the land area is under protected areas and biological corridors.

### Protected Species

The Forest and Nature Conservation Act of Bhutan 1995 lists a total of 30 species of wild animals and plants in Schedule I as totally protected species. These include 5 species of bird, 1 species of fish, 17 species of mammal, and 7 species of plant. While in general, the law restricts any form of wildlife killing, injury, destruction or capture/ collection, the totally protected species are accorded a higher level of protection than other species by means of more severe penalties and stricter legal provisions.

**Table 4: Totally Protected Bird Species of Bhutan**

	Common Name	Scientific Name
1	Black-necked Crane	<i>Grus nigrocollis</i>
2	Monal Pheasant	<i>Lophophorus impejanus</i>
3	Peacock Pheasant	<i>Polyplectron bicalcaratum</i>
4	Raven	<i>Corvus corax</i>

5	Rufous-necked Hornbill	<i>Aceros nipalensis</i>
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**Table 5: Totally Protected Mammal Species of Bhutan**

	Common Name	Scientific Name
1	Asian Elephant	<i>Elephas maximus</i>
2	Clouded Leopard	<i>Neofelis nebulosa</i>
3	Golden Langur	<i>Trachypithecus geei</i>
4	Musk Deer	<i>Moschus chrysogaster</i>
5	Pangolin	<i>Manis crassicaudata</i>
6	Pygmy Hog	<i>Sus salvanius</i>
7	Snow Leopard	<i>Uncia uncia</i>
8	Takin	<i>Budorcas taxicolor</i>
9	Tiger	<i>Panthera tigris</i>
10	Wild Buffalo	<i>Bubalus bubalis</i>
11	Spotted Deer	<i>Axis axis</i>
12	Gaur	<i>Bos gaurus</i>
13	Leopard	<i>Panthera pardus</i>
14	Leopard Cat	<i>Prionailurus bengalensis</i>
15	Himalayan Black Bear	<i>Ursus thibetanus</i>
16	Red Panda	<i>Ailurus fulgens</i>
17	Serow	<i>Capricornis sumatraensis</i>

Source: Forest and Nature Conservation Act of Bhutan 1995

**Table 6: Totally Protected Fish Species of Bhutan**

Common Name	Scientific Name
Golden Mahseer	<i>Tor tor</i>

Source: Forest and Nature Conservation Act of Bhutan 1995

**Table 7: Totally Protected Plant Species of Bhutan**

Common Name	Scientific Name
Agar wood	<i>Aquilaria malaccensis</i>
Chinese Caterpillar fungus	<i>Cordecyps sinensis</i>
Gentiana	<i>Gentiana crassuloides</i>
Snow-down Lily	<i>Lloydia yunnanensis</i>
Blue Poppy	<i>Meconopsis grandis</i>
Himalayan Yew	<i>Taxus baccata</i>
Ginseng	<i>Panax pseudoginseng</i>

Source: Forest and Nature Conservation Act of Bhutan 1995

## Goal 21: Wetland Conservation

Indicators	2000	2007	2010	2012
1. Area of paddy harvested (wetland) in acres	46,585 ('04)	67,564	58,609	-

*Source: Agriculture Statistics 2004, Agriculture Statistics 2007, Agriculture Statistics 2010, Draft National Land Policy 2010*

### Wetland Act and Policy

Given its rugged terrain, Bhutan has very limited area of wetland. In addition, developments of urban infrastructures pose serious threats to conservation of wetland.

To contain the increasing encroachment of wetland by infrastructure development, the Land Act 1979 was amended in 2007. It places various responsibilities relating to land administration on the National Land Commission. It also protects wetland for sustained production of food with the allowance of 50-decimal wetland for construction of house if the landowner has no other land category. In view of the need to identify and protect wetland, the Land Act 2007 provides for zoning of land for different purposes.

Although the Land Act 2007 provides for a central coordinating agency, the problem of lack of overall policy framework on coordinated use and management of land prevails. In this view, National Land Policy 2010 is drafted to provide an overall consistent guiding policy framework for sustainable use of limited land and land-based resources for fulfilling long term aspirations and needs of all Bhutanese people while conserving the natural environment.

In 2004, 46,585 acres of wetland were harvested and it increased to 67,564 acres in 2007. However, in 2010, agriculture statistics show that paddy harvest decreased to 58,609 acres in 2010. The decrease in paddy harvest could be attributed to many factors such as land conversion, infrastructure development and rural-urban migration.

**Goal 22: Ban on Dumping of Hazardous Waste, including Radioactive Waste**

Indicators	2000	2007	2010	2012
1. Solid waste generation per capita (kg p.a) in Thimphu	-	168 ('05)	-	-
2. Regulatory framework for hazardous waste treatment in place.	-	-	2	-

*Source: Bhutan Environment Outlook 2008, National Health Policy 2011*

**Solid waste generation**

With rapid urbanization, solid waste generation and disposal emerges to be a major environmental problem in Bhutan, particularly in the urban areas. Thimphu and Phuentsholing have accumulated 36.7 and 24.7 tons of municipal solid waste respectively in a day at the landfill sites in 2005 (RSPN 2005). In terms of per capita solid waste accumulation at the landfill per annum, it was estimated to be 168 kg for Thimphu and 438 kg for Phuentsholing. The figure estimated above was not inclusive of solid waste generations which are not disposed at the landfill.

Municipal solid waste generation increased exponentially in Thimphu. In 1994, daily solid waste generation was estimated to be only 8 tons, which increased to 22 tons by 2003, which translates to rate of increase at 8 % between 1994 and 2003. It was even worse between 2003 and 2005, where rate of increase was 33 %.

Apart from municipal solid waste, there is also the concern of health care waste and industrial solid waste. As for health care waste, the health care waste management plan produced by the Ministry of Health in 2004 provides an estimated figure of 73.2 tons of infectious waste per year. Electronic wastes are also a major emerging concern.

## **Regulatory Framework**

Recognizing the emerging problem of municipal solid waste generation, Bhutan enacted Waste Prevention and Management Act of Bhutan, 2009 to protect and sustain human health through protection of the environment by reducing the generation of waste at source; promoting the segregation, reuse and recycling of wastes; disposal of waste in an environmentally sound manner; and effective functioning and coordination among implementing agencies.

The Waste Prevention and Management Act of Bhutan 2009 extends to all forms of waste whether solid, liquid, or gaseous, hazardous or non-hazardous, organic or inorganic, from residential, agricultural, commercial, medical or industrial sources, produced by any person, including materials being stored for recycling or in the process of recycling, including the transportation of waste in any form, and import and export of waste in Bhutan.

In addressing the problem of health care waste disposal, Bhutan adopted National Health Policy 2011, which provides for adopting safe and appropriate method of hazardous waste disposal to minimize the potential health risks.

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