

MONOGRAPH NO. 6

A Compendium of Gross National
Happiness (GNH) Statistics

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Thomas Stoerk

Lham Dorji

National Statistics Bureau
Thimphu
2014

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This report is initially prepared by a research intern, who voluntarily worked with NSB's research Division for three months.

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MONOGRAPH NO. 5

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DISCLAIMER

The National Statistics Bureau hope the monograph is useful to policy-makers, development partners, researchers, private sector, students and community leaders. The views in this publication reflect those of the authors; they do not necessarily reflect that of the National Statistics Bureau. NSB accept no responsibility for the accuracy or omission of facts, statements, opinions, recommendations or any other errors in this publication.

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In particular, I want to thank Lham Dorji who provided the initial idea, included an entire section on social capital and refined the report. He also edited and formatted the report in the present form. Without him, this monograph would not have been possible.

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PREFACE

I am happy to present for the first time ‘A Compendium of GNH Statistics’. This is an initiative of our Research Division. The compendium tries to select and synthesize data from many sources under a GNH theme. It presents general statistics within one simple framework in a simple and easy-to-grasp form. It shows what linkages exist between different GNH domains and indicators.

I want to commend Thomas Stoerk for this work. He worked with us in 2013 for three months as a volunteer research intern. Lham Dorji worked with him to finalize the work in the present form. This shows that our own researchers can gain by collaborating with the international researchers and students.

This compendium of GNH Statistics, though is at its beginning phase, illustrates the interconnectedness of different dimensions of GNH. I hope it will stimulate public discussion on a GNH-founded evaluation of public policies. I encourage our Research Division to regularly update and improve the compendium so that it will serve as a meaningful source of information to guide our policy thinking and practice in line with GNH development philosophy.

I urge our interested readers to direct your inquiries, critical views and suggestions to Lham Dorji at lhamdorji@gmail.com.

Kuenga Tshering

Director General

A COMPENDIUM OF GROSS NATIONAL HAPPINESS (GNH) STATISTICS

INTRODUCTION

The purpose

This monograph wants to inform the public by providing concentrated knowledge on Gross National Happiness (GNH) that exists in form of different, sometimes unknown datasets. The purpose of this compendium is to present these data sources to the public and to synthesize different data under a common header in simple forms. In that way, we provide a meaningful selection of indicators and statistics that is at the same time easy to grasp.

For that reason, this publication presents a framework that intends to serve as guidance for making the data speak. The purpose of the framework is, furthermore, to draw the attention to the interconnectedness between the different dimensions of GNH. This interconnectedness is one of the most essential qualities in a holistic framework such as GNH. In this sense, “A Compendium of GNH Statistics” illustrates the use of social statistics in general: A statistic becomes meaningful when related to its context.

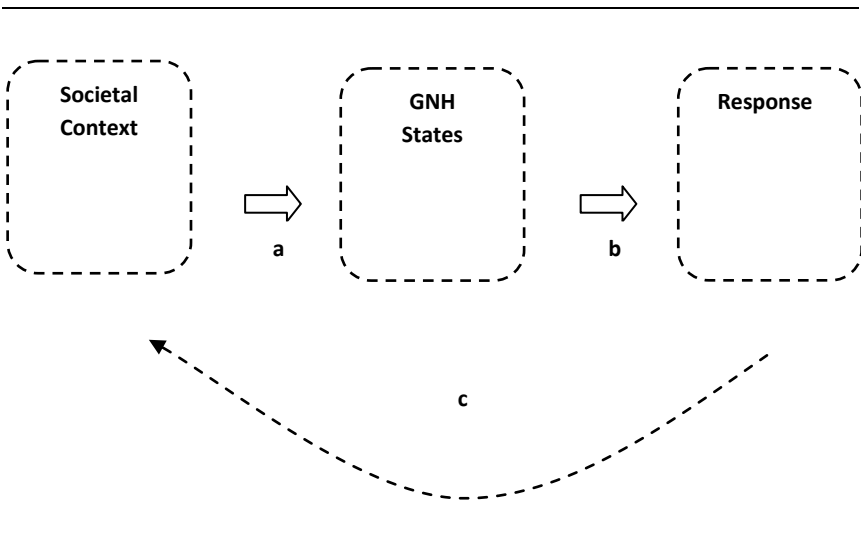
To illustrate, imagine a case such as the potential opening of a mining industry in Bhutan. On the one hand, such a step would undoubtedly increase economic activity. On the other hand, it also comes with heavy environmental and social costs. Simply adding these benefits and costs is not enough, for such a procedure omits linkage effects into society. It is by looking at different perspectives that policy makers can make an informed choice.

While the framework of this GNH statistics is only a first suggestion, it shows what linkages exist between different domains and indicators. In that way, it can guide thinking of policy-makers; it stimulates public discussion on a GNH-founded evaluation of public policies or when discussing the concept of GNH itself. Furthermore, the framework illustrates which linkages could be relevant for future work. It is hoped that the Socio-Economic and Research Division will continue to improve and update the Compendium of GNH Statistics on a regular basis.

THE STATISTICAL FRAMEWORK OF THIS PUBLICATION

We propose a framework that is inspired by international standards for multidimensional indicators (OECD, 2011; EEA, 1999). Accordingly, our framework organises the data into “Societal Context–GNH States–Societal Responses”, as shown in *Figure 1: The GNH Statistics Framework*.

Figure 1: The GNH Statistics Framework



It is now possible to see the relationships between the three concepts. First, the *Societal Context* recognizes the fact that Bhutanese society does not operate in a void. Economic opportunities, social dynamics, political economy and environmental variables all determine where Bhutanese society stands at a given moment. The Societal Context thus produces the basis on which GNH outcomes are grounded. In a sense, the Societal Context exerts pressure onto the GNH states (a). Recall that the *GNH States* are those indicators that reflect the broad aims and policy goals behind GNH. Therefore, the examination of the GNH States leads to *Societal Responses* (b). These Societal Responses can range from government policies over private sector action to initiatives by civil society. In that way, the Bhutanese society reconstructs and improves the basis for pursuing GNH as it understands it. This effect, however, is a long-term one and as such beyond the scope of this publication (c).

This framework inevitably leaves room for ambiguity when classifying the indicators into Societal Context, GNH States and Societal Responses. We have tried to select such indicators that minimise the ambiguity. In other cases, indicators belong to two or more groups. When that is the case, we have classified the indicators into the group to which they are most relevant.

HOW TO USE THIS PUBLICATION

The remainder of this publication presents a compendium of GNH statistics. Note that we have abstained from taking conclusions and policy recommendations, as the purpose of this publication is purely to show the readers how we can use a collection of statistics to inform GNH; this is just first effort or step. In line with the framework, subsequent sections thus present some GNH statistics in three subsections, corresponding to *Societal Context*, *GNH States* and *Societal Responses*.

Inside each subsection, the ordering of the indicators is inspired by the nine domains as promoted by the Centre for Bhutan Studies and GNH. These domains are Psychological Wellbeing, Health, Time Use, Education, Cultural Diversity and Resilience, Good Governance, Community Vitality, Ecological Diversity and Resilience, and Living Standards (Karma Ura, 2008: 9). Wherever possible, we group indicators in bigger clusters that correspond to the four pillars Environment, Culture, Governance, and Socioeconomic Development. To account for the interconnectivity, we sketch the connection between Societal Context and GNH States (a) as well as between GNH States and Societal Responses (b) at the end of the relevant subsections.

This monograph addresses a Bhutanese audience, and is meant to facilitate understanding of the use of statistics in as great a detail as possible. For that purpose, we present the GNH States at the sub-national, *dzongkhag* level where data is available. Wherever possible, we furthermore look at particular groups of the population who deserve special attention, such as inhabitants of scarcely populated rural regions.

Furthermore, presenting the statistics at the *dzongkhag* level allows us to shift the focus onto differences in Bhutanese society. Social equity is one of the most important aspects of a stable society, as research in social history has shown (Alesina and Perotti, 1996). More importantly still, it is a property which is desirable in itself: a Bhutanese society in which a small group enjoys many luxuries while the vast majority just gets by is contradictory to the idea of GNH.

A SKETCH OF SOCIO-ECONOMIC DEVELOPMENT IN BHUTAN

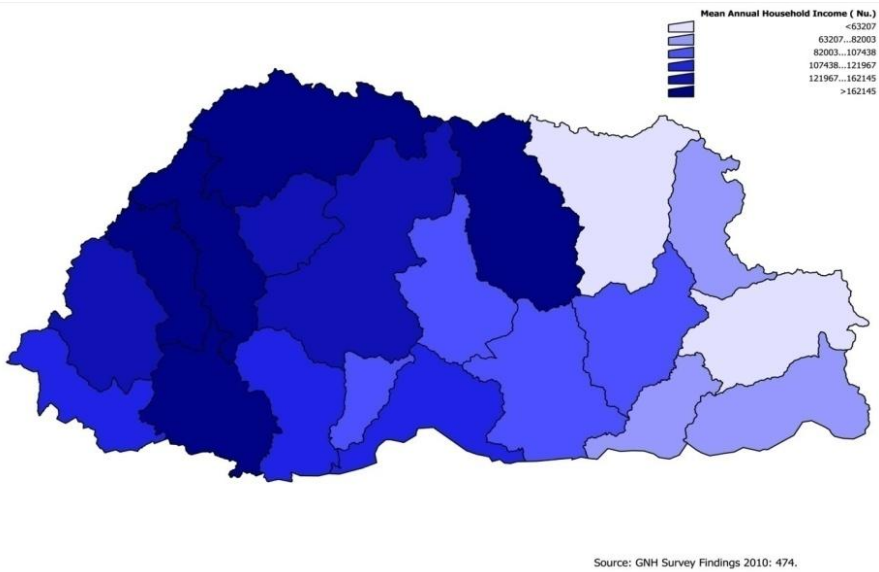
In the 1960s, His Majesty the 3rd *DrukGyalpo* introduced a plan-based approach to development and undertook the first initiatives in foreign policy and international cooperation. After having established the National Assembly in 1953, the Third King introduced further institutional changes such as comprehensive land reform and the abolishment of serfdom. Under His auspices, Bhutan joined the Colombo Plan in 1962 and the United Nations in 1972 (Mancall, 2004: 7). Bhutan's policy in that era was mainly focused on social aspects.

His Majesty the Fourth King formally appended his father's stance on the necessity of development in 1986, when He further voiced the idea of GNH for the first time (Brahm, 2009) though the pursuit of happiness has been inherent in the Bhutanese society ever since the theocratic rule. His Majesty the Fourth King began (since early 1970s) to propound the idea that 'GNH is more important than GDP', emphasizing on cultural, social and environmental dimensions of development. This came way before the 1990's Human Development Report (HDR) and South Development Report (SDR). These two reports began to highlight on quality of life and importance of cultural and environmental dimensions of development only in the 1990s, much later than the King of Bhutan (Lham Dorji, 2008:74). Since then, GNH has permeated all strands of Bhutanese government, big parts of civil society and, the private sector. To demonstrate the political support for GNH, the Planning Commission underwent a name change to Gross National Happiness Commission and gained political importance in 2008.

While socio-economic development has been taking place in all parts of Bhutan, some *dzongkhags* (districts) have evolved faster than others. Geographic factors play a crucial part in explaining these differences, as rugged terrain and the availability of arable land greatly determine economic activity in a society in which 69% of the population depends on agriculture (National Environment Commission, 2011: 7).

Figure 2: Household income by dzongkhag depicts the level of socio-economic development at the *dzongkhag* level, using mean annual household income as a proxy. As can be seen, Eastern and Southern *dzongkhags* differ significantly from their Western counterparts in terms of income.

Figure 2: Household income by Dzongkhags

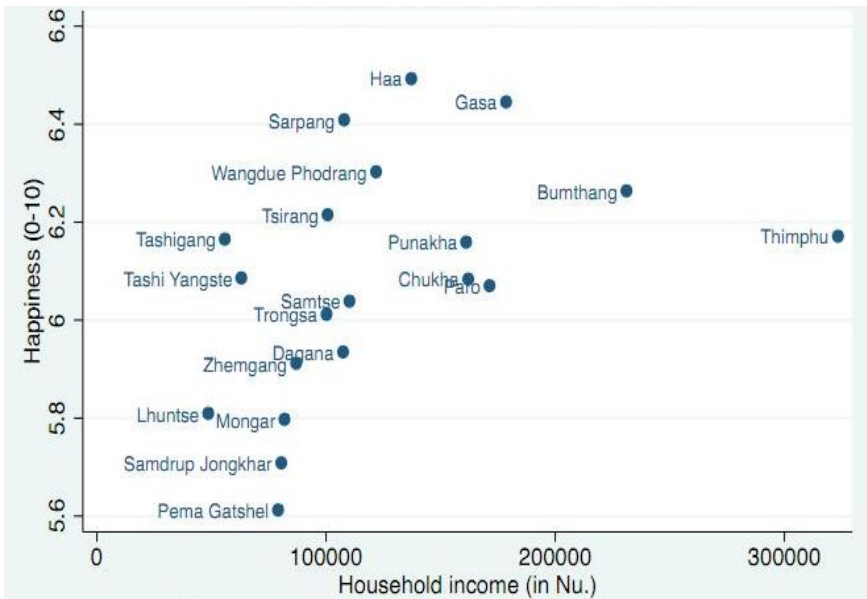


One statistic is particularly interesting in this context. Figure 3: Happiness and household income depicts data from the GNH Survey Findings 2010. These data show that self-reported happiness increases sharply when income rises for lower levels of income, but only marginally for well-off households (Centre for Bhutan Studies, 2010: 283). The homogeneity of Bhutan's population makes the correlation credible, even though the data do not suffice to establish causality.

While we believe that only measuring individual happiness would omit crucial aspects of GNH, these data are revealing for two reasons. First, they confirm the findings of the academic literature on happiness research, according to which the rise in average life-satisfaction due to increases in GDP evens out beyond a certain threshold (Layard, 2005). Second, these data have an implication for Bhutan's policy priorities. Where development conforming to GNH is seen as attaining the highest happiness for the greatest number, the utilitarian definition makes it clear that catering to low income regions will be desirable because it leads to the biggest effect. Focusing on low income regions and groups of society is also in line with a more holistic view of GNH, in which social equity is desirable in itself. In addition, as argued above, diminishing inequalities

inside Bhutanese society is a precondition for guaranteeing the success of GNH as a shared vision.

Figure 3: Happiness and household income



Source: GNH Survey Findings 2010: 283

GROSS NATIONAL HAPPINESS (GNH) STATISTICS

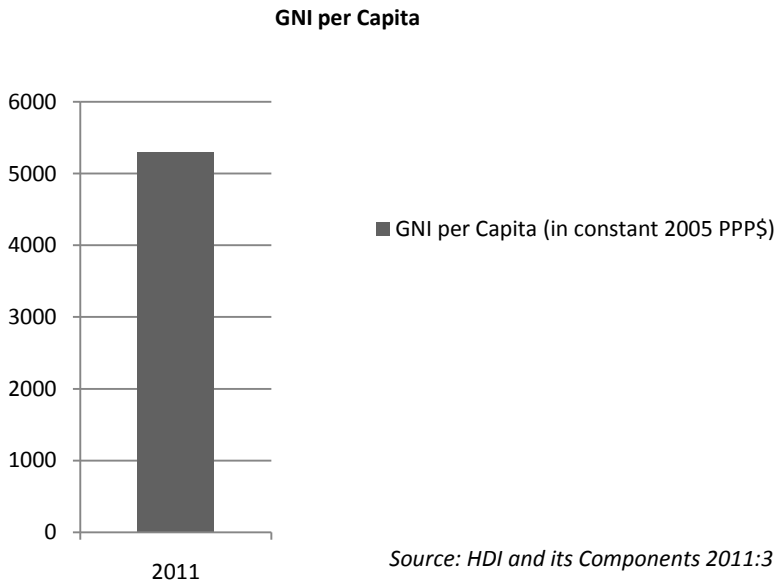
Societal Context

The Societal Context is best represented by aggregate macroeconomic variables and long-term trends in the Bhutanese society and for Bhutan's natural heritage. These statistics provide the reference point from which to evaluate current GNH States and the corresponding Societal Responses. Due to the aggregate nature of some of these measures and to provoke public debate in the Bhutanese society at large, we present them at the national level.

The indicators contained in this category can be classified into three groups. The *Macroeconomic Indicators* give an indication about the general

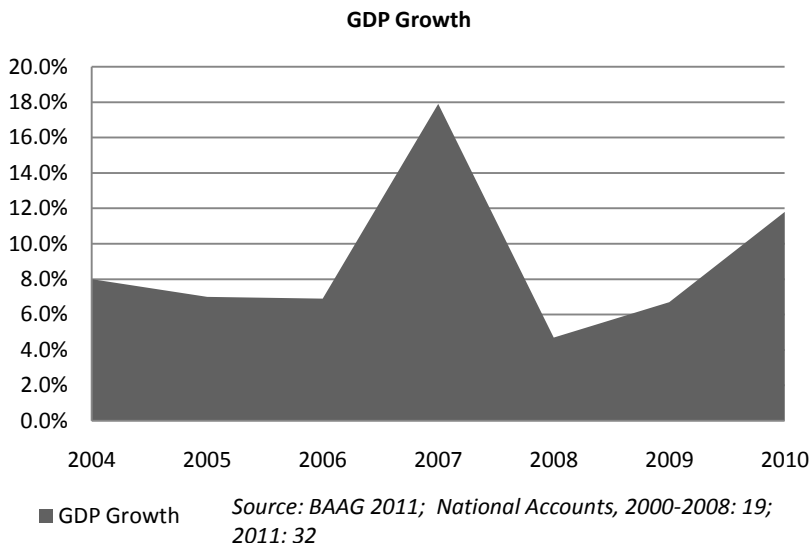
state of the Bhutanese economy (figure 4 gives the GNI per capita income). The *Trends in Society* show the overall demographic dynamics in Bhutanese society. Last, the *Environmental Trends* give a snapshot of Bhutan's rich natural heritage. Note that the selection of the indicators in both *Trends in Society* and *Environmental Trends* was partly driven by data availability.

Figure 4: Gross National Income per capita



Whatever is a shortcoming in measuring a desirable economic activity, Gross Domestic Product (GDP) per capita is still the most common measure to assess the level of economic development of a nation, and is thus vital for comparing nations. The Human Development Report 2011 provides a closely related measure; Gross National Income (GNI). The advantage of GNI is the availability of data on nearly all countries in one coherent dataset. At a level of 5.29 PPP\$, Bhutan ranks number 104 in the world, slightly below Cuba but above Egypt (UNDP 2011: HDI and Components Table). Figure 5 shows Bhutan's GDP growth rate between 2004 and 2010.

Figure 5: GDP growth rate in Bhutan (2004-2010)

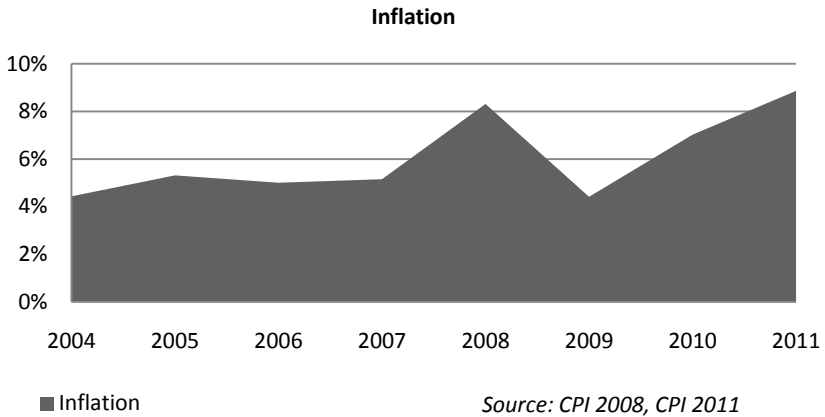


The GDP growth rate provides a good measure of how fast economic activity is expanding. Note that GDP growth only captures growth in goods and services exchanged for money. A declining trend in volunteer work, for instance, would not hamper growth in GDP. The GDP growth rate shows that Bhutan is a dynamic country-its GDP growth is both high and subject to important fluctuations.

We decided to depict inflation based on the consumer price index (CPI), given that inflation particularly affects the poorest households in a society.¹ Ranging between 4% and 8% (figure 6) Bhutan's inflation is not uncommon for countries in similar income groups and with similar growth rates. It is important to keep in mind, however, that a high share of Bhutan's inflation comes from imported goods. Given that the *ngultrum* is pegged to the Indian *rupee*, Bhutan's monetary authorities have only a limited power in governing inflation rates. For that reason, it would be interesting to decompose inflation into domestic and imported goods.

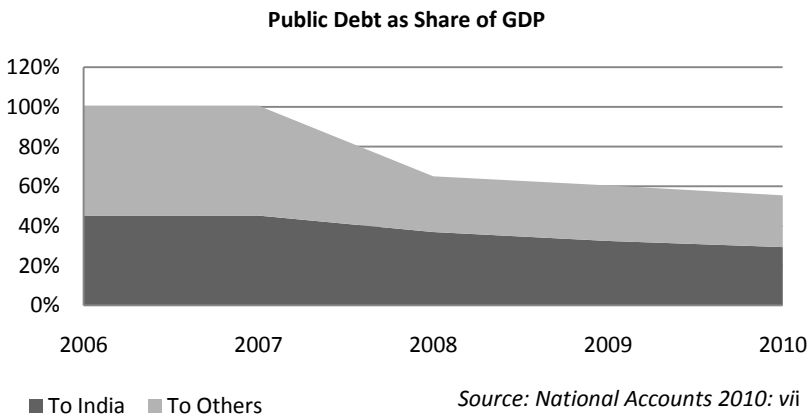
¹ As a robustness check, we calculated inflation based on the implicit GDP deflator and obtained similar trends.

Figure 6: Inflation rate in Bhutan (2004-2011)



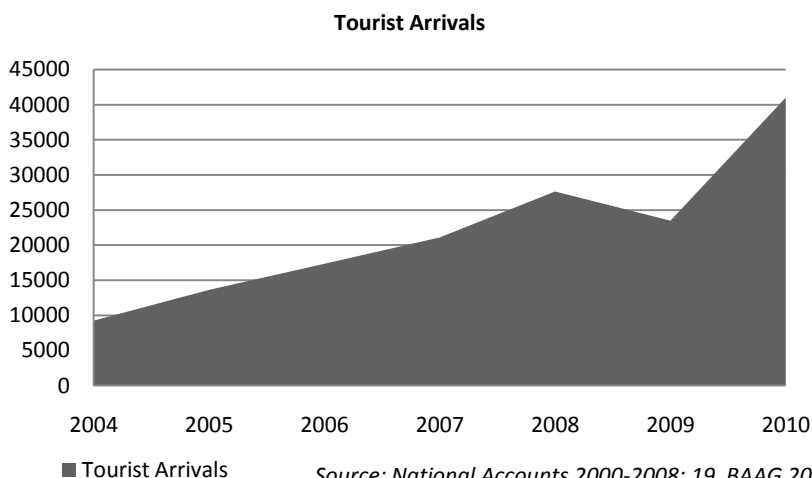
The level of public debt as share of GDP gives an important feel for the sustainability of public finances. Bhutan shows promising trends, having used the expansion of its economy to reduce its public debt burden. At a total level of 55.4% in 2010 (figure 7), Bhutan presents what is generally considered a sustainable burden of debt. Yet, the current sovereign debt crisis shows that past experience is not always reliable. This indicator shows Bhutan's close ties with India currently owes more to India than to all other countries combined.

Figure 7: Public Debt as share of GDP (2006-2010)



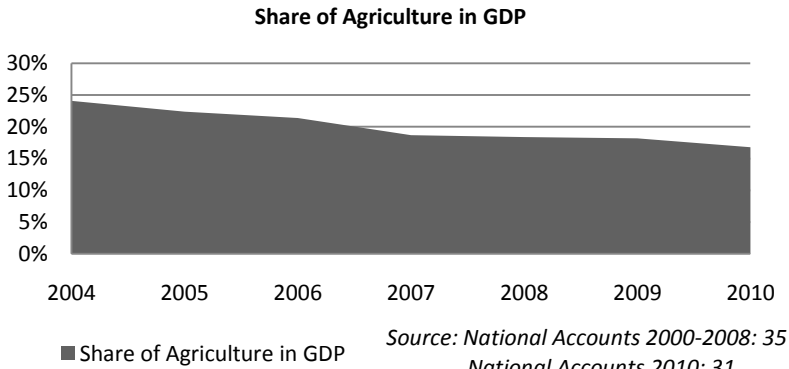
Bhutan is highly successful in the production and export of hydropower. For that reason, the electricity sector was the main driver of the economy in 2010, contributing as much as 17.61% (National Accounts Statistics 2010: 11). One of the fastest growing sectors of the Bhutanese economy is tourism, which has seen to be growing to unprecedented heights. We selected the number of tourists visiting Bhutan every year to show the evolution of this important sector that can be seen as the export of services. We chose this physical indicator rather than a monetary one because the total economic impact of tourism is hard to pin down precisely. Figure 8 shows the number of tourists in Bhutan between 2004 and 2010.

Figure 8: Tourist arrivals in Bhutan (2004-2010)



In view of Bhutan's high GDP growth in recent years and its limited availability of fertile land, the share of the agricultural sector has remained remarkably constant in recent years. With more than 60% of the population living in rural areas, agriculture is still important in Bhutan and its importance is likely underestimated in national accounts statistics due to the persistence of subsistence farming. Figure 9 present the share of agriculture in GDP from 2004 to 2010.

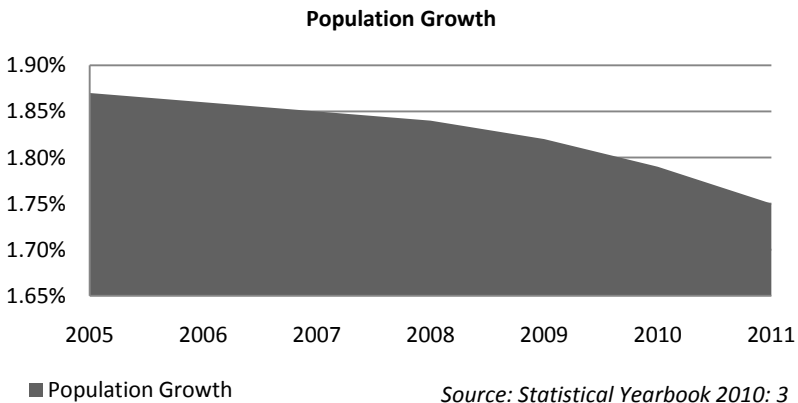
Figure 9: Share of agriculture in GDP (2004-2010)



Societal Indicators

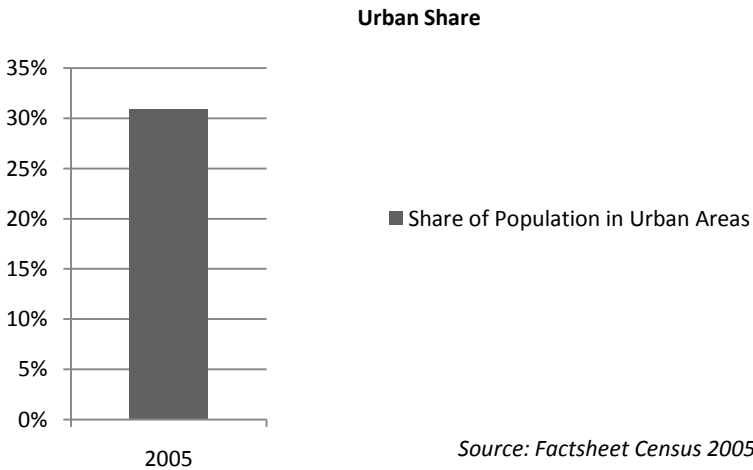
Population growth is one of the most fundamental dynamics of society. It drives societal change and greatly determines the age pyramid. Bhutan’s population is projected to grow at more than 1.7% per year, a moderately high rate that places Bhutan at rank 67 worldwide, next to Nepal (CIA, 2012). Note that population growth is projected to decrease slightly, even though this trend is based on past data and will likely be updated with the next census. Figure 10 shows the population growth rate in Bhutan between 2005 and 2011.

Figure 10: Population growth rate in Bhutan (2005-2011)



Urbanization is rapidly increasing in Bhutan, and represents challenges to the vision of GNH. According to data from the Thimphu Municipal Corporation Census (2000), the population in Thimphu alone is expected to increase from 43,470 in 2000 to over a 160,000 by 2027. This rapid urbanization poses a major challenge to many GNH-related areas such as time use and stress level, affordable housing, environmental impacts as well as traditional life-style and community ties. Notwithstanding these dynamics, it is important to keep in mind that Bhutan is still a rural country, with just over 30% of the population living in cities in 2005 (figure 11).

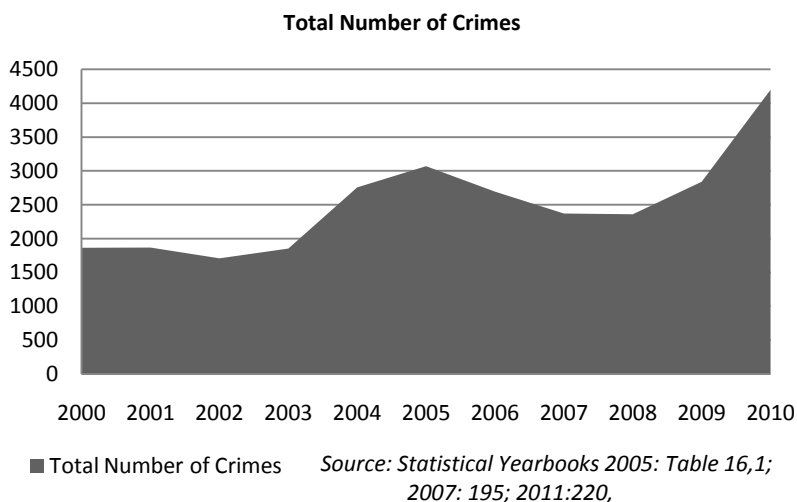
Figure 11: Urban population as percentage of the total Population (2005)



Source: Factsheet Census 2005

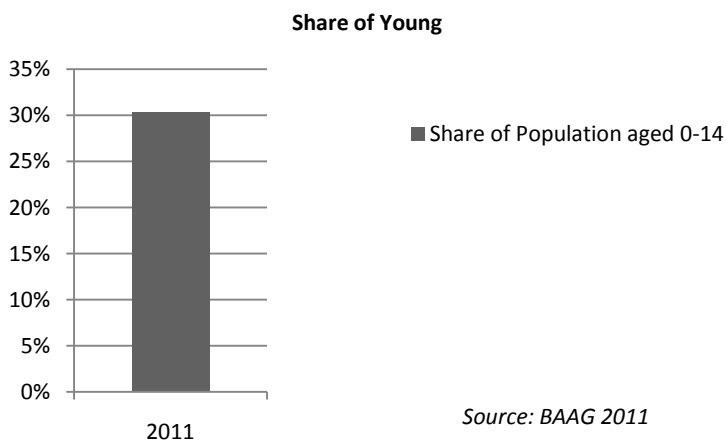
The trend in the number of crimes that are committed annually in Bhutan is striking. Crime rate has doubled in less than a decade. While this trend might come from better law-enforcement and reporting, this indicator shows a trend that contradicts GNH directly, as safer communities are for achieving individual and societal peace and happiness. Figure 12 presents the total number of crimes in Bhutan between 2000 and 2010.

Figure 12: Total number of crimes in Bhutan (2000-2010)



The share of people aged 0-14 stood at above 30% in 2011 (figure 13). We selected this indicator to illustrate the importance of specifically addressing youth issues, an importance which has long been recognised by His Majesty the Fifth *Druk Gyalpo*.

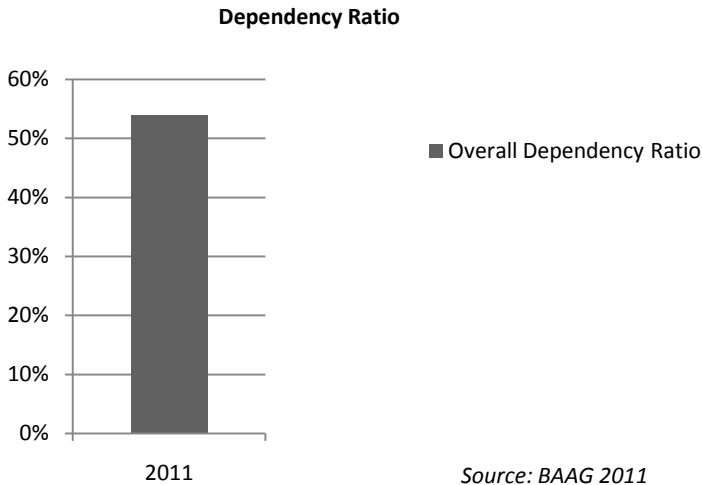
Figure 13: Share of the Bhutanese youth of the total population (2011)



The dependency ratio is defined as the combined share of the young (age 0–14) and the elderly (above 64). These groups of the population are

usually too old or too young to work on a regular basis. Therefore, their livelihood depends on the economically active part of the population. The dependency ratio thus measures the pressure on the productive part of society. We selected these indicators because they are meaningful given Bhutan's low level of unemployment. With a dependency ratio of 54.0%, Bhutan is close to the worldwide average (figure 14).

Figure 14: Dependency Ratio (2011)

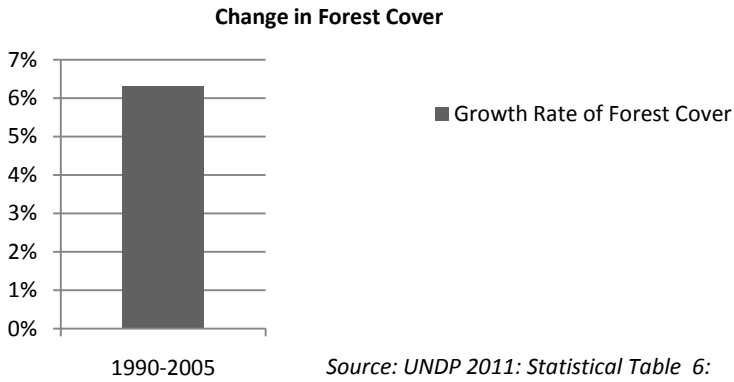


Source: BAAG 2011

Environmental Indicators

The importance of conserving Bhutan's unique forest cover has recently been recognized in the constitution, mandating a forest cover of no less than 60% for all times. As argued above, trends are particularly interesting in the Societal Context. The above data show that Bhutan's forest cover grew from 1990 to 2005, at a promising rate of 6% (figure 15). The current policies are thus in line with the constitutional goal of preserving the forest cover, and so with GNH.

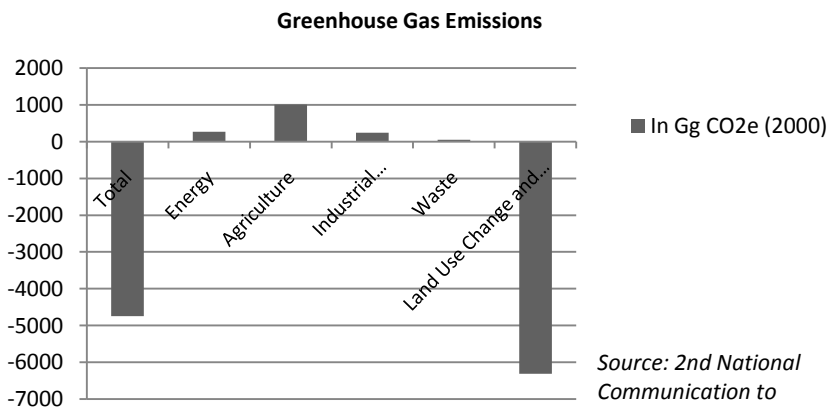
Figure 15: Growth rate of forest cover in Bhutan (1990-2005)



Source: UNDP 2011: Statistical Table 6: Environmental Sustainability

In view of climate change, the emission of greenhouse gases is one of the most decisive indicators to assess the sustainability of a country's economic activities. Even though Bhutan's emissions are growing, mostly owing to fuel consumption in motorized transport, the country by far absorbs more greenhouse gases than it emits. Its vegetation absorbs more than 6903 Gg of CO₂ equivalent, which gives Bhutan's net capacity for absorbing greenhouse gases at more than 4000 Gg CO₂ equivalent. Bhutan is thus a net carbon sink. Figure 16 gives green house gas emissions from different sources in 2000.

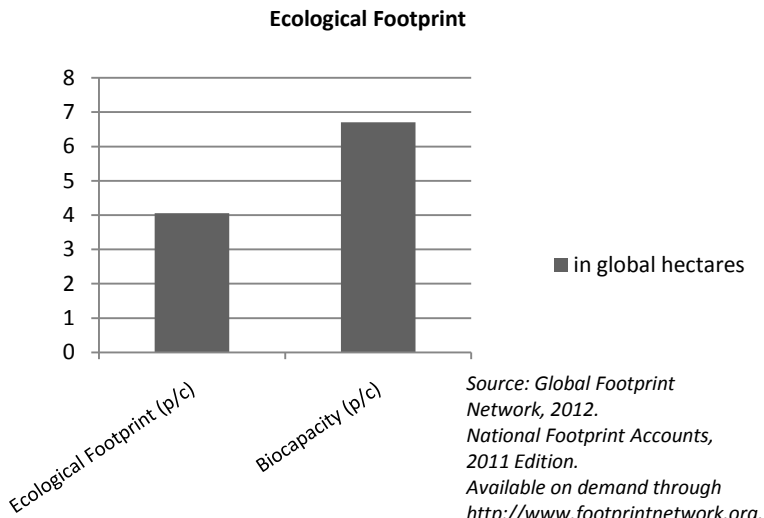
Figure 16: Gg Emissions (2000)



Source: 2nd National Communication to the UNFCCC, 2011: 29-32.

The Ecological Footprint shows an index of the spatial sustainability of human life by providing an aggregate measure for the number of hectares of productive land that is needed to sustain a certain lifestyle. The bio-capacity shows the amount of land that is available in total. In Bhutan, this availability is still higher than what is needed to sustain the current population at the current lifestyle. Figure 17 presents ecological footprint in global hectares of Bhutan (in 2012).

Figure 17: Bhutan Ecological Footprint 2012 (in global hectares)



Biodiversity is another crucial dimension for assessing the environmental dimension of GNH. With its diverse climate, Bhutan is home to many different plants and species and thus considered a biodiversity hotspot. Such biodiversity entails economics benefits that are not usually quantified in monetary terms. Kubiszewski *et al.*'s (2012) study “An Initial Estimate of the Value of Ecosystem Services in Bhutan” fills this gap. They estimate that the economic value of protecting biodiversity alone amounts to 3.125 Billion in 2005 US \$/year. This indicator is but one example of the benefits that Bhutan derives from its ecosystems. The economic value of ecosystem services in Bhutan is shown in figure 18.

Figure 18: Economic value of biodiversity protection (2012)

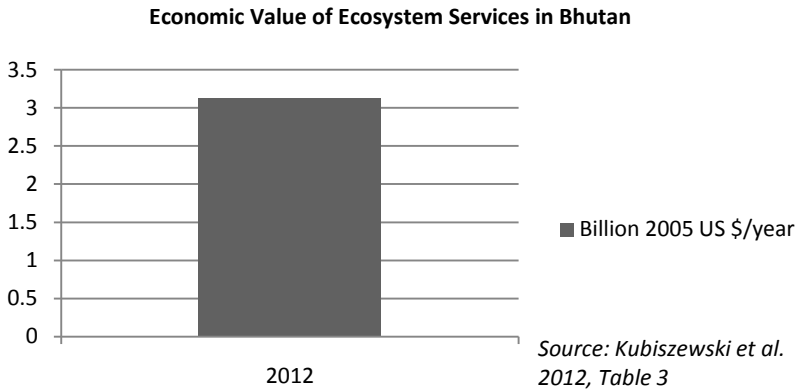
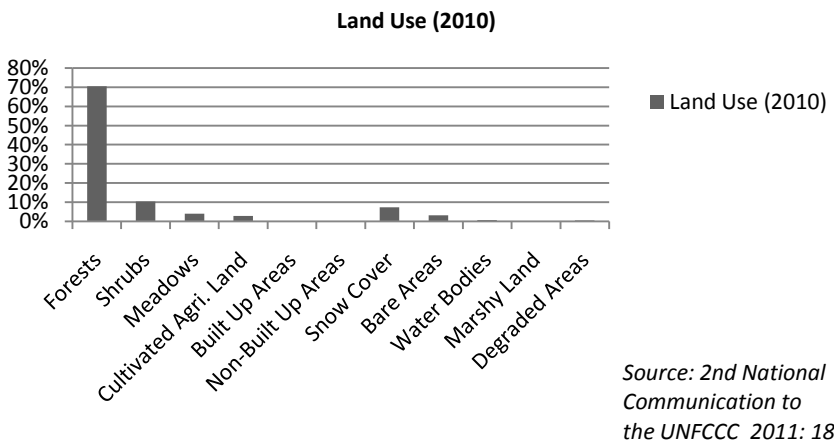


Figure 19 shows how scarce human settlements are in comparison to the uninhabited areas of Bhutan. These data thus give a feel for the importance of the environmental dimension of GNH. It explains why the environment often plays a crucial role in traditional beliefs, practices and livelihoods, in particular in rural Bhutan.

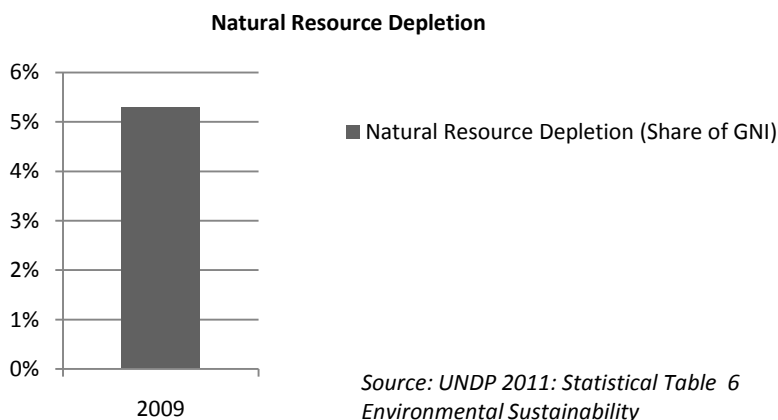
Figure 19: Land Use Pattern in Bhutan (2010)



One important shortcoming of gross national income is that it counts the extraction of natural resources without accounting for the fact that they deplete. Such activities typically include the extraction of crude oil or

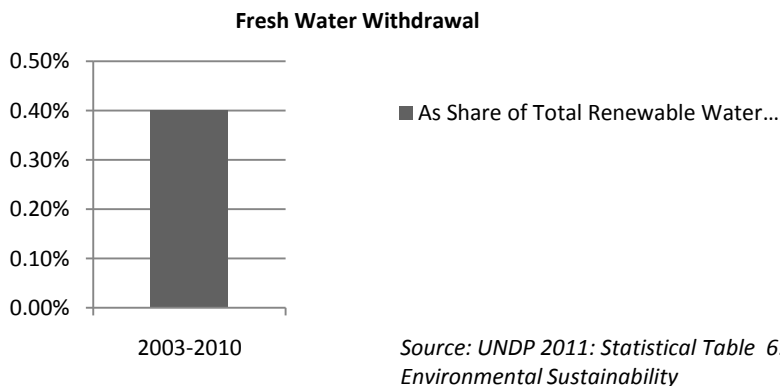
mining. The share of GNI that is due to natural resource depletion stands at just above 5% in Bhutan, illustrating that the dependence of Bhutan's economy on the extraction of natural resources is comparatively low. Figure 20 shows the extent of natural resource depletion in Bhutan.

Figure 20: Natural resource depletion as a share of GNI



In figure 21, the indicator shows that Bhutan uses only a tiny share of all fresh water that is available in the country. It means that the usage of freshwater is much lower than the total supply. Note, however, that this indicator presents an aggregate for the whole country. Even though fresh water is not scarce for Bhutan on average, there might be shortages at the local level.

Figure 21: Fresh water withdrawal as a share of total renewal water



The Societal Context, as shown in the above data, gives the reference point from which to judge success or failure in reaching a satisfying result in the GNH States. The Macroeconomic Indicators paint the picture of a young economy, characterised by rapid change. This shows the chance to induce change where desired, but it also contains the challenge of benefitting all segments of Bhutanese society in a way that is conscious of GNH. The Trends in Society show the healthy characteristics of Bhutanese demographics, while important change in society is being brought about by rapid urbanisation. The Environmental Trends show the environmentally sustainable path that economic development in Bhutan has taken so far. Below the surface, however, are trends such as rising fuel consumption that might pose a challenge to the environmental pillar of GNH in the long run.

GNH States

The indicators selected for GNH States show how Bhutanese society fares in achieving its GNH aims. These indicators provide mostly physical indicators for the aims of GNH. Physical indicators often are more readily available, less controversial and more transparent than monetary measures. Each indicator represents the progress made in that particular area. The GNH States section is the most important part of this publication. We chose to provide the majority of statistics pertaining to this section.

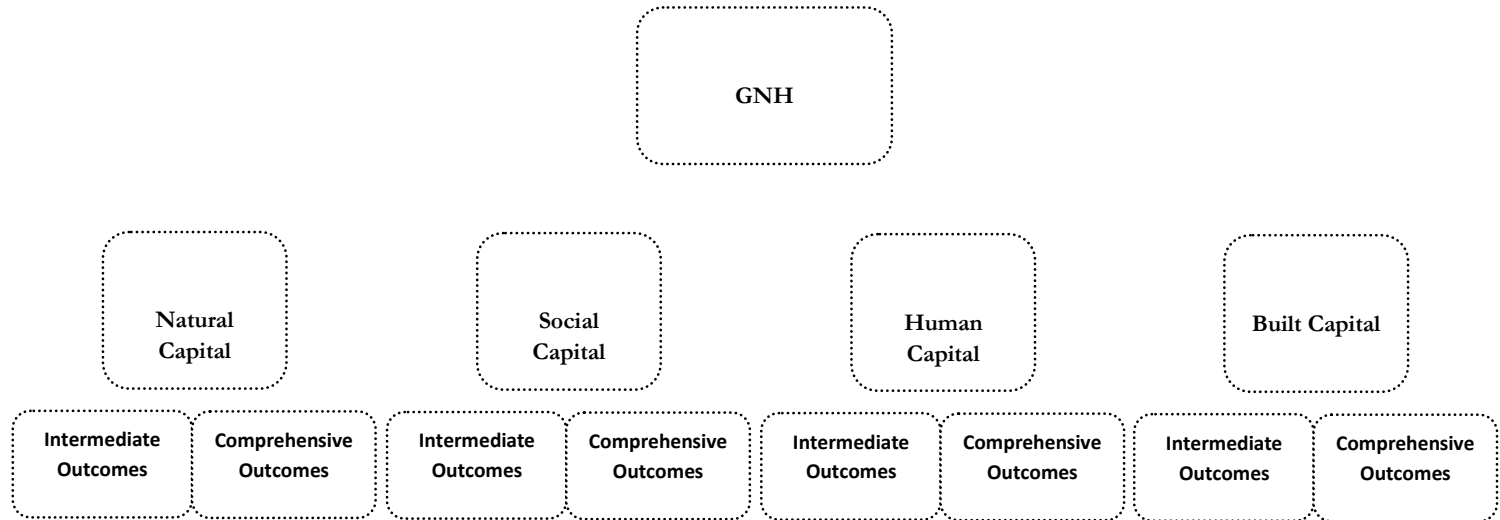
The indicators selected herein represent two complementary approaches, survey-based data on subjective dimensions such as personal well-being or time use and objective, outcome-based sources, and social capital often at an aggregate level. Our primary source for the survey-based data is the comprehensive GNH Survey Findings 2010 (Centre for Bhutan Studies, 2010), to which we owe many of our indicators. The second sources are the publications that are regularly composed by the National Statistics Bureau (NSB), its social capital module and others. The use of this second group of sources reflects the original scope of GNH as an alternative to Gross Domestic Product (GDP). For that reason, we classify the GNH states into four comprehensive categories of capital. These categories of capital are *Natural Capital*, *Social Capital*, *Human Capital* and *Built Capital*.

The focus on different types of capitals is purely a way of mentally classifying the data; we do not value Bhutan's capitals in monetary terms or build a comprehensive system of national accounts. Therefore, most indicators are in physical units. *Natural Capital* includes the natural riches and resources of a country, such as its forest cover with its carbon storage

capacity, its lakes and freshwater supply or its biodiversity. *Social Capital* refers to the customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation (Guiso, Sapienza and Zingales, 2006: 23). This type of capital thus captures the relations between the human beings of a given society, for instance in the level of trust, cooperative actions, the incidence of crime, voter turnout in democratic elections or the preservation of a common culture. *Human Capital* is widely regarded as the set of personal skills and qualities that can be gainfully employed. The most important categories are education and health, both physical and mental. *Built Capital* encompasses all man-made assets, such as machinery, buildings or infrastructure.

As shown in *Figure 22: the Classification of the GNH States*, we classify indicators along two dimensions. First, we divide indicators into the four groups of capital; *Natural Capital*, *Social Capital*, *Human Capital* and *Built Capital*. Second, we classify the indicators according to whether they constitute an Intermediate Outcome or a Comprehensive Outcome. An Intermediate Outcome is a proxy, an indirect measure for a goal in one of the domains of GNH. We use indicators on such Intermediate Outcomes where direct measurement is difficult, as a robustness check, and to give a more vivid picture of the GNH States. A typical Intermediate Outcome is the share of food in total consumption as a proxy for the income level. A Comprehensive Outcome, in contrast, is a goal that is directly related to GNH, such as a high literacy.

Figure 22: The Classification of the GNH States



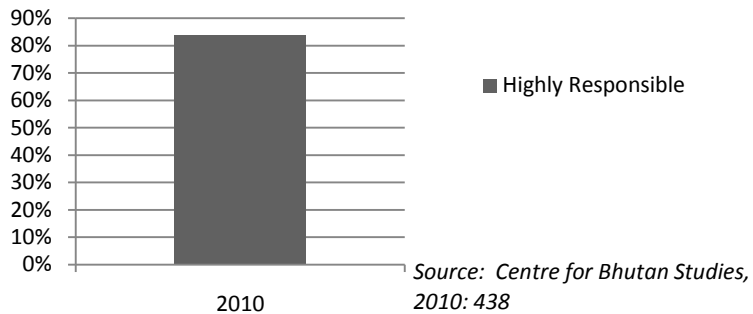
Natural Capital

Intermediate Outcomes

The government can only set the basic framework for environmental protection. It is only when this vision is shared by a majority of the population that laws become effective in protecting Bhutan's natural wealth. For example, the stronger the agreement on the protection of a certain species of wildlife; the lower will be the rates of poaching. Figure 23 shows the people's self-reported sense of responsibility for conserving the natural resources.

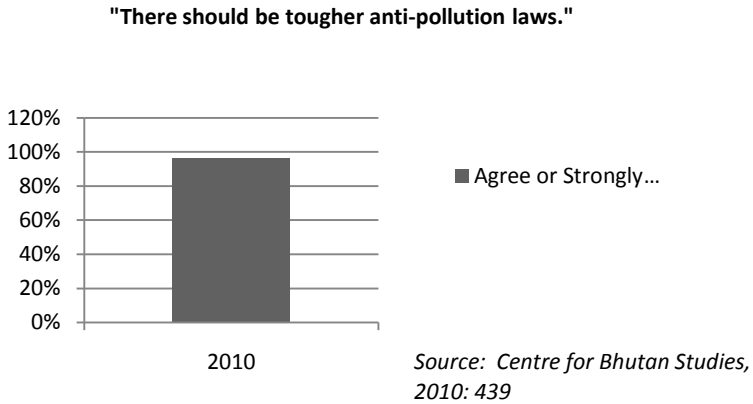
Figure 23: Sense of responsibility for conserving the natural environment

"Do you feel responsible for conserving the natural environment?"



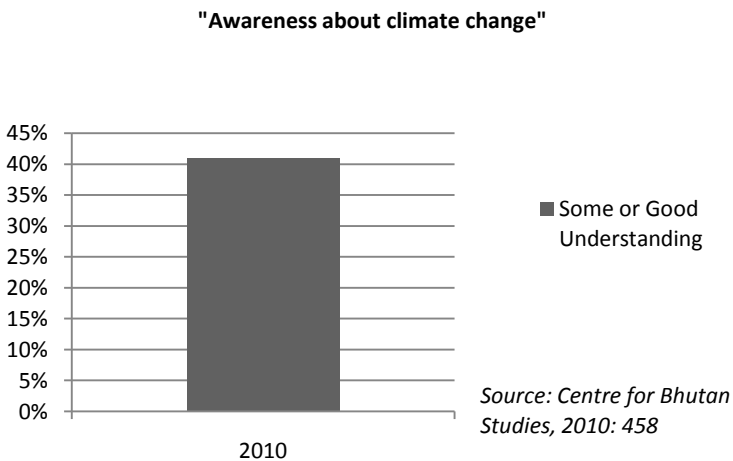
The data show that the responsibility that Bhutanese feel for the environment translates into demands for political action. The high percentage of agreement implies furthermore that the environmental pillar is considered important for GNH. Figure 24 presents the people's perception about the anti-pollution laws.

Figure 24: Agreement with official anti-pollution policies



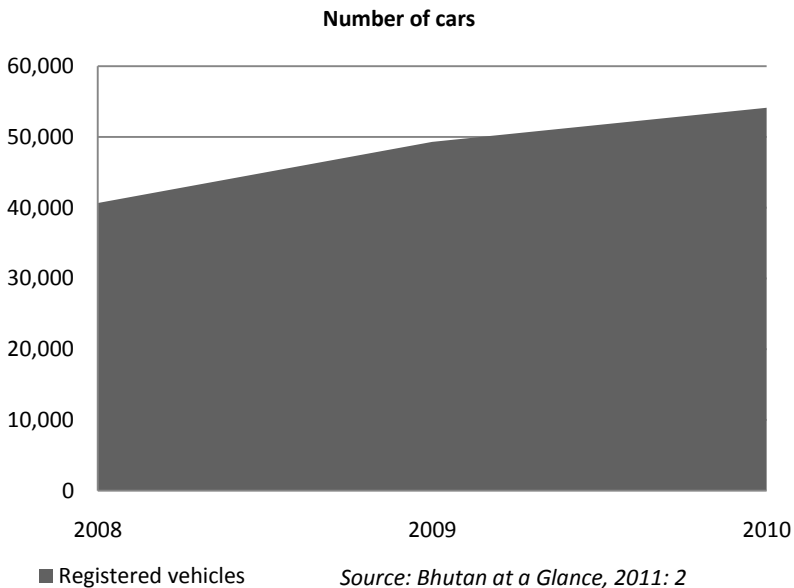
Even though Bhutan is a net carbon sink, and has pledged to remain so in the future, the country is likely to notice the effects of climate change. Given that 69% of the population depend on agriculture (National Environment Commission, 2011: 7), and that hydropower is both the main source of energy supply and national income, Bhutan might thus need to adapt to a changing climate. Awareness in the population, which currently stands at 41%, can greatly facilitate this process (figure 25).

Figure 25: Awareness about climate change



Traffic generates important environmental disturbances, such as atmospheric pollution, noise, and greenhouse gases. Furthermore, increases in traffic can lead to increases in stress levels. Today, Thimphu's streets are rapidly filled during rush hour and Phuentsholing (main commercial centre) do not have adequate parking lot. Bhutan is thus an instance of a general rule of thumb: As a country's income increases, traffic increases as well and so is the traffic-related accidents (figure 26). The number of automobiles presents only a rough proxy for the adverse effects of traffic, since decoupling of traffic activity from the mentioned impacts is sometimes possible, for instance by reducing atmospheric pollution through catalytic converters.

Figure 26: Number of automobiles and related accidents (2008-2010)

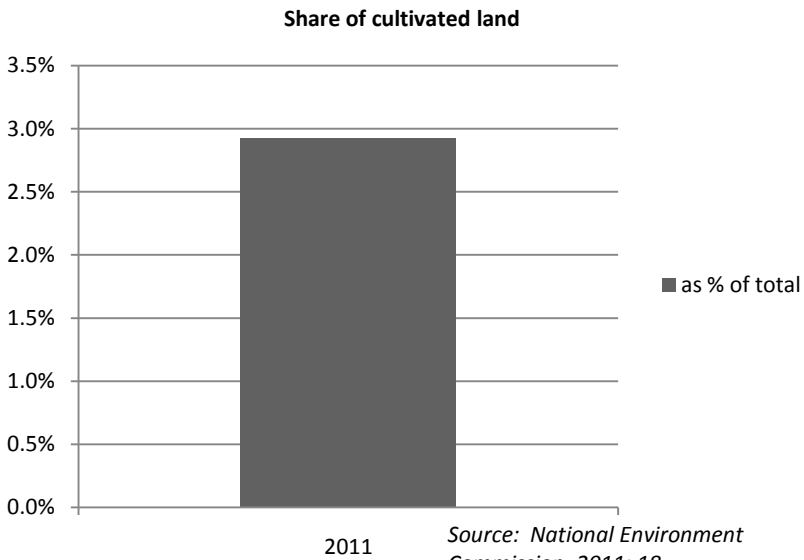


Comprehensive Outcomes

Given Bhutan's strong dependence on the agricultural sector, and the livelihood it offers particularly in rural regions, the share of arable land can be used to monitor how much arable land is converted for buildings, infrastructure, or severely affected by a changing climate. Conversely, new production methods, such as the cultivation of rice in Bumthang, can increase the share of arable land. It will thus be interesting to see how this

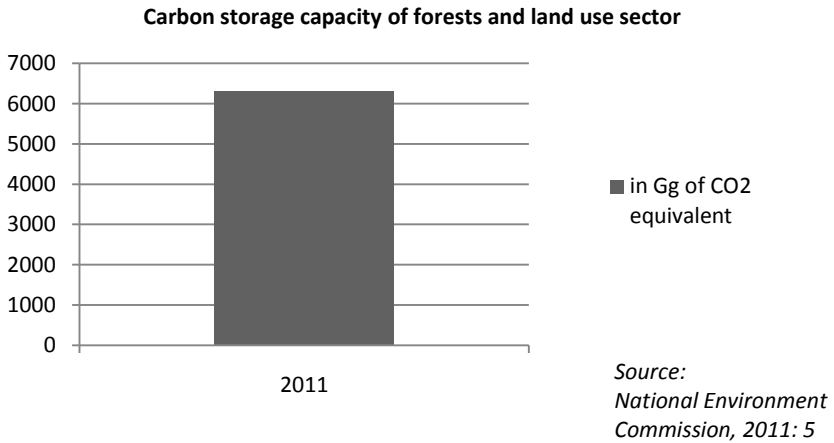
indicator evolves over time. The share of cultivate land in Bhutan is shown in figure 27.

Figure 27: Share of Cultivated Land



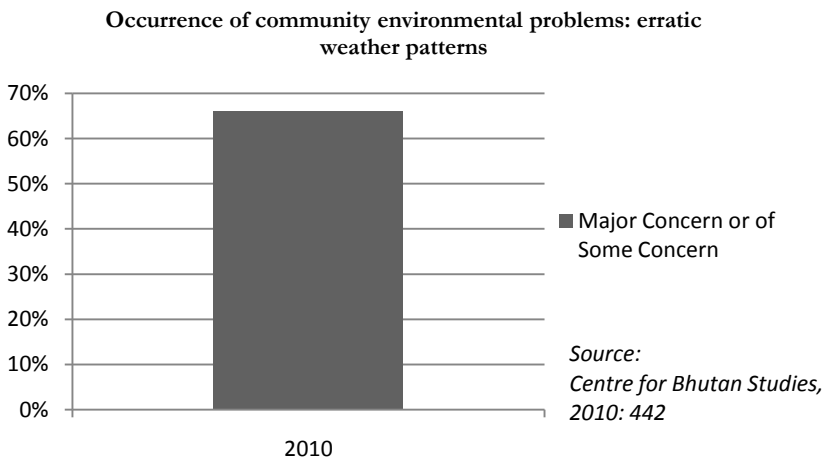
The capacity of Bhutan’s forests to absorb carbon dioxide is big. While still being a physical indicator, the carbon storage capacity is closely linked to a monetary value. REDD (Reducing Emissions from Deforestation and Degradation), a scheme under the auspices of the United Nations with the goal of providing financial incentives to stop deforestation thus assigns a monetary value to forests. REDD has recently been appended to include the role of forest conservation and sustainable management (more on www.un-redd.org). In figure 28 is given the carbon storage capacity of Bhutan’s forest and land use sector.

Figure 28: Carbon storage capacity of forests (2011)



These data come from the GNH Survey Findings 2010, and thus, draws on the traditional ecological knowledge of the rural population and their direct observations. Even though a causal link to climate change cannot be inferred from these data, a share of 66% of the population is currently worried about erratic weather patterns in their local community (figure 29).

Figure 29: Community environmental problems: erratic weather patterns



Social Capital

Intermediate Outcomes

Structural social capital

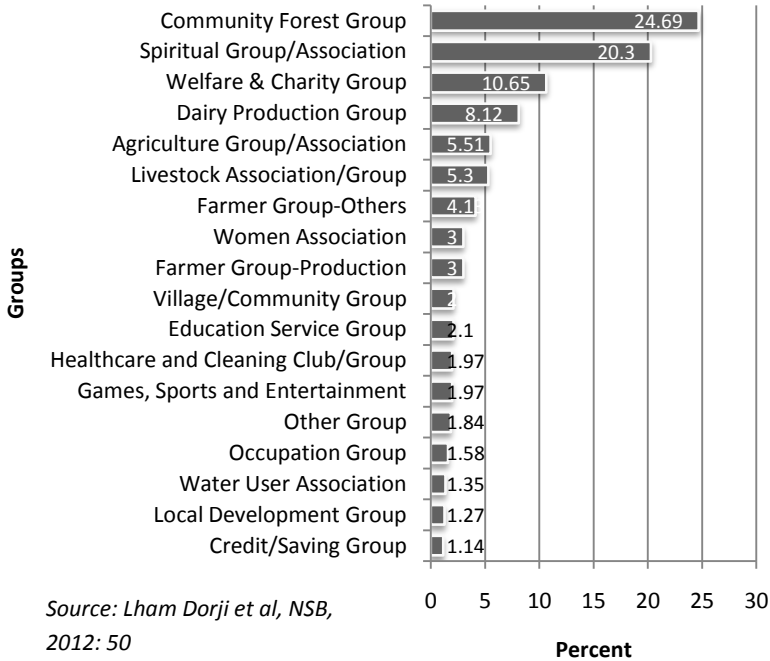
A set of proxy indicators of structural social capital are the types of local groups (that support cooperation and coordination), household's membership in different groups, and their spatial distribution. Based on the social capital module of the BLSS 2012, the local groups were classified into to eighteen groups (figure 30).

The majority (24.69%) of the households has reported that they are the members of the Community Forest Groups (CFGs). The government encourages the people to form the CFGs mainly to mobilise people's participation in the collective management of the forest resources. The CFGs are found to contribute towards a positive social, economic and environmental well being particular in rural places.

The second most common group is the spiritual groups (20.3%). The spiritual groups are important to uphold the spiritual institutions and heritage indispensable for fulfilling the spiritual aspirations and the wellbeing of people. Bhutanese culture and tradition have spiritual roots and constitute the important ideological and realistic foundations of the daily life. They are the sources of collective values and practices (BLSS, 2012; Lham Dorji *et al*, 2013: 42).

The welfare and charity groups make up the third most common group. They facilitate group action and make the people the agent of their own change and development. The self-help groups are known to promote duty-based development through collective actions, responsibility-sharing, and collective risk aversion and mitigation (*ibid.*, 2012: 43). Credit and saving groups constitute the least common group, though these groups are important to promote social and economic welfare of the poor people.

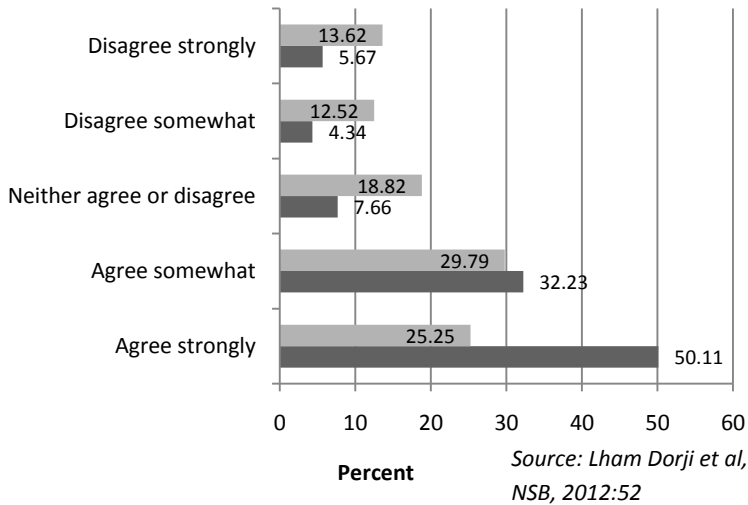
Figure 30: Household memberships in different local groups (by percent)



Cognitive social capital

Simply being members of different groups (structural social capital) may not necessarily enhance collective actions. Mutual trust (a cognitive dimension) is important to build group solidarity and collective action. Two types of trust: *generalised* and *specific* are considered. More than half of the survey respondents ‘strongly agree’ that most people in the neighbourhood can be generally trusted. This is higher in rural than in urban areas. The individuals’ propensity to trust each other is lower in matters related to money transactions (specific trust). Only 24% ‘strongly agree’ that there is ‘specific trust’ in the neighbourhood. The specific trust (money lending and borrowing) is slightly higher in the urban areas (26.39% than in the rural areas (24.66%)). See figure 31.

Figure 31: Perception on trust in the neighbourhood, generalised and specific trust (percent)



- People in the neighbourhood in general trust each other in money matters
- Most people in this neighbourhood can be trusted

The individuals trust others when they know each other well. To know each other well, they must have interacted socially for a long time. Many recent happiness studies have found high correlation between trust and happiness. However, due to rapid rise of materialistic value orientation and increased mobility of the individuals, trusts in the neighbourhood may change, particularly with in-migration or out-migration.

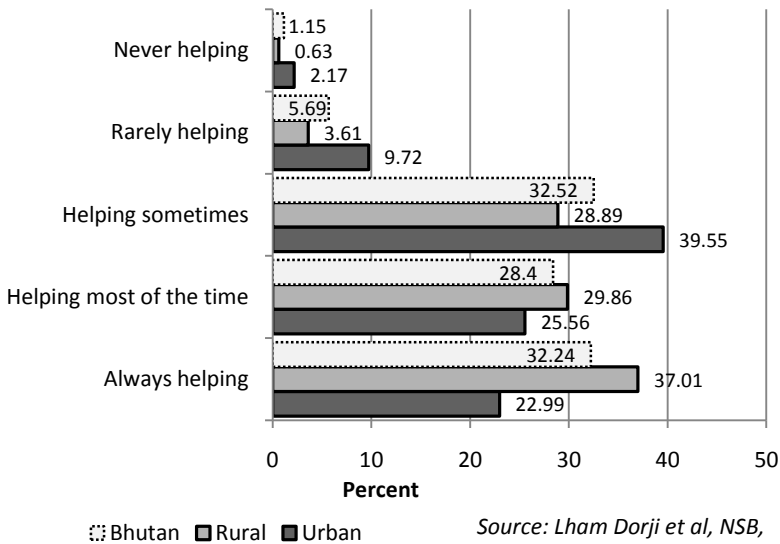
Cooperation and collective action (output measures)

Sense of closeness or solidarity in a community is another proxy indicator of social capital. About 18% of the respondents reported there is high sense of closeness in their neighbourhood; 36% reported the neighbours are somewhat close to each other (figure 32).

Figure 32: Feelings of closeness or togetherness in the neighbourhood (percent)

We know that greater social ties usually bring about the increase availability of social support in the communities. Helping each other is indispensable to the healthy functioning of social networks and local communities. In response to ‘how well the people are helping each other these days’, 32% of them reported they help each other always. Overall, just 7% of the respondents across the country have reported the people do not help each other in their communities. See figure 33 for detail.

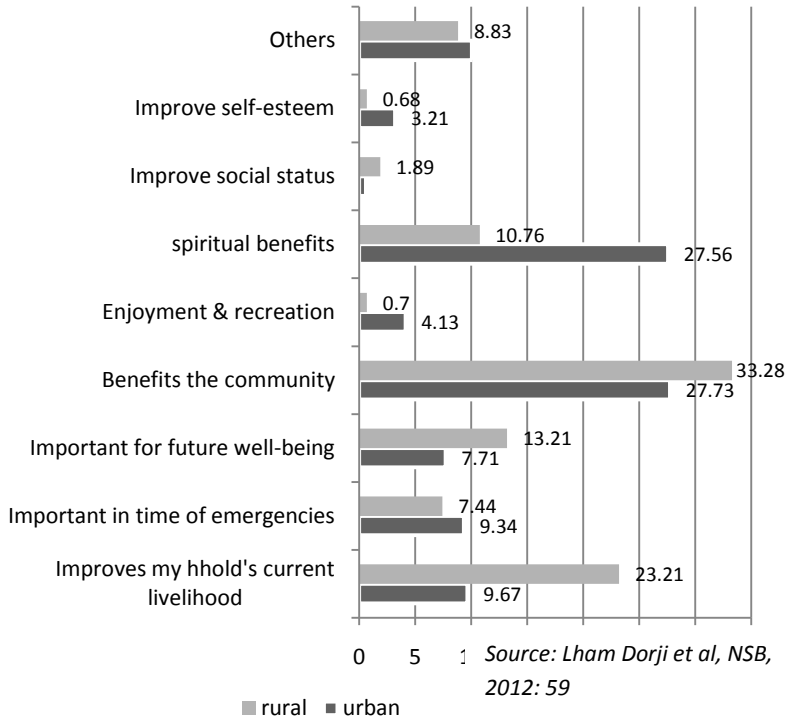
Figure 33: The presence of help in the neighbourhood (percent)



A higher proportion of the urban people (27.56%) believe that joining the groups has a spiritual benefit. About a quarter of the rural people believe that joining groups help improve their current livelihood and access to services, and about 13% of the rural respondents reported being group members will be important for their future benefits (figure 34).

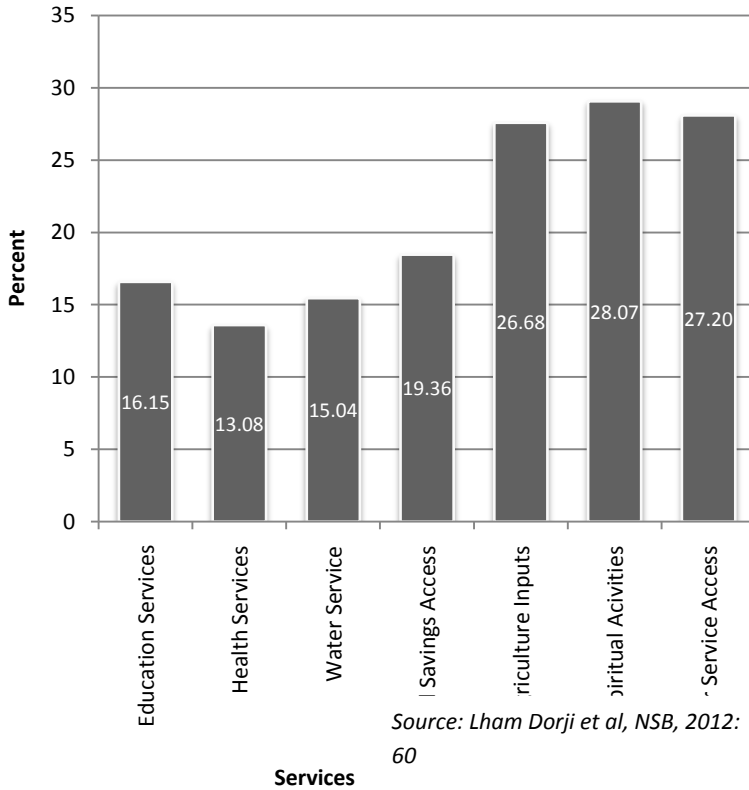
More rural respondents believe joining the various groups benefit their communities than urban respondents. However, slightly higher proportion of the urban people believes that joining the groups has a spiritual benefit (27.56%). About 25% of the rural people believe that joining groups help improve their current livelihood and access to services, and about 13% of the rural respondents reported being group members will be important for their future benefits (figure 34).

Figure 34: Perceived benefits of the household memberships in groups (percent)



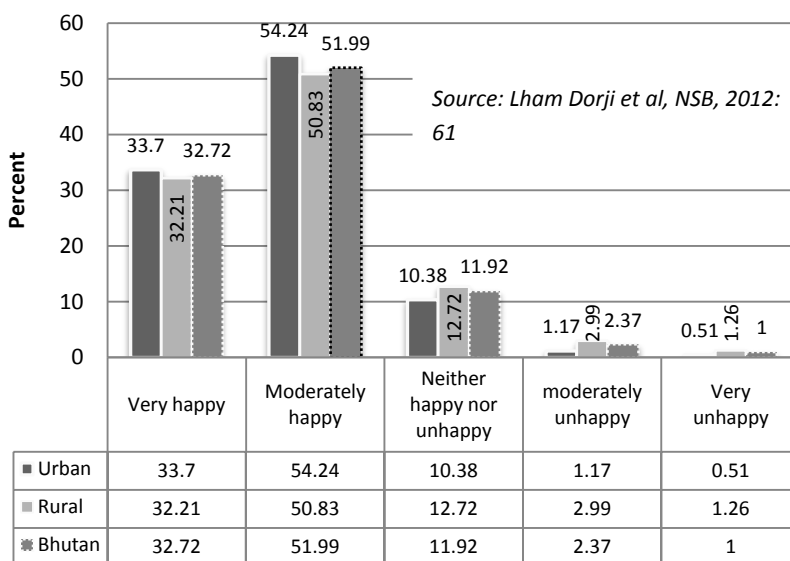
About 27% of the respondents reported that being the members of the groups helps them obtain agricultural inputs; 19% attributed their access to credit and savings to their group memberships. Between 13% and 16% reported the groups allow them access to education, health and water services. Overall, the highest number of the respondents (27.56%) reported that being group members provide them the avenue for spiritual pursuits, which in the traditional context is important to achieve psychological well-being (figure 35).

Figure 35: Household access to different services through group membership (percent)



At the national level, 33% and 52% of the households are ‘very happy’ and ‘moderately happy’ respectively. Just 1% reported they are ‘unhappy’ (Figure 36). The happiness questions in the social capital module of the BLSS, 2012 took into account the emotional, physical and material well-being (*ga-kyid*). Simple analogy to explain happiness to the respondents was *luelu na-tshag med; semlu dungnyel med* (literally, body free of pain and suffering, mind free of anxiety and stress). Details are given in figure 36.

Figure 36: Self-reported happiness levels by area and Bhutan

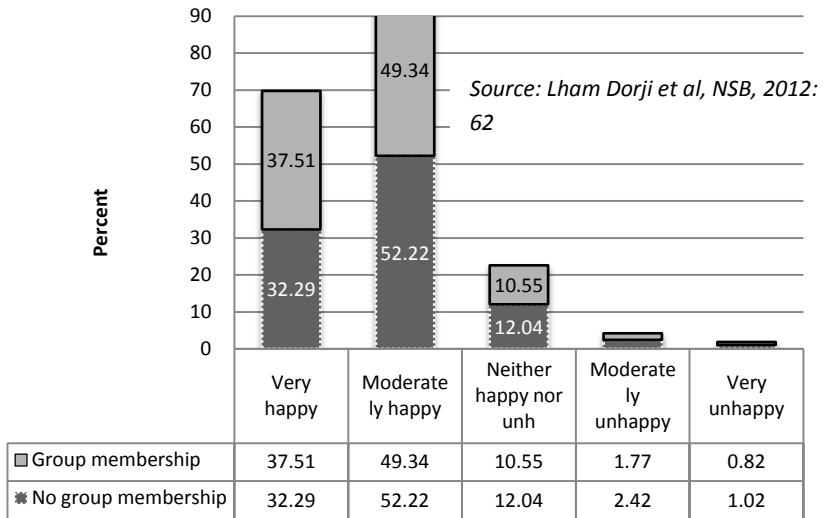


Majority of non-poor households reported that they do not belong to any group. However, a higher proportion of the households (with group memberships) is ‘neither poor nor non-poor’ (figure 20). Lham Dorji *et al* (2013: 79) addressed the question ‘are the households with higher social capital better off in terms of poverty/household welfare?’ They used multivariate analysis and found that for every unit increase in a household’s possession of structural social capital, there is an increase in a household’s welfare by 0.05 or 5% (significant at 0.002). They thus concluded that after controlling for human and physical capitals and other relevant exogenous household and demographic characteristics, the presence of structural social capital (measured mainly in terms of the memberships in local groups and their key characteristics) have an additional positive contribution to the household welfare (measured in terms of log per capita household expenditure).

However, the quintile regression analysis concluded that the membership in groups does not occupy prominent places in the household asset portfolio of the poorest 10 percent. The study inferred that the poorest of the poor are not able to realise the potential of group memberships (2010: 110). This suggests something ought to be done to promote the groups that benefit the poorest people.

There is some relationship between the households' group memberships and the level of self-rated happiness. About 30% of the respondents whose households belong to at least one group have reported as being 'very happy'; 33% of them whose households do not belong to any group reported the same. The proportion of the respondents whose households belong to at least one group decreases with the increase in the level of self-reported unhappiness. Conversely, the proportion of the respondents from those households without any group membership is higher along the line of the self-rated unhappiness compared to those with group membership. See figure 37.

Figure 37: Happiness across the households with and without group membership (percent)

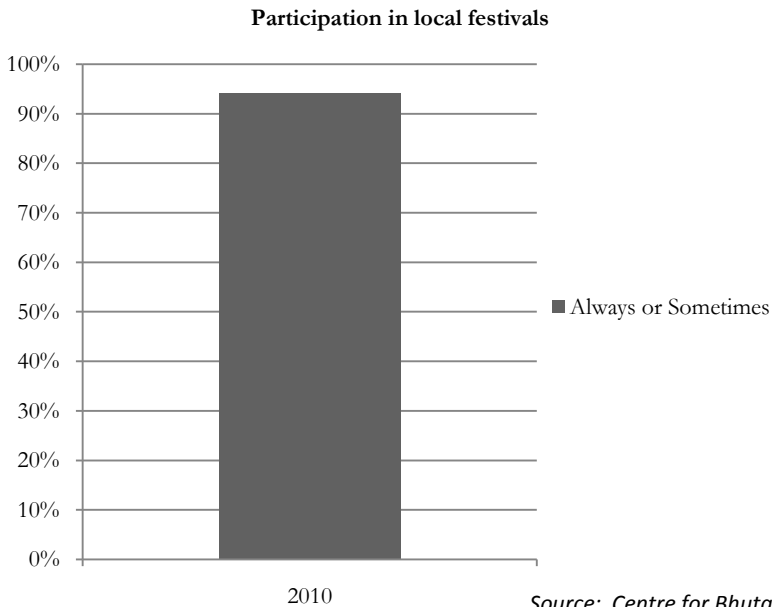


Just as noted by Woolcock (2000) that some of our happiest hours are spent when participating in the community events and in volunteering for the community projects, Dorji *et al* (2013: 103) concluded in their logistic regression analysis that there is positive correlation between the self-rated happiness state and cognitive social capital. They found that the presence of trust in the communities is the strongest predictor of happiness, keeping other variables constant. The other variables used are the ownership of basic asset, years of education and food security (whether household experience seasonal food shortage or not) as the dummy variable and rural (location) to control for areas (rural and urban). The *odds*

ratio for the trust variable is 2.33. This can be interpreted as ‘for every increase in a person who report there is trust in the neighbourhood, the odds of reporting being happy increases by 2.33 times than those who report there is no trust in the neighbourhood’. The same study also found that respondents with more close friends reported they are very happy.

The participation of most Bhutanese in their local festivals creates a link between village inhabitants and their extended family and friends, including those that live in a different location. Community festivals bring the neighbours and distant community members together. Those who live outside the community usually attend those festivals and rituals to pray to their local deities. Active involvement in local festivals can thus strengthen community ties. The recent survey by the Centre for Bhutan Studies shows that participation in local festivals is high (figure 38) though there is a growing concern that local festivals are not able to draw people together like in the past.

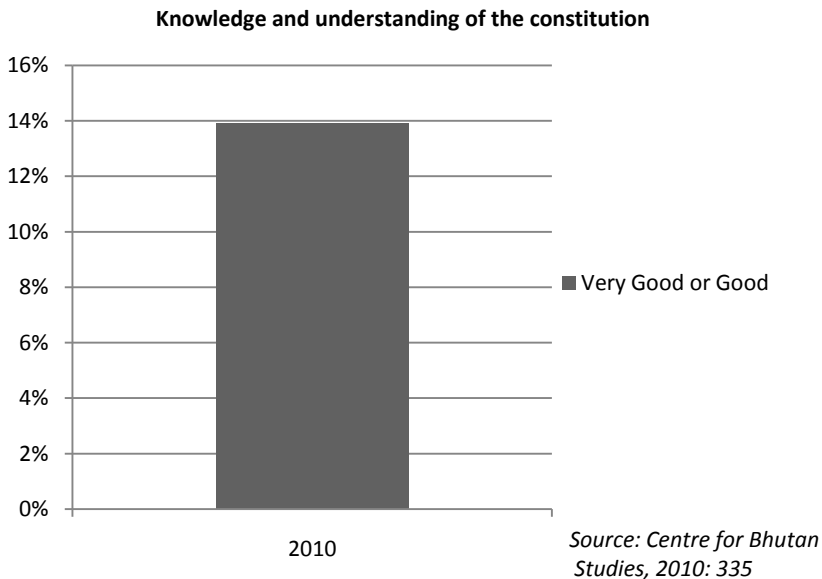
Figure 38: Community ties: Participation in local festivals



Source: Centre for Bhutan Studies, 2010: 367

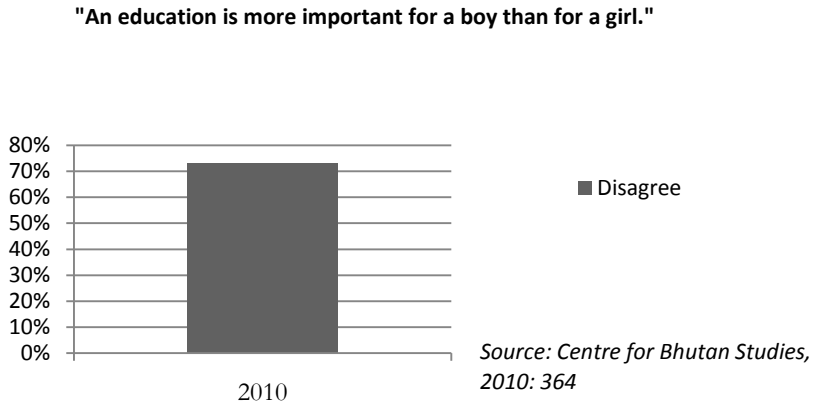
Knowledge of the recently introduced constitution—the base of Bhutan’s democratic system, is helpful for participation in the political process, in balloting, public deliberation and public reasoning. Bhutan’s democracy rests ultimately on a wide societal consensus of the ideas embodied in the constitution. In 2010, 13.9% of the Bhutanese said they have a very good or good understanding of the constitution.

Figure 39: Knowledge about and understanding of the constitution



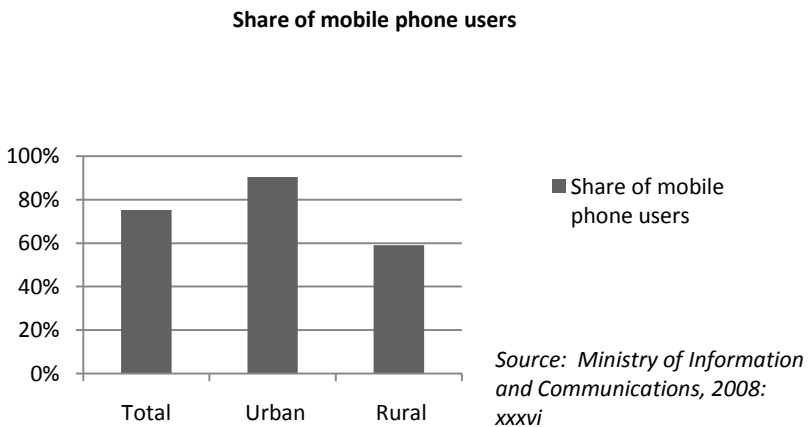
Deep-rooted beliefs often affect societal outcome, such as the share of female members of parliament, for instance. Fortunately, the GNH Survey Findings 2010 contain a window from which to gain a view on the perceptions of gender roles in Bhutanese society. About 73% of Bhutanese disagree with the statement “An education is more important for a boy than for a girl” (figure 40).

Figure 40: Agreement to the statement “An education is more important for a boy than for a girl”



Mobile phone usage has become increasingly popular in Bhutan, with voting for TV shows happening via mobile phones even in rural communities. The number of subscribers likely underestimates the true number of mobile phone users, as households sometimes share a phone². Figure 41 shows the percentage of mobile users.

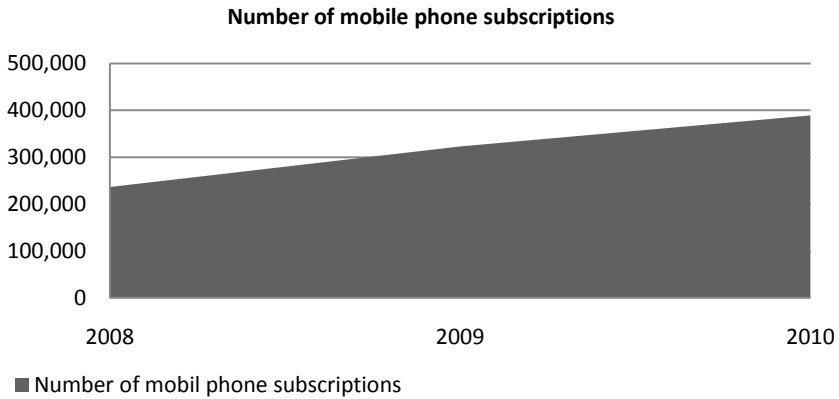
Figure 41: Share of mobile phone users



²The shares for urban and rural are incorrect in the referenced publication. We calculated the new numbers using sample sizes of N=600 for both urban and rural.

The trend in the number of mobile phone subscribers shows how Bhutanese society increasingly relies on modern channels of communication (figure 42).

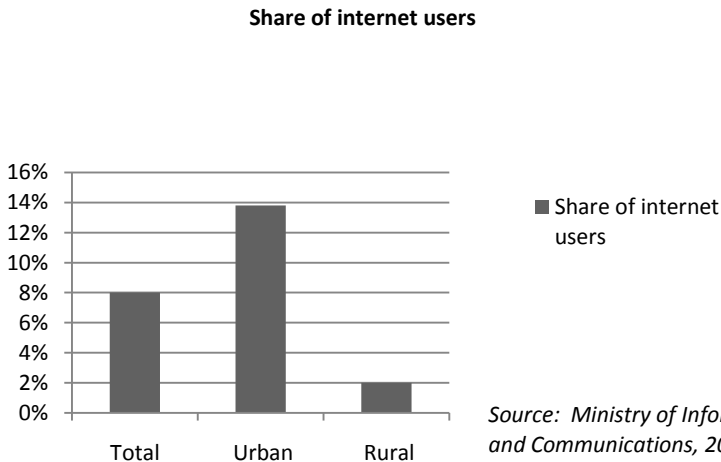
Figure 42: Number of mobile phone subscriptions



Source: Bhutan at a Glance, 2011: 2

In view of the growing use of e-governance, political blogs or social networks in Bhutan, the share of internet users is of interest to GNH (figure 43).

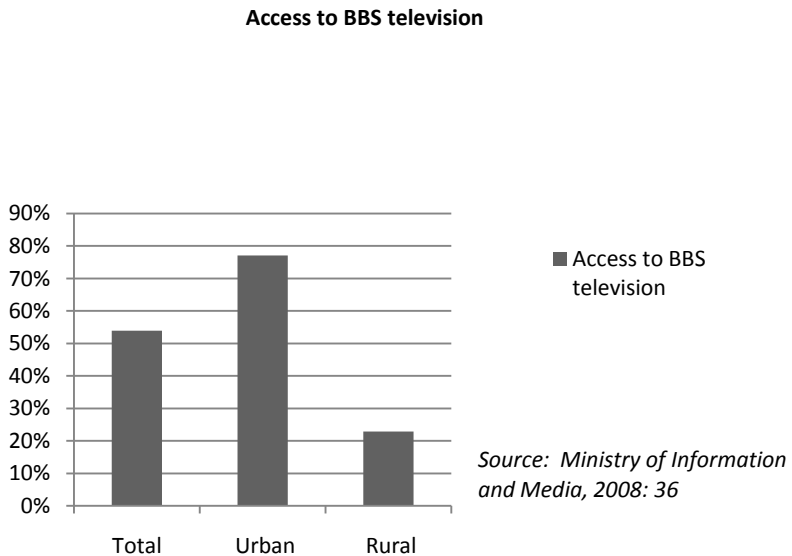
Figure 43: Share of internet users



Source: Ministry of Information and Communications, 2008: 16

Access to the BBS television channel is a crucial tool for both governance and the celebration of culture. BBS hosts important political debates, which often offer direct interactions with interested members of the general public. As such, BBS is one of the most important platforms of public reasoning. Even though it is difficult to precisely determine how many people use a given TV set, the data reveal that TV has an influence in the majority of Bhutanese households. Figure 44 presents access to Bhutan Broadcasting Service programmes by rural and urban locations.

Figure 44: Access to BBS television



A high share of food in total consumption indicates a low income level, forcing a household to spend the bulk of its earnings on food, while cutting short on housing or the acquisition of durable goods. In itself, the share of food in total consumption does not however bear a direct relation to GNH. While the national average stands at just below 40%, the *dzongkhag* data shows important variations at the sub-national level. Figure 45 shows share of food expenditure in the total household expenditure and figure 46 shows the same disaggregated by 20 districts.

Figure 45: Share of food in total expenditure

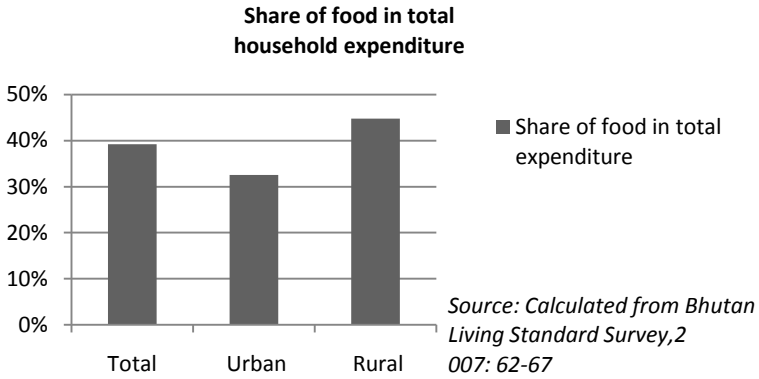
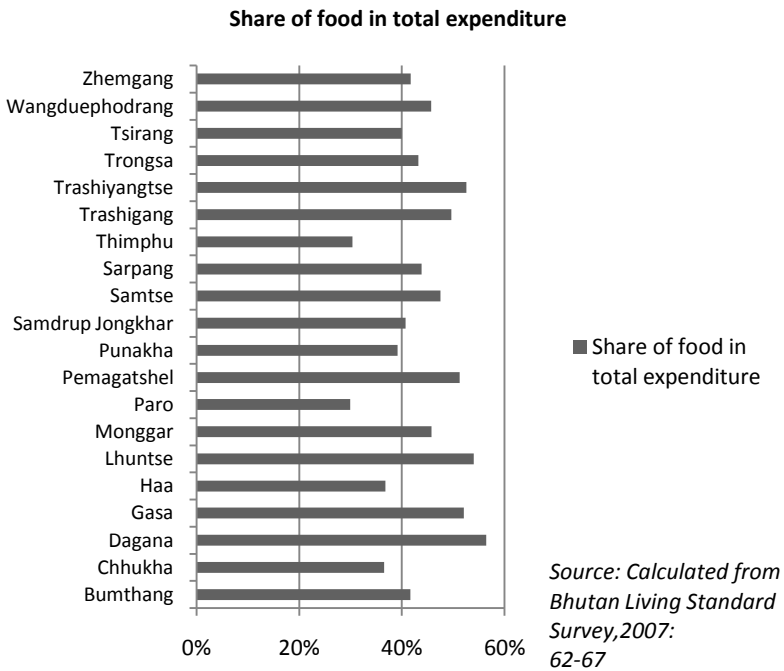


Figure 46: Share of Food Expenditure in Total Expenditure by Dzongkhags



Comprehensive Outcomes

This self-assessed indicator from the GNH Survey Findings 2010 gives a feel for the strength of the social capital represented by the extended family system, local communities and friends. While there is some variation at the *dzongkhag* level, most Bhutanese have access to a large social network of friends and relations. In figure 47, percentage of people who can count on more than 5 other people when sick is given, disaggregated by residence.

Sickness and death have their own social significance, for these phenomena bring the community members close to each other. The words of one of the villagers sum up how death fosters the people's relationships and harmony: 'When it comes to death in our village, we stand united to help each other. We do not really differentiate between our friends and our foes that time'(Tashi Choden and Lham Dorji, CBS, 2005).

Figure 47: Percentage of people to count on when sick

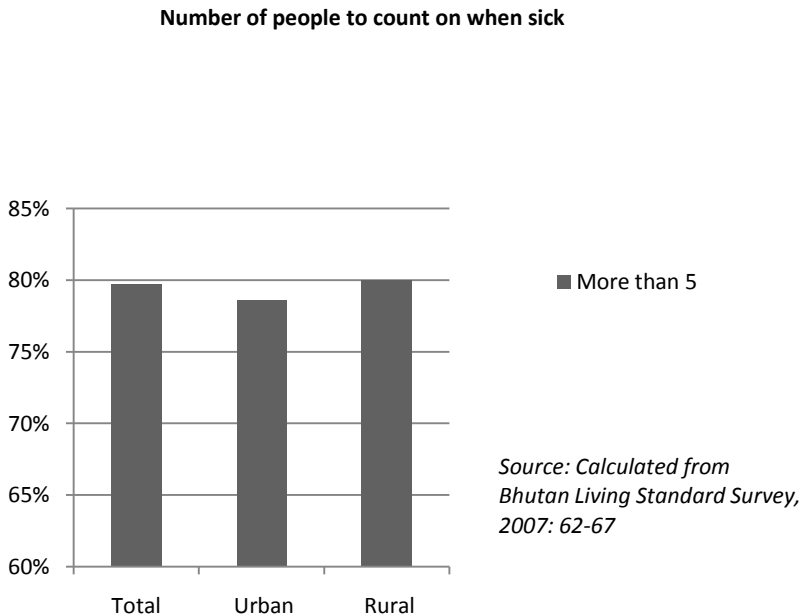
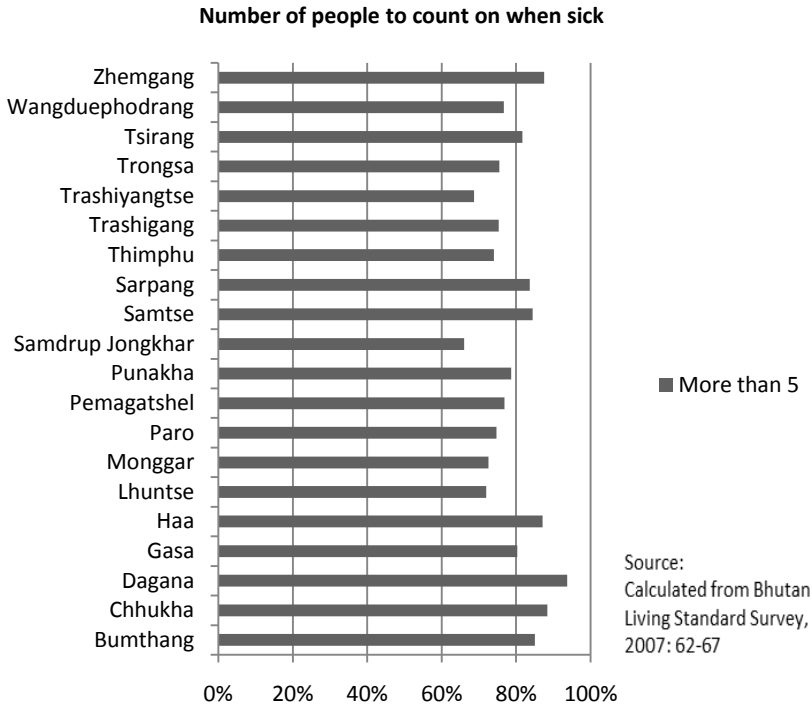


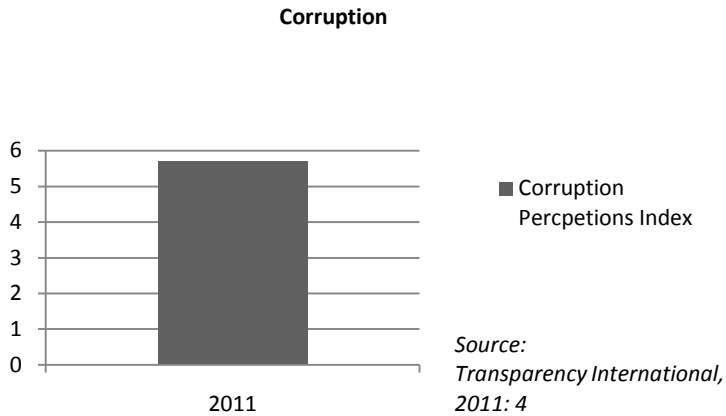
Figure 48 presents percentage of people who can count on five or more people when they are sick by twenty *dzongkhags*.

Figure 48: Number of people who can count on more than five people when sick



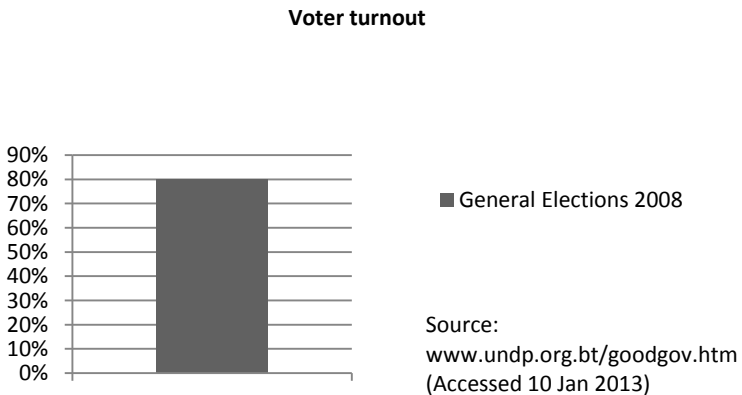
A crucial determinant of governance is the degree of corruption. Transparency International publishes an internationally standardized index on an annual basis. This Corruption Perceptions Index allows situating Bhutan relative to its neighbouring countries. Perceived corruption undermines the trust in the political institutions. At a rating of 5.7 for 2011, Bhutan has maintained its 2010 level; ranking 38 out of 182 countries listed worldwide (Transparency International, 2011: 4, figure 49). Bhutan is thus perceived to be markedly less corrupt than neighbouring India (rated 3.1; ranked 95), Nepal (rated 2.2; ranked 154) and Bangladesh (rated 2.7; ranked 120).

Figure 49: TI Corruption Perception Index, 2011



A single vote is never decisive in a general election. For that reason, economists have long been struggling to explain voting based on egoistic calculations. The social benefits of voting are undisputed; however, which is why a high voter turnout in a general election is usually considered one of the most reliable measures of social capital. The turnout of the first general elections in 2008 was comparatively very high. It stood at 79.8% (figure 50).

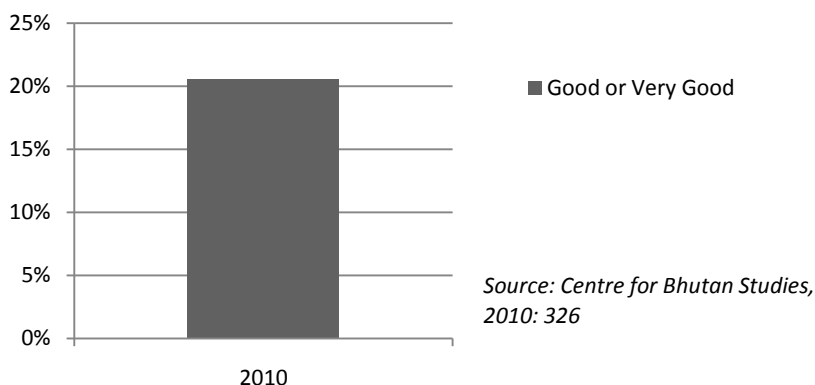
Figure 50: Voter turnout in general elections



Traditional songs are an essential part in the cultural heritage of Bhutan. Together with the dances, they form one cornerstone of the culture pillar of GNH. Currently, 20.6% of the Bhutanese have at least a good knowledge of traditional Bhutanese songs (figure 51).

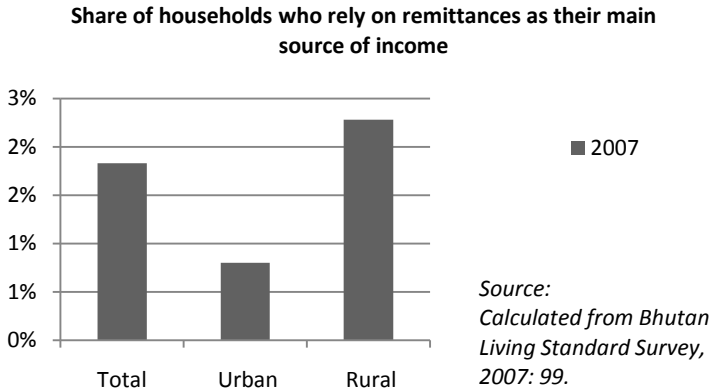
Figure 51: Knowledge and understanding of traditional Bhutanese songs

Knowledge and understanding of traditional Bhutanese songs



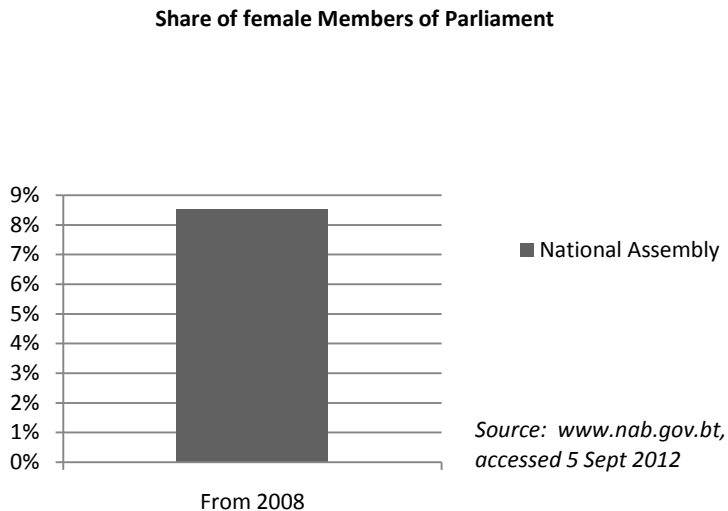
Remittances are cash transfers from persons with savings to their less affluent family members or friends. In that sense, remittances can be seen as a private form of social security. The data on the share of households whose primary source of income are remittances thus show the effective existence and the economic importance of social networks. These networks are probably more important than shown in our indicator, because it only depicts those households who rely primarily on remittances for a living. In addition, remittance data covers only cash transfers, omitting contributions in kind. Figure 52 shows the percentage of households that receive remittances as their primary source of income.

Figure 52: Households that depend on remittances



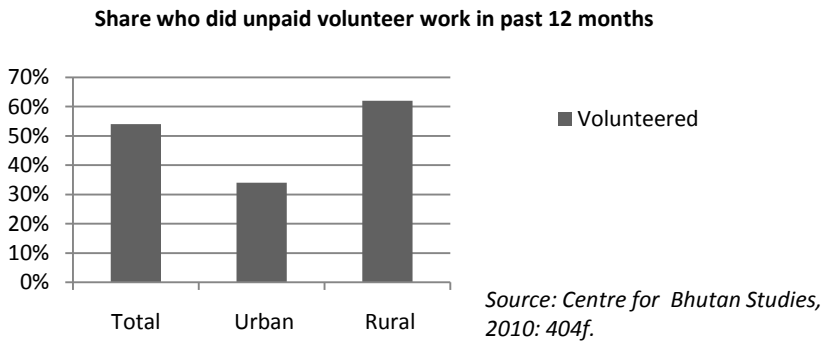
The share of female members in parliament illustrates the role of women in a society, both in terms of prejudices and of the insertion into the labour market. Given that all members of the National Assembly are directly elected by the public, its composition is the most insightful. Of the current 47 honourable members of parliament, 4 are female. This amounts to a share of 8.51% (figure 53).

Figure 53: Share of female Members of Parliament



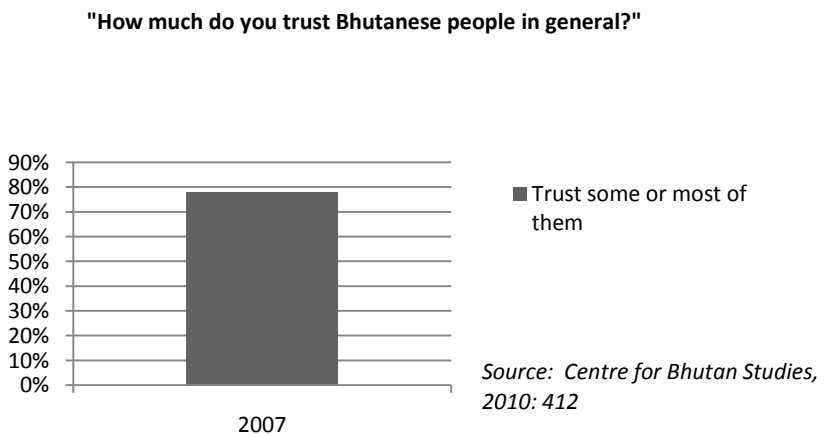
Volunteer work is essential to the concept of GNH. It provides for self-realization, brings together community members and strengthens social ties, and provides economic services. Currently, about half of the population engages in some form of volunteering (figure 54). Differences between rural and urban might reflect the different time budgets.

Figure 54: Percentage of unpaid works contributed in past 12 months



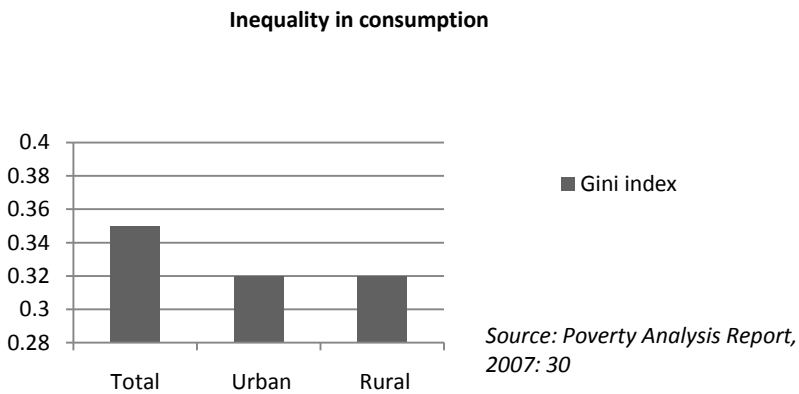
As mentioned earlier, trust is a basic condition for cooperation and in turn for the creation of personal relationships between members of different communities and sectors of society. A high level of trust is associated with altruistic behaviour and represents a high level of social capital. Again, 78% of Bhutanese generally trust some or most of fellow citizens (figure 55).

Figure 55: Trust in other people in general (Percent)



As argued above, there is a consensus in Bhutan that some degree of equality is desirable in itself. Equity considerations thus directly enter GNH. We measure inequality by the Gini-Index that ranges from 0 to 1, where 1 is full inequality. We use data on inequality in consumption, which is the most direct measure of welfare available from economic survey data. A further step could be the calculation of a Gini-Index on the inequality in subjective well-being. The total of 0.35 is higher than the value of 0.32 for both rural and urban areas (figure 56) due to the difference between rural and urban on the national level.

Figure 56: Inequality in consumption (Gini Index, 2007)

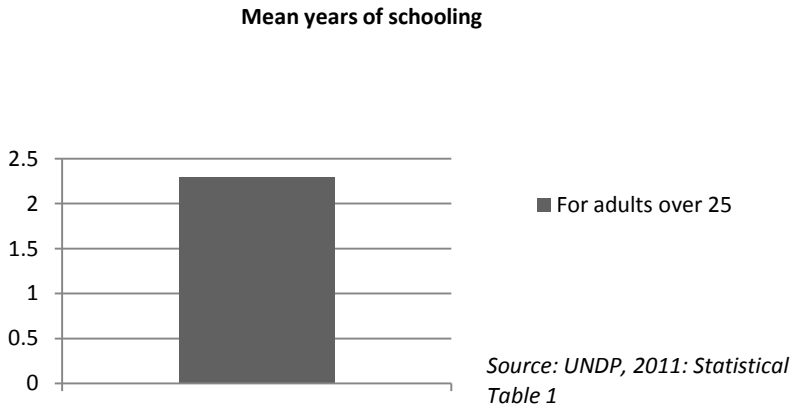


Human Capital

Intermediate Outcomes

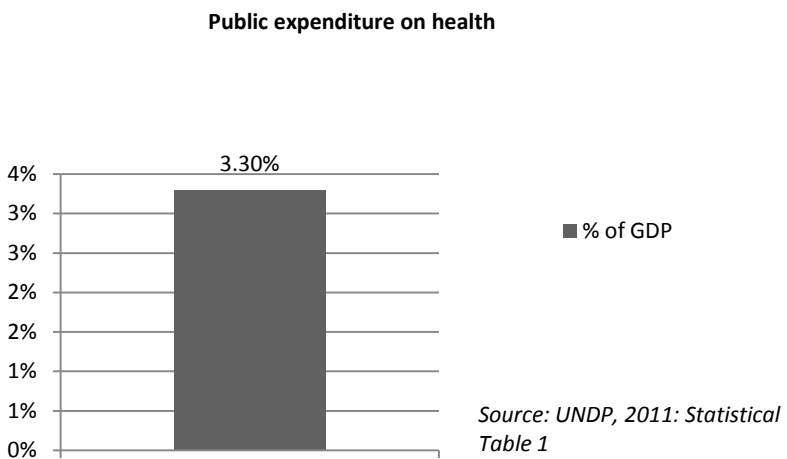
Mean years of schooling is an intermediate outcome given that it measures the input in terms of years of schooling rather than the output in terms of skills. Combined with a measure for the skills obtained, this indicator can serve to assess the effectiveness of the educational system. In Bhutan, adults over 25 years of age have, on average, obtained 2.3 years of schooling (figure 57).

Figure 57: Mean years of schooling for adults over 25 (2011)



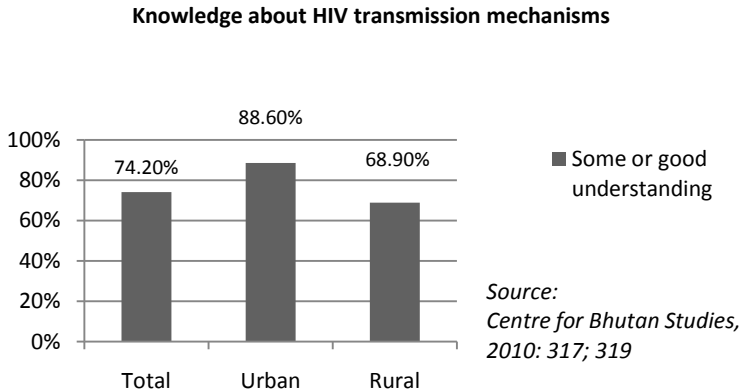
An overall health system is crucial in determining health outcomes, by giving the population access to adequate facilities and staff. Given the public nature of Bhutan’s health system, the share of public expenditure on health in GDP is an important variable to monitor when implementing a GNH conscious health system. Figure 58 shows the share of public expenditure on health 2011, which comes to about 3.3%.

Figure 58: Public expenditure on health



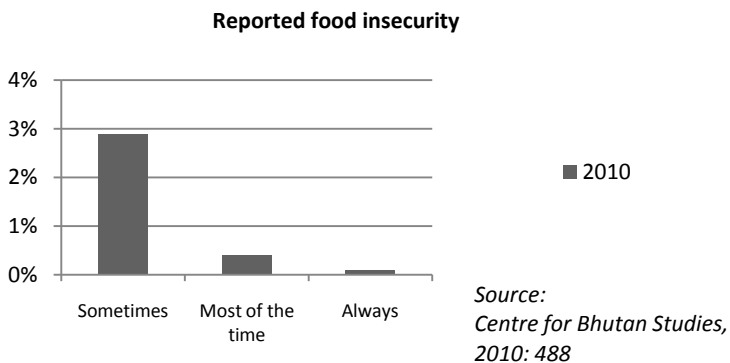
The spread of HIV can only be stopped if all individuals are conscious about how it is transmitted. Such knowledge forms the basis for conscious behaviour. Most Bhutanese seem to know about HIV transmission, though its knowledge is lower among the rural population than among urban population (figure 59).

Figure 59: Knowledge about HIV transmission



Survey-based data on food insecurity provides disaggregate data on the effects of poverty. Apart from acute suffering, persistent undernourishment leads to adverse, sometimes irreversible health outcomes such as stunting. Currently, food insecurity is only reported by a minority of the population (figure 60). Dorji *et al.*(2013:112) have found that people who reported they do not face seasonal food shortages are happier than those people who face food insecurity.

Figure 60: Reported food insecurity



Comprehensive Outcomes

Physical Health

Health coverage is directly related to happiness and subjective well-being. Time to reach the nearest health centre (hospital or BHU) is measured irrespective of the means of transport, and thus provides a comparable measure of health service accessibility (figure 61). Times provided are the averages. In the recent Poverty Assessment conducted jointly by NSB and the World Bank (2013), most of the Focus Group Discussions (16 FGDs) talked about the farm roads' benefits in reaching sick people easily to the health centres.³

Figure 61: Time to reach the nearest health centre

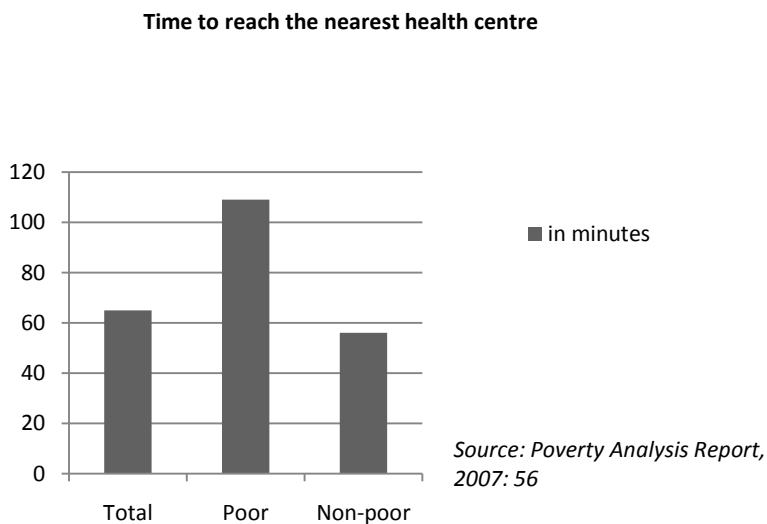
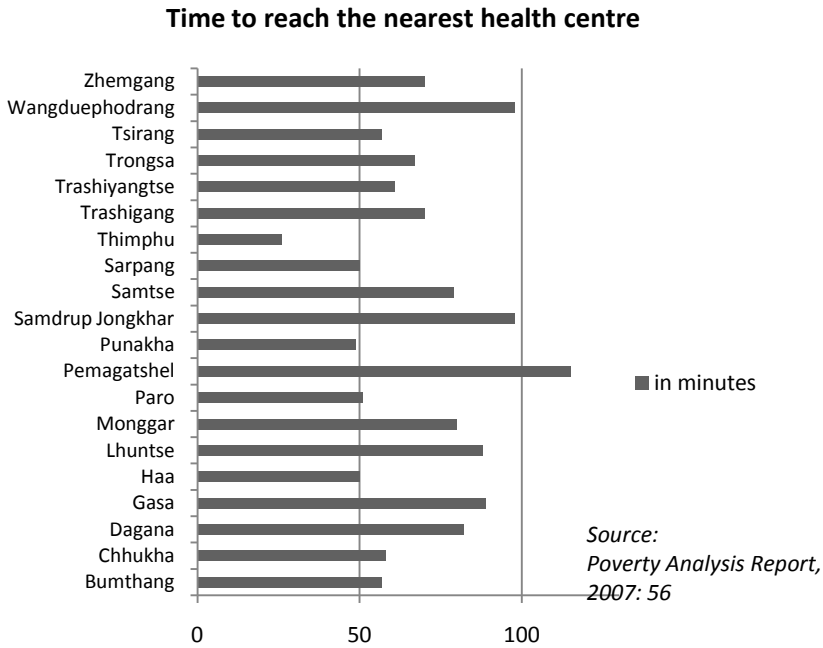


Figure 62 shows the time taken for people (in minutes) to reach the nearest health facilities, disaggregated by twenty Dzongkhags.

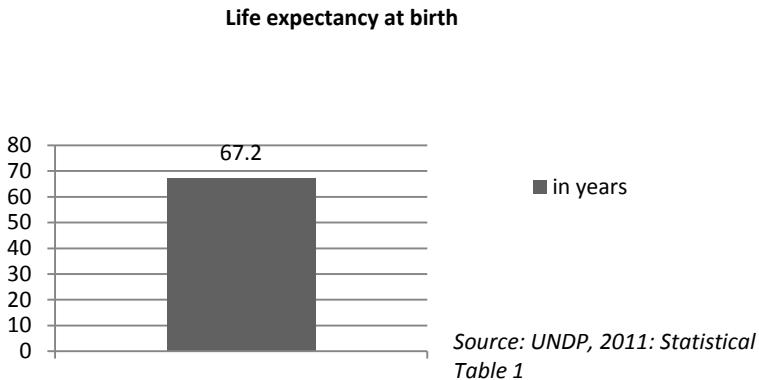
³ FGDs conducted by NSB team led by Lham Dorji in 2013 in eight *gewogs* of the four poorest *dzongkhags*. They conducted FGDs with eight groups of men and eight groups of women.

Figure 63: Time taken to reach nearest health facility (in minutes)



The life expectancy is generally accepted to be a solid indicator of physical health. Life expectancy around the world ranges from 48.69 years in Chad to 89.68 years in Monaco (CIA, 2012). Life expectancy in Bhutan in 2011 is presented in figure 64.

Figure 64: Life expectancy at birth



In addition to aggregate indicators, the subjective health status of an individual is important to determine the level of individual well being. The GNH Survey Findings 2010 contain such data (figure 65), which allows us to present the self-rated health status at the *dzongkhag* level (figure 66).

Figure 65: Self-rated health status

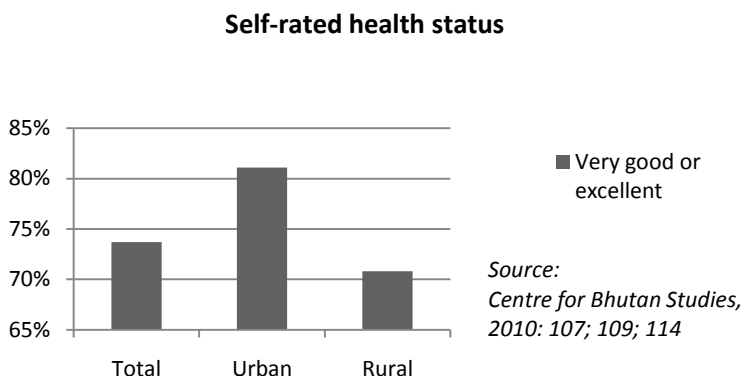
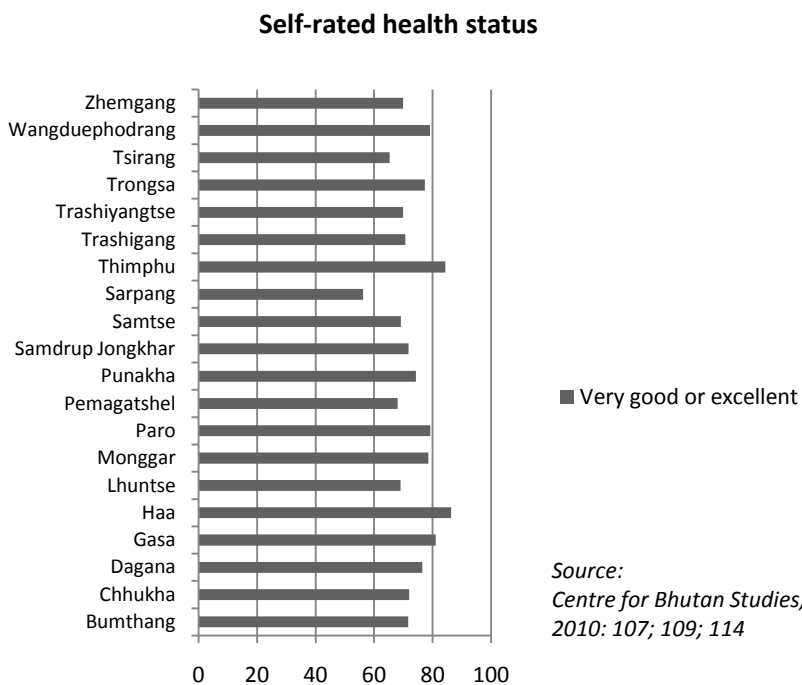
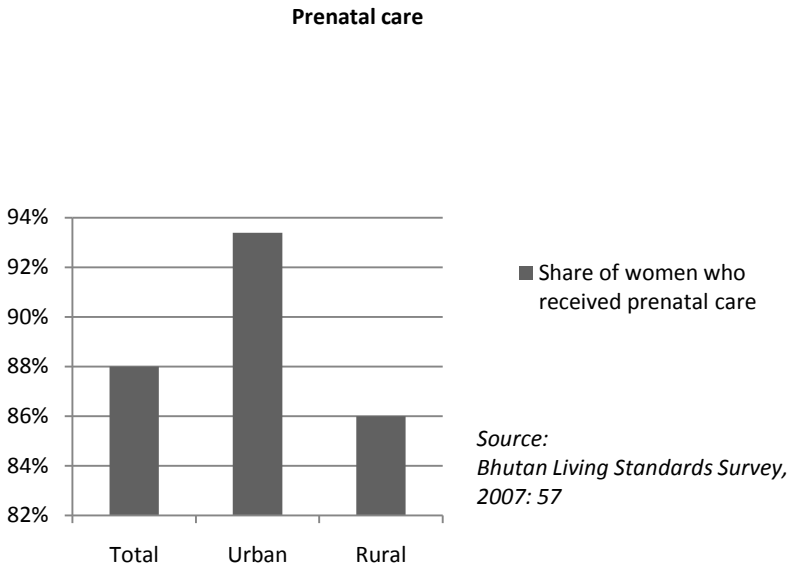


Figure 66: Self-rated health status by Dzongkhags



The number of maternal deaths related to child birth is a direct outcome of the health system, and can thus be influence by governmental action. The data show that most Bhutanese women receive prenatal care (figure 67).

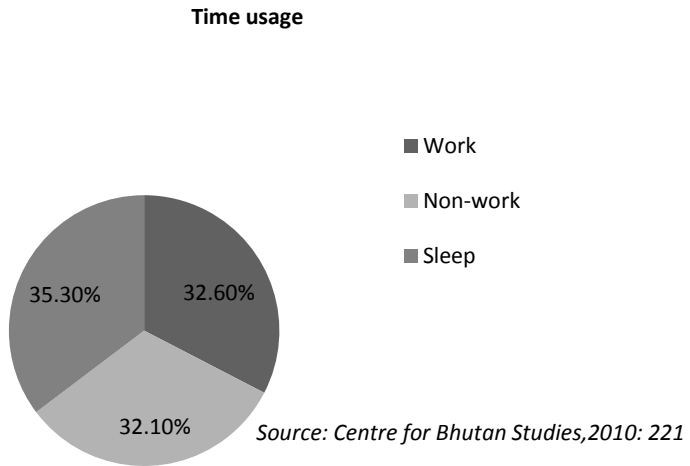
Figure 67: Share of women that received prenatal care



Mental Health

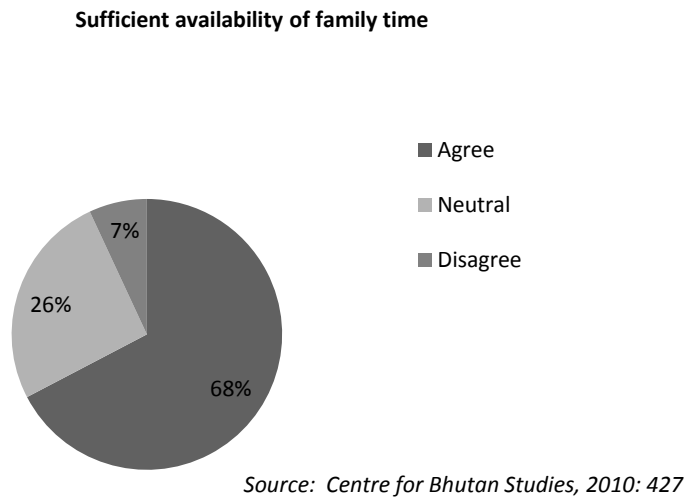
A healthy balance of individual time-use is a prerequisite for a stable mental health and a low stress level. GNH considers both physical and mental health. These are complementary and depend on each other. GNH survey's (2010) data gives time use pattern among the Bhutanese people as shown in figure 68.

Figure 68: Time spent on work, non-work and sleep



The subjective indicator measures whether individuals feel that they have enough time to be with their families is given in figure 69.

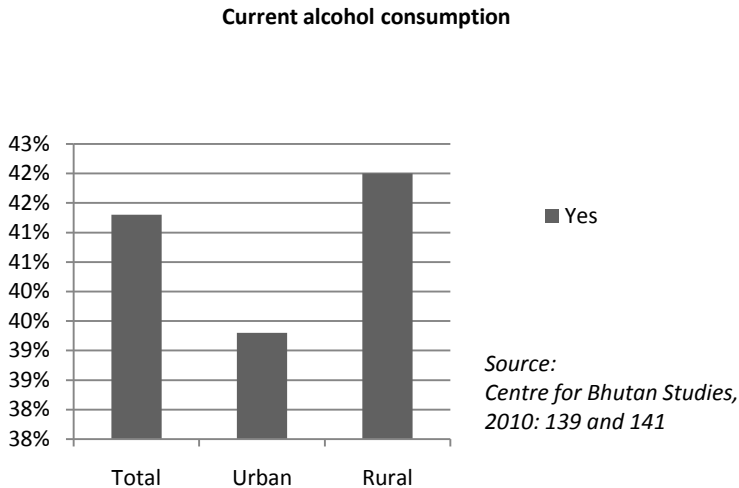
Figure 69: Availability of family time



Apart from physical damage, alcohol abuse has severe psychological implications, which is why we classify it under mental health. Alcohol usage is a prevalent phenomenon in Bhutanese society, almost devoid of a social stigma (figure 70).

For more information on alcohol usage in Bhutan, refer to *Alcohol Use and Abuse in Bhutan*, Lham Dorji (2012) published by NSB's Research Division: www.nsb.gov.bt.

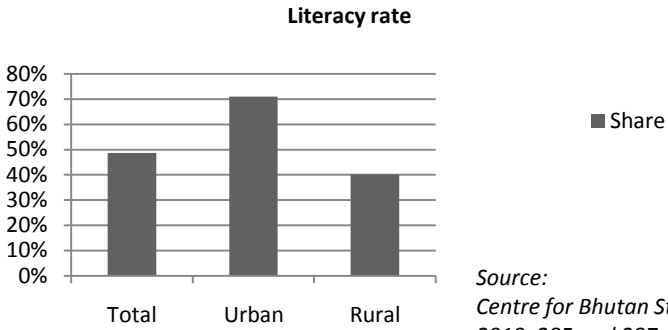
Figure 70: Alcohol Usage



Educational Achievements

Literacy is one of the most fundamental skills that schools enable students to learn, as literacy is a prerequisite for fully participating in society. The Non-Formal Education (NFE) Programme is considered as a success on promoting functional literacy among the illiterate people. Figure 71 presents the literacy rate derived from the GNH survey, 2010.

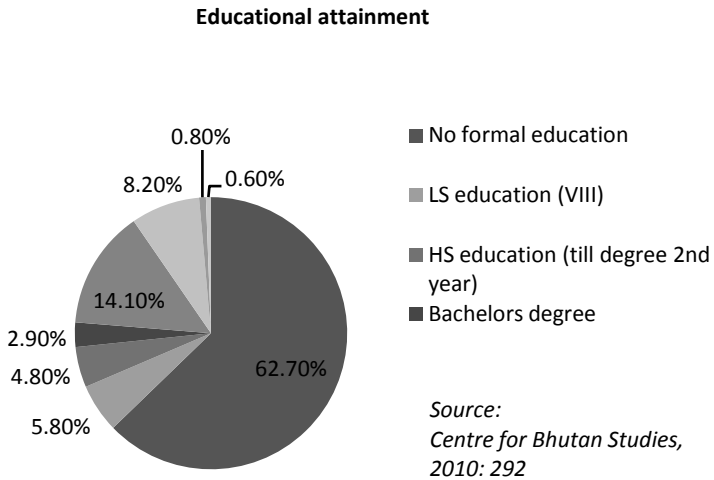
Figure 71: Survey-based literacy rate



Source:
Centre for Bhutan Studies,
2010: 285 and 287

A strong education forms the basis for many careers, be it in government, tourism or hydropower projects. The above data list the attainments according to the type of formal education (figure 72).

Figure 72: Survey-based educational attainment



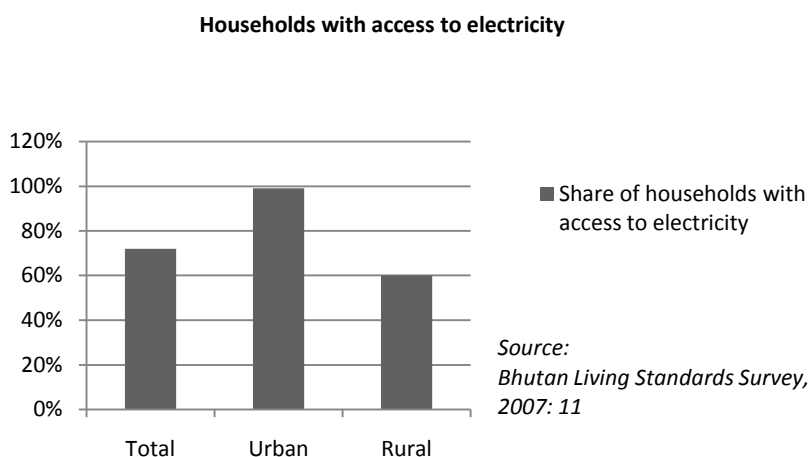
Source:
Centre for Bhutan Studies,
2010: 292

Built Capital

Intermediate Outcomes

Access to power is an essential condition to overcome poverty and allow a person to participate in many realms of life. The United Nations have recognised this need in their initiative Sustainable Energy for All.⁴ Figure 73 shows households' access to electricity (percentage).

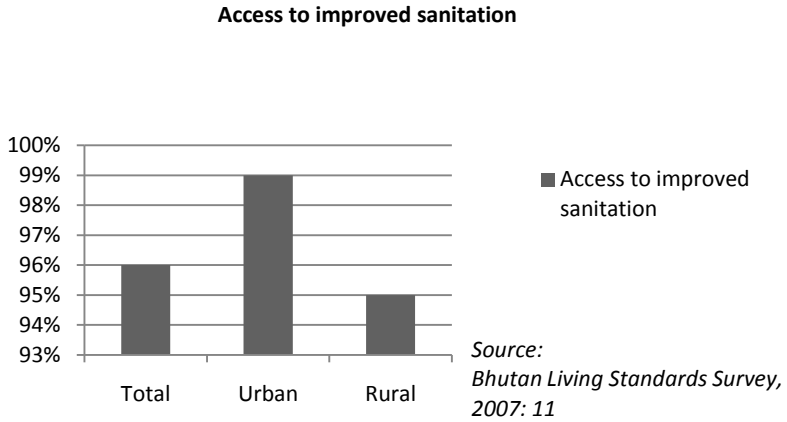
Figure 73: Share of households with access to power



Proper sanitary facilities play a crucial role in enabling personal hygiene. Access to improved sanitation is therefore important for health outcomes. Figure 74 gives the share of population with access to improved sanitation.

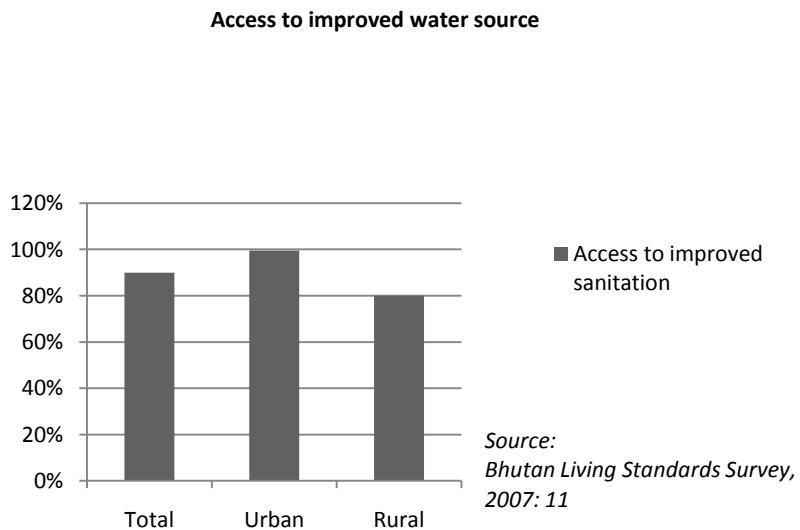
⁴Yet, these data contrast the Statistical Yearbook of Bhutan 2011 (SBY, 2011: 150). According to the SBY, 2011, total consumers of energy numbered 95,000 in 2009/10. This could be explained if only the head of the household was counted as consumer. Assuming 4.5 as average household size, the numbers would roughly match.

Figure 74: Share of population with access to improved sanitation



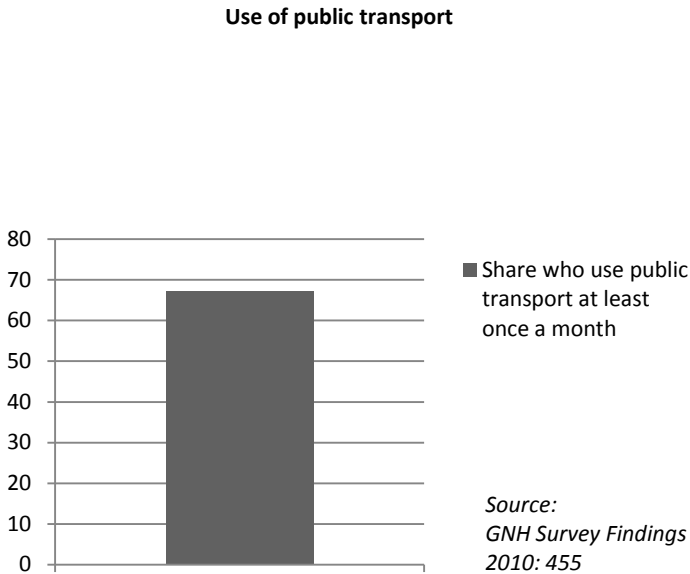
Water can transmit many diseases, causing health problems in the short and long run. Even though filtering of water and other treatments at home help to improve water quality, access to safe drinking water through an improved water source is essential. Bhutan has achieved high access to improved water sources according to the BLSS 2012 (figure 75). However, there are reported cases of water sources drying up and being not adequate for the household consumption.

Figure 75: Access to improved water source



The usage of public transport is an indirect measure for public transport infrastructure. Note, however, that public transport might include taxis which are widely used for travelling. Figure 76 presents the percentage of the Bhutanese population using public transport.

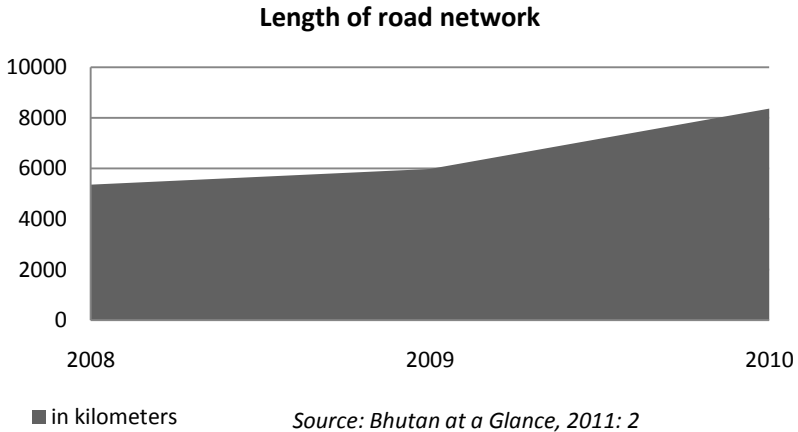
Figure 76: Use of public transport at least once a month (percentage)



Comprehensive Outcomes

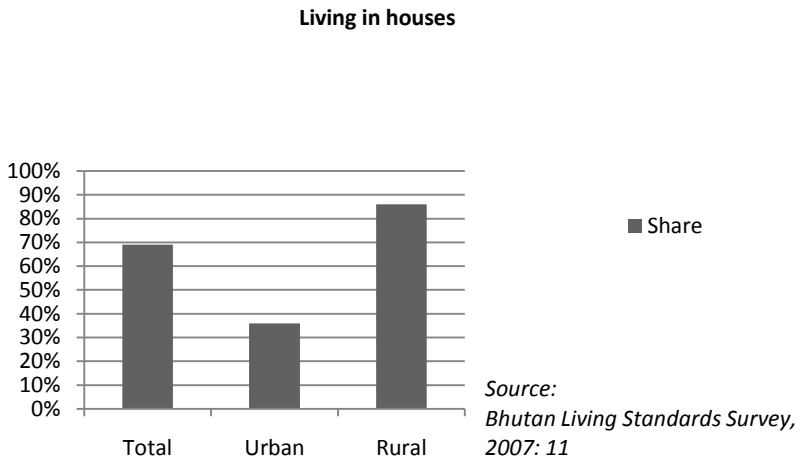
Roads are a crucial component of infrastructure. By satisfying mobility needs, decreasing travel times and connecting villages, roads provide the possibility to maintain social contacts over longer distances and are thus related to GNH. At the same time, the construction of a road to remote villages may affect old-age social and cultural practices, mainly community bonding unless some new programmes are initiated to maintain community networks and cooperative practices through schemes such as groups or associations. Figure 77 shows the increasing trend in the road network.

Figure 77: Length of the road network



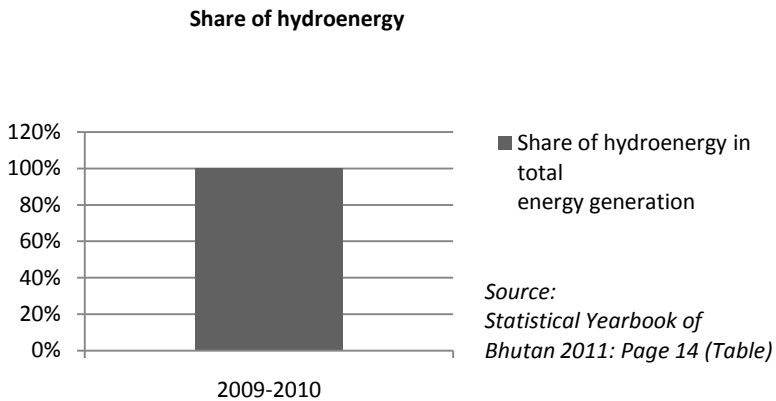
Appropriate housing forms part of both built capital and the socioeconomic development domain of GNH. About two thirds of the households in Bhutan own their dwellings. Variability, however, is huge: only one in five households in urban areas lives in their own dwelling (Bhutan Living Standards Survey 2007: 11, figure 78).

Figure 78: Type of dwelling



Bhutan's hydropower plants are the major contributors to GDP. As can be seen from the data for 2009-2010, they also ensured that 99.9% of Bhutan's electricity comes from renewable sources (figure 79). Bhutan reliance on renewable energy thus minimizes the conflict between the two pillars environment and socio-economic development.

Figure 79: Share of hydro-energy in total electricity generation



By observing the GNH States, the Bhutanese society can assess progress in the different dimensions of GNH. The information contained in this group of indicators observed will therefore trigger public debate, governmental action or reactions from civil society and the private sector. In a word, the GNH States provoke Bhutanese society to act on GNH in some way or another, leading to Societal Responses (b).

SOCIETAL REPONSES

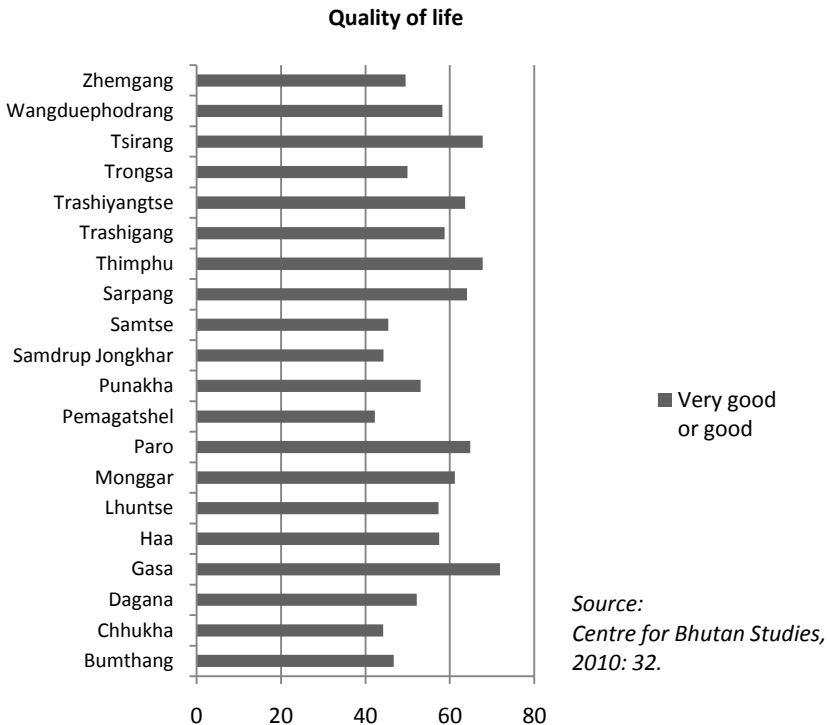
In contrast to the previous indicators, this section will provide a combination of a number of quantitative indicators and a verbal summary of two reactions towards GNH that have been put forward by members of Bhutanese society. This is due to a lack of quantitative indicators.

Bhutanese society

Quantitative indicators

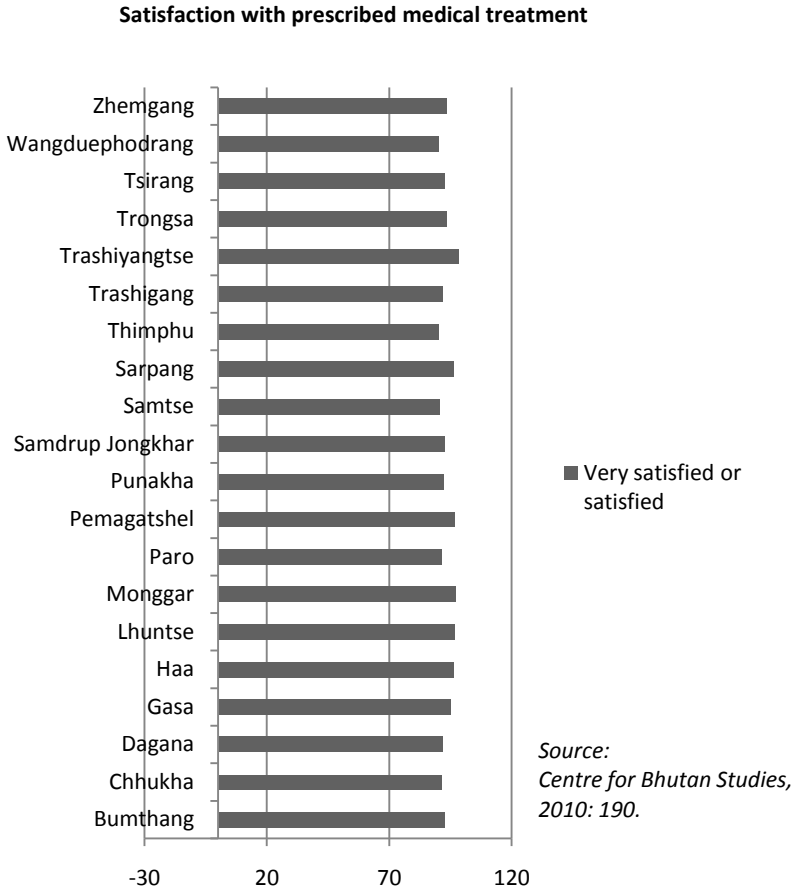
As argued above, quantitative indicators on the Societal Responses are hard to find. The following indicators, all of which are taken from the Gross National Happiness Survey 2010, can be seen as representing the stance of Bhutanese society towards both the government and how the government implements GNH. Figure 80 gives the quality of life (expressed in terms of whether a survey respondent perceives his or her life as good or bad), disaggregated by *dzongkhags*. This indicator has the advantage of being available at the *dzongkhag* level, while capturing an essential part of GNH.

Figure 80: Quality of Life perceptions



Satisfaction with the prescribed medical treatment represents the health domain of GNH (figure 81).

Figure 81: People's rating of medical treatment



The indicators given in figure 82, 83 and 84 show the way the Bhutanese judge the elections and the performance of their Members of Parliament. They thus provide a glimpse of the opinion that Bhutanese hold about their political system.

Figure 82: People's judgement of election process

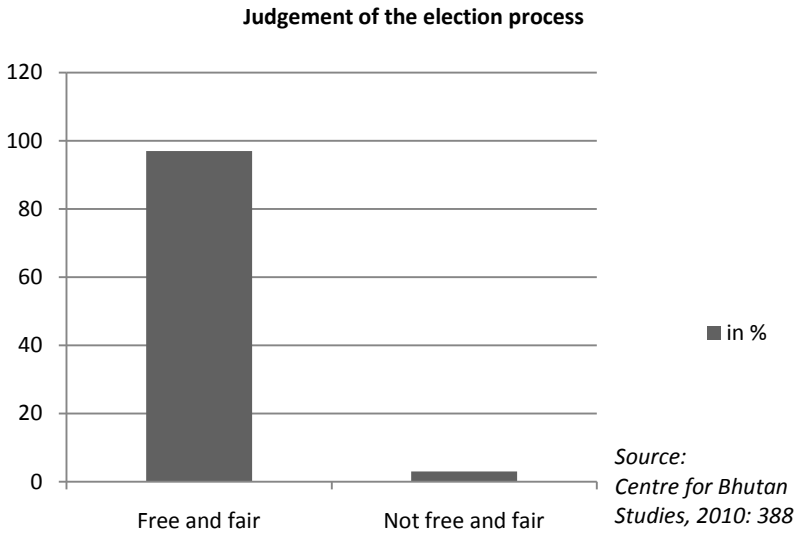
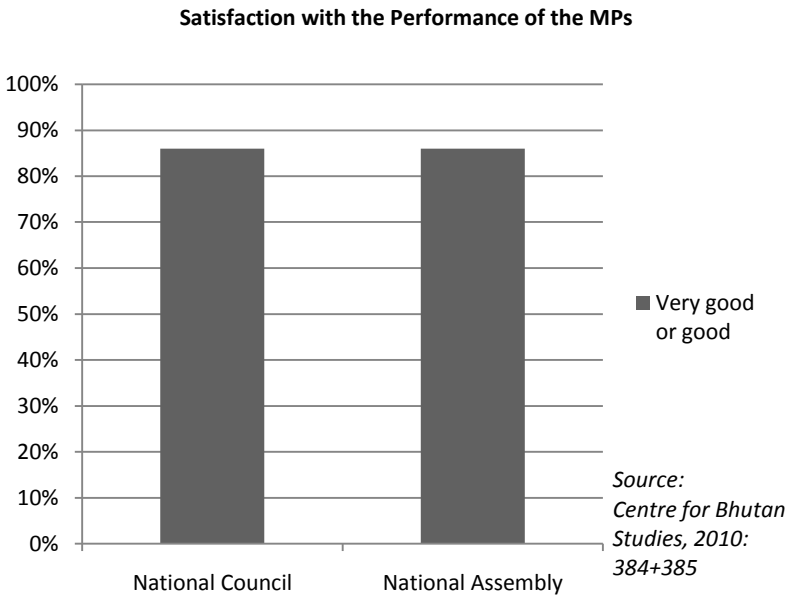


Figure 83: People's satisfaction with the performance of the MPs



TWO VOICES

This section will sketch a couple of tensions that have shown themselves to be of concern to members of Bhutanese society for implementing GNH in practice. The list is only an example, and by no means inclusive. These tensions include preservation of the environment and the livelihood of the poor, and the combination of material progress and spiritual well-being.

Environmental conservation is strongly anchored in the environmental pillar of GNH. Following this spirit, a large fraction of Bhutanese territory is protected as National Parks or Biological Corridor, while Bhutan's constitution mandates a forest cover of at least 60% of the total area. In addition, Bhutan has pledged to remain a net carbon sink (National Environment Commission, 2011: 7).

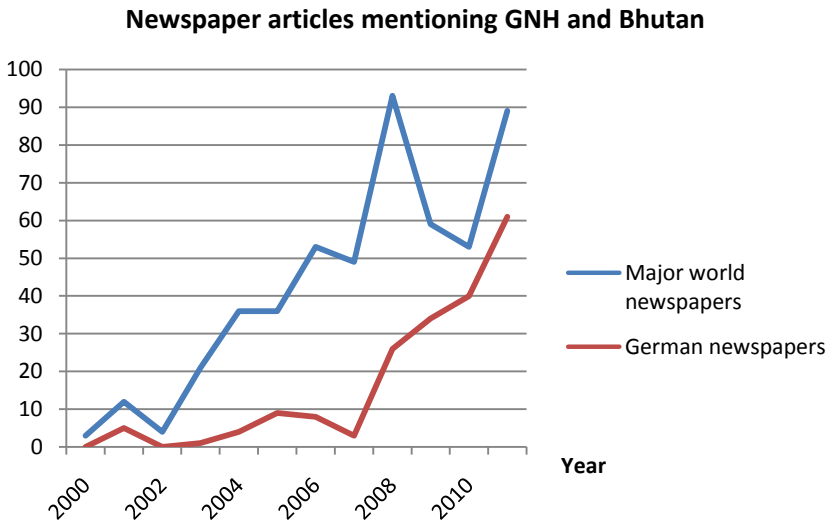
Even though such conservation success is generally admired, it entails the danger of being in tension with the socio-economic development pillar of GNH. This is in particular true for the livelihood of poor, rural Bhutanese who depend on subsistence farming. As one Bhutanese voice remarks, potential problems for farmers include insufficient protection from wildlife due to lack of fencing and a prohibition to kill a number of predators and insufficient compensation as well as increased food insecurity (Dorji Penjore, 2008:77f). While food insecurity is only an issue for a small minority of the population (Centre for Bhutan Studies, 2010: 488), human-wildlife conflicts have still been prevalent in 2012 and 13% of the Bhutanese own land that they do not cultivate due to wildlife threats (Centre for Bhutan Studies, 2010: 467).

As claimed by a further Bhutanese voice, material progress often comes at the expense of spiritual well-being (Tashi Zangmo, 2004: 630). In this case, the tension is between the pillars socio-economic development and culture. Luckily, there exist data that show the achievements for both material progress and indicators of spiritual well-being. As argued by the author, Bhutan is opting for a middle path of obtaining both material progress and spiritual well-being (Tashi Zangmo, 2004: 630). Taking mental distress as a proxy for spiritual well-being, this view is borne out by the data: Less than 14% of Bhutanese suffer from mental distress of some sort (Centre for Bhutan Studies, 2010: 51). At the same time, socio-economic development in Bhutan is fast; characterized by GDP growth rates well above 5% in recent years.

INTERNATIONAL INTEREST

On an international level the growing attention towards GNH can be captured quantitatively by its appearance in media. The following graph shows the number of newspaper articles that mention GNH and Bhutan per year, both for major world newspapers and for German newspapers⁵. While worldwide media attention peaked during the election year 2008, the trend shows an increasing interest in Bhutan and GNH (figure 84).

Figure 84: Bhutan's GNH on international newspapers



Source: LexisNexis

To obtain a clearer picture of the sources of this interest, the table below provides an analysis of search behaviour on Google. These data show that the biggest amount of Google searches on GNH come from Bhutan itself. Further, the data show that GNH is sought on the internet in most of the world's major languages.

⁵These data have kindly been provided by Tobias Pfaff.

"Gross National Happiness" sought on Google by <i>countries</i>	"Gross National Happiness" sought on Google by <i>languages</i>
Bhutan	Thai
Singapore	English
Philippines	Japanese
Australia	Chinese
Thailand	German
India	French
Canada	Spanish
United States	
Japan	
United Kingdom	
<p>Source: GoogleTrends, "Gross National Happiness", accessed Feb 21 2012</p>	
<p>Data Range: 2009 till date of access</p>	

REFERENCES

- Alesina, Alberto and Roberto Perotti (1996): “Income distribution, political instability, and investment”, *European Economic Review* 40(6): 1203-1228.
- Brahm, Laurence J. (2009): *The Anti-Globalization Breakfast Club: Manifesto for a Peaceful Revolution*, Singapore: John Wiley & Sons.
- CBS - Centre for Bhutan Studies (2010): *GNH Survey Findings 2010*. Available online at www.grossnationalhappiness.com (accessed January 2012).
- CIA – Central Intelligence Agency (2012): The World Factbook: *Population Growth Rate*. <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2002rank.html?countryName=Bhutan&countryCode=bt®ionCode=sas&rank=100#bt> (accessed February 23 2012)
- CIA – Central Intelligence Agency (2012): The World Factbook: *Life Expectancy at Birth*. <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html> (accessed February 24 2012)
- Dasho Karma Ura (2008): “An Approach to the Indicators of GNH”, presented on 31 July 2008 in Jakarta, Indonesia in the Regional Conference “Revitalizing Primary Health Care”, World Health Organization.
- Dorji Penjore (2008): “Is Environmental Conservation Success a Rural Failure?” In: Centre for Bhutan Studies (ed.): *Towards Global Transformation*, Proceedings of the Third International Conference on Gross National Happiness, Thimphu: Centre for Bhutan Studies.
- EEA - European Environment Agency (1999): “Environmental indicators: typology and overview”, *Technical Report No 25*. Available online at <http://www.eea.europa.eu/publications/TEC25> (accessed February 2012).
- Global Footprint Network (2012): *National Footprint Accounts, 2011 Edition*. Available on demand through www.footprintnetwork.org.

Guiso, Luigi; Paola Sapienza and Luigi Zingales (2006): “Does Culture Affect Economic Outcomes?” *Journal of Economic Perspectives* 20(2): 23-48.

Kubiszewski, Ida; Robert Costanza; Lham Dorji; Philip Thoennes, and Kuenga Tshering (2012): “An Initial Estimate of the Value of Ecosystem Services in Bhutan”, Working Paper.

Layard, R. (2005): *Happiness: Lessons from a New Science*, London: Penguin Press.

Lham Dorji and Tashi Choden (2005): *Understanding Civil Society in Bhutan*, Thimphu: Centre for Bhutan Studies.

Lham Dorji (2008): *Wangchuck Dynasty-100 Years of Enlightened Monarchy*, Thimphu: Centre for Bhutan Studies.

Lham Dorji (2012): *Alcohol Use and Abuse in Bhutan*, Thimphu: National Statistics Bureau, Monograph No. 1.

Lham Dorji, Cheda Jamtsho, Sonam Gyeltshen and Cheku Dorji (2013): *Bhutan's Case-Social Capital, Household Welfare and Happiness*, Thimphu: National Statistics Bureau.

Mancall, Mark (2004): “Gross National Happiness and Development: An Essay”. *In*: Karma Ura and Karma Galay (eds.): *Gross National Happiness and Development*, Proceedings of the First International Seminar on the Operationalization of Gross National Happiness, Thimphu: Centre for Bhutan Studies.

Ministry of Information and Communications (2008): *Bhutan Media Impact Study 2008*, Thimphu: Royal Government of Bhutan.

National Environment Commission (2011): *Second National Communication to the UNFCCC*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2007): *Bhutan Living Standard Survey 2007*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2011): *Bhutan at a Glance 2011*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2009): *National Accounts 2000-2008*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2011): *National Accounts 2010*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2012): *National Accounts 2011*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2007): *Poverty Analysis Report 2007*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2008): *Quarterly Consumer Price Index Bulletin - 1st Qtr. 2008*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2008): *Quarterly Consumer Price Index Bulletin – 2nd Qtr. 2008*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2008): *Quarterly Consumer Price Index Bulletin – 3rd Qtr. 2008*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2008): *Quarterly Consumer Price Index Bulletin – 4th Qtr. 2008*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2011): *Quarterly Consumer Price Index Bulletin - 1st Qtr. 2011*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2011): *Quarterly Consumer Price Index Bulletin – 2nd Qtr. 2011*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2011): *Quarterly Consumer Price Index Bulletin – 3rd Qtr. 2011*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2011): *Quarterly Consumer Price Index Bulletin – 4th Qtr. 2011*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2005): *Statistical Yearbook of Bhutan 2005*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2007): *Statistical Yearbook of Bhutan 2007*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2010): *Statistical Yearbook of Bhutan 2010*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2011): *Statistical Yearbook of Bhutan 2011*, Thimphu: Royal Government of Bhutan.

National Statistics Bureau (2005): *Factsheet. Population & Housing Census of Bhutan – 2005*, Thimphu: Royal Government of Bhutan.

OECD – Organisation for Economic Co-operation and Development (2011): *Society at a Glance 2011: OECD Social Indicators*, Paris: OECD Publishing.

Tashi Zangmo (2004): “Literacy for All”. In: Karma Ura and Karma Galay (eds.): *Gross National Happiness and Development*, Proceedings of the First International Seminar on the Operationalization of Gross National Happiness, Thimphu: Centre for Bhutan Studies.

Thimphu Municipal Corporation Census (2000)
<http://www.dudh.gov.bt/Thimphustructural/Index.html>

Transparency International (2011): *Corruption Perceptions Index 2011*.

UNDP – United Nations Development Programme (2011): *Human Development Report 2011*, New York: Palgrave Macmillan.

UNDP – United Nations Development Programme (2011): “International Human Development Indicators – UNDP: Bhutan”, hdrstats.undp.org/en/countries/profiles/BTN_print.html (accessed January 26 2012).

Woolcock, Michael (2002). Social capital in Theory and Practice: Where Do We Stand . In S. R. Cheltenham, *Social Capital and Economic Development: Well-being in Developing Countries*. UK: Edward Elgar.