ANALYSIS OF THE DIMENSIONS OF POVERTY IN BHUTAN

BY

RAI, ANOK KUMAR

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF PUBLIC POLICY

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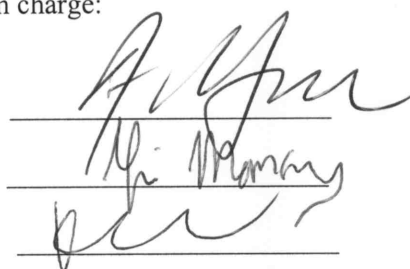for the degree of

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Professor Jong-Il YOU

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Committee in charge:

Professor Jong-Il YOU, Supervisor _____

Professor Yuri Mansury _____

Professor RHEE, Ki-Eun _____

Approval as of November   , 2009

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Dedication

This research paper is dedicated my spouse Minu Rai who had been able to stay away from me while I was doing my study at KDI school and to my dearest parents i.e (late father) and mother, who had taken assiduous struggles in their lives while bringing me upto this stage and scarifying life on my behalf.

Finally, it is also dedicated to the Royal Government of Bhutan, Ministry of Finance for giving me the opportunity to study aboard in collaboration with Colombo Plan and KDI School joint scholarships, because of which I got this opportunity to write this research paper.

Acknowledgements

ABSTRACT

Although Bhutan has undergone major transformation and there has been remarkable improvement in all aspects of the lives of Bhutanese people with GDP per capita being one of the highest in south Asia after the implementation of First Five Year Development Plan in 1961, yet poverty in Bhutan remains a social and economic issue- with 25 % of the population is poor. World Happy Planet Index shows that Bhutan ranks 8th in the world in terms of happiness whereas its poverty rate is still as high as 25 % of the total population. This is because the above research study did not include abject poverty, which is not prevalent in Bhutan. Different studies show that Bhutan's poverty rate was as high as 36 % in early 2000. However, none of these studies have explicitly covered the real causes of poverty in Bhutan.

This paper focuses on the different magnitude and dimensions of poverty in Bhutan, which is based on the analysis of various data available. The salient features of the findings is that most of the factors responsible for causing poverty in Bhutan is the same as it is prevalent in other countries except the difference in terms of degree and its impact. For instance, one of the main causes of poverty in Bhutan is rugged mountain terrain landscape accompanied by absence of road and health facilities and absence of other productive assets like land, educational institutions etc.

Finally, it was found that poverty in Bhutan has diverse causes, but most of them are directly or indirectly interlinked to the nature of the land. These findings are been

summarized and possible suggestions based on the international standard to exit from or bring it under manageable limit by the government have been recommended.

List of Acronyms

1. HIES: Household Income and Expenditure Survey

2. PAAR: Poverty Assessment and Analysis Report

3. BLSS: Bhutan Living Standards Survey 2003.

4. PHCB: Population and Housing Census of Bhutan, 2005.

5. RGoB: Royal Government of Bhutan

6. PRRSP: Poverty Reduction Strategy Paper

Glossary of Bhutanese terms used

1. Dzongkhags   Districts

2. Dzongdag   District Administrators/Mayors

3. Gewog   Block

4. Dzongkha   National Language

5. Ngultrum (Nu.)   National Currency of Bhutan

6. Tshogdu   National Assembly

7. Dungkhag   Local Administrator Centre

8. Dungpa   Local Administrator

9. District Yargay Tshogchung (DYT) District Development Committee

10. Gewog Yargay Tshogchung (GYT)   Block Development Committee

11. Chhimi   Village representative

12. Dzongdag   District Administrator

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PART I.   INTRODUCTION

1.   Background

"The kingdom of Bhutan is a landlocked nation in South Asia, located at the eastern end of the Himalaya Mountains and is bordered to the south, east and west by the republic of India and to the north by People's Republic of China. Bhutan is separated from Nepal by the Indian state of Sikkim. The Bhutanese call our country Drukyul which means "Land of Thunder Dragon".

Bhutan used to be one of the most isolated nations in the world, but developments including introduction of direct international flights, the internet, mobile phone networks, and cable television have increasingly opened the doors to outside world. Still then, Bhutan has been able to balanced modernization with its ancient culture and traditions under the guiding philosophy of Gross National Happiness (GNH). Rampant destruction of environment has been protected through proper agency. The government takes great measures to preserve the nation's traditional culture, identity and the environment" (Bhutan at a Glance 2007). In 2006, Business Week magazine rated Bhutan eight happiest-nation in the world[1].

Bhutan's landscape ranges from subtropical plains in the south to the Himalayas heights in the north, with some speak exceeding 8,000 meters (23,000 ft). The state religion is vajrayana Buddhism, and the population is predominantly Buddhist, with Hinduism being second largest religion. The capital and largest city is Thimphu. After centuries of direct monarchic rule, Bhutan held its first democratic elections in March 2008.

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[1] A global survey conducted by the University of Leicester in 2006 called the "World of Happiness".

"Bhutan is becoming increasingly known for its pure practice of Mahayana Buddhism in the Tantric form, its untouched cultures, its pristine ecology and wildlife, an unparalleled scenic beauty of its majestic peaks and lush valleys. It is still, in many ways, a magical kingdom of the past.

Bhutan is administratively divided into 20 dzongkhags (districts) and is governed by a district administrator known as Dzongdag (as shown in map below). The Dzongkhags are further broken down into 205 Gewogs (blocks). Thimphu is the capital city of Bhutan and can be reached in little less than two hours from Paro International Airport and in about six hours from the boarder town of Phuntsholing.

Dzongkha is the national language of the country while Ngultrum, which is pegged to Indian currency, is the monetary unit of the kingdom. Bhutan has enjoyed strong economic performance with GDP growth averaging 6 % a year over the past two decades. Sustained growth has increased gross national income per capita to US $ 1345.9 in 2006. The per capita GDP for 2006 is US $ 1414.01. Its major exports include electricity, timber, cement, agriculture products and handicrafts" (Bhutan at a Glance 2007, P.1).

2.   Form of Government

The form of government in Bhutan is as unique as the country itself. His Majesty King Jigme Singye Wangchuck, Bhutan's fourth king, is a very special man who has endeavored to keep the culture and traditions of his county intact while listening to the voice of his people. As one of the six goals of development of the Royal Government of Bhutan is people's participation and decentralization of the government.

The Tshogdu, (National Assembly) has 154 members who fall into 3 categories. The largest group with 105 members is the Chimis as representatives of Bhutan's 20 dzongkhags. The regional monk bodies elect 12 monastic representatives who also serve a 3 year terms. Another 37 representatives are civil servants nominated by the king. They include 20 Dzongdas, (district administrative officers or mayors), ministers, secretaries of various governments, and other high ranking officials. The National Assembly meets in Thimphu twice a year.

"On 17 December 1907, the civil and monastic representatives unanimously elected and crowned Sir Ugyen Wangchuck as the first hereditary king of Bhutan. It was as a result of the influence of the strength and the farsightedness of Ugyen Wangchuck that for the first time Bhutan was

united under a central authority, which provided the country with stability and opportunity for development.

The most historic change in the structure of the government came in 1998 after the delegation of the executive power by His Majesty the King to the Council of Ministers. The change set off a process of adaptation in the relationship between the various branches of the government, as shown in *Exhibit 1* it reflects the logical delineation in the separation of powers along with the establishment of elected Council of Ministers with full executive powers. It shows the apparatus of all the important aspects of the Bhutanese system of governance like the executive, legislative and judiciary going down from the central to the district levels. Under the unity and farsighted leadership provided by His Majesty the King, the nation will be governed primarily through the Cabinet. The Cabinet Ministers are the heads of ministries, who will oversee that policies are formulated and programmes are carried out. The autonomous bodies have interactions primarily with the ministers, and this is denoted as such in the organogram"[2].

"In March 2008 Bhutan had adopted a bicameral democracy, consisting of a 47-member lower house and a 20-member revising chamber. The king will be a constitutional monarch, impeachable by a two-thirds majority vote" (Foster. P. 2009).

3. Population

"Population presents statistics on the basic attributes of population such as the size and the growth of population, its geographical distribution, its structure by sex and age etc. The principle source of data on population is the population and housing census, which is basically conducted on a five or ten yearly basis. The first Population and Housing Census in Bhutan (PHCB) were

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[2] Statistical Year Book of Bhutan, Royal Government of Bhutan, November 2007

conducted in May 2005. The census provides a full count of the population according to a range of characteristics such as demography, health, education and other social aspects. It is useful not only because they provide a range of current population data but are also used as a benchmark for making population estimates in non-census years and for population projections. Population censuses were also conducted in 1969 and 1980. The population figures of that time were large because of the large influx of migrants from neighboring countries, particularly labor migrants at the instance of construction coinciding with the large scale development work on infrastructure expansion" (Statistical Yearbook of Bhutan 2007).

"The population of Bhutan which was 634,982 in 2005 is expected touch around 887,000 in 2030 (*Exhibit 3)* with an average annual growth of 1.4%. The birth rate is expected to decline from an estimated 26.1 in 2005 to 14.5 in 2030 while the death rate is expected to fall from 7.7 in 2005 to 6.8 by 2030. Between 2005 and 2030, because of the declining fertility, the proportion of population aged less than 15 years is projected to decline from 33.1 to 22.8 percent; proportion of the population between 15-64 years will increase from 62.3 to 70.6 percent.

Figure 1. Projected population of Bhutan, 2005 - 2030
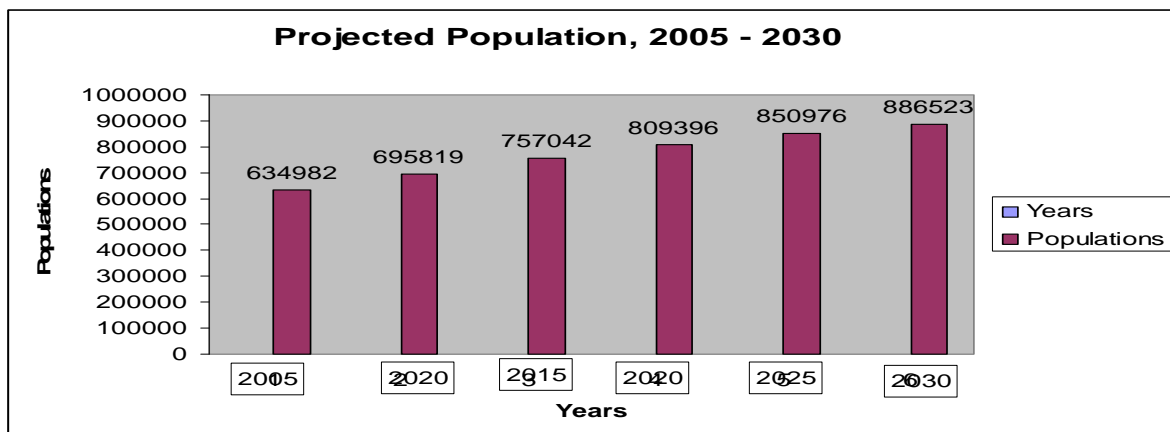
Source: PHCB, 2005

Owing to similar reasons compounded by consistent increase in life expectancy, the number of older persons in the population is expected to double from 29,745 persons in 2005 to 58,110 persons by 2030 while the youth population (15-24 years) is expected to increase from 145,810 persons to 161,280 in 2030. However, population in the school-going age of 5-14 years is expected to decline from 147,406 persons in 2005 to 140,037 persons in 2030" (PHCB, 2005).

Figure 2. Population Pyramid

Population Pyramid, Bhutan 2005
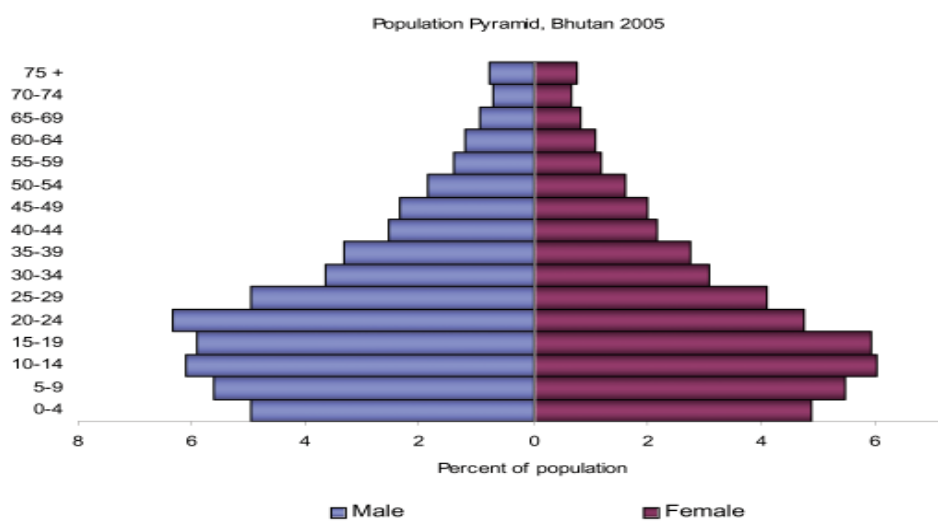
3.1. *Population structure*

"Between 2005 and 2030, because of the declining fertility, the proportion of population aged less than 15 years is projected to decline from 33.1 to 22.8 percent; proportion of the population between 15-64 years will increase from 62.3 to 70.6 percent; and older population aged 65 and older will also increase. With the declining fertility along with the consistent increase in life expectancy, the number of older persons in the population is expected to double from 29,745 persons in 2005 to 58,110 persons by 2030 which is an increase in their share to the total population from 4.7 percent in 2005 to 6.6 percent in 2030. The youth population in the age group 15-24 is expected to increase from 145,810 persons to 161,280 in 2030. Another important

consequence of the declining fertility will be that, at the national level, the population in the school-going age of 5-14 years is expected to decline from 147,406 persons in 2005 to 140,037 persons in 2030. The share of the population aged 5-14 years to total population of all ages is expected to decrease from 23.2 percent in 2005 to 15.8 percent in 2030" (PHCB, 2005, p 10).

3.2. Population density
Based on the projected population highlighted above, the density of population will steadily increase from 16 persons per square km in 2005 to an estimated 23 persons per sq. km by the year 2030.

3.3. Birth and death rates
"During the period, birth rate may decline from 26.1 in 2005 to 14.5 in 2030 because of the declining level of the total fertility. In contrast, the crude death rate is expected to decrease gradually due to changing age structure of the population with the rising median age as a result of continuing decline in fertility and increase in the expectation of life at birth. The death rate is expected to fall from 7.7 in 2005 to 6.8 by 2030. The average annual rate of population growth is expected to decline from 1.8 percent in 2005-2010 to around 1 % in 2020-2030" (PHCB, 2005).

3.4. Measures of Mortality and Assumptions

"The expectation of life at birth measures the mortality schedule of a population. The mortality data is not readily available and there are limited surveys to generate reliable mortality statistics. Data on mortality is not as easily available as on fertility. Even if available, their reliability and consistency is yet to be ascertained. Mortality is one of the most important dynamics of population change. Any worthiness of population projection will depend upon the availability and quality of mortality statistics. For the current exercise, mortality data from past available

publications and the results of the Population and Housing Census 2005 is utilized to produce estimates of the Life Expectancy at birth. These estimates form an input for population projections. The resulting indicators of life expectancies, i.e. 66.8 years for females and 65.6 years for males, in 2005 was used as an input for population projections. These results, together with a few available statistics on mortality, the distribution of specific death by age and sex, age sex distribution of the population, were used to estimate the trend of life expectancy at birth" (PHCB, 2005). The table below shows the estimated life expectancies.

Table 1. Expected Life expectancy of Bhutan 2005 - 2030

Year	Male	Female	Both	Female/male
2005	65.65	66.85	66.25	1.2
2010	68.44	69.43	68.94	0.99
2015	70.49	71.4	70.95	0.91
2020	71.94	72.87	72.41	0.93
2025	72.95	73.94	73.45	0.99
2030	73.64	74.71	74.18	1.07

Source: PHCB 2005

It is estimated that the life expectancy of birth would increase at a gradual rate of 0.5 years between 2005-2010, and it is estimated that the gains in life expectancy will be very slow after 2010 with an annual gain of 0.3 years between 2010-2020 and much slower after 2020 with an average gain of 0.2 years gain each year until 2030.

4. Economic Performance

The Gross Domestic Product (GDP) of the country increased to Nu.41,443.3 million[3] (USD 863.76) during 2006 from Nu.36,581.2 million (USD 762.43) in the previous year recording a real growth of 8.5 percent. The GDP growth rate of 8.5 percent in 2006 was achieved mainly

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[3] Since the exchange-rate based GDP in dollar terms is not available for Bhutan in Penn World Table, I have used dollar exchange rate to convert Bhutanese GDP in dollar terms (1USD = 47.98 Nu).

because of mining & quarrying sector which showed a growth rate of 63.0 percent, followed by electricity sector with a growth rate of 35.3 percent, hotel & restaurant 32.3 percent and Finance insurance & real estate with 17.0 percent.

The Gross National Income (GNI) is estimated at Nu. 39,639.3 million (USD 826.16) in 2006 as compared to Nu.32,078.2 million (USD 668.57) in 2005 with the current growth of 23.6 percent during the year. The high growth of GNI was observed mainly due to high revenue generation from Tala Hydro Power Project which has substantially reduced the factor payment to India and at the same time increasing the electricity sector's share to GDP.

The structure of Bhutanese economy has undergone remarkable changes over the past years. The share of the primary sector consisting of agriculture and mining & quarrying has been gradually declining from 29.3 percent in 2000 to 23.7 percent in 2006, where as the secondary sector's contribution to GDP has remained more or less same with share of 34.0 percent in 2006 compared to 33.0 percent in 2000 and the tertiary sector's share has increased to 42.4 percent in 2006. The summary about the facts of Bhutan has been given in *Exhibit 3* attached.

PART II.   POVERTY IN BHUTAN

"Bhutan, until recently, claimed that abject poverty per se did not exist in the country. The fact that most development programmes are people oriented, it is subsumed that the real needs of the poor are attended to and there was no need to give an additional emphasis. However, with the current pace of economic development, and in consideration of the current practices in other

countries for measuring and analyzing poverty, it is apparent that poverty does exist in our country[4]".

All previous studies carried out so far have only highlighted the percentage of poverty rate that had over gone over the period of economic developments and changes with socio-economic condition of the country but had failed to pinpoint the real causes of poverty in Bhutan.

As per the Happy Planet Index[5], Bhutan ranks 8th place in terms of happiness. On the other hand, Bhutan too has 25% of the population under poverty, which is contradicting to the former. As such, I have keen interest to carry out this research work and find out the real situation as to whether there is real poverty in Bhutan and then to analyze, synthesize the causes of poverty in Bhutan.

1. Poverty defined in Bhutanese context

Poverty in reference to Bhutanese context has been defined in following ways. "Poverty is hunger. Poverty is lack of shelter. Poverty is being sick and not being able to see a doctor. Poverty is not having access to school and not knowing how to read. Poverty is not having a job, is fear for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom.

Bhutanese poverty has many faces, changing from place to place and across time, and has been described in many ways. Most often, poverty is a situation people want to escape. So poverty is a call to action, for the poor and the wealthy alike, a call to change the world so that many more

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[4] Poverty Analysis Report (PAR) Bhutan 2004, P 6, National Statistical Bureau, Royal Government of Bhutan.
[5] Survey conducted by world health organization on "How to Change the World: The World of Happiness.

may have enough to eat, adequate shelter, access to education and health, protection from violence, and a voice in what happens in their communities" (World Bank) .

"To know what helps to reduce poverty, what works and what does not, what changes over time, poverty have to be defined, measured, and studied and even experienced. As poverty has many dimensions, it has to be looked at through a variety of indicator, levels of income and consumption, social indicators, and indicators of vulnerability to risks and of socio/political access" (PAR, 2004).

Even if the government had not done any special poverty interventions in the past, it has of late initiated a wide range of poverty issues and measures through the expansion of social services, rural development schemes and income generation activities, whereby a large section of Bhutanese people were benefited. The government's strong commitment towards reducing poverty to a manageable limit was clearly highlighted in the Ninth Plan and the mission 'Bhutan 2020'. Being a member of 'Poverty Reduction Partnership Agreement', the Government has committed itself towards attainment of international development goals as enunciated in the World Summit for Social Development Declaration in 1995.

As such, the government's efforts to assess, analyze and monitor poverty in Bhutan have begun very recently and there is significant lack of quantitative data. It was first started with Qu*antitative Poverty Analysis* wherein it assessed the impact of the policies that the RGoB has pursued till date in improving the quality of life in our country. It is also found that the data collected and developed during the study will become a valuable guide and tool for development planning in future, particularly for setting priorities. The result of the study confirmed that the

living standard of Bhutanese people demands new programs specifically targeting poor people and seek to bring them closer to the mainstream of the nation's development process with a view to maximize personal wellbeing and the Gross National Happiness.

"Although the GDP per capita is among the highest in South Asia, poverty in Bhutan remains a serious social and economic issue—around 32% of the population is poor. The country has made a remarkable progress in the socio-economic development (World Bank Report).

- The annual growth rate of GDP averaged 6.6% in the 1990s

- The gross enrollment rate rose by 30%, from 55% in 1990 to 72% in 2000

- The incidence of malaria declined by almost 40% , from about 9,500 in 1990 to 6,000 in 2000

The Royal Government's development strategy is marked by its unique philosophy, such as measuring Gross National Happiness, which emphasizes harmony between material well-being and spiritual, emotional and cultural well-being. Accordingly, the development strategy consists of four equally important goals:

- Economic growth and development

- Preservation and promotion of cultural heritage

- Preservation and sustainable use of the environment

- Good governance

However, data constraints remain a major challenge for implementing the above policy pillars. The Royal Government tried to carry out some poverty studies such as Household Income and

Expenditure Survey 2000 (HIES 2000) and Poverty Assessment and Analysis 2004 (PAAR 2004) on pilot basis".

2. Review of Literature

"There is good reason to believe that the functional aspects of inequality are far more acute for developing countries than for economically developed counterparts….majority of the world's population has access to limited resources, even if we just go by average income. With low income distributed unequally, the consequences for poverty, under-nutrition and sheer waste of human life are unthinkable. The effects of inequality on aggregate economic performance are correspondingly stronger. Saving rates are severely affected at low levels of income, so is the capacity to do useful works. The ability to provide economic incentives is affected in more than one ways. Access to credit and finances is constrained, which reduces the efficiency of these and other markets (R. Debraj, P.197)".

The above theory of general causes of poverty propounded by Debraj Ray is has direct bearing and relevance to the Bhutanese concept of poverty. Although the factors responsible for causes of poverty in Bhutan is no way different from those in other countries, the pattern of poverty is slightly different as compared with our neighboring countries like India, Bangladesh, Myanmar etc. where there is 'absolute'[6] form of poverty whereas ours is 'relative'[7] one. The factors responsible for causes of poverty in Bhutan can be explained by existing theories like Lorenz Curve, Gini Coefficient, Akitson Index etc.

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[6] Abject form of poverty with lot of people as beggars, malnutrition, hunger, starvation, etc.
[7] Poverty only in principle and in theory, but no people are under starvation, no beggars etc.

3. Research Method

Given the time and budget constraints and access to the primary data, I could not carryout empirical data research[8]. As such, I have used secondary data i.e review of data available based on previous studies that have a direct bearing on my research question. It will focus on the following issues:

3.1. Highlight on the poverty status in Bhutan;

3.2. Comparison of poverty rate of Bhutan with that of selected countries of the world;

3.3. Find out the different methods f poverty measurement in Bhutan;

3.4. Analyze the causes of poverty in Bhutan based on the different indicators, which in turn were based on different research studies carried out previously;

3.5. Finally to summarize the factors responsible for causes of poverty in Bhutan.

Based on the analysis of the research works, I have drawn the conclusion towards the causes of poverty in Bhutan.

4. Poverty and Inequality in Bhutan

"Bhutan is a least developed country, and it is essentially an agrarian one with 79 percent of the people dependent on agriculture and livestock rearing for their livelihood. Bhutan embarked on its first development initiative with the inception of the first five-year plan in 1961. Prior to this, a vast majority of Bhutanese lived rugged lives of isolation. However, Bhutan has undergone major transformation and there has been remarkable improvement in all aspects of the lives of Bhutanese people" *(PAR, 2004).*

The overall poverty status of Bhutan has been highlighted in the figure given below.

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[8] Statistical data research based on questionnaire and interview.

Figure 3. National Poverty Trend
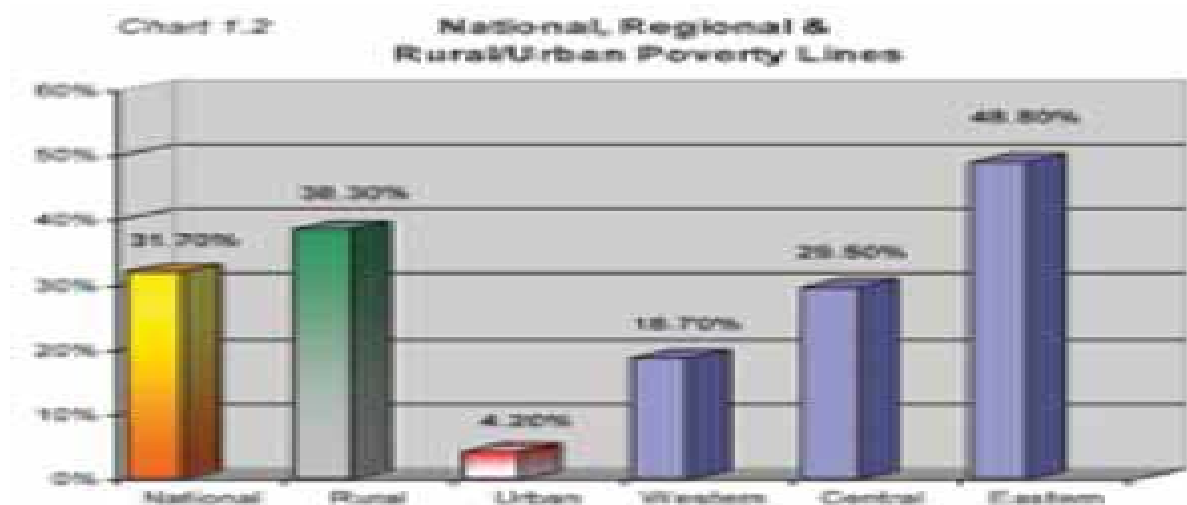
Source: BLSS 2003.

"The Gross Domestic Product (GDP) of the country grew with an average growth rate of 6.6 percent over the years and the GDP per capita has been recorded at US$ 1410 today. It is estimated that on average, a Bhutanese born today could expect to live to the age of about 66 years. There has been visible achievement in the field of education with the gross enrolment reaching to 72 percent in 2002. The progress we have recorded would have been impossible without the continuity and vision that have been bestowed upon our nation by the institution of a hereditary monarchy (Bhutan 2020).

It is the monarchy that has led the way in establishing the conditions required for development as well as in the articulation of the nation's approach to development. The Bhutanese approach to development has been shaped and guided by the concept of Gross National Happiness[9] (GNH). The concept places the individual at the center of development efforts, and it recognizes that the individual has material, spiritual and emotional needs. Although no special poverty interventions

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[9] A unique development philosophy enunciated by His Majesty King Jigme Singye Wangchuk in the late 1980s.

have been targeted in the past, the Royal Government of Bhutan (RGoB) has addressed a wide range of poverty issues broadly through the expansion of social services, rural development and income generation activities, wherein a vast majority of our population had benefited in very tangible ways" (*PAR, 2004, P. 5*).

5. Rural Poverty in Bhutan

"The isolated, mountainous Kingdom of Bhutan began to open up to the outside world in the 1960s. It has adopted a policy of cautious modernization, moving away from a generally self-sufficient barter economy based on agriculture. Many subsistence farmers living outside the cash economy. Despite limited resources and strong population pressure, the agricultural sector, including livestock and forestry, is the main source of a livelihood for about nine out of ten people.

The distribution of land and other assets is relatively equitable, and few sectors of the population are very rich or very poor. Yet poverty affects more than 30 per cent of the people, and 96 per cent of Bhutan's poor people live in rural areas. In this rugged country of high mountains and narrow valleys, there is a basic lack of accessible, good-quality land and other resources. Opportunities for producing food and generating cash income are limited. There is little potential for expanding irrigation facilities, and much existing irrigation needs rehabilitation. External inputs and services are inadequate, while farm technology is at a low level" (PAR, 2007).

5.1. *Who are Bhutan's poor rural people?*

Bhutan's poorest people include subsistence farmers, small traders and day laborers and their household members. Some people work at more than one job in an attempt to earn enough to rise above the poverty level. A minority of poor people is unemployed or is too young or too old to

work. Women have equal legal status and are not subject to gender discrimination, but they are less mobile than men and less active in social and economic life outside of their own villages.

"As shown in Figure 4, the size of poor households is significantly larger than that of non-poor households. On the average, the non-poor households have 4.6 members, while poor households have 1.9 additional persons. The composition of poor households is considerably different from that of non-poor. In the poor households the age dependency ratio is 83 percent, whereas in the non-poor households it is 68 percent. This implies that for an average family size of 6.6 in a poor household, about 3 are not within the working age. In contrast, in the non-poor household, for an average size of 4.6, almost 2 are outside the working group. Consequently, poor households considerably have more dependents per worker in the household as compared to the non-poor households" (PAR 2004, P.14).

Figure 4. Average household size of poor and non-poor households
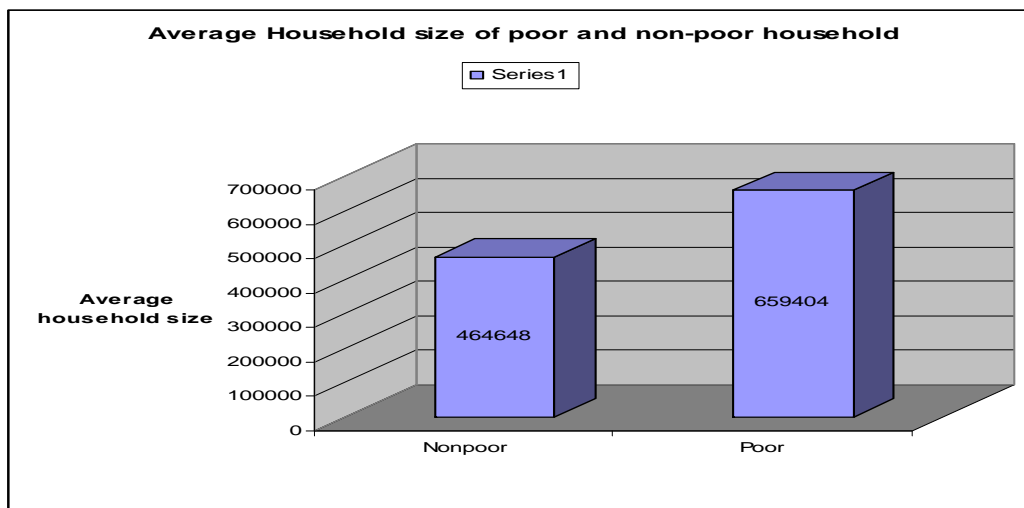
5.2. *Where are they?*

"Although there are poor people living in remote villages scattered throughout the country, poverty is deepest in the country's eastern zones. About 75 per cent of the poorest households

are in the Pemagatshel, Zhemgang, Mongar, Trashigang and Sampdrup-Jongkhar districts. There is some transfer of poverty when poor people migrate to urban areas" (PAR 2004).

5.3. *Why are they poor?*

This is the main part of my research question i.e looking forward to find the causes of poverty in Bhutan. "Poverty in Bhutan has diverse causes, but most are linked to the nature of the land. Because villages are isolated and the terrain is extremely rugged, people lack access to social and health services and to education and markets. In many poor communities people have to walk from a few hours to a few days to reach the nearest road head. Students in some villages have to walk two or three hours each way to reach the nearest primary school.

The population is growing rapidly, but resources and opportunities are limited. Poor people do not own or do not have access to productive assets such as land. Because of high illiteracy rates and lack of training, rural people do not have the productive skills and knowledge of technology they need to improve their living standards. They have few opportunities for off-farm employment and for otherwise generating income. Farmers have little or no access to credit and other financial services.

Among other factors that aggravate rural poverty in Bhutan are natural calamities such as floods and landslides, breakdowns in society that disrupt family and social support systems, increasing costs of goods and services, and illnesses such as malaria and tuberculosis" (IFAD).

6. Poverty in Selective Countries of South East Asia

"The incidence of poverty can be measured for different categories of population (e.g. according to the level of education of the head of household, by gender, economic activity of the head of

household, main source of income, etc). National poverty lines are based on country specific methods and datasets. They are therefore not strictly comparable. For information, we, however, provide in Table 2 the poverty incidence in some other countries in the region, based on their own national poverty lines" (PAR 2004, P.10).

Table 2. Poverty incidence in selected Asian countries

Country/year	Poverty Incidence (% of Population)		
	National	**Urban**	**Rural**
Bangladesh (2000)	49.8	36.6	53.0
Bhutan (2003)	31.7	04.2	38.3
Cambodia (1999)	35.9	18.2	40.1
India (2000)	28.6	24.7	30.2
Malaysia (1999)	07.5	03.4	12.4
Mongolia(1998)	35.6	39.4	32.6
Nepal(1999)	38.1	…	….
Philippines (2000)	34.0	20.4	47.4
Thailand (2002)	09.8	04.0	12.4
Viet Nam (2002)	28.9	06.6	35.6

Source: PAR, NSB, 2007

7. Dimensions of rural poverty

"At the heart of every human experience is the desire to survive and prosper. To live without fear, hunger or suffering. To imagine how your life could be better than have the means yourself to change it. Yet, every day, 1.2 billion people – one fifth of the world's inhabitants – cannot fulfill their most basic needs, let alone attain their dreams or desires.

The largest segment of the world's poor is the 800 million poor women, children and men who live in rural environments. These are the subsistence farmers and herders, the fishers and migrant workers, the artisans and indigenous peoples whose daily struggles seldom capture world attention.

Empowering rural people is an essential first step to eradicating poverty. It respects the willingness and capability that each of us has to take charge of our own life and to seek out opportunities to make it better" (*IFAD).*

7. Methodology of Poverty Measurement

7.1. Measuring poverty at the global level

"While estimating poverty in Bhutan, the same reference poverty line used worldwide has been used, and expressed in a common unit across countries. Therefore, for the purpose of global aggregation and comparison, the World Bank uses reference lines set at $1 and $2 per day (more precisely $1.08 and $2.15 in 1993 Purchasing Power Parity terms). It has been estimated that in 2001, 1.1 billion people had consumption levels below $1 a day and 2.7 billion lived on less than $2 a day. These figures are lower than earlier estimates, indicating that some progress has taken place, but they still remain too high in terms of human suffering, and much more remains to be done" (World Bank report).

7.2. Measuring poverty at the country level

A common method used to measure poverty is based on incomes or consumption levels. A person is considered poor if his or her consumption or income level falls below some minimum level necessary to meet basic needs. This minimum level is usually called the "poverty line". What is necessary to satisfy basic needs varies across time and societies. Therefore, poverty lines vary in time and place, and each country uses lines which are appropriate to its level of development, societal norms and values.

Information on consumption and income is obtained through sample surveys, with which households are asked to answer detailed questions on their spending habits and sources of

income. Such surveys are conducted more or less regularly in most countries. These sample survey data collection methods are increasingly being complemented by participatory methods, where people are asked what their basic needs are and what poverty means for them. Interestingly, new research shows a high degree of concordance between poverty lines based on objective and subjective assessments of needs.

7.3. *New directions in poverty measurement*

"While much progress has been made in measuring and analyzing income poverty, efforts are needed to measure and study the many other dimensions of poverty. Work on non-income dimensions of poverty, defining indicators where needed, gathering data, assessing trend is presented in the chart. This work includes assembling comparable and high-quality social indicators for education, health, access to services and infrastructure. It also includes developing new indicators to track other dimensions -- for example risk, vulnerability, social exclusion, access to social capital, as well as ways to compare a multi-dimensional conception of poverty, when it may not make sense to aggregate the various dimensions into one index" (*Attacking Poverty, World Development Report (WDR) 2000).*

In addition to expanding the range of indicators of poverty, work is needed to integrate data coming from sample surveys with information obtained through more participatory techniques, which usually offer rich insights into why programs work or do not. Participatory approaches illustrate the nature of risk and vulnerability, how cultural factors and ethnicity interact and affect poverty, how social exclusion sets limits to people's participation in development, and how barriers to such participation can be removed. Work on integrating analyses of poverty

based on sample surveys and on participatory techniques is presented in the WDR. An example of participatory work is given by the Voices of the Poor studies.

"Since poverty is a cultural- and country specific phenomenon, its measurement must be adapted to the local context. The best poverty indicators may differ widely from country to country, and even across districts within the same country. So although certain basic indicators will be pertinent across most countries it is important not to import wholesale other countries' poverty indicators without testing their relevance" (UNDP, 2002).

"A method widely used in developing countries was used to compute a national poverty line. A household is said to be poor if its consumption level is insufficient to acquire a given level of goods and services regarded as essential for a minimum standard of living. The poverty line is thus established at a level of consumption that assures basic needs are met. Consumption includes items purchased, produced, and received" *(PAR, 2004, P.7)*.

"The national poverty line is made of two components: (i) a food poverty line, giving the cost of a bundle of goods attaining a predetermined minimum food energy requirement, and (ii) an allowance for basic non-food goods. The approach to compute the national poverty line thus involves two steps:

1. Computation of a *food poverty line* by setting and valuation of a basic needs food bundle. The basket of goods must be consistent with the observed consumption patterns among low-income households in the country, and represent a certain nutritional value.

2. Valuation of the non-food component of the basic needs bundle, to obtain an *overall poverty line*" (NSB, 2004)

7. 3 (i). Food Poverty Line

"The research showed that Bhutanese food poverty line is constructed on the basis of calorie requirements of individuals. Considering the typical Bhutanese diet, it was assumed that the households fulfill their calorie requirements protein requirements. The calorie norms vary from country to country. Since no specific food energy requirement is available for the Bhutanese population, the norm applied in Nepal has been used, i.e. 2,124 Kcal. per day per person.

The composition of the food basket used for establishing the national poverty line must bear resemblance to actual eating habits of the poor. It was chosen to establish the food poverty line using a basket representative of the diet of the poorest 40 percent of the population (based on nominal per capita consumption).

Although some differences exist in regional patterns of consumption, one single national food basket was used. Therefore, it had obtained a typical food bundle of 33 products, which account for 80 % of the food consumption of the poorest 40% of the population. The quantity of each item in the reference food basket was rescaled (keeping their relative share unchanged), in such a way that the basket provides a total of 2,124 Kcal per day.

Based on these rescaled quantities, the cost of the bundle was estimated using the national median unit price of each item. The cost of purchasing this bundle was estimated at 403.79 Nu.

per month per person, which corresponds to the food poverty line. *The food poverty line was estimated at Nu.403.79 per capita per month" (PAR, 2004, P.8)*

7.3 (ii). Non-food Allowance and Overall Poverty Line

"After setting the food poverty line, a non-food allowance is added to obtain an overall poverty line that incorporates both food and non-food needs. This can be done by scaling up the food poverty line by some factor (called the Engel's coefficient) to allow for the purchase of essential non-food items. In simpler term, it is the same as the value of non-food spending by a household i.e that is just able to reach its food requirements. Therefore, the Bhutanese's *overall poverty line was estimated at Nu.740.36[10] per capita per month" (PAR, 2004, P.8).*

7.3 (iii). Regional Price Deflators

"Prices differ from region to region. What matters is the "real" consumption of households, not their nominal consumption. To obtain the real values, the nominal consumption must be deflated using regional price deflators.

No such deflators were available. Paasche regional price deflators were thus computed for food items using the BLSS data. The Paasche price deflators, which are specific to each household as they are based on each household's consumption pattern, are the most appropriate for money-metric measurement of poverty. The deflators were computed using the median national unit prices of each food item as reference. Table 3 below provides the median of the food regional price deflators by region. No price data was available for non-food items. Therefore the food regional price deflators were used as overall regional price deflators" *(PAR, 2004, P.8).*

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[10] Converted the USD at the exchange rate of Nu.40 per USD

Table 3. Paasche regional price deflators, by Dzongkhag (median of household-level deflators)

Urban	1.07	Rural	0.99
Chukka	0.96	Chukha	0.91
Ha	1.03	Ha	0.98
Paro	1.07	Paro	1.04
Thimphu	1.11	Thimphu	1.07
Punakha	1.06	Punakha	1.04
Gasa	1.06	Gasa	0.99
Wangdi	1.06	Wangdi	1.01
Bumthang	1.26	Bumthang	1.16
Trongsa	1.14	Trongsa	1.02
Zhemgang	1.08	Zhemgang	0.96
Lhunhsti	1.09	Lhunhsti	0.98
Mongar	1.07	Mongar	0.97
Trashigang	1.14	Trashigang	0.99
Yangtse	1.12	Yangtse	0.99
Pemagatshel	1.05	Pemagatshel	0.89
Samsrup Jongkhar	0.94		
Samtse	0.90	Samtse	0.82
Sarpang	0.93		
Tshirang	1.00	Tshirang	1.00
Dagana	1.08	Dagana	1.05

Source : PAR, NSB , 2004

PART III.   ANALYSIS ON CAUSES OF POVERTY

"Poverty in Bhutan has diverse causes, but most of them are directly or indirectly interlinked to the nature of the land. Because villages are isolated and the terrain is extremely rugged, people lack access to social and health services and to education and markets. In many poor communities people have to walk from a few hours to a few days to reach the nearest road head. Students in some villages have to walk two or three hours each way to reach the nearest primary school.

The population is growing rapidly, but resources and opportunities are limited. Poor people do not own or do not have access to productive assets such as land. Because of high illiteracy rates and lack of training, rural people do not have the productive skills and knowledge of technology

they need to improve their living standards. They have few opportunities for off-farm employment and for otherwise generating income. Farmers have little or no access to credit and other financial services.

Among other factors that aggravate rural poverty in Bhutan are natural calamities such as floods and landslides, breakdowns in society that disrupt family and social support systems, increasing costs of goods and services, and illnesses such as malaria and tuberculosis" (Source: IFAD).

1.   Poverty Measures by Economic Activity of the Household Head

"Households differ in their demographic composition and characteristics. Some households do not have children, some have lot of members who are of the economically productive age, and some are comprised of only elderly people. The table 4 shows the composition of poor and non-poor households in terms of the number of children and the number of adults presents in households. A bigger portion of non-poor households are without children[11]. There is also a bigger share of single-person- households among the non poor than among the poor" (*PAR, 2007, P.18*).

Table 4. Composition of Poor and Non-Poor households by presence/absence of Children, and number of adults in Households, 2007

Adults in Households	Poor		Non-Poor		Total	
	with Children	Without children	with Children	Without children	with Children	Without children
	86.8	9.3	66.5	21.5	70	19.4
At least one adults of each sex	0.1	0	0.5	3.1	0.4	2.6
More than one man	0.2	0.9	0.2	1.5	0.2	1.4
One woman	0.7	0.2	1.3	1.8	1.2	1.5
More than one woman	1.6	0.2	2	1.6	1.9	1.3
Total	89.4	10.6	70.5	29.5	73.7	26.2

Source: PAAR 2007

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[11] Person below the age of 15 years of age.

1. 1. *Poverty and Size of Household*

"Household sizes in Bhutan are, on average, larger in rural areas than in urban areas (BLSS 2007 report). Table 4 shows that poor households are typically having much larger size of households than non-poor households, in both urban and in rural areas. On the other hand, poverty has direct co-relation with the size of household" (*PAR, 2007, P.19*).

Table 5. Poverty and Size by Area, Poverty status and Sex of Head, 2007.

Area	Poverty Status	Head of Households		Both Sexes
		Male	**Female**	**Both Sexes**
Urban	Poor	6.86	7.06	6.89
	Non-Poor	4.4	4.26	4.38
	Total	4.44	4.28	4.4
Rural	Poor	6.8	7.06	6.87
	Non-Poor	4.8	4.76	4.79
	Total	5.33	5.19	5.28
Bhutan	Poor	6.8	7.06	6.87
	Non-Poor	4.64	4.64	4.64
	Total	5.03	5.0	5.02

Source: PAAR, 2007

1.2. Poverty Rate and Subsistence Poverty

"Poverty is measured at the household level. Data does not allow intra-household analysis. If a household is considered poor, then all its members are considered poor. If a household is non-poor, then none of its member is poor. Overall poverty line and food poverty line are used to compute for poverty and subsistence incidence, respectively. The poverty rates and subsistence poverty goes parallel and increases with the size of households. This is illustrated in exhibit 5 attached.

The figure below illustrates the subsistence and poverty incidence in terms of percentage of the population across urban and rural areas. The poverty headcount i.e the percentage of the poor person in the country is estimated now at 31.70 percent. This means that of the total estimated population, 31.70 % persons belong to the households whose per capita real consumption is below the total poverty line of Nu. 1,096.94 per person per month. It can be noted that subsistence incidence i.e extreme poverty is relatively smaller in the country; only six in a hundred persons throughout Bhutan belong to households that are spending per person less than the food capita consumption below the food poverty line of Nu. 688.96 per person per month"
(PAR 2004).

Table 6. Poverty and Subsistence Incidence (Percentage of Population)

	Poverty Headcount			Subsistence Headcount			Population Share %
	Index (%)	Standard error (%)	Contribution to Total	Index (%)	Standard error (%)	Contribution to Total	
BHUTAN	31.70	2.30	100.00	3.80	0.70	100.00	100.00
Urban	4.20	0.70	2.60	0.03	0.03	0.15	19.20
Rural	38.30	2.80	97.40	4.70	0.90	99.85	80.80
Region							
Western	18.70	3.10	23.60	1.70	17.70	17.70	40.10
Central	29.50	3.40	24.20	2.20	14.70	14.70	26.00
Eastern	48.80	4.10	52.30	7.60	67.60	67.60	34.00

Table 7 shows the incidence of poverty as a percent of households. It can be learnt that poor households are on average larger than non-poor households, the proportion of poor households will be smaller than the proportion of poor population.

Table 7. Poverty and Subsistence Incidence (Percentage of Households)

	Poverty incidence (%)	Contribution to total subsistence	Subsistence Incidence (%)	Contribution to total subsistence	Population Share %
BHUTAN	24.70	100.00	2.60	100.00	100.00
Urban	3.00	2.80	0.02	0.19	22.80
Rural	31.60	97.80	3.40	99.81	77.20
Region					
Western	12.70	21.00	0.95	14.90	40.80
Central	22.20	21.10	1.40	12.50	23.30
Eastern	39.90	58.00	5.30	72.50	35.90

Source : NSB, 2004

1.3.   Poverty by Headcount

Poverty in Bhutan is rural phenomenon. Based on the figure depicted below, six out of ten

persons in the rural areas are poor. In urban areas, less than 2 percent of the population is poor

and only one thousand persons are extremely poor. Although the percentage of poor persons in

rural areas of 8 % is relatively small, it is quite large in comparison to that of urban areas.

Figure 5. Poverty and subsistence headcount in Bhutan 2007.
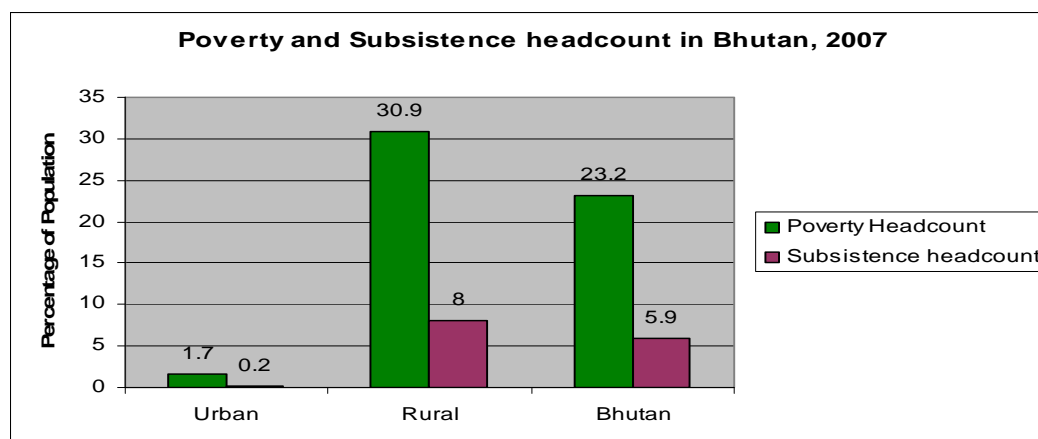
"Using poverty lines for the urban and rural areas and for the three regions of the country and per

capita levels, the poverty head count estimates show that 31.7 percent of the Bhutanese

population was living in poverty in 2003, or about 173,462, based on the population of 547,179

estimated populations. The sample frame, however, did not cover two district rural areas. Applying the headcount rate to the population figure of 734,340, the poor population is estimated to be 232,859[12]. We observe that poverty in Bhutan is more of a rural phenomenon. About 40% of the rural population is poor while only less than 5% of the urban population is poor. The standard errors for the estimates of poverty headcount and subsistence incidence are relatively small. Consequently, estimates for the rural, urban and the three regions are reliable" (PAR, 2004).

1.3. (i). Poverty Gap Index

The poverty gap index measures the depth of poverty for the population. For an individual, the poverty gap is the difference between the poverty line and actual expenditure *(it has a value of 0 for all individuals above the poverty line).*The poverty gap index gives a good indication of the depth of poverty, in that it adds up the extent to which individuals fall below the poverty line (if they do) and expresses it as a percentage of the poverty line.

For both the poverty gap and poverty severity square gap indices, as well as poverty incidence, the larger the value of the index, the greater the degree of poverty. These poverty measures are important for planning of poverty reduction programs. All things being equal, the government should emphasize on providing attention to reduce the poverty gap. The figure shows that poverty is deeper and more severe in rural areas than in urban areas.

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[12] Statistical year Book 2003

Figure 6. Depth and Severity of Poverty in Bhutan, 2007.
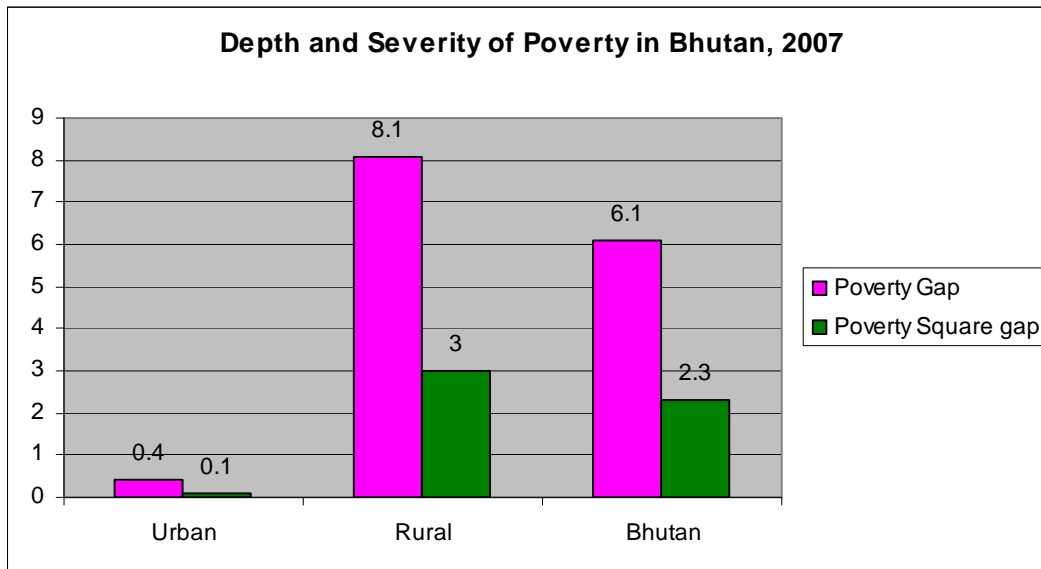
The poverty gap and severity measures across dzongkhags (districts) are listed in Exhibits 4 together with standard error of estimates and contribution to the national poverty measures. As per the report, Zhemgang and Samtse dzongkhags have very high poverty measures (in terms of poverty incidence and severity). Samtse dzongkhag also have very high share of contribution to the poverty measures to national level, mainly because of it high population share.

1.3. (ii) Poverty Severity Index

"The poverty severity index is similar to the poverty gap index, except that more weight is given to the very poor than to less poor households in its computation. It is calculated as the weighted sum of poverty gaps (as a proportion of the poverty line), where the weights are the proportionate poverty gaps.

The Poverty Severity Index gives a weight to the poverty gap (more weight to very poor than to less poor). It is the average value of the square of depth of poverty for each individual. Poorest

people contribute relatively more to the index. While this measure has clear advantages for some purposes, such as comparing policies which are aiming to reach the poorest, it is not easy to interpret. For poverty comparisons, however, the key point is that a ranking of dates, places or policies in terms of P2 should reflect well their ranking in terms of the severity of poverty. It is the ability of the measure to order distributions in a better way than the alternatives that makes it useful, not the precise numbers obtained" (MDG 2005).

Table 8. Poverty gap and Severity indices (based on population) 2007

| | Subsistence Poverty | | Poverty | |
	Gap index	Severity Index	Gap index	Severity Index
BHUTAN	**0.00410**	**0.00007**	**0.08592**	**0.03084**
Urban	0.00001	0.00000	0.00684	0.00164
Rural	0.00508	0.00087	0.10476	0.03780
Region				
Western	0.00125	0.00016	0.00466	0.01576
Central	0.00252	0.00043	0.06622	0.02121
Eastern	0.08868	0.00154	0.14737	0.05599

"For both indices, the higher the ratio, it would show higher the degree of poverty. These indices serve as important parameters for planning of poverty reduction programs and strategies for policy makers. Therefore, all things being equal, areas with the higher indices should be given more priority in poverty reduction programs. Analysis of the data given above in table 8 shows that poverty is chronic, deeper and more severe in rural areas as compared to in the urban areas. Among the rural areas, poverty is also seen to be prominent, deeper and more severe in the rural areas of eastern region than in the central and western regions. This is mainly due to lack of basic need of people like access to road, school, basic cultivation tools and mode of transport etc" (PAR 2007, P.16).

1.4. *Poverty by Gender of Household Head*

The previous studies also made an attempt to analyze the poverty gap between male and female headed households but the figures from table 9 do not depict that any visible difference when it comes to the poverty status whether the household is headed by male or female.

Table 9. Poverty measures by Gender of household head (based on households)

| Gender of Household head | Poverty | | |
	Incidence (%)	Gap Index	Severity Index
Bhutan	24.7	0.06456	0.02261
Male	23.9	0.06176	0.02136
Female	26.3	0.07075	0.02539

Source: NSB, 2004

However, it has been seen that the households headed by male person are better in terms of poverty incidence, gap and severity indexes in comparison to female headed households. This is due to the fact that male person can do more and better physical works, and families are mentally and physically better in terms of security, work planning and to execute farm works.

1.5. **Poverty by Marital Status**

The data given below shows that there is not much variation in the profile of extremely poor persons, poor and non-poor persons across marital status. However, in rural areas, 53. 9 % of never married people are poor as compared to only 40.7% of married persons poor.

Table 10. Percentage of Poor and Non-poor by Marital Status and area 2007

| Area | Marital Status | Classification of Poor | | Poverty Status | | |
		Subsistence Poor	Poor but not subsistence Poor	Poor	Non Poor	Total
Urban	Married	55.30	42.20	39.80	42.20	42.20

	never married	39.70	54.60	56.50	54.60	54.60
	Divorced	-	1.10	0.50	1.10	1.10
	Separated	-	0.40	0.50	0.40	0.40
	Widowed	5.00	1.70	2.70	1.70	1.70
	Living together	-	0.10	-	0.10	0.10
Rural	Married	40.70	41.30	40.50	41.70	41.30
	never married	53.90	51.20	53.80	50.40	51.50
	Divorced	0.80	1.90	1.30	2.10	1.80
	Separated	0.70	0.60	0.50	0.70	0.60
	Widowed	3.70	4.90	4.00	5.20	4.80
	Living together	0.10	-	-	-	-
Bhutan	Married	40.90	41.60	40.50	41.90	41.50
	never married	53.80	52.20	53.90	51.80	52.30
	Divorced	0.80	1.70	1.20	1.80	1.60
	Separated	0.70	0.50	0.50	0.60	0.50
	Widowed	3.70	4.00	3.90	4.00	4.00
	Living together	0.10	-	-	-	-
	Total	100.00	100.00	100.00	100.00	100.00

Source: PAAR 2007

Typically, welfare and household demographic are observed to have a connection with the characteristics of the household heads (BLSS 2007) and is defined as 'the main economic decision maker and source of economic support within the households'. Female headed households are observed to be, on average, are poorer than their male headed households. This is mainly prevalent in rural areas but not in urban areas. The depth and severity of poverty is also to be higher in male headed households. My analysis shows that this could be due to better household management by educated female heads than by uneducated male headed households.

Table 11. Poverty and subsistence Poverty rates by area and Sex of Household heads (%), 2007

Area	Sex of Household	Poverty Rate		Subsistence Rate		Share of Total heads
		Index	Contribution to National	Index	Contribution to National	
Urban	Male	1.3 (0.2)	1.6	0.1(0.1)	0.8	23.6
	Female	0.8 (0.3)	0.3	0	0	6.5
	Both Sexes	1.1 (0.2)	1.9	0.1(0.1)	0.8	30.1
Rural	Male	26.6(1.0)	71.6	6.4(0.5)	76.6	45.7
	Female	18.5(1.0)	26.5	3.5(0.4)	22.6	24.2
	Both Sexes	23.8(0.8)	98.1	5.4(0.4)	99.2	69.9
Bhutan	Male	17.9(0.7)	73.2	4.390.3)	73.2	69.3
	Female	4.8 (0.8)	26.8	2.8(0.3)	26.8	30.7
	Both Sexes	16.9(0.6)	100	3.8(0.3)	100	100

Source: PAAR 2007

1.6. *Age and Sex characteristics of Poor households*

"The difference in the age and sex structure of poor and non-poor households in Bhutan is shown in Table 12. We observe that 58% of the non-poor population consists of the working-age persons. The corresponding share for the poor population is lower at 53%. The proportion of the young population is greater among the poor than for the non-poor" (PAR 2004, P.15).

Table 12. Magnitude (and percentage) of poor and non-poor persons by sex and by age group

Age group in Yrs	Male		Female		Total	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
0-14	31,529.00	57,518.00	31,846.00	61,659.00	63,375.00	119,177.00
	(38.10)	(32.70)	(36.40)	(32.10)	(37.20)	(32.40)
15-59	43,507.00	102,721.00	49,274.00	116,898.00	92,781.00	219,619.00
	(52.60)	(58.30)	(56.30)	(60.80)	(54.50)	(59.60)
60+	7,636.00	15,925.00	6,448.00	13,654.00	14,083.00	29,579.00
	(9.20)	(9.00)	(7.40)	(7.10)	(8.30)	(8.00)

Total	82,671.00	176,164.00	87,567.00	192,211.00	170,239.00	368,375.00
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

1.7.   Characteristics of the Head of Poor Households

"The head of household is the person who manages the income earned and expense incurred by the household and who is the most knowledgeable person concerning other members of the household. Figure 7 depicts that only 48.7 % of total households in poor category are headed by male against 69.5% in non poor households. A lower proportion for male-headed households is observed among the poor households. This indicates that male headed households are economically doing better" (PAR, 2004).

Figure 7. Poor and non-poor households, by gender of household head.
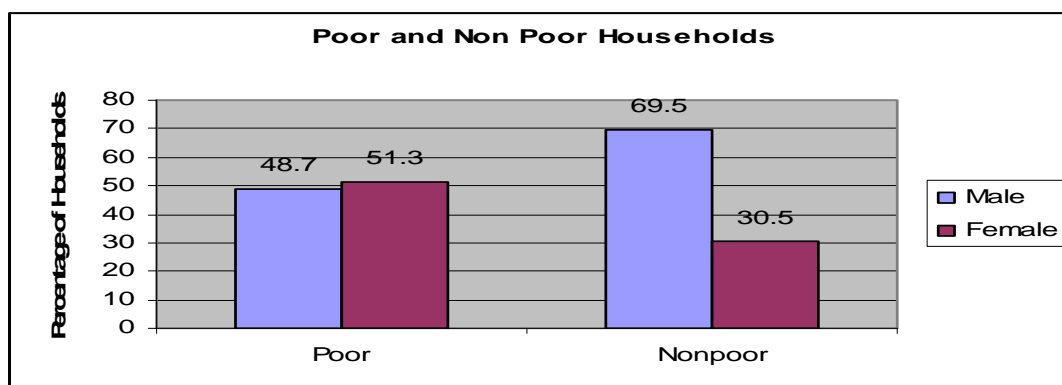
The poverty measures for households indicated by the sex of the head of household are shown in Table 13. It is seen that headcount index is higher among female-headed households i.e at 26.26 % followed by deeper and more severe poverty among the female-headed households. This is also a clear indication that female-headed households are economically worse than the male-headed households.

Table 13. Poverty measures by gender of household head (based on households)

Particulars	Male-headed (Nu)	Female-headed (Nu)
Mean expenditure per-capita monthly	1789.93	1623.22
Poverty incidence (%)	23.93	26.26
Poverty gap index	0.06176	0.07075
Poverty Index	0.02136	0.02539

1.8. *Poverty by Age of Household Head*

Poverty rates are also noticed to be higher and in increasing trend with the household head's age (Table 14). An analysis on the standard error of estimates for poverty measures suggests that there is real difference between the three younger groups and two older groups[13]. This is a clear indication that people of older age are less productive, more burden to household member and not able to accumulate much wealth as compared to the younger aged people. From the table given below, it is also noticed that most of the household heads (55 %) in Bhutan are of middle aged (25 to 44 years), 10 % with below the age of 25 and less than 5 % above the age of 65. But the poverty rate is higher (28%) with households whose family-head is above the age of 65. This is because older people are less productive than middle aged people.

Table 14. Percentage of Poverty and subsistence Poverty by Age of Households Heads, 2007.

Age of Households Heads	Poverty Rate		Subsistence Rate		Share of Total heads
	Index	Contribution to National	Index	Contribution to National	
<25	9.4 (1.5)	2.7	1.9 (0.7)	2.4	4.9
25-34	10.5 (0.9)	13.8	2.3 (0.3)	13.2	22.3
35-44	14.8 (0.9)	20.5	3.1 (0.4)	19	23.4
45-54	18.7 (0.9)	24.6	3.6 (0.4)	21.3	22.3
55-64	21.1 (1.2)	19.4	5.1 (0.6)	20.7	15.5
65+	28.0 (1.5)	19	7.8 (0.9)	23.4	11.5
All Ages	16.9 (0.6)	100	3.8 (0.3)	100	100

Note: Figures given in parentheses are the standard error of the estimates

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[13] People up to the age of 44 are considered as young and above the age of 44 are considered as older people.

1.9.   Poverty by Age of Dependency Ratio

The figure given below displays the relationship between the poverty rate and the dependency ratio for urban and rural areas by age of the household head. From the table, it is evidenced that dependency ratio is higher among poor households than among non-poor. There is higher portion of children and elderly people in comparison to the number of members in the household. This implies that income earners have to support more people and less consumption available to each household member. There is a direct linkage with the poorer people with dependency ratio and thus the poverty rate. This is the main reason why poverty rate in rural areas are significantly high as compared with the urban population in Bhutan.

Figure 8. Age group and Dependency Ratio
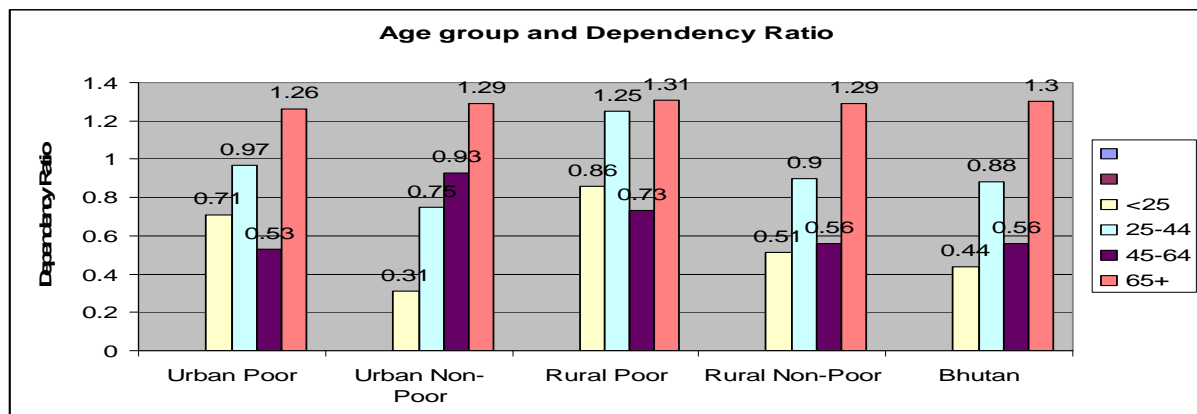
2.   Poverty by Consumption Pattern

The real food consumption and per capita income consumption of the household are important factors indicating the poverty status of any country. Exhibit 6 shows the average monthly total and per capita consumption of households, together with average household size and dependency

ratio for male and female headed family. The dependency ratio[14] is another indicator that shows the demographic composition of the families. From the table, we can observed slight disparities in average household consumption between male and female headed household in urban areas, there is pronounced disparities between the same in rural areas, especially between the poor and non-poor households, as well as between urban and rural areas. Household size and dependency ratio also vary between the poor and the non-poor, as well as between urban and rural areas.

"As reported in the first MDG Report, there is no evidence of widespread hunger in Bhutan but certain pockets of the country do experience transient food insecurity and seasonal hunger. While there is insufficient data to assess progress in halving the percentage of population suffering from food energy deficit, the country is extremely well placed to do so. Child nutrition has improved steadily over the last decade as has the national situation on micronutrients" (MDG Report 2005).

2.1. *Percentage of population below minimum level of dietary energy consumption*

"On the basis of the caloric intake, Bhutan does not suffer from lack of food for its population. It is adjudged that only 3.8% of the population currently does not meet the required caloric intake of 2,124 Kcal per day, but this is not due to the lack of food. The government had estimated more ambitious target, i.e. of halving the existing 2003 figure down to 1.9% by 2015, still remains comfortably achievable. Furthermore, the PAR 2004 report estimates that bringing the percentage of people living below 2,124 Kcal to 0 % could potentially be achieved within the MDG timeframe of 2015 or probably by 2020. All these would strongly suggest an excellent rate of progress toward attainment of the target on the basis of this indicator" (MDG Report 2005).

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[14] The ratio of non-working age population to the number of working-age members in the households.

2.2. Household Food Security

"Certain areas in the country such as Pemagatsel, Samtse and Lhuentse encounter seasonal food shortages, principally grain deficit that usually are between the months of May and July due to seasonal floods, cut-off from transportation facilities, less fertile soil, destruction from wild animals etc. Ironically, these food deficit periods often coincide with periods of intense agricultural operations when the food needs of farmers are higher than normal" (MDG Report 2005).

2.3. Nutrition

"The incidence of food deficiency is closely associated with malnutrition, particularly among children. The trends in the nutritional status of children in Bhutan are positive and have shown marked improvements. The levels of malnutrition among children have declined steeply from 32% to 18% between 1993 and 1997[15]. Excessive malnutrition is rare though not entirely absent. The percentage of under-five children who are underweight has been halved from 38% in 1989 to 19% in 2000 and per the report of MDG; the acute under-nutrition indicator has been achieved. There has also been rapid progress in reducing the incidence of stunting or the height deficits in relation to age for under-five children. Stunting has been reduced from 56% in 1990 to 40% in 2000. The report shows that there are no major genders differences exist in the nutritional status of children and where small differences exist, girls are usually better off. The country has witnessed remarkable improvements in the micronutrient deficiency situation. Iodine Deficiency Disorders (IDD) which were once widely prevalent in the country have been effectively brought

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[15] Millennium Development Goals: Progress Report, 2005, Bhutan.

under control with goiter occurrence declining from 65.4% in 1983 down to less than 5% at present.

Figure 9. Percentage of children undernourished
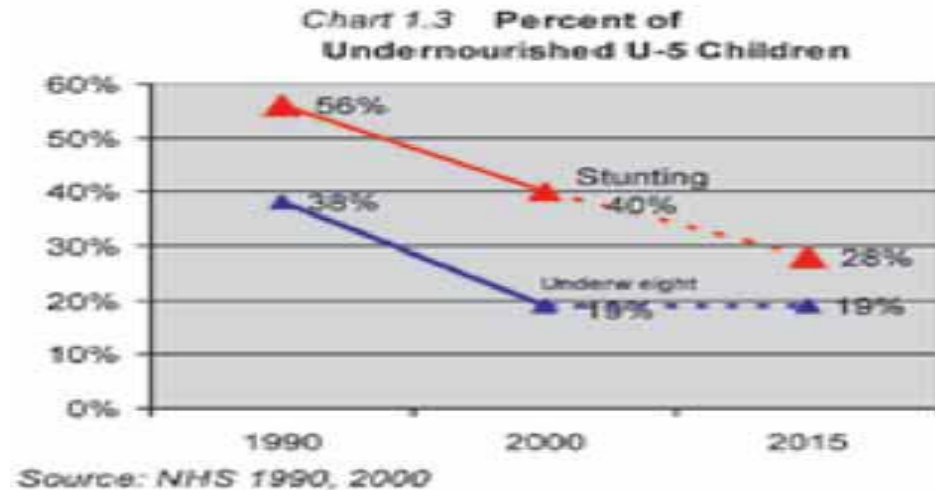
In 2003, the country attained the status of a 'Normal Iodine Nutrition Country'' and was the first South Asian country to do so. Additionally, the micronutrient deficiency of Vitamin A is no longer regarded as a public health problem, though iron deficiency resulting in anemia still remains a concern among pregnant women" (MDG Report 2005).

3.   Poverty by Education

"Access to basic education contributes to the well-being of the population and enhances their opportunities. Although basic education is the right of every Bhutanese, it has yet to be made available for every one, particularly to those living in the remote areas. The widely scattered population and the difficult geographical terrain have amounted to diseconomies in the provision of this service. Nevertheless, there has been a rapid progress recorded in this area and this must be maintained with the aim of achieving universal enrolment at the earliest opportunity. With the

strong current education policy of achieving universal enrolment in primary education, i.e., (class 10), basic education has come within the reach of many" (PAR, 2004, p.16).

3.1. Primary school enrolment rate

"Primary school net enrolment rate is the proportion of primary school aged children (6-12) who are actually enrolled in primary school. Table 15 indicates that there is a considerable gap between the enrolment rates in the rural and the urban areas. This is mainly due to factors like distance to the nearest school, and the availability of adequate boarding facilities. There is however a clear indication that the net enrolment rate is higher for the non-poor as compared to the poor. Moreover, boys tend to have higher net enrolment rate than girls, both in the urban and rural areas" (PAR, 2004, p.16).

Table 15. Primary School Net Enrolment Rate across Urban and Rural Areas for boys and girls between ages 6-12 (in percent)

As a 6-12 of all children aged	Poor		Non-poor		Bhutan	
	Boys	Girls	Boys	Girls	Boys	Girls
Rural						
Net enrolment	60	55	78	68	70	62
Urban						
Net enrolment	78	80	90	86	89	85

The low enrolment rate of rural and especially girls were due to low income level, lack of people to provide enough food facilities and prevalent of poverty in rural areas.

3.2. School participation rate

"School participation rate is the proportion of children in a particular age group attending school, irrespective of the level of education. Table 21 indicates that school participation rate is 70

percent among 6-12 year old children and slightly over 50 percent among 13-19 year old children. School attendance in the rural areas is considerably lower in the rural areas for both the non-poor and the poor. School participation rate among 6-12 year olds in the rural areas is 65 percent and 89 percent in the urban areas. The proportion of children aged 13-19 years attending school in the rural areas is 46 percent and 77 percent in the urban areas.

Table 16 also shows that 60 percent of the poor children aged 6-12 attend school, while nearly 80 percent of the non-poor children attend school. Moreover, less than 40 percent of the poor children aged 13-19 attend school while 77 percent of the non-poor of the same age group attend school.

Table 16. School Participation Rate among the poor by age group across Urban and Rural areas

Poverty Status	Urban	Rural	Total
Poor			
Ages 6-12	79.7	56.9	57.7
Ages 13-19	77	39.2	40.1
Non-Poor			
Ages 6-12	89.5	71.3	76.8
Ages 13-19	77.3	51.2	58.5
All			
Ages 6-12	88.9	65.3	70.2
Ages 13-19	77.3	46.3	52.2

The Western Region has the highest school participation rate among the 6-12 year old children and the 13-19 year old children. School attendance rate is lowest in the Central Region among the 6-12 age groups and in the Eastern Region among the 13-19 age groups. In all regions, school attendance rate is lower among the poor than among the non-poor" (PAR, 2004).

Table 17. School Participation Rate among the poor by age group (6-12 and 13-19) Across Regions

Poverty Status	Western	Central	Eastern
Poor			
Ages 6-12	37.4	53.8	68.1
Ages 13-19	25.2	41.9	45.1
Non-Poor			
Ages 6-12	77.8	70.7	80.9
Ages 13-19	63.5	53.2	54.7
All			
Ages 6-12	70.1	65	74.4
Ages 13-19	56.4	49.7	49.5

"Among the poor, there are a greater proportion of male children attending school for all age groups. This is also true for the non-poor children.

Table 18 shows that the school participation rate increases as per capita consumption increases for both the 6-12 and 13-19 age groups. The difference between the school participation rates for the richest and the poorest quintiles are as much as 12 percentage points for the younger age group and 14 percentage points for the older group.

Moreover, the school participation rate is considerably lower for the 13-19 age group at 52 percent compared to that of the 6-12 age groups at 70 percent. The proportion of children attending school increases as per capita consumption increases. The school participation rate for the richest quintile is about 30 percentage points higher than that for the poorest quintile" (PAR, 2004, p.17).

Table 18. School Participation Rate by age group (6-12 and 13-19) by per capita consumption quintile groups

Particulars	Age 6-12	Age 13-19
First Quintile	57.8	37.5
Second Quintile	59.3	42.5
Third Quintile	70.1	51
Fourth Quintile	82.2	64.7
Fifth Quintile	86.3	68.1
Total	70.2	52.2

3.2 (i) Why children participation rate is low?

"As shown in Table 19, the major reasons for not attending school were the costs of sending the children to school, the need to work to augment household income, problems at home, lack of interest and distance of the school. In the urban areas, the affordability issue was the identified by half of those who did not attend school. This was also the reason cited by one-fourth of those not attending school in the rural areas. The need to work also prevented about one-fifth of the children from going to school in the rural areas.

Table 19. Proportion of children not attending school by reasons across urban & rural areas

Reasons for not attending school	Urban	Rural	Total
Not interested	7.28	9.06	8.94
Cannot afford	50.02	26.07	27.68
Needs to work	3.72	18.62	17.55
Did not qualify	5.61	5.85	5.83
School is too far	3.37	7.34	7.06
Illness	5.32	2.39	2.7
Too young/old	3.54	4.61	4.53
Problem at home	10.51	9.37	9.45
Caring sick relative	0	0.44	0.41
Other	10.63	16.25	15.85

For the poor children, the leading reasons given for not attending school were the costs, the need to work, problems at home, and distance of the school and lack of interest. In the urban areas, another major reason cited was cost and illness" (PAR, 2004, p. 17-18).

3.2. (ii) Education attainment of household heads

"Table 20 shows that about three fourths of all household heads have had no schooling. About 10 percent have had some primary schooling, while about 12 percent have had some secondary schooling. Only 1.6 percent has had some college education. The percentages of household heads who had some schooling are higher in the urban areas for all levels of education. Figure 10 shows the educational attainment of household heads in the urban areas by poverty status. There are lower percentages of the non-poor household heads that have had little or no schooling. In contrast, there are larger percentages of the non-poor households who have had secondary or college education.

Figure 10. Educational Attainment of Household Heads in the Urban Areas
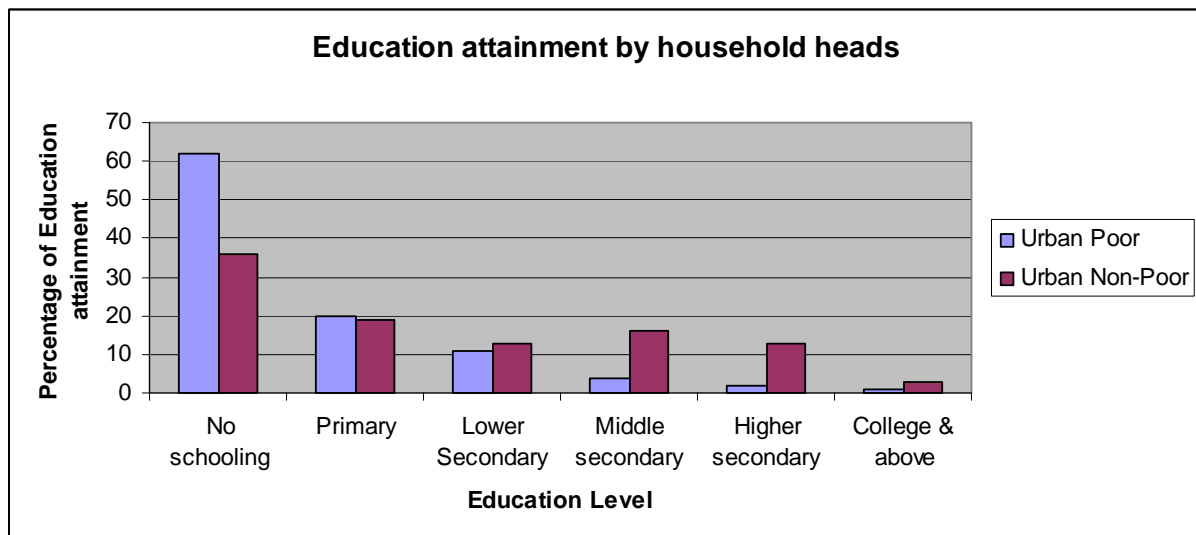
Figure 11 depicts the educational attainment of household heads in the rural areas by poverty status. The proportion of household heads who have not had any schooling is 93 percent among the poor and 87 percent among the non-poor. Therefore, poverty, as seen previously i.e high with uneducated household heads, and are also directly attributed to the educational level of household heads.

Figure 11. Educational Attainment of Household Heads in the Rural Areas
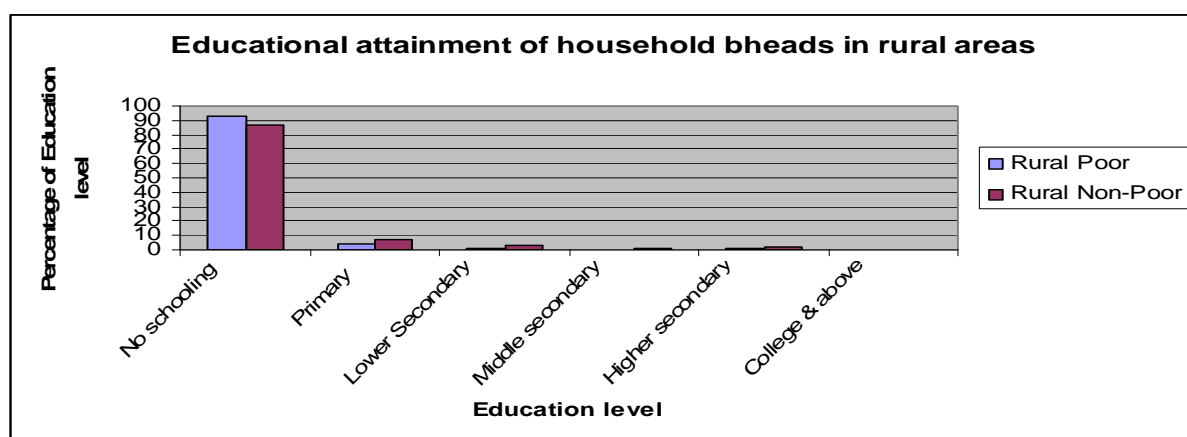
We observe that in the percentage of poor household heads with no schooling in the urban areas is considerably much higher than that of the non-poor. The situation is different in the rural areas where we find that there is no significant difference in the percentages. On the whole, the higher the level of educational attainment by the head of household, the lesser the chance of the household being poor" (PAR, 2004, p.18).

Table 20. Educational Attainment of Household Heads by poverty status across Urban and Rural Areas

Education level	Urban		Rural		
	Poor	Non-poor	Poor	Non-poor	Bhutan
No schooling	62.8	34.98	93.93	86.57	76.74
Primary	24.22	18.49	5.71	7.71	9.73
Lower Secondary	7.69	11.32	0.22	1.49	3.4
Middle secondary	4.58	19.86	0.14	3.25	6.2
Higher secondary	0	8.58	0	0.88	2.37
College & above	0.71	6.77	0	0.1	1.56
Total	100	100	100	100	100

3.2. (iii) Education Attainment of Adults

"Tables 21 shows that 84 percent of all persons aged 25 and over have had no schooling. Only 8 percent have had some primary education, 7 percent some secondary education and only 1 percent college education. The non-poor tend to have higher educational attainment than the poor. Among the poor, the males tend to have higher educational attainment. This is also true among the non-poor. There is also a rural urban contrast in welfare benefits from education.

It is evident that the completion of middle secondary education generally is sufficient for the individual to raise his or her welfare level above the poverty line, but it is unfortunate that not many individuals are able to attain this level of education. The most important point to note is that as the education level of adult increases in both poor and non-poor group from the primary level to secondary level, there is a wide reduction in the percentage of being poor. Thus, we find a high correlation between level of education and the poverty" " (PAR, 2004, p.19).

Table 21. Educational Attainment of Adults in Urban and Rural Areas by Poverty Status(Adults age >=25)

| | Urban | | Rural | | |
Education level	Poor	Non-poor	Poor	Non-poor	Bhutan
No Schooling	74.72	48.49	94.39	88.97	83.49
Primary	18.14	14.89	5.1	6.52	7.62
Lower Secondary	4.44	9.04	0.3	1.65	2.55
Middle secondary	2.34	15.6	0.15	2.06	3.84
Higher Secondary	0	6.06	0.06	0.64	1.4
College & Above	0.36	5.92	0	0.17	1.11

"While education is free in Bhutan, the affordability issue remains the most important reason for not attending the school. Enrolment rate are far higher in urban than in rural areas. Although huge investments have been made in health facilities, the rugged and difficult terrain, remoteness, sparse population and lack of reliable communication facilities is still hindering the smooth delivery of health care services. One of the main challenges is staff shortage and delivery of services" (World Bank Institute, P. 19).

4. Poverty by Health

"The extensive health care system which has been established since the early sixties meets the requirement of both urban and rural Bhutan. The National and Regional as well as the District hospitals and the Basic Health Unit (BHU) provide free medical services to the people. The numerous Outreach-Clinics and Community Health Workers provide immediate health care needs at the village and community levels. A traditional health care centre which provides alternative means of treatment is also available in most hospitals around the country. However, given the rugged and difficult terrain, the royal government's effort to achieve universal health has proved to be rather very difficult and expensive. Further, conditions such as the remoteness, sparse population and lack of reliable communication facilities has hindered the smooth delivery of health care services ultimately resulting in higher infant mortality rates in those areas where there are no proper communication and transport facilities.

Table 22. Selected Health Indicators by Dzongkhag (Percentage) 2007

Dzongkhag	Portion of Households with Access to Hospitals or Basic Health Unit (BHU)			Average time (Minutes) to reach Hospitals/BHU		
	Poor	Non-Poor	All	Poor	Non-Poor	All
Bumthang	93.8	96.4	96.2	98	54	57
Chhukha	99.3	99.6	99.5	122	48	58
Dagana	98.3	99.5	99.3	103	76	82

Gasa	100	99.1	99.1	77	90	89
Haa	96.1	99.1	98.8	191	34	50
Lhuntse	100	97.7	98.4	103	81	88
Monggar	100	99.7	99.8	100	70	80
Paro	100	98.5	98.5	129	49	51
Pemagatshel	100	99.4	99.5	137	110	115
Punakha	100	98.8	98.9	78	46	49
Samdrupjongkhar	100	99.2	99.4	144	76	98
Samtse	98.7	99.6	99.3	108	63	79
Sarpang	98.5	99.8	99.7	91	44	50
Thimphu	9.6	99.6	99.5	56	26	26
Trashigang	100	99.7	99.7	98	63	70
Tashiyangtse	96.3	98.9	98.6	77	59	61
Trongsa	100	97.6	97.9	98	62	67
Tsirang	100	99.6	99.7	76	54	57
Wangdue	95.7	97.9	99.7	144	94	98
Zhemgang	100	98.6	99.2	90	55	70
Bhutan	99.2	99.2	99.2	109	56	65

Source : PAR, NSB 2007

As per the previous survey conducted, it was reported that, on average, about 12% of the urban population had at least one sick member prior to four weeks of the survey period but had no significant difference among the poor and non-poor (Table 23). The observation was similar in the rural areas except that the proportion of sick members reported an average of 15.8% during the same reference period" " (PAR, 2004, p.20).

Table 23. Percentage of persons who were sick during the four weeks prior to the enumeration date

Urban		Rural		
Poor	Non-poor	Poor	Non-poor	Total
9.91	12.14	14.46	16.63	15.08

4.1. *Percentage of people and Medical Consultants at Rural and Urban areas*

"Table 24 shows that while a majority among the sick consults medical professionals, there are disparities across urban and rural areas, and between the poor and the non-poor. Also, among the

sick, about one in twenty non-poor residing in urban areas will not consult with anyone, while the corresponding percentage is higher among the poor in urban areas, and among rural folk" (PAR, 2004, p.20).

.**Table 24. Percentage of sick persons by type of medical consultation by poverty status across Urban and Rural areas**

	Urban		Rural	
Medical Consultation	Poor	Non-poor	Poor	Non-poor
No one	12.17	5.81	13.28	18.26
Professionals	85.22	94.19	74.09	66.76
Traditional Practitioner	1.24	0	8.28	11.7
Others	1.37	0	4.34	3.28

4.2.   Population Composition and Medical Consultation by poverty status

From the table given below, "majority of people both in urban and in rural areas have shown that they need not consult medical professionals while they are sick. In rural area, transportation, time constraints and other factors are also main reason for not consulting medical doctors. This implies that rural people are too busy in agriculture works, which are located far away from motorable roads" (PAR, 2004, p.20).

.**Table 25. Percentage of persons who have not consulted any health professionals by Poverty status and across Urban and Rural areas**

Reasons for not consulting health professionals	Urban		Rural	
	Poor	Non-poor	Poor	Non-poor
No need	70.56	100	40.27	37.23
No time	12.4	0	18.19	24.12
No money	0	0	3.59	1.67
No transport/too far	2.41	0	18.49	19.5
Doesn't trust	0.31	0	0	1.34
Others	14.32	0	19.46	16.13

4.3. Knowledge and Use of contraceptives

"With regard to the knowledge on use of contraceptives, the people in the urban areas both poor and non-poor seem to have more knowledge as compared to those in the rural areas as indicated in the table below. However, of the 63% of the total population who have some knowledge about contraceptives only 44% actually reported using some forms of contraceptives" (PAR, 2004, p. 20). This is an indication that poverty is interlinked with the use and availability of medical facilities and their knowledge on usage.

Table 26. Knowledge and Use of Contraceptives in the urban and rural areas, by poverty status

	Urban		Rural		Bhutan	
Contraceptive	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Knowledge	75.56	80.89	62.51	59.51	66.27	60.05
Use	43.83	44.78	45.51	43.11	44.96	43.16

5. Poverty by Sensitivity Line

The computation of a national poverty line is based on some arbitrary methodological choices preferred by individuals concerned. The extent to which the poverty incidence is sensitive to the choice of the poverty line can be seen by computing the poverty incidence corresponding to different poverty lines.

Table 27. Poverty incidence for various poverty lines

Poverty Line	National	Urban	Rural
300	0.2	0	0.3
350	1.2	0	1.5
400	3.6	0	4.4
403.79	3.8	0	4.7
450	8.6	0	10.6
500	12.5	0.6	15.4
550	16.8	0.9	20.6
600	20.5	1.6	25
650	25	2.4	30.4
700	28.4	3.6	34.3
740.36	31.7	4.2	38.3
750	32.6	4.5	39.3
800	36	5.7	43.2
850	40	7	47.3
900	43.1	8.7	51.3
950	46.5	11.6	54.9
1000	49.4	13.4	57.9

Figure 28. Poverty incidence using different poverty lines
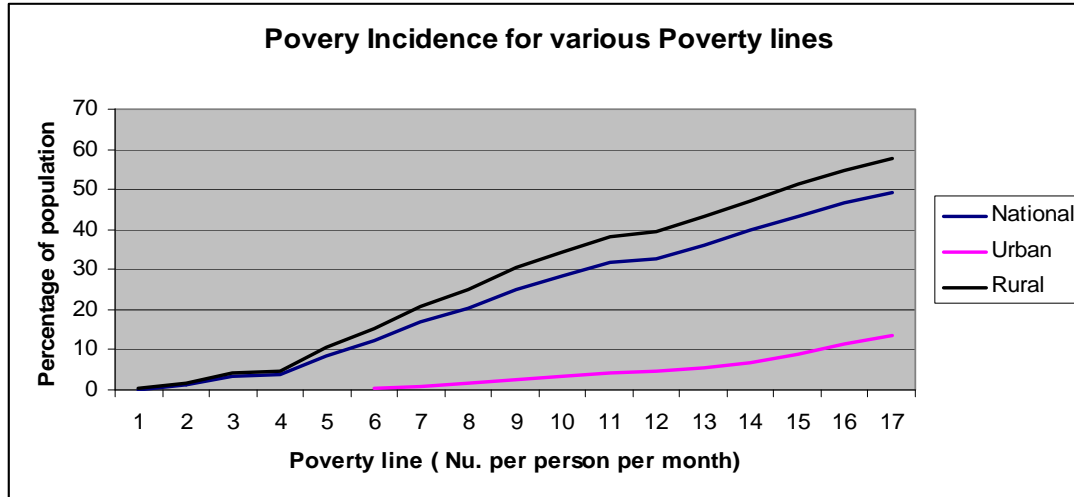
6. Inequality Indicators

"Recent research suggests that the degree of income inequality in society may be related to the health status of a population. Greater income inequality has been linked to lower life expectancy

in cross-national comparisons" (Wilkinson, 1996); higher mortality rates (Kaplan etal. 1996; Kennedy et al. 1996) and worse self-rated health (Kennedy et al. 1998) at the U.S. state level; higher mortality at the U.S. metropolitan level (Lynch et al. 1998); as well as higher rates of obesity at the U.S. state level (Kahn et al. 1998). The mechanisms linking income inequality to health are still debated (Kawachi et al., 1999), but the association appears robust with respect to age, race, sex, and adjustment for individual socioeconomic characteristics (Kennedy et al, 1998; Soobader and LeClere, 1999)".

7. Poverty by Measurement Approaches

"Several approaches exist for the measurement of income inequality across a geographic area" (Atkinson 1970; Sen 1973; Cowell 1977). "Some of the most commonly used measures include the Gini coefficient; the decile ratio; the proportions of total income earned by the bottom 50%, 60%, and 70% of households; the Robin Hood Index; the Atkinson index; and Theil's entropy measure". Among these methods, most commonly used in Bhutanese context are the following:

7.1.   *Quintile Dispersal Ratio*

"Each quintile contains 20 percent of the population, ranked by ascending order of per capita real consumption. The quintile dispersion ratio, or the ratio of the richest quintile's consumption share to the poorest quintile's share, is a simple indicator of inequality.

Table 29 shows that, on the average, a person belonging to the richer bracket i.e 20 % of the national population consumes almost 8 times more than a person belonging to the poorest 20% of the population.

Table 29. Mean monthly real Per Capita consumption (Nu), and share in total consumption, by population quintile, National

Population Quintile	Mean Consumption (Nu. Per capita per month)	Share in national consumption (%)
Poorest	467.47	6.5
Second	719.92	9.9
Poorest		
Middle	1012.61	14
Second	1517.91	20.9
Richest		
Richest	3534.46	48.7
All	1449.74	100

Similar ratios are computed for the urban and rural areas separately. Table given below shows that the average per capita consumption of the richest quintile is 6.3 times that of the poorest quintile in the urban areas and 6.2 in the rural areas.

Table 30 . Mean monthly real per capita consumption (Nu), and share in total consumption, by population quintile, Urban

Population Quintile	Mean Consumption (Nu. Per capita per month)	Share in Urban Consumption (%)
Poorest	897.12	7.2
Second	1408.95	Na
Poorest	Na	11.3
Middle	1893.86	15.2
Second	2647.97	Na
Richest	Na	21.1
Richest	5682.61	45.3
All	2504.02	100

The lower quintile dispersal ratios for the rural and urban areas indicate that there is less heterogeneity in the per capita expenditure within the rural and urban areas, and more variability between the urban and rural areas.

Table 31. Mean monthly real per capita consumption (Nu), and share in total consumption, by population quintile, Rural

Population Quintile	Mean Consumption (Nu. Per capita per month)	Share in Rural Consumption (%)
Poorest	443.99	7.4
Second	650.75	
Poorest	Na	10.8
Middle	888.05	14.8
Second	1244.44	Na
Richest	Na	20.8
Richest	2770.24	46.1
All	1198.51	100

7.2. Lorenz Curve

The Lorenz curve shows below indicates the cumulative expenditure share on the vertical axis against the distribution of the population on the horizontal axis. If each individual had the same expenditure (total equality), the expenditure distribution curve would be the 45- degree line in the graph.

Figure 12. Lorenz Curve, National, Urban, and Rural
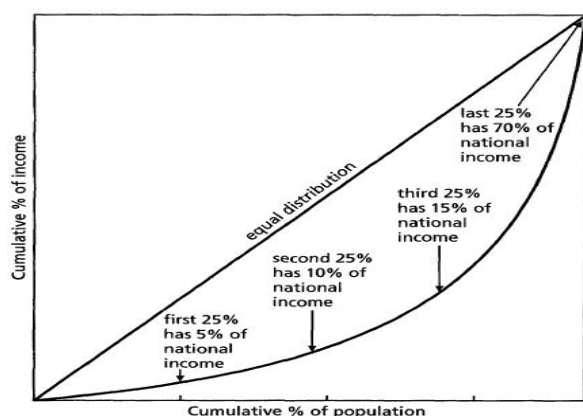
The above curve can often be represented by a function $L(F)$, where F is represented by the horizontal axis, and L is represented by the vertical axis.

For instance, if the population is size n, with a sequence of values y_i, $i = 1$ to n, that are indexed in non-decreasing order ($y_i \leq y_{i+1}$), then the Lorenz curve appears as the continuous piecewise linear function connecting the points (F_i , L_i), $i = 0$ to n, where $F_0 = 0$, $L_0 = 0$, and for $i = 1$ to n:

$$F_i = i/n$$
$$S_i = \Sigma_{j=1}^{i} \, y_j$$
$$L_i = S_i/S_n$$

7.3. Gini Coefficient

The Gini coefficient is one of the most widely used indicators of income inequality. It is derived from the Lorenz curve, which connects the cumulative share of total income earned by households ranked from bottom to top. For example, in figure given below, curve shows the shares of income earned by successive deciles of households are arranged in order from the bottom 10 % upwards. If incomes were equally distributed, the Lorenz curve would follow the 45° diagonal. As the degree of inequality increases, so does the curvature of the Lorenz curve, and thus the area between the curve and the 45° line becomes wider. The Gini is calculated as the ratio of the area between the Lorenz curve and the 45° line, to the whole area below the 45° line.

Figure 13. Gini Coefficient
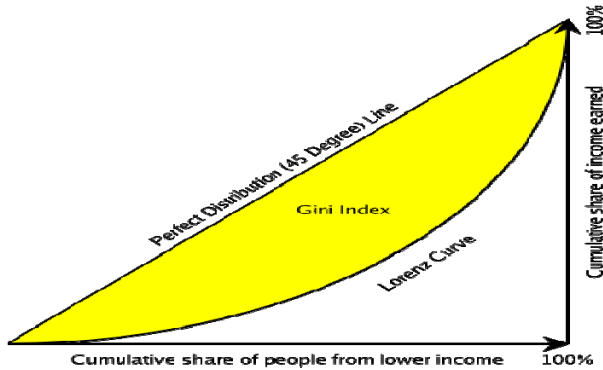
The Gini coefficient measures the concentration of expenditure or the income. The ratio ranges from zero (completely equality) to one (complete inequality, when one person spends/owns everything).

Table Table 32. Gini coefficient

National	0.416
Urban	0.374
Rural	0.381

The Gini coefficient is relatively high at 0.416, although it is lower in the urban areas than in the rural areas. This depicts that inequality is larger in rural areas than in urban areas.

7.4.   Atkinson Index

"The Atkinson Index is one of the few inequality measures that explicitly incorporate normative judgments about social welfare" (Atkinson 1970). The index is derived by calculating the equity-sensitive average income (y_e)[16]. The equity-sensitive average income is given by:

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[16] That level of per capita income which if enjoyed by everybody would make total welfare exactly equal to the total welfare generated by the actual income distribution.

$$y_e = \left(\sum_{i=1}^{n} f(y_i) \cdot y_i^{1-\varepsilon} \right)^{1/(1-\varepsilon)}$$

where y_i is the proportion of total income earned by the ith group, and e is the so-called inequality aversion parameter. The parameter e reflects the strength of society's preference for equality, and can take values ranging from zero to infinity. When e > 0, there is a social preference for equality (or an aversion to inequality). As e rises, society attaches more weight to income transfers at the lower end of the distribution and less weight to transfers at the top. Typically used values of e include 0.5 and 2.

The Atkinson Index (*I*) is then given by:

$$I = 1 - y_e / \mu$$

where μ is the actual mean income. The more equals the income distribution, the closer y_e will be to μ, and the lower the value of the Atkinson Index. For any income distribution, the value of *I* lies between 0 and 1.

The Atkinson class of measures ranges from 0 to 1, with zero representing no inequality. It is computed for various values of a parameter ε indicating the society's aversion for inequality (the higher the value of ε the more the society is concerned about inequality).

Table 33. *Atkinson Index*

	$\varepsilon = 0.5$	$\varepsilon = 1.5$	$\varepsilon = 2.0$
Bhutan	0.141	0.120	0.386
Urban	0.114	0.277	0.337
Rural	0.120	0.278	0.332

Obviously, there is no single "best" measure of income inequality measurement. Some measures (e.g., the Atkinson Index) are more "bottom-sensitive"[17] than others. The measures perform differently under various types of income transfers. For instance, the Gini is much less sensitive to income transfers between households if they stand near the middle of the income distribution compared to the tails. Analyzers and policy makers should select the measures based on the parameters and hypothesis to be addressed.

"Measures of income inequality are usually calculated from Census data. As such, they tend to be based upon *gross* income, and are not adjusted for Federal and state taxes, or near-cash subsidies (such as food stamps, school lunches). Nor are they adjusted for household size and composition. Manipulation of Census micro-data are required to adjust income inequality measures for taxes, transfers, and household size. When these steps have been carried out, the relationship of inequality to mortality was found to persist" (Kawachi and Kennedy, 1997). "Similarly, the choice of measure does not appear to affect the relationship to mortality. Measures are typically highly correlated with each other (r > 0.8)" (Kawachi and Kennedy, 1997).

From these different ways of looking at poverty rate, scenarios and causes, I have been able to find out that the status of Bhutan's poverty is quite of unique in nature. It means that Bhutan, with its present poverty rate of 25% (which is quite high) still ranks 8th place in terms of happiness. This is due to its 'relative' nature of poverty as against 'absolute' and 'abject' types present in other neighboring countries. Although many people are still staying below the minimum requirement of Nu. 740.36 (USD 15.43) per month, yet there is no prominent, abject

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[17] More strongly correlated with the extent of poverty.

and absolute (only relative) poverty in Bhutan. There is no acute shortage of food, only 3.8 %[18] of the population currently does not meet the required caloric intake of 2,124 Kcal per day. As such, people of Bhutan are leading their happy life without starvation, malnutrition, and as beggar-free country. It has been seen from the above analysis that he richest 20% of the national population consumes almost 8 times more than a person belonging to the poorest 20% of the population. The average per capita consumption of the richest quintile is 6.3 times that of the poorest quintile in the urban areas and 6.2 in the rural areas. The lower quintile dispersal ratios for the rural and urban areas indicate that there is less heterogeneity in the per capita expenditure within the rural and urban areas, and more variability between the urban and rural areas.

PART IV. CONCLUSION AND RECOMMENDATIONS

"The kingdom of Bhutan is fortunate to receive lot of support from development partners, particularly in implementing its Fie Year Development Plans. However, in every part of the world, including Bhutan, poverty exists. With growing interest in poverty measurement and monitoring, the BLSS 2007 was designed to provide a portrait of the poverty conditions down to dzongkhags. This report examined the enriched set of information from the BLSS 2007, setting up with two poverty lines: a food poverty line of Nu. 688.96 per person per month for measuring subsistence (or extreme) poverty, and a total poverty line of Nu. 1,096.94 per person per month for measuring absolute poverty. Using these index, it is estimated that about 1,46,200 per persons (or 23.2 percent of the approximately 6,29,700 population) belong to the group whose per capita real consumption is below the poverty line. The rate of subsistence (extreme) poverty is estimated to 5.9 percent of the total population only" (*PAR, 2007*).

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[18] Marginal percentage computed based on relative terms

Despite the rigorous and tremendous efforts put up by the royal government of Bhutan to reduce and alleviate poverty in Bhutan, it has yet remained at substantial rate (reduced from 36.3 % in 2000 to 25 % in 2007). The government's long term mission in respect of poverty reduction is to reduce it within manageable limit[19]. As mentioned earlier, the form of poverty in Bhutan is relative one, meaning to say that there is no absolute and abject form of poverty in Bhutan. The present rate of poverty (25 % in 2007), which is quite high is due to lack of accurate financial data, especially at rural households whereby the previous researchers had used general and universal guidelines, based on household interviews etc. to convert the consumption pattern in monetary terms. As such, even if the families had managed their household consumption, the individual's daily consumption in calories had gone below the 2 USD per day, indicating a presence of poverty in such households.

The graph below shows the trend of poverty status in Bhutan since the year 2000 and its long-term goal.

Figure 14. Percentage of people living under poverty line

Chart 1.1 : Proportion of population living below national poverty line

Source: HIES 2000, PAR 2004

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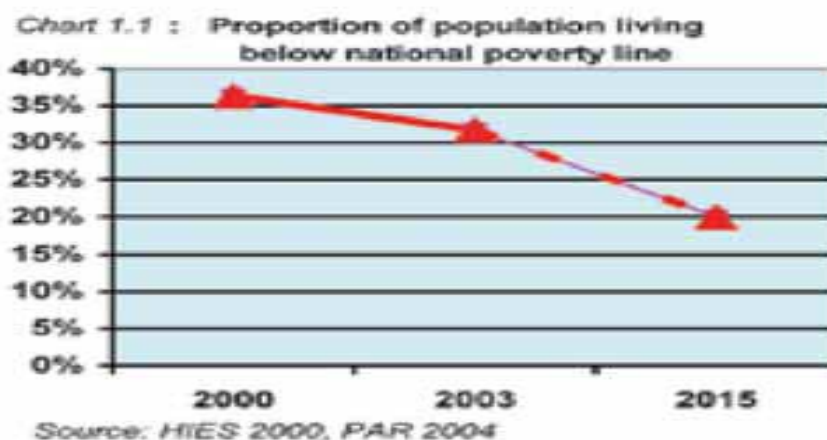
[19] 18% within the year 2015 (goal of Millennium Development Goal)

"The Pilot Household Income and Expenditure Survey (HIES) 2000 and Poverty Assessment and Analysis Report 2000 indicated that despite a remarkable progress in the socioeconomic development of the country, poverty is still a reality in contemporary Bhutan. Efforts to assess, analyze and monitor poverty in the country have begun very recently and there is significant lack of quantitative data. The main purpose of the *Quantitative Poverty Analysis* is to assess the impact of the policies that the RGoB has pursued till date in improving the quality of life in our country. The data collected and developed during this research study will become can be a valuable guide and tool for policy makers in future, particularly for setting priorities. This exercise might also be a beginning step-stone for the government to construct a quantitative database at national level with a wide range of living standard indicators covering both income and non-income aspects of well-being, including health, education, economic activities, physical infrastructure etc. These living standard dimensions demand new programs that deliberately target poor and seek to bring them closer to the mainstream of the nation's development process with a view to maximize the Gross National Happiness" (PAR, 2004, P.6).

Factors contributing to the inequality in expenditure (income) in the rural areas include unequal ownership of or access to productive assets including land, irrigation, livestock, improved technology, human skills, and transfer payments (including remittances). Many of these factors are heavily influenced by the access to roads and transport, markets, communications and technology. In urban areas, the factors include unequal ownership of land and housing, economic enterprises and skills. The most common factors responsible[20] for causes of poverty in Bhutan that are based on the analysis of data are summarized below.

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[20] Each factor is interlinked and related to one or more factors, causing poverty.

1. **Summary of causes of Poverty in Bhutan**

1.1. Low Literacy Rate

As it was noticed earlier, the literacy rate of Bhutan is one of the lowest in south-east Asia. This low literacy rate is attributed to low income to afford schooling, distance from the main road point, problem at home, need to work at home etc. . Students in some villages have to walk two or three hours each way to reach the nearest primary school. According to the *HIES 2000*, the adult literacy rate in rural areas, where the majority of poor are located, was 41.5% as compared to 75.9% in urban areas.

1.2. Poor Health Coverage

Although it has been noticed that overall average health facilities coverage is more than 90 % in every Dzongkhags (districts), it has not been in optimum usage and benefits obtained, especially in rural areas. This is mainly due to rugged and difficult terrain, lack of transportation and road facilities, lack of awareness campaign and lack of knowledge among the rural population. Therefore, the royal government's unlimited efforts to achieve universal health coverage have proved to be difficult and expensive.

1.3. Gender of Household Heads and Level of Education

It has been seen previously that poverty rate is higher among the households headed by female head accompanied with very low or no formal education. In overall, it was found that only 10 % of the household heads have primary education, 12 % have secondary education and 1.6 % has college education in rural areas. The level of education has direct link to the rate of poverty in

respect to earning capacity, household management, use of modern farming equipments and technologies, saving and investments etc.

1.4. High Dependency Ratio

The poverty status had worsened with higher dependency ration with low income people i.e in rural areas as compared to the urban areas where the working (earning) people in a household are higher.

1.5. Rapid Population Growth

The overall population growth rate of 1.4 % as compared with other countries and size of total population and area of land holding is not alarming. However, when it is compared with the slow economy growth without much infrastructure development and private sector growth, it is a major factor responsible for the growth of rural poverty. The population growth in rural area is also higher in rural areas then in urban areas. This would worsen the unemployment rate of 3.2 % (2006) in near future. Only 4.2 percent of the urban population is poor, against 38.3 percent of the rural population.

1.6. Large Size of Household

It is not uncommon to see that size of household is higher (6.5 persons) with the rural households where the earning capacity and number of people earning are relatively less. In the urban areas where there are less poor people, the average size of household is only 4.6 people only. Therefore, the size of household is also an important factor responsible for higher poverty in rural areas.

1.7. Limited ownership or access to productive assets including land.

"Three out of five households own lands, with the proportion of land ownership in the households larger among rural households (82%). Within rural and urban areas, the proportion of poor who own land is higher than corresponding proportion among non-poor. This disparity between poor and the non-poor is also evident in ownership of livestock too" (PAAR 2007).

According to the 1988 National Agronomic Survey, 9 % of the farm households in the country owned less than half a hectare, 27% less than one hectare and 58% less than two hectares of land. Thus, many poor households may not own adequate land and/or a significant number of livestock; As explained above, the rugged mountain terrain with very low cultivable land mass has made farming and cultivation of land difficult. This has lead to the following further complications:

The limited availability of arable land, compounded by population growth and accompanied by increased land fragmentation, can have a severe impact on the household food security situation unless mitigated by significant increases in productivity and output. The poor harvesting system and improper utilization of food has also been known to contribute to household food insecurity. The small sizes of landholdings[21] appear to have the most crucial impact on household food security. This small portion of land holding is not suitable for mechanization and hence deters to reap the benefit of mass and modern cultivation methods.

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[21] Increase in production cost with minimum yield.

1.8. Distance from Motorable road

The lack of motorable road points and access transportation is common in rural areas. Even if there is road connections among the rural areas, it is often and easily distorted and spoiled by heavy monsoon rain and landslides due to sloppy and mountain terrain. Therefore, poor road access, remoteness and the relative distance from either rice growing areas or markets often characterize these areas though households in urban and peri-urban areas are also known to face occasional food shortages. Household factors that exacerbate the food security conditions are small land holdings, low productivity, inadequate storage facilities, poor irrigation, and localized disasters such as inclement weather and damage by wild animals and birds, pests and fungal diseases.

These are some of the main causes of poverty in Bhutan based on my analysis, which are based on the secondary data. However, they are not limited and confined to the real and actual causes. I might have also missed out to focus on the main and important causes, which my research question did not cover.

1.9. Other Causes

- Lack of remunerative employment. Many poor households in rural and semi-urban areas have very few opportunities for off-farm employment;

- Lack of productive skills. According to the *HIES 2000*, the adult literacy rate in rural areas, where the majority of poor are located, was 41.5% as compared to 75.9% in urban areas;

- Shortage of labour in some rural households due to migration of youth and working adults to urban centers leaving behind the very young and the very old;

- Lack of or limited access to social and economic services (including credit). A sizeable proportion of the rural communities lack easy access to schools and markets. In some communities, students have to walk for two to three hours each way to reach the nearest primary school;

- Natural calamities including floods, hailstorms, landslides, fires and wild animals;

- Social breakdown, including breakdown of marriage, family and social support systems;

- Increases in prices of basic goods and services without corresponding increase in income capacity; and

- Illnesses including diseases like Malaria, TB, and other ailments and deaths.

Some of the causes may be accelerated by poverty thereby creating a vicious circle. The symptoms of poverty include inability to own a decent house, vulnerability to food shortages, and lack of sufficient funds to send children to school.

2. **Limitation of my Research**

As mentioned earlier, lack of time, lack of financial support to carry out empirical date research resources and excess to primary data due to distance problem were some of the main drawbacks of my research paper. Besides these, I could not touch every nook and corner of the area i.e poverty status throughout the country where poverty is rampant in the country to come out with the same percent authenticate result. As such, whatever the causes that I have highlighted, which was based on the analysis of secondary data might not be exhaustive and elaborative. Nevertheless, I have tried my best to pinpoint the real causes of poverty in Bhutan within the resource gap mentioned above.

3. Steps taken by Government

Unlike many other developing countries, Bhutan does not have a formal agency to tackle poverty as a separate programme. Many of its development activities are directly or indirectly geared towards alleviating the living standards of the people.

Further, the RGoB's policy of Decentralization mandate that all development programmes which were prepared at the geog and community level must reflect the actual needs of the very poor. The successive plans, particularly the 9th Five Year Plan, which is geog-based, took care of much of the community needs and for this very reason, so far no particular agency is assigned to undertake any of the poverty related programmes. However, since Bhutan is a signatory to the 2000 Millennium Declaration which sees to work toward the MDGs, the Department of Planning prepared the Poverty Reduction Strategy Paper (PRSP). The PRSP outlined Bhutan's step-by-step strategy in addressing the poverty situation in the country.

Although a huge amount of budget has been spent on development over the past four decades, it is presumed that the RGoB needs to do much to alleviate poverty. While the Royal Government ensures that funds are provided wherever necessary, limited resources of its own are left but with less option in its development planning and less focused on project oriented programs. On the other hand, the changing scenario in international development assistance and aid has compelled the RGoB to re-orient its development focus. As such, much emphasis needs to be paid towards the development of more vulnerable groups.

The present study therefore is an attempt in this direction in that the findings will enable the policy makers to understand the actual poverty situation and accordingly formulate appropriate policies in near future.

4. Recommendations

Given the present status of poverty in Bhutan, it is increasingly felt that there is need for the RGoB to consolidate and take note of what has been done so far in actually addressing the specific needs of the poorer sections of the society. Therefore, a special agency to tackle the needs of the rural people to be established immediately so that poverty alleviation programmes can be undertaken in a more focused manner. This would also help to properly canalize the resources and funds from donor agencies to meet the desired result[22].

As seen from my analysis, the main causes of poverty are due to lack of productive assets, lack of proper health facilities, nature of land, low level of education and access to motorable roads in rural areas. As such, the government's priority agenda should be to consider improving the welfare of poor people in rural areas. This can be done my connecting with new road to every villages and remote areas, providing cheap public transportation facilities, training more medical doctors and deputing in remote places to look after the welfare of rural people, opening new school and up-grading the existing schools to higher learning institutes, provide high-yielding variety agricultural seed and modern farming equipments and technologies, constructing new bridges to have easy connection between villages, and to carry out with rural electrifications. The government should also emphasize and introduce 'value' and 'quality' based education system associated with family programme campaign to control unhealthy family size, educate people on

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[22] Government resources and aids were not properly managed, utilized for purposes targeted.

use of contraceptives to reduce rapid population growth and dependency ratio, especially in rural areas.

In order to reduce the poverty in urban areas, the government should concentrate on resettlements of households, create employment through the expansion of public and private sectors, and reduce disparity in the ownership of assets and wealth by way of progressive taxation, reduce corruption through the active involvement and initiation of Anti Corruption Commission. Finally, in order to alleviate poverty or to bring it within manageable limit, the government should concentrate to emphasize in balanced regional development.

5. **Time to Exit Poverty**

Anybody would be anxious to know the effects of the economy in poverty free nation. Given the number of people living under poverty line at a particular period of time and the consumption per capita growth rate is known, it is possible to compute the average time taken to eliminate total poverty with the help of the following formula. For instance, for the j-th person below the poverty line, the expected time to exit poverty (that is, for his consumption to equal the poverty line), if consumption per capita is growing at a rate g per year is:

$$t^j_g \approx \frac{\ln(z) - \ln(x_j)}{g}$$

where

t^j_g is the number of years it takes for the jth poor person to exit poverty

z is the poverty line

x_j is the average per capita consumption of the jth poor person

g is the rate of growth of per capita consumption

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For example, if the real gross domestic product (GDP) grew by 6.5 percent and is expected to grow at about this or at higher rate over the next decade with a population growth rate of 2.5 percent annually, then this economic growth rate translates to per capita GDP growth rate of 4 percent.

If the government is cautious enough to deploy the available resources in a way suggested above, I am quite optimistic that it would not be a challenging task for the royal government of Bhutan to combat poverty and bring down to a manageable limit within a decade ahead.

The UN Resident Representative to Bhutan, Mr. Nicholas Rosellini in addressing the nation on 63rd UN Day said that "Bhutan is a success story in development and a model of balanced economic, social and environmental sustainability. "This success is recognized by the fact that by international measures, Bhutan has now reached the status of a middle income country. We must together ensure that this is maintained and taken to greater heights in the future. The UN will do its best to support the Royal Government of Bhutan to build on these fine achievements made by the people of Bhutan under the far sighted vision and leadership of its Monarchs," said the UN Resident Representative.

He said Bhutan has made good progress and has achieved most of the Millennium Development Goals. Nicholas Rosellini however said Bhutan still needs attention in reducing poverty and maternal mortality rates, increasing employment and number of girls in tertiary education"[23].

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[23] Kuensel (Bhutan's National Newspaper), 25th October, 2008

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7. 2. Exhibit 1

His Majesty THE KING

EXECUTIVE LE

LEGISLATIVE

JUDICIARY

Head of the Government CABINET

Speaker NATIONAL ASSEMBLY

Chief Justice HIGH COURT

Kalyon ROYAL ADVISORY COUNCIL

Auditor General ROYAL AUDIT AUTHORITY

Chief of Operations NATIONAL SECURITY

MINISTRIES:
. Agriculture
. Health
. Economic Affairs
. Educations
. Information & Communications
. Home & Cultural Affairs
. Finance
. Labor & Human Resources
. Foreign Affairs
. Works and Human Settlements

AUTONOMOUS AGENCIES
. His Majesty's Secretaries
. Dratshang Lhentshog
. Royal Civil Service Commission
. National Environment Commission
. Royal University of Bhutan
. Office of Legal Offairs
. Royal Monetary Authority
. Bhutan Olympic Committee
. National Commission for Women & Children
. Royal Institute of Management
. National Statistical bureau
. Centre for Bhutan Studies

Dzongdag DZONGKHAG ADMINISTRATION

SECTORS
. Renewal Natural Resources
. Education
. Health
. Engineering cell, Revenue
. Administration & Finance
. Planning & programming
. Land record. Power
. Immigration & Census

Chairman DYT

Thrimpon THRIMKHANG

Drangpon DUNGTHRIM

DUNGKHAG

GUP Gewog

Chairman GYT

Gup Gewog

Source: Royal Civil Service commission, Thimphu, Bhutan

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7. 3. Exhibit 2

PROJECTED POPULATION (NUMBER) BY SEX, BHUTAN 2005 - 2030

YEAR	PERSONS			PERCENTAGE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
2005	634,982.00	333,595.00	301,387.00	100.00	52.5	47.5
2006	646,851.00	339,403.00	307,448.00	100.00	52.5	47.5
2007	658,888.00	345,298.00	313,590.00	100.00	52.4	47.6
2008	671,083.00	351,269.00	319,814.00	100.00	52.3	47.7
2009	683,407.00	357,305.00	326,102.00	100.00	52.3	47.7
2010	695,822.00	363,383.00	332,439.00	100.00	52.2	47.8
2011	708,265.00	369,476.00	338,789.00	100.00	52.2	47.8
2012	720,679.00	375,554.00	345,125.00	100.00	52.1	47.9
2013	733,004.00	381,582.00	351,422.00	100.00	52.1	47.9
2014	745,153.00	487,520.00	257,633.00	100.00	65.4	34.6
2015	757,042.00	393,324.00	363,718.00	100.00	52.0	48.0
2016	768,577.00	398,948.00	369,629.00	100.00	51.9	48.1
2017	779,666.00	404,347.00	375,319.00	100.00	51.9	48.1
2018	790,215.00	409,474.00	380,741.00	100.00	51.8	48.2
2019	800,154.00	414,293.00	385,861.00	100.00	51.8	48.2
2020	809,397.00	418,760.00	390,637.00	100.00	51.7	48.3
2021	818,370.00	423,085.00	395,285.00	100.00	51.7	48.3
2022	827,038.00	427,250.00	399,788.00	100.00	51.7	48.3
2023	835,379.00	431,247.00	404,132.00	100.00	51.6	48.4
2024	843,363.00	435,058.00	408,305.00	100.00	51.6	48.4
2025	850,976.00	438,679.00	412,297.00	100.00	51.6	48.4
2026	858,410.00	442,200.00	416,210.00	100.00	51.5	48.5
2027	865,662.00	445,626.00	420,036.00	100.00	51.5	48.5
2028	872,759.00	448,965.00	423,794.00	100.00	51.4	48.6
2029	879,707.00	452,224.00	427,483.00	100.00	51.4	48.6
2030	886,523.00	455,409.00	431,114.00	100.00	51.4	48.6

Source: National Statistical Bureau, Thimphu

7. 4. Exhibit 3

KEY FACTORS ABOUT BHUTAN

Sl No	Particulars	Data
1	Land area	38394 sq km
2	Forest cover	72.50%
3	Population, 2006 (Projected)	646851
4	Average Household Size (PHCB, 2005)	4.6
5	National language	Dzongkha
6	National Currency	Ngultrum (Nu)
7	Hospitals , 2006	29
8	Doctors, 2006	150
9	Civil Servants, 2006	18350
10	Schools, Institutes and NFE centres	1158
11	Teachers (Including NFE) 2006	6094
12	Students (including NFE) 2006	169776
13	labor force participation rate, 2006	61.80%
14	Unemployment Rate , 2006	3.20%
15	Telephone Connection, 2006	31526
16	Cellular Mobile subscribers, 2006	82078
17	Postal Infrastructures, 2006	125
18	Total Road Length, 2006	4544.7 km
19	Registered vehicles, 2006	33241
20	Electricity generation, 2006	3357.2 MU
21	Electricity exports, 2005/2006	1943.43 MU
22	Electricity Imports, 2005/2006	34.35 MU
23	Tourists Arrival, 2006	17342
24	Revenue earned from tourism, 2006	23.92 Milion US $
25	Total Establishments, 2006	24505
26	balance of trade, 2006	(240.0 Mn US $)
27	Exchange Rate , Nu per US $, 2006	45.3
28	Gross International money reserves, 2006/07	599.0 mn US $
29	Total Ninth Plan Budget Outlay (02 - 07)	70,000 mn Nu
30	GDP, 2006 (current price)	41,443.3 mn Nu
31	GNI, 2006 (current price)	39,639.3 mn Nu
32	Average Inflation Rate, 2006	4.99%
33	Purchasing Power of Nu. 2006 (base year = 2003)	.87 Nu

Source: Statistical Year Book 2007, National Statistical Bureau, Thimphu, Bhutan

7. 5. Exhibit 4

Poverty Incidence, Poverty gap, Poverty square Gap, by Dzongkhag (% of Population) 2007

Dzongkhag	Poverty Incidence		Poverty gap		Poverty Square Gap		Share of Population
	Index	Contribution to total	Index	Contribution to total	Index	Contribution to total	
Bumthang	10.9 (3.3)	1.20	1.9 (0.8)	0.80	0.5 (0.3)	0.60	2.50
Chhukha	20.3 (2.4)	9.40	4.9 (0.8)	8.60	1.7 (0.4)	8.10	10.70
Dagana	31.1 (4.9)	4.00	8.8 (2.0)	4.40	3.6 (1.0)	4.80	3.00
Gasa	4.1 (1.9)	0.10	0.7 (0.4)	0.10	0.2 (0.2)	0.10	0.60
Haa	13.2 (5.1)	1.10	3.5 (1.8)	1.10	1.6 (0.9)	1.40	2.00
Lhuntse	43.0 (5.2)	4.60	11.9 (2.1)	4.90	4.6 (1.0)	5.10	2.50
Monggar	44.4 (3.5)	11.60	11.8 (1.2)	11.80	4.1 (0.6)	11.00	6.10
Paro	3.9 (1.4)	1.00	0.7 (0.4)	0.70	0.2 (0.2)	0.50	5.60
Pemagatshel	26.2 (3.3)	4.20	5.8 (1.0)	3.60	1.8 (0.4)	3.00	3.80
Punakha	15.6 (2.9)	2.70	3.2 (0.8)	2.10	1.0 (0.3)	1.80	4.00
Samdrupjongkhar	38.0 (3.8)	9.10	11.0 (1.6)	10.00	4.6 (0.8)	11.20	5.50
Samtse	46.8 (3.0)	17.80	14.7 (1.3)	21.40	6.2 (0.7)	24.20	8.90
Sarpang	19.4 (3.4)	5.30	4.8 (1.0)	5.00	1.5 (0.3)	4.30	6.40
Thimphu	2.4 (0.8)	1.40	0.5 (0.2)	1.00	0.1 (0.0)	0.70	13.80
Trashigang	29.3 (2.8)	9.60	7.1 (0.9)	8.90	2.6 (0.4)	8.80	7.60
Tashiyangtse	14.3 (2.6)	1.80	2.2 (0.6)	1.10	0.5 (0.2)	0.70	2.90
Trongsa	22.2 (4.5)	2.20	6.2 (1.5)	2.40	2.3 (0.6)	2.30	2.30
Tsirang	13.9 (3.8)	1.80	2.8 (1.0)	1.40	0.9 (0.5)	1.20	3.00
Wangdue	15.8 (2.5)	3.90	3.0 (0.7)	2.80	0.9 (0.3)	2.30	5.70
Zhemgang	52.9 (5.7)	7.10	15.2 (2.0)	7.80	5.7 (0.9)	7.90	3.10
Bhutan	23.2 (0.8)	100.00	6.1 (0.3)	100.00	2.3 (0.1)	100.00	100.00

Note: Figures given in parentheses are the standard error of the estimates

7. 6. Exhibit 5

Poverty and Subsistence Poverty rates by area and size of Household 2007

Area	Household Size	Poverty Rate		Subsistence Rate		Share of Total Households
		Male	Female	Male	Female	
Urban	1.00	-	-	-	-	1.80
	2-3	0.3 (0.2)	0.10	-	-	7.70
	4-5	0.5 (0.2)	0.40	0.08 (0.08)	0.27	12.90
	6-8	2.4 (0.7)	1.00	0.31 (0.22)	0.58	7.00
	9+	8.2 (3.3)	0.40	-	-	0.70
	All	**1.1 (0.2)**	**1.90**	**0.1 (0.1)**	**0.80**	**30.10**
Rural	1.00	1.7 (0.8)	0.20	0.9 (0.6)	0.50	2.30
	2-3	5.8 (0.7)	4.80	0.6 (0.2)	2.20	13.90
	4-5	17.3 (1.0)	24.70	2.0 (0.3)	12.90	24.20
	6-8	34.4 (1.2)	46.90	8.6 (0.7)	51.90	23.10
	9+	57.2 (2.3)	21.50	18.9 (1.7)	31.60	6.40
	All	**23.8 (0.8)**	**98.10**	**5.4 (0.4)**	**99.20**	**69.90**
Bhutan	1.00	1.0 (0.5)	0.20	0.5 (0.4)	0.50	4.10
	2-3	3.8 (0.5)	4.90	0.4 (0.1)	2.20	21.60
	4-5	3.8 (0.5)	25.10	1.4 (0.2)	13.10	37.10
	6-8	11.5 (0.7)	47.90	6.6 (0.6)	52.40	30.10
	9+	52.0 (2.1)	21.80	16.9 (0.5)	31.60	7.10
	All	**16.9 (0.6)**	**100.00**	**3.8 (0.3)**	**100.00**	**100.00**

Note: Figures given in parentheses are the standard error of the estimates

7. 7. Exhibit 6

Average Monthly Household and per capita Consumption, Average Household Size and dependency ratio by area, household Poverty Status and Sex of Household Heads, 2007

Area	Poverty Status	Sex of Head	Household Real Consumption (Nu.)	Per Capita Real Consumption (Nu.)	Household Size	Dependency ratio
Urban	Poor	Male	6,025.00	884.00	6.86	0.79
		Female	5,390.00	760.00	7.06	1.19
		Both Sexes	5,922.00	864.00	6.89	0.86
	Non-Poor	Male	16,844.00	4,324.00	4.41	0.64
		Female	18,088.00	4,868.00	4.26	0.63
		Both Sexes	17,164.00	4,430.00	4.40	0.64
	Total	Male	16,720.00	4,285.00	4.44	0.65
		Female	17,986.00	4,835.00	4.28	0.64
		Both Sexes	16,992.00	4,403.00	4.40	0.64
Rural	Poor	Male	5,451.00	820.00	6.80	1.02
		Female	5,863.00	841.00	7.06	1.02
		Both Sexes	5,600.00	825.00	6.92	1.02
	Non-Poor	Male	10,303.00	2,350.00	4.80	0.75
		Female	10,716.00	2,518.00	4.76	0.83
		Both Sexes	10,691.00	2,403.00	4.90	0.78
	Total	Male	9,014.00	1,944.00	5.33	0.82
		Female	9,817.00	2,208.00	5.19	0.87
		Both Sexes	9,292.00	2,035.00	5.28	0.84

Bhutan	Poor	Male	5,464.00	821.00	6.80	1.01
		Female	5,858.00	840.00	7.06	1.03
		Both Sexes	5,607.00	826.00	6.92	1.01
	Non-Poor	Male	12,987.00	3,160.00	4.64	0.71
		Female	12,525.00	3,095.00	4.72	0.78
		Both Sexes	13,056.00	3,143.00	4.72	0.73
	Total	Male	11,641.00	2,742.00	5.03	0.76
		Female	11,538.00	2,761.00	5.00	0.82
		Both Sexes	11,777.00	2,745.00	5.01	0.78