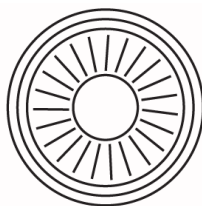


A COMPASS TOWARDS A JUST AND HARMONIOUS SOCIETY

2015 GNH Survey Report



དཔལ་འབྱུག་ཞིབ་འཇུག་ཁྲེ་བ།

Centre for Bhutan Studies &
GNH Research

A Compass Towards a Just and Harmonious Society
2015 GNH Survey Report:

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First published 2016

ISBN 978-99936-14-86-9



དཔལ་འབྲུག་ནིབ་འཇུག་ལྗེ་བ།

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His Majesty the King Jigme Khesar Namgyel Wangchuck and
Her Majesty the Queen Gyaltsuen Jetsun Pema Wangchuck



His Royal Highness the Gyalsey, Jigme Namgyel Wangchuck

Foreword

[W]e all know that our country belongs to a stream of civilization where the explicit purpose of the government is to create enabling conditions for our citizens to pursue happiness. Gross National Happiness or GNH is most important for Bhutan mainly because:

- a. His Majesty the Fourth Druk Gyalpo has gifted Gross National Happiness to His people,
- b. Gross National Happiness is more holistic and important than Gross National Product,
- c. Gross National Happiness is development with values,
- d. The end objective of GNH is to ensure that we have a just, equal and harmonious society, and
- e. Our sacred Constitution stipulates “*The State shall strive to promote those conditions that will enable the pursuit of Gross National Happiness.*”

So, for us, it is more important to know the situation of GNH....The Centre for Bhutan Studies and GNH Research has conducted the GNH survey last year between January and May. A total of 7,153 Bhutanese were interviewed with a response rate of 81%. The interview covered both rural and urban residents, men and women, youth and elderly, farmers, civil servants, businessmen, students, LG members, armed forces personnel and monks...

The survey studied nine different domains that contribute to a person's happiness. ..

- a. *Living standards* – material comforts measured by income, financial security, housing, asset ownership.
- b. *Health* – both physical and mental health.
- c. *Education* – types of knowledge, values and skills.
- d. *Good governance* – how people perceive government functions.
- e. *Ecological diversity and resilience* – peoples' perception on environment.
- f. *Time use* – how much time is spent on work, non-work, sleep; work-life balance.
- g. *Psychological wellbeing* – quality of life, life satisfaction and spirituality.
- h. *Cultural diversity and resilience* – strength of cultural traditions and festivals.
- i. *Community vitality* – relationships and interaction within

community, social cohesion and volunteerism.

The 2015 GNH index shows that on the scale of zero to one measurement, the happiness of our people has increased from 0.743 in 2010 to 0.756 in 2015. That is, 1.8% overall increase.

- a. 91.2 % of people reported experiencing happiness, and
- b. 43.4% of people said that they are deeply happy.

But, the survey also generated some significant general findings and these include:

- a. *One*, our people are healthier.
- b. *Two*, educated people are happier compared to uneducated.
- c. *Three*, living standards have improved.
- d. *Four*, people living in urban areas are happier than those living in rural areas.
- e. *Five*, farmers are less happy than other professions.
- f. *Six*, men are happier than women.
- g. *Seven*, government services need to be improved.
- h. *Eight*, more needs to be done to strengthen our culture and traditions.
- i. *Nine*, people feel less responsible for conserving environment.

I would like to emphasize that it is important for the Government, Parliament, Local Governments, civil servants and civil society organizations to take the GNH survey results seriously. It is also equally important for the communities and, better still, all citizens to learn from the survey findings and improve our lives.

His Majesty the Fourth Druk Gyalpo has gifted us the GNH and rest of the world admires it. It is important for us to practice GNH at home. Therefore, we must take the findings seriously.

Honorable Prime Minister of Bhutan. THE STATE OF THE NATION;
SEVENTH SESSION OF THE SECOND PARLIAMENT OF BHUTAN
5 JULY 2016

Acknowledgements

This report provides findings of the 2015 GNH Survey conducted between January and May 2015. The Survey was funded by the Royal Government of Bhutan (RGoB) and Japan International Cooperation Agency (JICA).

Special thanks to CBS researchers, namely Chhimi Dem, Kuenzang Lhadon, Tshering Phuntsho, Sangay Chopel, Sangay Thinley, Pema Thinley, Melam Choezang, Bhim Bahadur Poudyel, Dawa Zangmo Tamang, Tila Maya Sharma, Jigme Thinley, Jigme Phuntsho, Passang Lhamo Dukpa, Tashi Tshering, Ngawang Lhamo, Yangrey Lhamo, and Tsheten Dorji for supervising and facilitating the field work. We are grateful to Sonam Dorji for designing data entry forms and facilitating data entry works. We deeply acknowledge the 66 enumerators who worked hard to undertake the long interviews and ensuring quality data collection and entry.

We would like to thank National Statistics Bureau (NSB) for their assistance in providing listings and developing sampling frame for the survey. Our appreciation also goes to the JICA's technical team, namely Yoshi Takahashi and Shunsuke Tanabe, for their support on sampling procedures. Besides, the report benefitted much from the comments and suggestions from Yoshi Takahashi and Yukiko Uchida.

We thank Sabina Alkire, Director of Oxford Poverty and Human Development Initiative (OPHI), who helped immensely in writing the chapter on GNH Index.

Furthermore, we appreciate the support given by all Dzongdags, Drungpas, Gups, Tshogpas, Chuepoens and other officials of the twenty Dzongkhags. Thanks are also due to all the individuals whom we interviewed.

We would like to thank the World Bank Country Office, Bhutan, for lending their tablets to conduct field survey using Computer Assisted Personal Interview (CAPI). In particular, we thank Michael Wild for his invaluable technical support in designing questionnaire forms for the CAPI.

Executive Summary

Since the foundation of Bhutan, spirituality and compassion have been integrated with governance. Furthermore, this integration has occurred at both the personal and the institutional level. This report opens by tracing the history of this imaginative integration, which was crystallized by His Majesty the Fourth King into the idea of GNH. As Bhutan has developed and encounters with other societies expanded, the spirituality of compassion that earlier was embedded in civil servants' via personal practice has been made more explicit, more articulate and uses modern technologies. One expression of this is the development of the GNH Index, which opens a wider angle onto people's lives. Survey data are used to provides information on all of these relevant areas. And the GNH Survey and Index are used to clarify areas in which the conditions for happiness exist and those where public action is required to establish the conditions of happiness. As the GNH research of the Centre for Bhutan Studies is designed to inform action, the first chapter also describes the associated policy and programme screening tools as well as other actions by which GNH has been advanced.

The remainder of this report presents the findings of the 2015 Gross National Happiness (GNH) Survey, which collected information from across Bhutan on many aspects of Bhutanese people's lives that relate to wellbeing measurement and analysis. The Survey was used to construct the 2015 GNH Index, and to compare levels and the composition of GNH across groups, and across the period 2010-2015.

The GNH Survey and the GNH Index created from it are designed to guide actions to advance GNH across Bhutan This report, called *A Compass Towards a Just and Harmonious Society*, presents the detailed findings from the survey for use by both experts and the general public. It also gives strong guidance for action in public policy, by the private sector, and among civil society organisations.

GNH At-a-glance

To view GNH in Bhutan at-a-glance, we use the GNH Index. The GNH Index explores each persons' life in nine domains: (1) psychological wellbeing, (2) health, (3) education, (4) time use, (5) cultural diversity

and resilience, (6) good governance, (7) community vitality, (8) ecological diversity and resilience, and lastly (9) living standards.

As the Honorable Prime Minister explained the GNH Index, “When we look one by one at how citizens in Bhutan are faring on these nine domains, we catch a glimpse of their wellbeing. Looking at individual portraits for thousands of Bhutanese provides a snapshot of how our quality of life is, and how it is changing, for better or worse. Its simplicity makes it a highly effective communication and evaluation tool” (Tobgay 2015).

So what does the 2015 GNH index tell us? If we consider four groups of Bhutanese according to their level of GNH, 43.4% of Bhutanese are deeply or extensively happy, with 91.2% enjoying sufficiency in at least 50% of the GNH domains.

2015 GNH Index	Percentage of people who are
Deeply Happy	8.4%
Extensively Happy	35.0%
Narrowly Happy	47.9%
Unhappy	8.8%

GNH is not driven by any one factor, nor does it apply only to one region, one age, one language group, or one occupation. Yet it does affect groups differently. Across different groups within Bhutan,

- o Men tend to be happier than women
- o Urban residents tend to be happier than rural
- o More educated people tend to be happier

And across districts, GNH was highest in Gasa, Bumthang, Thimphu, and Paro, and lowest in Dagana, Mongar, Tashi Yangtse, and Trongsa.

The GNH Index grew significantly 2010-2015 – from 0.743 to 0.756, showing across the 9 domains of GNH, overall people’s lives are getting better.

What created this growth in GNH? Material well-being increased strongly – income, housing, assets. Also, a massive 20% of Bhutanese saw increases in their access to services: electricity, clean water, hygienic waste disposal, and health care. The health condition of many

improved as did participation in cultural festivals. So there are multiple improvements in our citizen's homes and lives – which is not the case for all fast-growing economies like Bhutan. Yet at the same time all psychological well-being indicators (spirituality, positive and negative emotions, satisfaction) decreased significantly as did many people's sense of 'belonging' and the etiquette of courtesy known as *Driglam Namzha*.

Priorities for Action and Engagement

By aiming to make Bhutan more just, and more harmonious, the 2015 GNH study identifies priorities for action and engagement, including the following:

Farmers: Among different occupational groups, one of the biggest groups – farmers – appear to be the least happy by GNH in both 2010 and 2015. This is a finding that must be taken seriously, and that requires a policy response to prioritise farmer's needs across domains of GNH.

Youth: The GNH levels among youth are lower than other age groups, and changes are evident. For example, in 2010, nearly 80% of youth aged 15-25 thought that lying could never be justified, but this had plummeted to about 60% of youth by 2015. The youth need to be engaged and energised to value GNH and make it their own priority.

Psychological well-being: Surprisingly, achievements in each indicator decreased significantly. In 2010, 59% of Bhutanese reported having positive emotions such as calmness, compassion, forgiveness, contentment and generosity a few times a week; by 2015 this had fallen to 51%. Negative emotions like anger, fear, worry, selfishness and jealousy increased. In 2010 35% of people struggled hard against negative emotions; in 2015 this had risen to 45%, which means one in 10 Bhutanese are struggling with negative emotions now who had not in 2010. That is sobering, particularly because negative emotions are more prevalent among school students and unemployed people. And fewer people now consider themselves to be very spiritual.

Education: Formal education is rising. For example, whereas in 2010, 11% of the youth aged 15-20 were illiterate, in 2015 it was only 5%. Yet the implications of GNH permeates all subjects of study and the process of studying itself embeds it into the youth, so GNH must be embraced by teachers, profiled in the teacher training institutions and reflected in the national curriculum. Values education would ground children and youth in knowledge of Bhutanese culture, spirituality, traditions, natural environment, politics and values. The Monastic Body could work with the Ministry of Education on appropriate ways to advance values education, so children learn mindfulness and emotional intelligence. This is no easy matter but its fundamental importance and recent decrease necessitates a response.

Political Engagement: After the honeymoon of democracy, perceptions of government performance fell despite strong government performance in service delivery, showing the importance of strengthening the courtesy and meaningfulness of political exchange so as to engage and motivate citizens across the country.

Rural-urban Migration: Improving conditions in rural areas is a fundamental priority. Doing so will also stem migration from rural to urban areas, that results in social dislocation and a decrease in 'belongingness'. It could improve employment, as rural areas experience labour shortages and urban areas, unemployment.

New challenges: Given the rapid changes in Bhutan as well as rural-urban migration, key new services and behaviours are required – for example relating to solid waste disposal or public transportation, among others.

Zooming in: The happiest and the deeply happy:

Policy actions are key but it is also useful to have a human sense of the kinds of insights arising from the survey. What is interesting is to see the diversity of ways in which Bhutanese create happiness. Let us consider the happiest 5 persons who were interviewed in 2015. They are male and female; they are 17 to 47 years in age, married and divorced. They include two farmers, two GYT/DYT members and a

civil servant.¹ Their primary languages are Dzongkha (for two persons) English, Nepali, and Bumthap. They have 6 to 10 years of schooling, and their self-reported happiness scores range from 7 to 10. Interestingly, they are all rural dwellers. Indeed, of the happiest 20 persons in Bhutan, 15 are also rural dwellers – which is a fascinating finding given that overall rural GNH is lower than urban.

Still, even the lives of these 'deeply' happy persons are not perfect. For example, the civil servant regrets she does not have the extent of positive emotions she would like; her self-reported health is not ideal, and she feels *Driglam Namzha* is not terribly important. A farmer struggles with negative emotions like anger, didn't know some key facts about the constitution, felt that government was not fulfilling its role, and lives in a substandard house. A local government official does not have enough income, does not feel rights are respected, and is discouraged about *Driglam Namzha*. And another farmer is tremendously happy yet has low self-reported health, and sleeps too little.

Moving to the group of people who are 'deeply happy' – who experience sufficiency in 77% or more of the domains, we find that 61.5% of them live in rural areas, that 58% are men, that they vary from 15 to 83 years of age. 83% are Buddhist and the remainder are Hindu – which mirrors the proportion of each group in the population at large. Also, life need not be perfect for a person to be deeply happy. 13.4% of the deeply happy people are illiterate.

The 2015 GNH report that follows contains many vital and important pieces of information – related to the history and practice of GNH in Bhutan, to the design of the 2015 GNH Survey, as well as to the specific details of each and every indicator as covered in the survey – many of which form part of the GNH Index, and a number of which add fascinating further information to that analysis. There is also a special study on inter-linkages across indicators and on how western measures of subjective happiness perform differently from GNH. Students,

¹ Why, you might rightly ask, don't Bhutan's monks and nuns feature among the happiest five? The 2015 GNH survey unfortunately could not cover monks and nuns who live in monasteries. We look forward to a time in which the GNH survey includes these communities also.

policy makers, private sector leaders, local and national government actors, civil society organisations and others are encouraged to dig into and enjoy the deep seams of insight from the GNH survey. May they find from the 2015 GNH survey, information that can be harnessed to advance GNH with imagination and creativity from their own situation.

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Acronyms

BDBL	Bhutan Development Bank Limited
BHU	Basic Health Unit
BLSS	Bhutan Living Standards Survey
CAPI	Computer Assisted Personal Interview
CBS	Centre for Bhutan Studies & GNH Research
CGI	Corrugated Galvanised Iron
FYP	Five-Year Plan
GHQ	General Health Questionnaire
GNH	Gross National Happiness
JICA	Japan International Cooperation Agency
LPG	Liquid Petroleum Gas
MoWHS	Ministry of Works and Human Settlement
NPPF	National Pension and Provident Fund
NSB	National Statistics Bureau
OECD	Organisation for Economic Co-operation and Development
PHCB	Population and Housing Census of Bhutan
PSU	Primary Sampling Unit
SSU	Secondary Sampling Unit
USU	Ultimate Sampling Unit

Introduction²

"If the government cannot create happiness for its people, then there is no purpose for government to exist." - Legal code of Bhutan (1729)

"Gross National Happiness is more important than Gross Domestic Product." - His Majesty Jigme Singye Wangchuck, the Fourth King of Bhutan

"Gross National Happiness measures the quality of a country in more holistic way and believes that the beneficial development of human society takes place when material and spiritual development occurs side by side to complement and reinforce each other." - His Majesty Jigme Khesar Namgyel Wangchuck, the Fifth King of Bhutan

Bhutan belongs to a stream of civilization where the explicit purpose of the government is to create happiness among its citizens. This purpose is clearly mentioned in the biography of the 13th *Druk Desi* Sherab Wangchuk (1697-1765, reign 1744-1763), a civilian ruler of Bhutan, though it is not the only old source where we find it. He quotes the intention of the founder of Bhutan in the legal code of 1729, which is a kind of short constitution of medieval Bhutan. There is a passage in the legal code that says unequivocally that if the government cannot create happiness and peace for its people, then there is no purpose for government to exist.

The Constitution of the Kingdom of Bhutan promulgated in 2008 by His Majesty the King Jigme Khesar Namgyel Wangchuck echoes a highly progressive, indeed postmodern, purpose of the State. It says: "The State shall strive to promote those conditions that will enable the pursuit of Gross National Happiness." And, "The Government shall protect and strengthen the sovereignty of the Kingdom, provide good governance, and ensure peace, security, well-being and happiness of the people."

To continue with the code of 1729, it then goes into other means of fostering happiness, such as the need to curb the consumption of

² The first four sections under this chapter is taken out from Provisional Findings of 2015 GNH Survey, published in November 2015

resources by officials of the state. This is not an insignificant point because an overwhelming portion of revenue of the government can be consumed by the bureaucracy and state enterprises, allegedly to provide goods and services for the people, or gets inefficiently used. In modern jargon, we call such expenditure budget.

The key passage in the legal code of 1729 can be interpreted to suggest that the resources of the state should be designed to promote wellbeing and happiness. This passage prompts reflection on the budgets of various governments around the world. They need to be designed to promote wellbeing and happiness.

The main mechanism for sustaining the happiness of the people in medieval Bhutan was to maintain a Buddhist outlook on life. In other words, the enlightenment education system of Buddhist polity became an important instrument. A discussion about such an enlightenment education system would lead us into a detailed discussion of a different kind. But it is important to press the thrust of this simple point on the reader's attention. Education systems should impart values and practices that equip individuals to know enough about wellbeing and happiness.

In any case, education to create enlightened individuals has been a leading concern for most of the history in the Himalayas. This concern now knocks against education to develop civics and market competencies so that one becomes a good citizen in a narrow sense and has the requisite skills to find jobs in highly unstable economies. Economies are unstable because the markets, both abroad and domestic, expand and contract.

Markets are volatile for several reasons. Products are changing in quality and the locations of their production move around the world looking for cheaper costs of production. Such flux in economies is reflected in the compulsion to update the content of education aimed at renewing competencies and overcoming competition in the market place.

The quality of products changes due to innovations, some of which are excellent while others appeal to the artificial needs of human beings. The distinction between artificial and authentic needs is largely dependent on the psychological stability of the consumers. If the consumers are unable to develop any consistency and stability in their

psychology over time, no consumer good would be seen as good enough for long enough. The inner stability of the people was a major field of traditional education.

As mentioned a while ago, the purpose of the medieval government of Bhutan was to promote happiness and wellbeing. The founder of Bhutan, the precious Zhabdrung Ngawang Namgyel (1594-1651) and his heirs stated that government and politics couldn't be separated from spirituality in a broader sense. Yet in current times, the idea of a government that practices spirituality sounds rather vague.

What is spirituality? Ultimately, spirituality can be defined as compassion, an attitude that takes into consideration the wellbeing of sentient beings, which includes of course, other people. Understood in this general way, a convergence between politics and spirituality cannot be controversial if spirituality is at the heart of governance. It rules out any major policies, any laws, any programs that are not consistent with compassion and concern for others.

Spirituality does not necessarily mean following a particular religion or a particular school of religion as a whole. It does not exclude plural identities. In the context of Buddhism and any of its schools, the indispensable core of spirituality is cultivation and manifestation of compassion. It is said that anyone who claims that there is a route to enlightenment without practicing compassion is lying outright.

The convergence of government and spirituality was a serious departure in both philosophical and political discourse that started on a wider basis in Tibet during Emperor Trisong Detsen's reign (755-793). Guru Rinpoche, Trisong Detsen (742-797) and Shanta Rakshita (705-762) introduced Mahayana Buddhism into the governance system of Tibet. So from the eighth century onwards in Tibet, the idea that government and spirituality must converge took hold. The rulers of Bhutan around that time in the eighth century, known to us through writings, were Sindharaza in Bumthang; Hamray in Kurulung (Kurtog) region and Marapai of Kubrag near Nabji. Not only Trisong Detsen, but Sindharaza also received similar teachings about framing governance and politics by Buddhist thoughts from Guru Rinpoche who first visited Bhutan before he was invited to Tibet. Khando Yeshey Tshogyal (777-837), who lived, meditated, and taught in Bhutan reinforced such ideas in her teachings that reverberated in ancient Bhutan and Tibet.

The idea that spirituality and governance should be integrated is an old but perhaps still relevant idea. The poetry of the national anthem of Bhutan resonates the melding of spirituality and politics: “May the teachings of the Enlightened One flourish / May the sun of peace and happiness shine over all people.”

In the Constitution of the Kingdom of Bhutan promulgated in 2008, the concepts of rights and freedoms sit side by side with compassion and spirituality. It postulates: “Buddhism is the spiritual heritage of Bhutan, which promotes the principles and values of peace, non-violence, compassion and tolerance.” It further enjoins: “The State shall strive to create conditions that will enable the true and sustainable development of a good and compassionate society rooted in Buddhist ethos and universal human values.” Rights and freedom overlap with spirituality of compassion to a certain degree. But the spirituality of compassion generates direct responsibility for others' wellbeing and happiness that rights and freedom sometimes do not clearly do.

The Fourth King and the Beginning of GNH

This section sketches the social and political settings in which GNH came about in the late 1970s in Bhutan, although the ideas of happiness as a purpose of the State was present several centuries earlier. When modernization was stepped up in the 1970s, the Fourth King began to make repeatedly certain public pronouncements about happiness and wellbeing.

In those days, he had not coined the exact word GNH – or the precise Dzongkha equivalent *Gyalyong Gaki Pelzom*. He just spoke about happiness and contentment, using the Dzongkha phrase *gatogtog* and *kitogtog*. These words occur resoundingly in all official documents and speeches of His Majesty. However, by 1979, he was speaking about GNH in this particular phrase not only to Bhutanese but also to journalists. A young Indian diplomat recollected clearly His Majesty speaking about GNH to journalists at Santa Cruz Airport in Bombay on September 9, 1979 on his way back from the Non-Aligned Summit in Havana.

His Majesty observed in the 1970s that many nations had modernised successfully, to be termed developed. But it was also the beginning of his sharper perception that the process of conventional development

often overlooked a universal desire that people had - happiness and peace in their lives.

In the early stages of the economic development of a country, invoking new ideas about needs and their solutions in terms of development strategies launches transformation. In the early phase in Bhutan, the primary source of new ideas for creating the country's hard infrastructure of industry, agriculture, communications, roads, education and health as well as the soft infrastructure of fiscal, legal, social and financial institutions in the country were mostly external, given the lack of professionals from within the country.

As Bhutan opened up to the international organisations under the United Nations and bilateral development partners, more ideas about what to change and how to change poured in. By definition, these ideas from outside had a weaker anchor in the values and traditions of the country. As the expatriates advised on the new strategies for development, there had to be often constructive counterpoints to adjust their models in the light of local values and local knowledge. The seamless blend between the external and internal viewpoints remained latent, which means the people were not able to find a framework for integrating the two. That framework, when it did come out, took the form of GNH.

It was in a small way the birth of a new vocabulary of development, a slightly new discourse, that mobilised indigenous viewpoints on what development should be, and what purpose it should serve. The emergence of new discourse and frameworks succeeds more when they resonate with norms and values that people want to express collectively, within or abroad. This voice emerged because of His Majesty the Fourth King.

Today, it is not peculiar to speak critically about monolithic maximization of GDP, and the economic power associated with GDP, as the only goal or yardstick of progress. Measures of progress have been considerably broadened. But back in the 1970s, it was not so common. It was even rarer to bring to the fore that development planning should pay attention equally to community, culture, relationship, spirituality, psychological wellbeing, and harmony with environment. His Majesty did, through GNH.

As the years marched on, in the mid 1980s, several perceptive journalists began to pick up the notion of GNH and associate it with the enchanting Himalayan nation. In those days, there were two responses on the part of journalists intrigued by GNH: what is this fabulous country about? And what is this somewhat mysterious and cheerful idea known as GNH?

His Majesty's dictum that became a catchphrase, 'GNH is more important than GDP', was captured in an interview in 1986 in the Financial Times of London. In that interview, he said: "We are convinced that we must aim for contentment and happiness. Whether we take five years or 10 to raise the per capita income and increase prosperity is not going to guarantee that happiness, which includes political stability, social harmony, and the Bhutanese culture and way of life." It is clear that relying on GDP alone may not provide the environment for happiness and wellbeing; something beyond GDP would have to be addressed to be holistic. So His Majesty had in essence said at that time that he was interested not just in GDP but also beyond.

At home, during the Fourth King's reign, the implementation of GNH through government programs depended on people who were working almost subliminally, or unconsciously. There was neither doctrinal position to follow nor managerial formats like goals, strategies and indicators of GNH to be adhered. These were to come later. For a long time GNH was not institutionalised in any procedures, so it depended on people who had intuitively internalised it – and these were older, more traditional civil servants. It is arguable that intuitive internalisation is superior to bureaucratic institutionalisation.

The discussion about GNH in Bhutan and abroad resonated with attempts to find solutions to global problems related to unsustainability, climate change, inequality, poverty, environmental and biodiversity degradations. The unsustainable level of consumption and lifestyle added to the urgent search for any new paths of development.

The quest for a better economic system, in harmony with nature and other sentient beings, resurfaced around the world. The unequal world that faced human beings gave global leaders a longer pause for thought. Equity is an ingredient of happiness, particularly when people think of

their material standing in comparison to others, notwithstanding the fact that everyone may be becoming better off.

It was also noticed that not only poverty but prosperity has made people more harried, time-scarce and stressed, and miss the pleasures of slowness. Social scientists' observation of the poor correlation between life satisfaction and economic growth among a substantial section of the world was another new finding that echoed GNH. The assumption that the route to unshakable happiness solely lay in materialism might have been part of the problem for those who believed in this path. Within such global milieu of both problems and prospects, GNH travelled out further and became further enriched by dialogue and insights as it did.

As a result, Bhutan became no longer the only country to discuss happiness at the policy level. Conferences on wellbeing and happiness spontaneously sprang at an increasing rate around the world. Countless research papers have appeared on subjective wellbeing and other broader accounts of wellbeing and happiness. In October 2009, the 3rd OECD World Forum considered policies that focus on happiness instead of economic growth. In 2012, the UN declared March 20th the "International Day of Happiness". In April 2012, GNH as a new global economic paradigm was discussed on the sidelines of the UN General Assembly.

GNH as a Multidimensional Framework for Development Planning

GNH can be both a development philosophy as well as a personal ethos and can operate at those two levels. As a personal ethos or personal program for shaping one's life-journeys and realising wellbeing and happiness, GNH can be very helpful regardless of whether the government does or does not follow GNH policies. In our individual capacities, we can restructure our values and behaviour towards GNH to pursue wellbeing and happiness holistically; we can practice GNH independent of the government's stance.

However, individuals' behaviour and ethos, and the extent to which we can achieve wellbeing and happiness are substantially affected by a government's policies and legislations. A state frames so many aspects of people's lives; it can be GNH or some other principles that inform its development philosophy. The wider environment that is partly a result

of legislation, policies and programs, determines the likelihood of achieving them individually. So an individual has to have the necessary space to structure his or her life.

The idea of GNH, and its concrete measurement, would be of little wider interest if these remained as conceptual or statistical proposals, or simply a personal ethos program that is not integrated into policy. As a development philosophy, the framework of GNH has to be adopted by governments to a large extent. It should be reflected in State policies, legislation and in the programmes of a government in its various fields of operation, for instance in education, agriculture, trade, industries, manufacturing, services and cultural affairs. Then it can act on the structures impinging on personal life.

For GNH to be an effective framework of development the existing structures and processes of governments have to be increasingly reoriented. Accordingly, GNH became part of the official policy tools in Bhutan, affecting various institutional actors and policy levers in Bhutan. These institutional actors include the government, private sector, civil society organisations, and donors.

The government has attempted to bring convergence between five-year plans and GNH by incorporating targets of GNH indicators, along with other targets. The system of five-year plans that the Royal Government of Bhutan has had since 1961 endeavoured to ensure balanced development between various spheres of human flourishing. In a technical sense, the equilibrium that needs to be struck can be envisaged in terms of nine domains of GNH.

Since the 10th five-year plan (2008-2013), the plans have been explicitly framed using the GNH Index as one of the instruments for measuring development. The current, 11th plan used some 16 key baseline indicators, primarily to track changes in ecology, culture, socio-economy and good governance. Most of them were estimated from the GNH survey. The targets for achievement by the end of the plan in June 2018 are shown in the plan document along with the baseline. The plan document consists of programmes that can be differentiated and decomposed financially at two levels: (1) central level and (2) the local governments. The later consists of the 20 districts, which are further divided into 205 *gewogs* or counties.

For the functionaries of local government, i.e., districts and *gewogs*, a simple GNH checklist has been introduced, as part of a planning manual, to enable the communities to assess their programmes and projects. The GNH checklist is a device to guide the village level agents towards the integrated development envisioned in GNH. The Local Government Act 2009 lays down that the entities of local governments at the district and the *gewog* levels should promote the conditions for GNH similarly to the way that the Constitution prescribes in Article 9 for the state as a whole. The checklist helps them do that, although more analytic and administrative tools in districts and *gewogs* to guide them towards GNH outcomes remain to be developed.

The fields of governance and development discourse are subject to not only officialdom but to other internal and external bodies and citizens. The government may claim primacy in agency but actual outcomes are not entirely up to the government. Government together with other non-official bodies, rather than the government alone, influence the implementation and outcomes of GNH.

Among the foremost non-official actors are the rural farmers and the private or business sector. The business sector is a prominent force in shaping the country's direction. Business people are engaged in retailing, manufacturing, agro-industries, mining, hydroelectric construction, distribution and transporting, tourism, banking and insurance. Their activities do not fall under GNH to the same extent as official agencies.

The emergence of civil society organisations (CSOs) in significant numbers is another non-official factor that influences GNH. Each CSO, like each business, has its own priority. Thus how GNH can contribute to enhancing the new model of businesses and CSOs, and how businesses and CSOs can reinforce GNH, is an evolving dialogue. The CSO Act nominally requires them to recognise GNH.

Multilateral or bilateral donors generally lend support to Bhutan with regard to its GNH and the government priorities. Yet each donor also has its own mandated interests under which aid is approved, and a donor agency's interests are accommodated to some degree by Bhutan. With a few exceptions, Bhutan follows a national modality of execution of projects, which means that the Bhutanese government is responsible for implementing projects entirely. Yet project designs have to

accommodate donor perspectives, to a degree that will differ from donor to donor and may have different levels of coherence with GNH.

Bhutan's development has entered its 60th year and it is considered comparatively successful. Partly it is due to the concept of GNH, itself a product of an outstanding leader – His Majesty the Fourth King. The outcome in terms of GNH in totality depends on a wide range of actors some of whom are not within the sphere of official directives. What the government has within its scope is the five-year plans, though their implementation can succeed only with the cooperation of a wide range of external actors. The second lever the government has for GNH is its policies.

The GNH policy-screening tool is a decision-making tool. The general aim of GNH policy screening is to provide a systematic appraisal of the potential effects of proposed projects on the GNH of the population, based on expected impacts on key determinants of GNH. The endeavour is to select GNH-enhancing policies and projects and reject those that adversely affect key determinants of GNH. The many criteria of GNH policy screening acts as a checklist to acknowledge areas where potential effects are not known or are usually not considered.

As some of the criteria or checklists are of various types and beyond economic issues, the GNH policy-screening tool becomes a vehicle for a number of participants from a variety of backgrounds to work towards a consensus about project impacts. A heterogeneous group, comprised of qualified experts and professionals from different occupational backgrounds, assesses a draft policy under scrutiny.

Domains and Indicators of GNH

In order to foster measurement of a holistic range of GNH values, a domain-based framework has been adopted by the CBS. The framework contains nine constituent domains of GNH. They are: psychological wellbeing, health, time use and balance, education, cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience, and living standard.

It will be noticed from the breadth of domains that a good number of them, like balanced time use, psychological wellbeing, community vitality, and cultural diversity are fairly independent of income and material consumption. By using these, the definition and content of the

concept of wellbeing and happiness becomes multi-dimensional. Each of the nine domains are briefly explained below:

Psychological wellbeing: This domain attempts to understand how people experience the quality of their lives. It includes reflective cognitive evaluations such as life satisfaction, and affective reactions to life events such as positive and negative emotions. It also covers spirituality.

Health: This domain comprises of conditions of the human body and mind and thereby attempts to characterise health by including both physical and mental states. A healthy quality of life allows us to get through our daily activities without undue fatigue or physical stress.

Time use: This domain attempts to analyse the nature of time spent on work, non-work and sleep, and highlights the importance of maintaining a harmonious work-life balance.

Education: Besides incorporating formal and informal education, this domain also tries to assess different types of knowledge, values and skills, which are mostly acquired informally.

Cultural diversity and resilience: The culture domain looks at the diversity and strength of cultural traditions including festivals, norms, and the creative arts.

Community vitality: This domain attempts to focus on the strengths and weaknesses of relationships and interactions within communities. This domain gathers information on social cohesion among family members and neighbours, and on practices like volunteering.

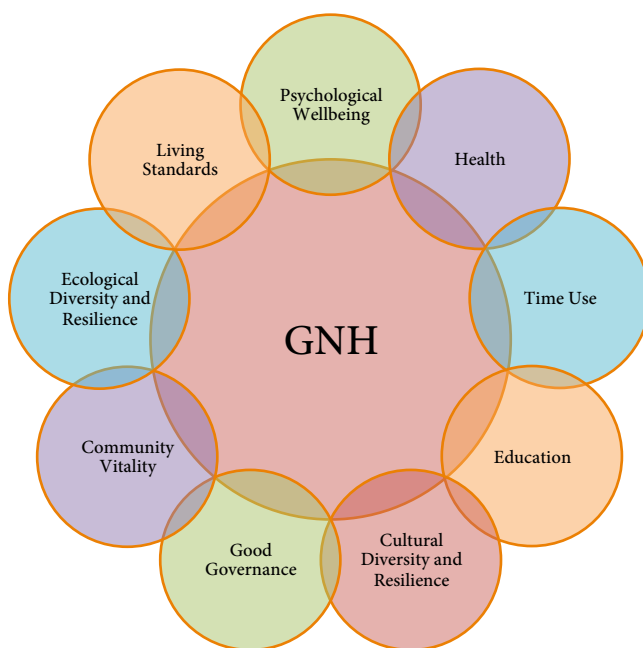
Good Governance: The domain of good governance evaluates how people perceive various governmental functions in terms of their efficacy, honesty and quality. Indicators help to evaluate the level of participation in government decisions at the local level and the presence of various rights and freedom.

Ecological diversity and resilience: This domain encompasses indicators that measure people's own evaluations of the environmental conditions of their neighbourhood and assess eco-friendly behaviour patterns. It also covers hazards such as forest fires and earthquakes.

Living standards: This domain refers to the level of material comfort as measured by income, conditions of financial security, housing and asset ownership.

Together, these domains attempt to paint a multi-coloured picture of wellbeing, incorporating a set of key constituents. These domains collectively provide the structure for the GNH Index and the means to track Bhutan's progress of wellbeing using the aforementioned policy tools.

Figure 1: The nine domains of GNH



GNH stresses a balance between the spiritual and the material (wealth), the objective and the subjective, the relational and the relative. In GNH, measures of both objective conditions and subjective experiences are included, for both of these must be simultaneously present for holistic progress to occur. The list of factors spread under various domains of GNH is rather extensive because GNH is a maximal concept, unlike, say, that of poverty, which measures minimum or essential conditions of survival.

What has been presented in the scheme of nine domains is an attempt to specify the most important factors or conditions that give rise to

happiness in the Bhutanese context. But most propositions should be equally applicable to other societies. As our Buddhist perspective holds, one can consider happiness as something that arises interdependently. That all things arise interdependently is a concept applicable to happiness.

Given that all things arise interdependently, the cause of happiness cannot be reduced to two or three primary things such as income, education, health or psychological well-being. Because of the diversity of human needs, people seek many conditions that often cannot be traded off against each other. They need a range of social, psychological, economic and cultural factors and only when most of these conditions are met at a sufficient level can they feel happy, rather spontaneously and in an unbidden way. If they obsessively, objectively and consciously look for it, the very object becomes elusive. But if all the factors are present, then it could arise interdependently.

Happiness is the outcome of various factors under each domain in balance and harmony. However, the relationship between these factors is not linear. How education levels affect our living standards, how time use is linked to psychological wellbeing are examples of inter-relationships between domains of GNH. Non-linear relationships can be difficult to decipher but people know about their existence in an intuitive way.

At the same time, in reality, what is most important is the inter-relationship between these domains rather than the domains themselves. The inter-relationship between these domains points to the profound interdependencies between various aspects of our life – and the lives of others. The structuring of values according to domains should be viewed merely as a heuristic device: it should not isolate domains into mutually exclusive spheres in practice.

The GNH Index was devised and updated since 2006 to measure key conditions of wellbeing that comprise physical and mental health, community vitality, work-life balance, living standards, civic engagement, and ecological integrity. These domains have remained consistent over time although some GNH indicators have improved as mentioned below.

The main reason for having GNH indicators is to track the status of happiness defined in a multi-dimensional sense over time, and to

compare the performance of one section of the population with others, or one part of the country with another. An additional purpose is to establish goals related to GNH and guide us towards measures to reach them. They encourage social and economic reconfigurations that are desirable from the perspective of GNH.

GNH research's key question is to figure out increasingly clear answers to three queries: What are components of happiness (or unhappiness) among different groups of population? Where are those who are strikingly happy (or unhappy)? Who are they? The answers are useful for both the government and the citizens.

Within the last 40 years, the touchstones of development have evolved significantly towards wellbeing and happiness. Thanks to His Majesty the Fourth King, Bhutan has contributed to distilling the swirling currents of debates into a clearer account and statistics on this theme. It seems a fairly long period to create this modest tilt in the angle of things. Yet it is not success in being able to change things that matters. It is changing the right things that ultimately matter. GNH is arguably a flash of a wholesome idea that illuminates the landscape.

Shanti Deva (translated by Stephan Bachelor) rightly pointed out: "All joy in this world comes from wanting others to be happy, and all suffering in this world comes from wanting only oneself to be happy." The cause of happiness in the world of Shanti Deva's thought is indeed societal, not self-centred. Happiness for all as a societal aim is GNH.

GNH Surveys

In pursuit of making the overarching philosophy of Gross National Happiness a practical reality in planning and implementing policies and programmes, the Royal Government of Bhutan initiated a good governance exercise in 2005, which came up with a strategy document titled "*Good Governance Plus: In Pursuit of Gross National Happiness*". This document mandated the Centre for Bhutan Studies (CBS) to come up with an alternative development measurement tool to measure the progress of Bhutan. Since then, CBS worked on the development of GNH indicators to measure the progress of the Bhutanese society. The research and consultation led CBS to identify the nine broad areas encompassing different aspects of life. Let us remind the reader again that they are Psychological Wellbeing, Health,

Time Use, Education, Good Governance, Community Vitality, Cultural Diversity, Ecological Diversity, and Living Standard.

The CBS has conducted three rounds of Gross National Happiness (GNH) surveys including a pilot survey in 2006-07. The last nation-wide survey on GNH was conducted in 2010 with a sample size of 8,510 Bhutanese who were 15 years and above. A periodic survey is necessary in order to collect and update information to track the quality of life of the Bhutanese people, measured in a holistic way through the nine domains of GNH.

The third nation-wide survey on GNH 2015 was conducted between January and May 2015. The Japan International Cooperation Agency (JICA) funded the actual field survey, while the Royal Government of Bhutan supported the auxiliary expenses related to the field survey, such as salaries of field supervisors and overhead administrative expenses related to the field survey.

Objectives

The survey aimed to provide information for the following purposes:

1. Input for the 12th Five-Year Plan (FYP) formulation;
2. Updating the Gross National Happiness Index from the 2010 results, to provide comparable information over time to track changes in GNH by Dzongkhag and other groups.³
3. Input towards generating literature on GNH and the GNH Index for wide readership through publications in the form of survey reports and other thematic analysis reports.

³ The 2015 preliminary GNH Index results were first announced by the Honorable Prime Minister at the 6th International Conference on GNH 4-6th November 2015.

Survey methodology

This chapter briefly presents the methodology adopted for the 2015 GNH survey such as survey method used, sampling methods employed, survey instruments used, data collection methods adopted, and data cleaning and analysis conducted.

Survey coverage, sample design, sample size

The 2015 GNH survey, like past GNH surveys, adopted a cross-sectional survey design. The target population included only those aged 15 years and above. The population below 15 years of age was not included in the study considering the complexity of questions contained in the questionnaire booklet for which persons below 15 years of age may not be able to provide answers.

The GNH survey sample was designed to provide estimates for a holistic range of indicators under the nine domains for both urban and rural areas, and for 20 Dzongkhags. A stratified four stage systematic random sampling design has been adopted for the survey. Two mutually exclusive sampling frames– rural and urban⁴ areas were used. Urban and rural areas within each Dzongkhag have been identified as the main sampling strata. The first stage involved estimation of urban and rural samples in Dzongkhags. The second stage comprised selection of rural Chiwogs and urban blocks as Primary Selection Units (PSUs) in each of the 20 Dzongkhags. The third stage included the selection of households as Secondary Sampling Units (SSUs) in each of the selected PSUs, and finally the fourth stage involved the selection of individuals as Ultimate Sampling Units (USUs) from the selected households. Sample selections at rural-urban, Dzongkhag, and PSU level were based on probability proportional to size (PPS) of population at each stage. A total sample size of 8,871 has been estimated for this survey.

⁴ All *Thromdes* (urban centres), *Dzongkhag* Headquarters, and satellite towns designated as 'Urban' by the Ministry of Works and Human Settlement (MoWHS) were considered as urban areas and all the rest as rural areas for this study. A place that meets four out of the following five criteria is considered as 'Urban' by the MoWHS. These five criteria are: i) A minimum population of 1,500 people; ii) A population density of 1,000 persons or more per square kilometre; iii) More than fifty percent of the population should depend on non primary activities; iv) The area of the urban centre should not be less than 1.5 square kilometres; and v) Potential for future growth of the urban centre particularly in terms of its revenue base.

The fourth stage sampling involved selection of a respondent from among the household members aged 15 years and above from the selected household. Field supervisors or enumerators did the selection of the respondent using prepared trump cards (lucky dip papers).

The sampling frame for the survey was provided by the Population and Housing Census of Bhutan (PHCB) 2005 with additional information from the list updated by the Bhutan Living Standards Survey (BLSS) 2012 and the Bhutan Multiple Indicators Survey (BMIS) 2010. For the PSUs where listing information from BLSS or BMIS are inadequate or not available all together, 'area sampling' and re-listing of the households for those selected urban blocks were conducted during the field survey. For effective implementation of area sampling, the field supervisors and assistant supervisors were trained extensively on area sampling methods before leaving for the field survey.

The sample size for the 2015 GNH survey was set at 8,000 people, which is equivalent to the 2010 GNH survey sample size, to ensure reliable comparability. The total sample is then allocated to Dzongkhags in the proportion relative to the size of the actual Dzongkhag population aged 15 years and over. For those Dzongkhags that received less than 300 samples due to their small relative population size, it was increased to at least 300 except Gasa which received 200. Therefore, the total sample size finally increased to 8,871 people aged 15 years and over. Within the Dzongkhag, the sample is then allocated to rural and urban areas in the ratio of their relative rural-urban population composition in 2013.

Sampling error might have occurred because, when sample was allocated to Dzongkhags and rural-urban areas, there was no accurate population statistics. The NSB's revised Dzongkhag population estimates 2006-2015 published in 2008 was used. Coverage error occurred because institutional households were excluded from the survey.

The sample size and sample allocation to Dzongkhags and area are provided in the Table 1 below.

Table 1: *Sample size allocation to different Dzongkhags by area (Rural-Urban)*

Dzongkhag	Sample size	Sample size (Urban)	Sample size (Rural)
Bumthang	300	72	228
Chukha	927	447	480
Dagana	300	37	263
Gasa	200	31	169
Haa	300	76	224
Lhuntse	300	27	273
Mongar	463	79	384
Paro	452	46	406
Pema Gatshel	300	38	262
Punakha	300	54	246
Samdrup Jongkhar	426	120	306
Samtse	741	132	609
Sarpang	475	141	334
Thimphu	1,203	1,028	175
Tashigang	592	70	522
Tashi Yangtse	300	44	256
Trongsa	300	49	251
Tsirang	300	24	276
Wangdue Phodrang	392	106	286
Zhemgang	300	43	257
Total	8,871	2,664	6,207

Survey instruments

The GNH survey 2015 used a structured questionnaire, which is divided into 10 sections; a section each on nine domains of GNH and a section on demographic characteristics.

The GNH survey questionnaire runs up to 148 questions encompassing objective, subjective and open-ended questions. Unlike past survey questionnaires, the 2015 GNH survey questionnaire underwent massive reduction in terms of the number of questions drawing upon numerous consultations and field-testing. Besides several bilateral consultations with experts from similar fields, this questionnaire was discussed and deliberated by experts gathered for the Eminent Scholars Meeting held in Thimphu in October 2012, primarily organised to review the GNH survey questionnaire. During the meeting, both international and national experts on happiness and wellbeing critiqued every single question of earlier GNH surveys. Based on their

suggestions, questions have been reduced and refined a great deal. Moreover, researchers of CBS conducted pre-testing of the questionnaire five times in different locations in the run-up to this survey.

Manual for survey enumerators

A GNH survey manual was prepared, printed and distributed to enumerators and field supervisors to guide them in conducting the GNH interviews. The manual briefly outlines the background, intent and the objective of each question included in the questionnaire. It contains detailed explanations about how each question should be asked or explained to respondents. The manual also includes a section each on sampling and frequently asked questions (FAQ).

Training of enumerators

The enumerators were trained for a period of 13 days (including field testing) starting from 15th December 2014. The training allowed the Centre to instruct enumerators in effective translation of the questionnaire into Dzongkha and other major Bhutanese dialects, and in developing skills for a meaningful conversation with a diversity of respondents.

Because of the length and complexity of the GNH survey questionnaire, it necessitated that enumerators be extensively trained in enhancing the quality of data collection. Enumerators were trained for eight days in a classroom setting.

The enumerators were also sent to places in and around Thimphu to conduct interviews using the GNH survey questionnaire towards the end of the training period to give them practical lessons in conducting interviews. Each enumerator had conducted five interviews and the field testing sites were deliberately chosen from places which are not selected for the main GNH survey to avoid over burdening of respondents by repeated visit of enumerators.

Although the field training was planned for only two days, the Centre had to increase it to five days based on the performance evaluation of the enumerators' first two days' of fieldwork. Besides the interview sessions being closely watched and supervised by field supervisors (who are CBS researchers), the administered questionnaire forms were

first evaluated by the field supervisors and then by other researchers at the CBS office. The supervisors and researchers sat with each enumerator to discuss and provide feedback and some additional instructions.

Training of enumerators in using tablets for CAPI

The Centre also explored the possibility of using a Computer Assisted Personal Interview (CAPI) method to conduct GNH survey interviews. After finding it to be very beneficial, CBS conducted additional training for 22 enumerators (two survey teams) in using tablets. A piloting of the CAPI was conducted in Geneykha and Simtokha by 22 enumerators on 30 December 2014. Since CBS did not have any earmarked budget for purchasing the required number of tablets, it approached the World Bank for support. The World Bank has kindly lent CBS 22 Google Nexus tablets. Since the use of CAPI has resulted in a significant improvement in data quality and saved a lot of time otherwise required for data entry and data cleaning, the Centre is planning to conduct similar future surveys using tablets. The following are the benefits of using CAPI in collecting data:

1. The use of CAPI enables CBS to double-check the data collected by field enumerators. Without endorsement by both the field supervisor as well as the database manager, the data will not be accepted into the database.
2. Data not endorsed by either the field supervisor or database manager will be returned to the enumerator concerned for necessary corrections and authentication.
3. Besides the above two manual checks performed by supervisors and database managers at the headquarters, the use of CAPI also prevents enumerators from collecting illogical or out-of-range data. Whenever an enumerator enters an out-of-range data point or skips a mandatory question, the machine prompts the enumerator with an error or an instructional message.
4. Data collected using CAPI can be directly synced into the database. This saves time and financial resources otherwise required for data entry using data entry personnel.
5. The data cleaning time is greatly shortened because the database is free from data entry errors usually committed by data entry personnel.

Data collection

The method of survey adopted was face-to-face interviews using paper questionnaires as well as hand-held computers (CAPI). Of the total interviews, 5,016 interviews (70.12%) were conducted using paper-based questionnaire while the remaining 2,137 interviews (29.88%) were conducted using CAPI.

In terms of interview language, the majority of interviews were conducted in Dzongkha (54.03%), *Tshangla (Sharchop)* (24.97%), and Nepali (*Lhotshamkha*) (17.24%). The face-to-face mode of interview was chosen for data collection considering the length and complexity of the GNH survey questionnaire, and the level of literacy rate in the country. Face-to-face interviews also allow for a high degree of control over the quality of data, and offer a high response rate in general.

The survey was conducted between January and May 2015 in all the 20 districts of Bhutan. People aged 15 years and above were randomly chosen for the interview from the sampled households using a simple random sampling technique (lucky dip) from a list of eligible household members.

The Centre recruited 66 temporary enumerators for the survey. To enhance the quality of data collection, only people with a minimum of a university degree were recruited as survey enumerators.

Of the 8,871 individuals sampled for the survey, only 7,153 respondents were successfully interviewed. This gave us a response rate of 80.63 percent. People were classified as non-respondents if:

1. the survey enumerator could not establish contact with the selected respondent after three successive visits;
2. the selected respondent's house could not be located;
3. the selected respondent's household had moved to a different location outside of the selected enumeration area;
4. the selected respondent refused to be interviewed for any reason(s); and
5. the interview with the selected respondent was incomplete.

The sample allocation between rural and urban areas was done in the ratio of 70:30 percent, which is based on the actual population composition in Bhutan. The response rate is comparatively higher in

rural areas (82.60%) compared with urban areas (76.05%). The following table presents sample size and response rates by area of residence. The detailed sample allocation, respondents and response rate by Dzongkhag and area of residence are presented in the appendix Table A1.2. The lowest response rate is 65.5 percent in Gasa followed by 70 percent in Samdrup Jongkhar. Since the sample size was calculated assuming a 60 percent non-response rate, the results would be valid at a 95% confidence level.

Table 2: *Sample size, respondents, and response rate, by area of residence*

	Sample	Respondents	Response rate
Urban	2,664	2,026	76.05%
Rural	6,207	5,127	82.60%
Bhutan	8,871	7,153	80.63%

For the survey conducted using a paper-based survey questionnaire, the average⁵ interview lasted 96 minutes ($SD = 32$, $Min = 30$, $Max = 210$). For the CAPI-based interview, the average time taken to interview one respondent was 80 minutes ($SD = 25$, $Min = 30$, $Max = 200$). However, the method of recording the time spent interviewing was slightly different between the two different modes of interview adopted. While the paper-based questionnaire interview recorded the time when the interview was started and ended, the CAPI calculated the time enumerator was actually actively using the tablet.

Data processing and analysis

For processing the GNH survey data, a data entry form was designed using EpiData software. In order to minimise the entry errors, the data entry forms contained inbuilt logical checks to prompt and remind data entry personnel whenever they keyed in wrong, illogical, or out-of-range data. The data once entered were then double-checked by a person other than the one who entered them initially. The data then went through several additional rounds of computer-aided validation, cleaning and editing processes by a team of CBS researchers. The cleaned data are then transferred to STATA software version 14 for analysis. The final analysis is based on a sample size of 7,153

⁵ For the mean computation, interviews that lasted less than 30 minutes and more than three and a half hours were considered as outliers and therefore excluded from computation.

individuals representing a total of 508,390 Bhutanese people aged 15 years and over.

In order to obtain Dzongkhag and rural-urban representative estimates, each individual observation in the data set is then assigned a sampling probability weight adjusted for the non-response. All analysis results are sample weighted unless otherwise stated.

The data analysis, mostly descriptive, is presented along the nine domains of GNH. The domains were ordered in the order they appear in the questionnaire booklet. A Chi-square test of association for categorical variables, and *t*-test and ANOVA for continuous or discrete variables were conducted wherever necessary.

No imputations were made for item non-response. Therefore, the variables with item non-response will have observations less than the total observations contained in the database ($N = 7,153$). If the number of observations dropped by 15 or more observations due to item non-response, a cautionary note is provided.

The possible effect of the mode of interview, paper questionnaire versus CAPI, is also explored for some key variables.

An independent-samples *t*-test was conducted to compare the difference in age of respondents interviewed using paper questionnaire and CAPI. There is a small, but statistically significant difference, in the age of respondents interviewed using paper questionnaire ($M = 40.6$, $SD = 15.6$) and those interviewed using CAPI ($M = 39.7$, $SD = 15.5$); $t(7151) = 2.06$, $p < .05$. Similarly, a statistically significant difference in the level of current subjective happiness was also observed between those interviewed using paper questionnaire ($M = 6.77$, $SD = 1.69$) and CAPI ($M = 7.03$, $SD = 1.72$); $t(7150) = -5.88$, $p < .001$. However, the percentage of population by different marital status did not differ by mode of interview used, $\chi^2(4, N = 7153) = 3.31$, $p = .51$.

The percentage of the population who rated different levels of self-rated health status differs statistically significantly by the type of interview mode used, $\chi^2(4, N = 7153) = 17.51$, $p < .01$. However, there is no statistically significant difference in the number of healthy days between those interviewed using a paper questionnaire ($M = 28.47$, $SD = 4.85$) and CAPI ($M = 28.27$, $SD = 5.20$); $t(7150) = 1.52$, $p = .13$.

Also there is no statistically significant difference in the amount of time spent socialising between those interviewed using a paper questionnaire ($M=71.14$, $SD=98.38$) and CAPI ($M= 73.00$, $SD = 98.25$); $t(7148) = -0.73$, $p=0.46$. However, the percentage of the population who reported different levels of trust in neighbours differs statistically significantly by the type of interview mode used, $\chi^2(3, N=7146)=51.26$, $p < .001$.

The above analyses indicate that with a few exceptions, there was a lack of systematic differences in the responses to questions between the interviews conducted using paper questionnaires and the CAPI. These are unlikely to have influenced the final GNH index analyses. For instance, on one hand, there is a statistically significant difference in the self-rated health between the interviews conducted using paper questionnaires and the CAPI, but on the other hand, there does not exist a statistically significant difference in the average number of healthy days between the two interview modes adopted. And the variable of 'healthy days' has a higher weighting than self-reported health.

Demographic characteristics

Like the Centre's earlier surveys, the GNH survey 2015 also collected respondents' information on gender, age, marital status, number of years of schooling, religious background, occupation, and household size. Ideally, the composition of the sample would be validated by reference to a recent census. However, given that Bhutan is now fielding its decadal census, we compare the sample design with respect to 2010 and 2012 surveys in Bhutan.

The 2015 GNH survey interviewed 7,153 respondents representing a total of 508,390 Bhutanese people aged 15 years and above. Of the 7,153 respondents interviewed, 41 percent were males and 58 percent were females. The predominance of female interviewees is discussed below. Three persons, who make up less than 0.1 percent, also identified themselves as belonging to the 'other' category. In terms of area of residence, 72 percent were from rural areas while the remaining 28 percent were from urban areas.

By age, about 16 percent were between the ages of 15-24 years, about 70 percent between 25-59 years, and the remaining 14 percent or so, 60 years and above.

About three-fourth of the respondents were married (75.41%), followed by those who were ‘never married’ (15.42%), widowed (4.98%), divorced (3.75%), and separated (0.45%).

About 58 percent of the population has ‘no formal education’⁶, but only about 49 percent is illiterate. This difference in formal education and literacy rates indicates that significant portions of Bhutanese have had access to other forms of education such as monastic and Non-Formal Education (NFE) programmes. However, the sample was not designed to be representative of age groups, marital groups, and educational level. Therefore, any results disaggregated by age, marital status, and educational level need to be interpreted with caution.

The demographic characteristics of respondents, both for 2010 and 2015 GNH surveys, are presented in Table 3 below. Sample weights are not applied, so this table reflects directly the number of persons interviewed who belong to each category.

Table 3: Demographic characteristics of the sample population, 2010 and 2015 GNH survey

		2015		2010	
Characteristics		N	%	N	%
Gender	Male	2,966	41.47	3,426	48.02
	Female	4,184	58.49	3,708	51.98
	Other	3	0.04	NA	NA
Area of residence	Rural	5,127	71.68	5,554	77.77
	Urban	2,026	28.32	1,588	22.23
Age group	15-19	458	6.4	276	3.87
	20-24	686	9.59	649	9.11
	25-29	876	12.25	986	13.84
	30-34	952	13.31	925	12.98
	35-39	906	12.67	829	11.63
	40-44	671	9.38	714	10.02
	45-49	636	8.89	667	9.36
	50-54	562	7.86	580	8.14
	55-59	418	5.84	504	7.07
	60-64	368	5.14	392	5.5
	65-69	257	3.59	263	3.69

⁶ Formal education here includes only school-based modern education and has excluded monastics and non-formal education which are also offered in formal settings such as monasteries and non-formal education centres.

		2015		2010	
Characteristics		N	%	N	%
	70-74	202	2.82	193	2.71
	>=75	161	2.25	148	2.08
Marital status	Never married	1,103	15.42	691	9.69
	Married	5,394	75.41	5,692	79.8
	Divorced	268	3.75	231	3.24
	Separated	32	0.45	103	1.44
	Widowed	356	4.98	416	5.83
Level of education					
	No formal education	4,146	57.96	4,682	65.56
	Primary education (VI)	914	12.78	982	13.75
	LS education (VIII)	445	6.22	383	5.36
	MS education (X)	685	9.58	536	7.50
	HS education (till degree 2nd yr.)/Diploma/Certificate	721	10.08	350	4.90
	Bachelors Degree	207	2.89	175	2.45
	Post Graduate	35	0.49	34	0.48
Literacy	Illiterate	3,504	48.99	3,856	53.99
	Literate	3,649	51.01	3,286	46.01
Occupation	Unemployed	163	2.28	100	1.40
	Farmer	3,412	47.7	4,247	59.48
	Trader/shopkeeper/businessmen	511	7.14	513	7.18
	School stds/trainees/university stds	569	7.95	215	3.01
	Civil servant	366	5.12	514	7.20
	GYT/DYT member (LG official)	51	0.71	87	1.22
	RBA/RBP/RBG	137	1.92	197	2.76
	Monk/ <i>Anim</i>	20	0.28	25	0.35
	<i>Gomchen</i>	70	0.98	136	1.90
	Corporate employee	200	2.8	238	3.33
	Private employee	212	2.96	NA	NA
	Housewife/househusband (Homemaker)	1,190	16.64	629	8.81
	No need to work	79	1.1	NA	NA
	Given up looking for work	2	0.03	NA	NA
	Others	170	2.38	239	3.35
Religion	Buddhism	5,945	83.12	6,123	85.77
	Hinduism	1,039	14.53	933	13.07
	Christianity	146	2.04	83	1.16
	Others	15	0.21	-	-
	None	7	0.1	-	-
Household size					
	Single member HH	215	3.01	265	3.72
	2-3 member HH	1,768	24.72	1,858	26.05
	4-5 member HH	2,939	41.09	2,820	39.54
	6-7 member HH	1,593	22.27	1,515	21.24

Characteristics	2015		2010	
	N	%	N	%
>7 member HH	638	8.92	674	9.45

Although the 2015 GNH survey was not designed to be representative by gender, age group, and marital group, comparative analyses were conducted to look at any noteworthy differences in the composition of the population by different socio-economic groups between BLSS-2012 and GNH-2015 surveys.

The composition of the population 15 years and above by gender as per the BLSS-2012 was 48.62 percent male and 51.38 percent female while it is 41.47 percent male and 58.49 percent female in GNH-2015. Therefore, females were over-represented in the 2015 GNH survey. The higher composition of female population in the total sample population can be attributed to the fact that female members of the households are more likely to be at home than males during the time of visits to the households by enumerators.

The rural-urban population composition in BLSS-2012 was 68.98 percent from rural areas and 31.02 percent from urban areas, while the rural-urban population composition in 2015 GNH survey is 68.35 percent from rural areas and 31.65 percent from urban areas.

Compared to the BLSS-2012, the age group composition in the 2015 GNH survey shows that the age groups of 15-19, 20-24, and 75 and above were under-represented while those between 30-54 years of age were over-represented (Table 4). The residual shows that the ages of 25-29 and 55-74 were almost appropriately represented. The sample size of 15-19 in the 2015 survey was much better than ones in the 2010 survey.

Table 4: *Distribution of population 15 years and above by age group, BLSS-2012 and GNH-2015*

Age group	BLSS-2012	GNH-2015	Difference
15-19	15.3	6.91	8.39
20-24	13.66	9.72	3.94
25-29	12.71	12.25	0.46
30-34	10.15	13.04	-2.89
35-39	9.07	12.67	-3.6
40-45	7.46	9.56	-2.1
45-49	7.18	8.91	-1.73

Age group	BLSS-2012	GNH-2015	Difference
50–54	6.2	7.77	-1.57
55–59	4.95	5.73	-0.78
60–64	4.42	5.03	-0.61
65–69	2.91	3.6	-0.69
70–74	2.65	2.67	-0.02
>=75	3.34	2.15	1.19

Compared to the BLSS-2012, married, divorced, and widowed individuals were over-represented in the 2015 GNH survey, while never married and separated individuals were under-represented (Table 5). The under representation of never married individuals in the 2015 GNH survey can be attributed to the exclusion of institutional households such as schools and institutes inhabited by students and trainees who mostly belong to the never married category. But, the percentage of the never-married group is much closer to BLSS-2012 than the ones in the 2010 survey.

The average household size by area of residence between BLSS-2012 and GNH-2015 for rural areas is equal (4.8) while for urban area the average household size differs. The average household size in urban areas in BLSS-2012 was 4.1 while it is 4.8 in GNH-2015.

Table 5: *Distribution of population 15 years and above by marital status, BLSS-2012 and GNH-2015*

Marital Status	BLSS-2012	GNH-2015
Never married	28.54	16.11
Living together	0.17	NA
Married	63.09	74.83
Divorced	2.68	3.73
Separated	1.82	0.45
Widowed	3.7	4.87

PART 1: GNH INDEX 2015

1.1. Introducing the GNH Index

The GNH Index measures wellbeing in a holistic way, and looks at each person's profile of GNH, using key indicators of wellbeing that are grouped under nine domains. Each of the nine domains are equally weighted. Within the domains, indicator weights are shown in the table below. To measure GNH, one creates a profile for each person showing in which of the 33 indicators he or she has achieved sufficiency. Adding up the weights of the sufficient indicators gives each person a GNH score showing the share of domains in which he/she has achieved sufficiency. If a person has sufficiency in at least two-thirds, he or she is considered 'happy' in terms of the GNH index.

Table 6: Indicator weights

Domain	Indicators	Indicator weight
Psychological wellbeing	Life satisfaction	1/3
	Positive emotion	1/6
	Negative emotion	1/6
	Spirituality	1/3
Health	Self-reported health status	1/10
	Number of healthy days	3/10
	Disability	3/10
	Mental health	3/10
Time use	Work	1/2
	Sleep	1/2
Education	Literacy	3/10
	Schooling	3/10
	Knowledge	1/5
	Value	1/5
Cultural diversity & resilience	<i>Zorig chusum skills</i> (Artisan skills)	3/10
	Cultural participation	3/10
	Speak native language	1/5
	<i>Driglam Namzha</i> (code of conduct)	1/5
Good Governance	Political participation	2/5
	Services	2/5
	Governance performance	1/10
	Fundamental rights	1/10
Community vitality	Donation (time and money)	3/10
	Safety	3/10
	Community relationship	1/5
	Family	1/5
Ecological diversity &	Wildlife damage	2/5

Domain	Indicators	Indicator weight
resilience	Urban issues	2/5
	Responsibility to environment	1/10
	Ecological issues	1/10
Living Standard	Income	1/3
	Assets	1/3
	Housing	1/3

After identifying who is happy, we aggregate the information into a measure that reflects GNH across Bhutan. The GNH Index uses a methodology for a multidimensional poverty index by Alkire and Foster (2011).

The GNH Index is the rate or headcount ratio of happy people (H^H), *plus* the extent of sufficiency that not-yet-happy people enjoy (A_{suff}^U). This second term is calculated by multiplying the percentage of people who are not-yet-happy (H^U , which is 100% minus H^H) by the average percentage of domains in which not-yet-happy people have sufficient achievements. So,

$$GNH = H^H + (H^U * A_{suff}^U)$$

The GNH Index is a single number ranging from zero to one with zero being the lowest possible value and one, the highest possible value.

1.2. GNH across Bhutan

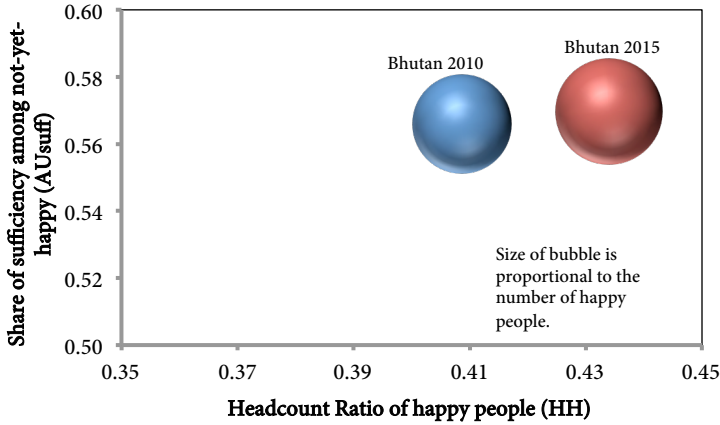
1.2.1. GNH Index Value and Growth

The 2015 GNH Index value is **0.756 (CI: 0.751 and 0.761)**.

In terms of the equation above, the GNH Index= $0.434 + (0.566 * 0.569)$
= 0.756

There was a statistically significant increase in happiness between 2010 and 2015. The GNH Index has increased by 1.7 percent, from 0.743 in 2010 to 0.756 in 2015.

Figure 2: *Change in GNH Index*



1.2.2 Happiness Gradient 2010-2015

To provide a greater depth to the analysis, three happiness cut-offs (at 50%, 66% and 77% of the weighted indicators or domains) are applied in order to generate a happiness gradient consisting of four categories: Deeply Happy, Extensively Happy, Narrowly Happy, and Unhappy.

Compared to the results of 2010 GNH survey, the percentage of people in the unhappy and narrowly happy group has slightly decreased while the proportion of the people who are extensively happy has increased by about 2 percent. The percentage of deeply happy people was stable.

Table 7: *Categories of GNH Index, Headcounts and Sufficiency*

	GNH-2010			GNH-2015	
	Definition of group~ Sufficiency in:	Percentage of population who are:	Average sufficiency of each person across domains	Percentage of population who are:	Average sufficiency of each person across domains
Deeply Happy	77%-100%	8.3%	81.5%	8.4%	80.9%
Extensively Happy	66%-76%	32.6%	70.7%	35.0%	70.8%
Narrowly Happy	50%-65%	48.7%	59.1%	47.9%	59.1%
Unhappy	0-49%	10.4%	44.7%	8.8%	45.2%

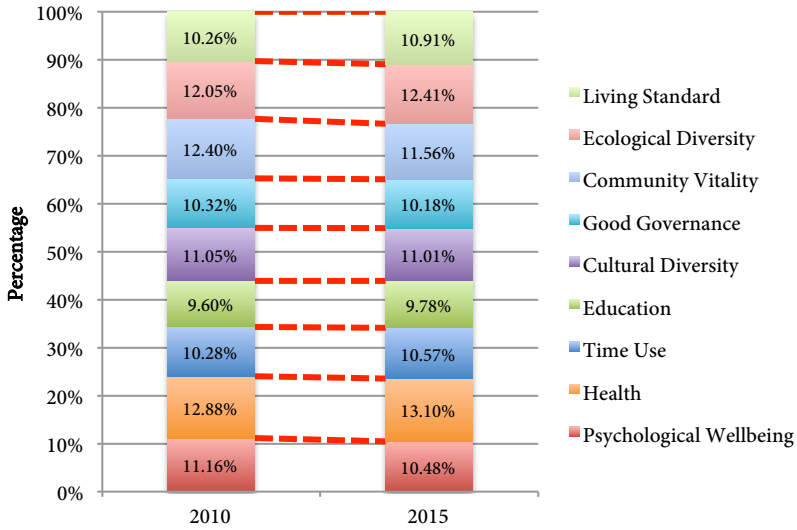
1.2.3. Contributions and changes across the 9 domains

Across society, all the nine domains are equally important to achieve happiness and wellbeing from a GNH point of view, but people themselves find fulfilment in a multiplicity of ways. To allow for this diversity, we do not expect even ‘deeply happy’ people to have sufficiency in all domains. However, across Bhutan we do expect a balance. The figure 3 below shows the percentage contribution of each domain to GNH in Bhutan.

Among the nine domains, good health (13.10%), ecology (12.41%) and community vitality (11.56%) contribute the most to the 2015 GNH Index. The lowest contributors are education (9.78%), good governance (10.18%) and psychological wellbeing (10.48%). However, note that there is not much difference in the percentages: GNH in Bhutan is relatively well balanced across domains.

In regard to the domain contributions, the largest changes occur in community vitality, psychological well-being and living standards. The percentage contribution of community vitality domain decreased from 12.40 to 11.56 percent, while psychological well-being decreased from 11.16 to 10.48 percent. The contribution of living standard increased from 10.26 to 10.91 percent.

Figure 3: *Domain contribution to GNH Index in 2010 and 2015*



1.2.4 How people enjoy GNH by indicator

Figure 4 presents the percentage of people enjoying sufficiency in each of the 33 indicators. People are mostly sufficient in the value indicator (99%), speaking native language (95%) and safety (92%). Sufficiency levels are also high amongst indicators of the health domain. More than 88% of people achieved sufficiency in number of healthy days, mental health and an absence of disability.

Only 39 percent achieve sufficiency in the spirituality indicator. The spirituality indicator is made up of four variables: self reported spiritual level, frequency of prayer recitation, consideration of karma, and frequency of meditation. The fact that only a very small fraction of people (7.5%) meditates once a day or more has resulted in a low proportion of people enjoying sufficiency in the spirituality indicator.

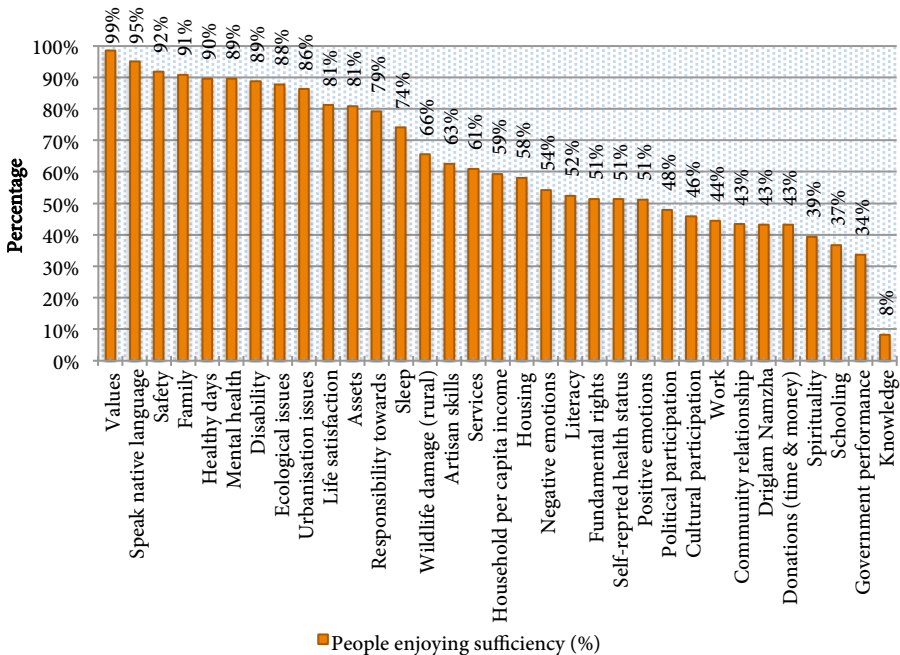
Sufficiency in schooling (37%) and perception of government performance (34%) is also low. The low proportion of people enjoying sufficiency in schooling is due to the existence of a huge backlog of the Bhutanese population that has never had a chance to attend school. This is because, in the past, there were only handful of schools.

Likewise, the low sufficiency in perception of government performance may be attributed to the change in people's expectations from the ruling political party. The people were largely divided into two opposing electoral camps. Therefore, the people supporting the opposing party might have rated government performance low.

It is interesting to note that people have rated the performance of the government independent of the services delivered by the government. This is evident from the fact that 61% of people are enjoying sufficiency in government services.

People achieve the least sufficiency in the knowledge indicator (8%) under the education domain.

Figure 4: Percentage of people enjoying sufficiency

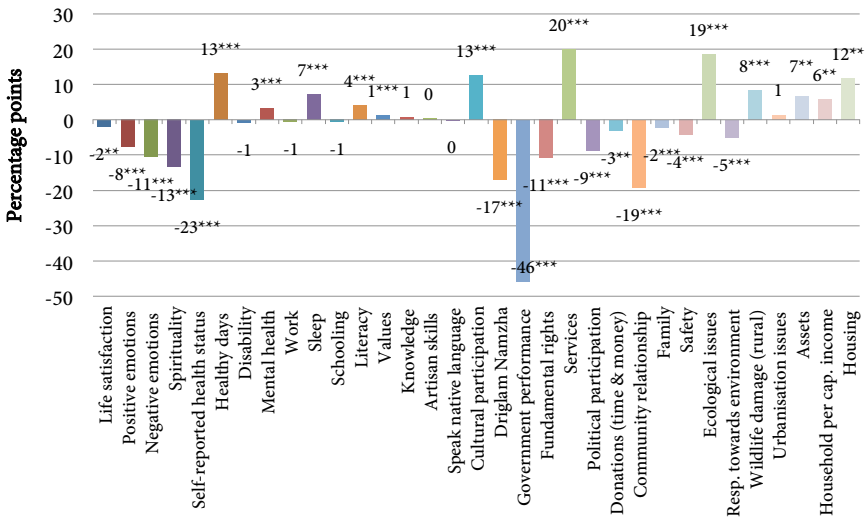


1.2.5 GNH Changes by indicator 2010-2015

Figure 5 reports the absolute change in the percentage of people enjoying sufficiency in each of the indicators. The relative changes are presented in Figure 6. The most prominent decreases in sufficiency level were in the perception of government performance indicator,

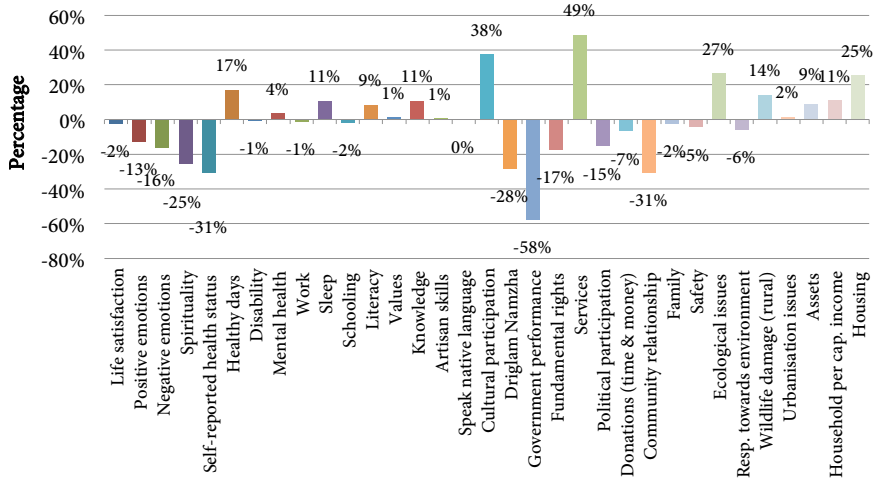
which fell 46 percentage points (corresponding to a 58% reduction); followed by self-reported health status, which fell 23 percentage points (corresponding to a 31% reduction). Note that, though the percentage decrease is quite substantial, it has only a small impact on the overall change in GNH Index value, as both indicators are subjective and thereby carry lower weight when compared to others. On the other hand, the indicators with the highest improvements since 2010 were services under governance, which increased 20 percentage points (49%), and ecological issues, which increased 19 percentage points (27%). Some indicators did not register any statistically significant change between 2010 and 2015. These indicators were disability, work, schooling, knowledge, artisan skills, speak the native language and urbanization issues.

Figure 5: *Absolute change in percentage of people enjoying sufficiency*



Note: *** statistically significant at 1%, ** statistically significant at

Figure 6: Percentage change in percentage people enjoying sufficiency



1.2.6 GNH Index by Dzongkhag

GNH was highest in Gasa, Bumthang, Thimphu, and Paro but lowest in Dagana, Mongar, Tashi Yangtse, and Trongsa [Figure 7]. The biggest increases in GNH were in Samdrup Jongkhar and Bumthang.

The Dzongkhags are classified into three categories of happiness: low, medium and high. Low levels correspond to districts with GNH Index values from 0.693 to 0.721. Trongsa, Tashi Yangtse, Mongar, Dagana, Tashigang, and Wangdue Phodrang Dzongkhags fall under this category. Under medium level, where GNH Index values fall within 0.740 to 0.758., Samdrup Jongkhar, Samtse, Zhemgang, Sarpang, and Punakha are included. Finally, nine *Dzongkhags* are classified in the high category of GNH Index and show GNH Index values between 0.772 to 0.858: Chukha, Lhuntse, Tsirang, Pema Gatshel, Haa, Paro, Thimphu, Bumthang, and Gasa.

Note that the confidence intervals for Gasa, Dagana, Punakha, Bumthang, Pema Gatshel, Zhemgang, Trongsa, and Lhuntse are large and hence, the point estimations should be interpreted with caution. Conversely, Thimphu, Chukha, Samtse, Tashigang and Mongar have the smallest confidence intervals.

Figure 7: GNH Index, by Dzongkhag

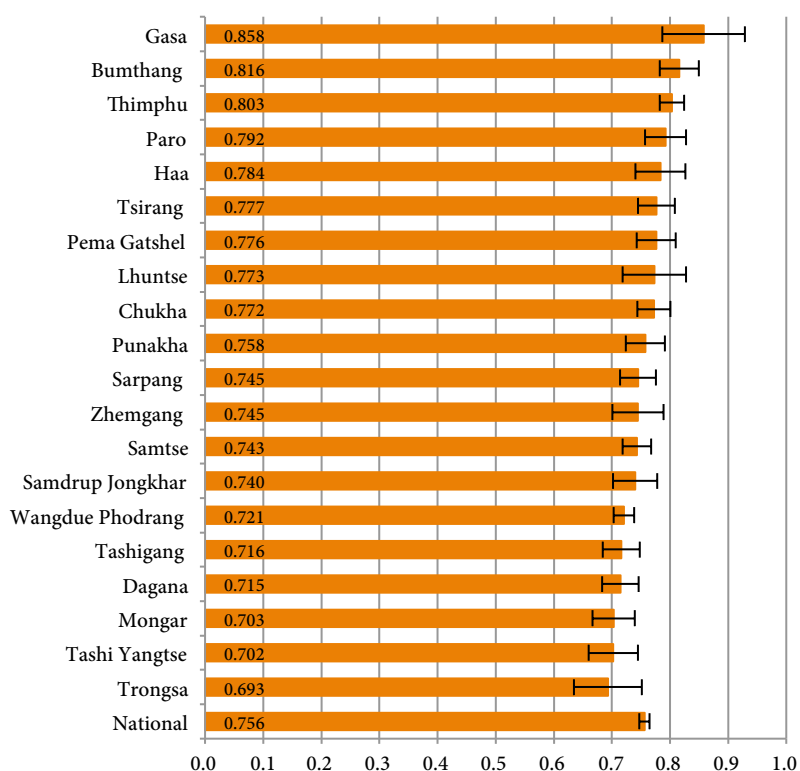
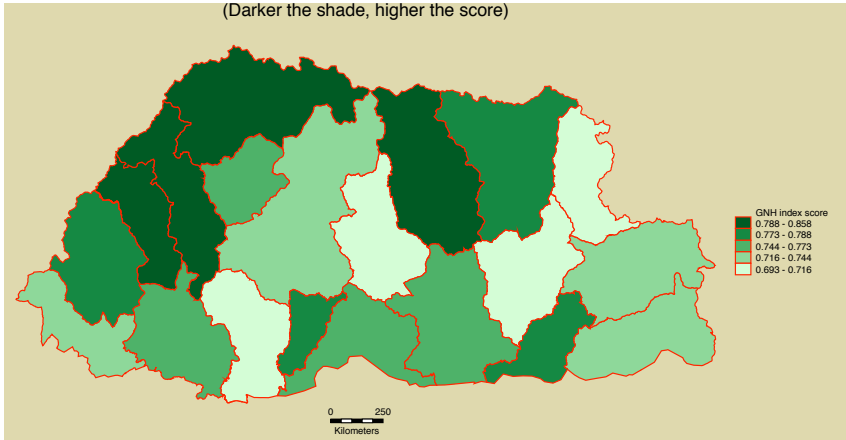


Table 8: GNH Index and categories, by Dzongkhag

High category		Medium category		Low category	
Dzongkhag	GNH	Dzongkhag	GNH	Dzongkhag	GNH
Gasa	0.858	Punakha	0.758	Wangdue Phodrang	0.721
Bumthang	0.816	Sarpang	0.745	Tashigang	0.716
Thimphu	0.803	Zhemgang	0.745	Dagana	0.715
Paro	0.792	Samtse	0.743	Mongar	0.703
Haa	0.784	Samdrup Jongkhar	0.740	Tashi Yangtse	0.702
Pema Gatshel	0.777			Trongsa	0.693
Tsirang	0.776				
Lhuntse	0.773				
Chukha	0.772				

The figure 8 below shows the map of district level GNH Indices. The GNH Index is observed higher in the north-western parts of Bhutan while south-eastern parts of the country are associated with lower GNH Index. Gasa and Trongsa *Dzongkhags* lie at the end of GNH Index continuum – having the highest and lowest scores, respectively.

Figure 8: GNH Index, by Dzongkhag



1.2.7. Domain Contribution to GNH by Dzongkhag

In terms of domain contribution to the overall GNH Index, the highest contributing domain to Gasa, which has the highest GNH Index value, is ecological diversity and resilience (12.6%), health (12%), community vitality (11.4%) and psychological wellbeing (11%). On the other hand, the highest contributing domain to Trongsa, which has the lowest GNH Index value, is health (13.72%), community vitality (12.5%) and psychological wellbeing (11.7%). The highest contributing domain for Thimphu is ecological diversity and resilience (12.9%).

Table 9: Percentage contribution of domains to overall GNH Index, by Dzongkhag

	Psychological Wellbeing	Health	Time Use	Education	Cultural Diversity	Good Governance	Community Vitality	Ecological Diversity	Living Standard
Bhutan	10.48%	13.10%	10.57%	9.78%	11.01%	10.18%	11.56%	12.41%	10.91%
Bumthang	10.97%	12.29%	10.76%	10.12%	11.37%	10.51%	11.41%	11.52%	11.07%
Chukha	10.07%	13.00%	11.08%	10.33%	10.31%	9.90%	11.11%	12.52%	11.68%
Dagana	10.68%	13.11%	10.29%	10.00%	10.89%	10.19%	11.76%	12.61%	10.47%
Gasa	11.06%	12.01%	10.62%	9.93%	11.12%	10.42%	11.40%	12.54%	10.90%
Haa	10.90%	12.97%	10.46%	9.69%	11.21%	9.97%	11.39%	12.45%	10.95%
Lhuntse	10.48%	12.58%	10.93%	9.33%	11.52%	11.21%	12.33%	11.45%	10.17%
Mongar	10.38%	14.31%	9.72%	8.62%	11.49%	11.19%	12.18%	12.09%	10.03%
Paro	11.12%	12.82%	10.72%	9.99%	10.16%	9.61%	11.41%	12.19%	12.00%
Pema Gatshel	10.38%	12.52%	10.83%	9.56%	11.92%	11.06%	12.27%	11.53%	9.92%
Punakha	10.61%	13.14%	10.36%	9.50%	10.64%	10.24%	11.43%	13.25%	10.83%
Samdrup Jongkhar	10.52%	13.02%	10.60%	9.72%	11.83%	9.39%	12.07%	12.60%	10.25%
Samtse	9.97%	12.98%	10.86%	9.94%	10.74%	10.20%	11.40%	12.98%	10.93%
Sarpang	10.63%	13.02%	9.73%	9.99%	10.72%	10.58%	11.84%	11.74%	11.75%
Thimphu	10.65%	12.70%	10.31%	10.43%	10.82%	9.65%	10.77%	12.83%	11.84%
Tashigang	10.25%	13.92%	10.51%	8.95%	12.27%	10.05%	11.78%	12.91%	9.36%
Tashi Yangtse	10.01%	14.01%	10.92%	9.10%	11.55%	10.88%	12.72%	11.75%	9.05%
Trongsa	10.85%	13.64%	11.20%	9.11%	10.84%	9.97%	12.46%	11.71%	10.22%
Tsirang	11.05%	12.85%	10.79%	9.72%	11.00%	10.43%	11.36%	12.11%	10.69%
Wangdue Phodrang	10.60%	13.71%	10.30%	9.15%	10.41%	10.72%	11.85%	12.57%	10.70%
Zhemgang	9.92%	12.73%	11.40%	9.45%	11.93%	10.83%	12.47%	11.15%	10.12%

1.2.8. GNH by Gender

By gender⁷, it is observed that men are significantly happier than women⁸. GNH Index value for male was 0.793 and for female was 0.730. Fifty-one percent of males were either ‘deeply’ or ‘extensively’ happy, as compared with only 39 percent of females. But women’s GNH increased faster than men’s from 2010-2015, reducing gender inequality.

Table 10: GNH Index, by gender

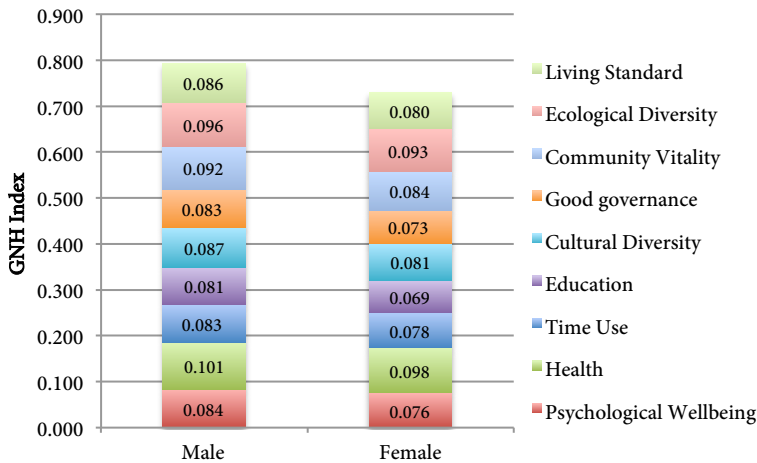
	Male	SE	Female	SE	t-statistic	Significance
GNH Index	0.793	0.003	0.730	0.003	12.84	***

Note: *** statistically significant at $\alpha=0.01$, ** statistically significant at $\alpha=0.05$

* statistically significant at $\alpha=0.10$, SE= Standard Error

By domain, males outperformed females across all nine domains (Figure 9). The male-female disparity is larger in the education and good governance domains while the ecology and health domains do not vary much between males and females.

Figure 9: Contribution from each domain to overall GNH Index, by gender

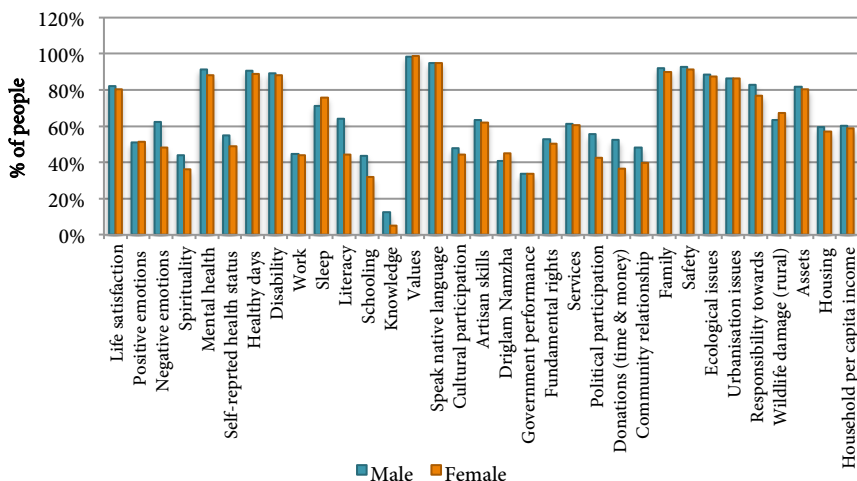


⁷ Note, the results here are only descriptive and not indicative, as the sample is not representative by gender. To maintain comparability to the 2010 GNH survey, 2015 sampling weights did not correct for the gender ratio of respondents.

⁸ Population share of male and female respondents is 41.40% and 58.60% respectively.

Figure 10 presents the percentage of people enjoying sufficiency in each of the 33 indicators by gender. Males achieve higher sufficiency than females across almost all indicators. Females enjoy equal sufficiency in the values and language indicators under the culture domain. Females attain higher sufficiency in the sleep, *Driglam Namzha* and wildlife indicators than their male counterparts. However, many of these differences are not significant.

Figure 10: *Percentage of people enjoying sufficiency in each indicator, by gender*



1.2.9. GNH in Rural and Urban areas

Urban areas across Bhutan are on average significantly happier⁹ than rural areas, as shown in the table 11.

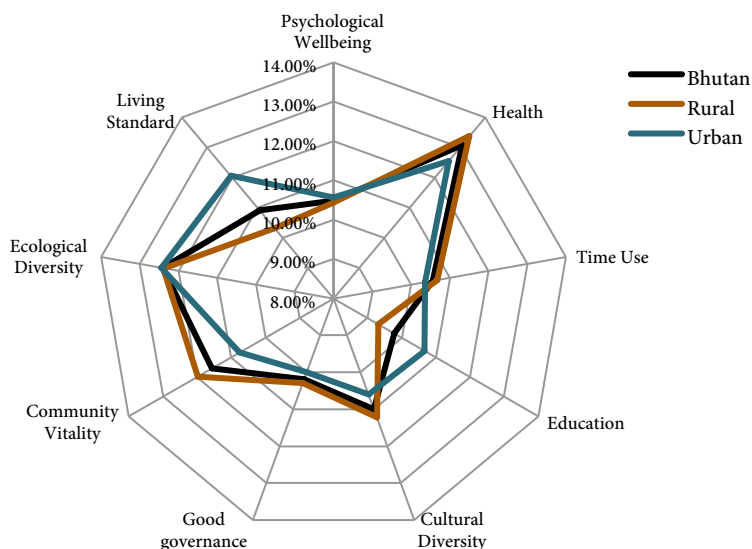
⁹ In order to compare means of GNH Index values between rural and urban areas, an independent group t-test is carried out. First, a two-sample t-test with equal variances is used. The t-statistic is -14.1212 with 7019 degrees of freedom. The corresponding two-tailed p-value is 0.000, which is less than 0.05. We conclude that the difference of means in GNH Index values between rural and urban areas is different from 0. It indicates a significant mean difference in the GNH Index values between rural and urban areas at 5% significance. Here, we assumed that the variances for the two populations are the same. It can be concluded that the difference of means in GNH Index values between rural and urban areas is different from 0, allowing for differences in variances across groups.

Fifty-five percent of people living in urban areas are either ‘deeply’ or ‘extensively’ happy, but only 38 percent of people in rural areas are. The happiness of urban areas increased more from 2010-2015 than it did in rural areas, so rural-urban disparity has increased.

Table 11: GNH Index, by area

	National	Rural	Urban
GNH Index	0.756	0.731	0.811
Lower CI	0.751	0.725	0.802
Upper CI	0.761	0.737	0.820

Figure 11: *Percentage contribution of sufficiency of each domain to overall GNH Index, by area*

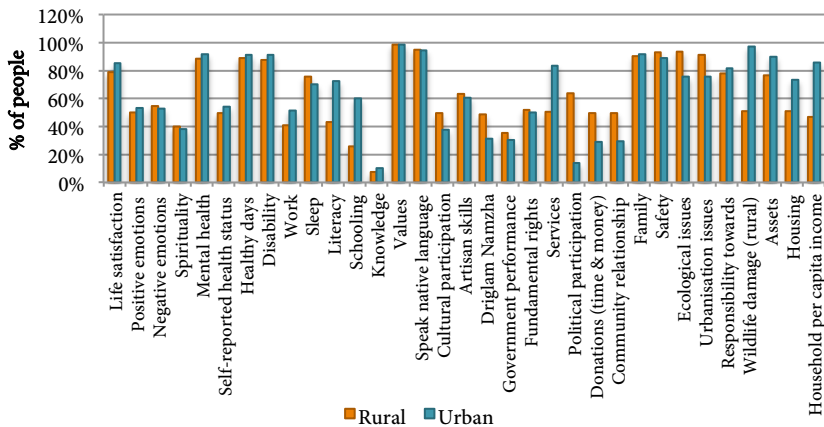


In terms of domain contributions, health, community vitality and cultural diversity are the highest contributors to GNH in rural areas. In urban areas, living standards and educations seems to be contributing the most – so the balance of achievements across domains is notably different. The contribution by the ecological diversity and resilience domain seems to be roughly equal in both rural and urban areas.

People in rural areas enjoy higher sufficiency in the political participation, donation, community relationship, ecological issues and safety indicators compared to urban areas. This suggests that people dwelling in rural areas participate more in elections, donate more, have

better community relationships and are safer as compared to their urban counterparts. The urban residents have higher income, better quality housing, more assets, better access to services, more years of schooling and higher literacy compared to rural residents. The detailed comparison of the sufficiency levels by area of residence in each of the 33 indicators is provided below.

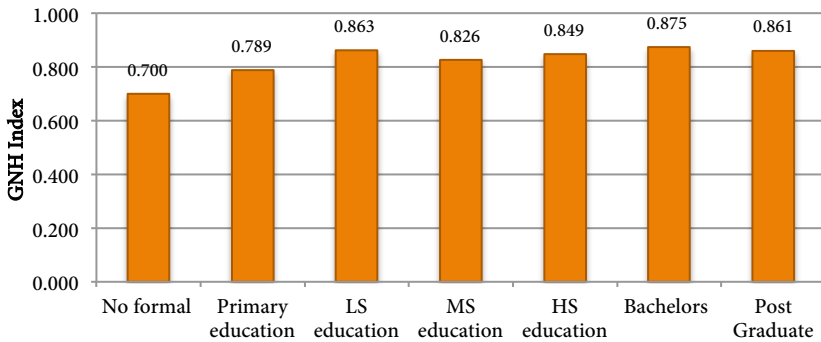
Figure 12: *Percentage of people enjoying sufficiency in each indicator, by area*



1.2.10. GNH by level of education

GNH increases with education. Only 32 percent of those without formal schooling were either ‘deeply’ or ‘extensively’ happy, but over 60 percent of those with high school education or more were. Happiness among those lacking formal schooling increased faster from 2010-2015, reducing inequality.

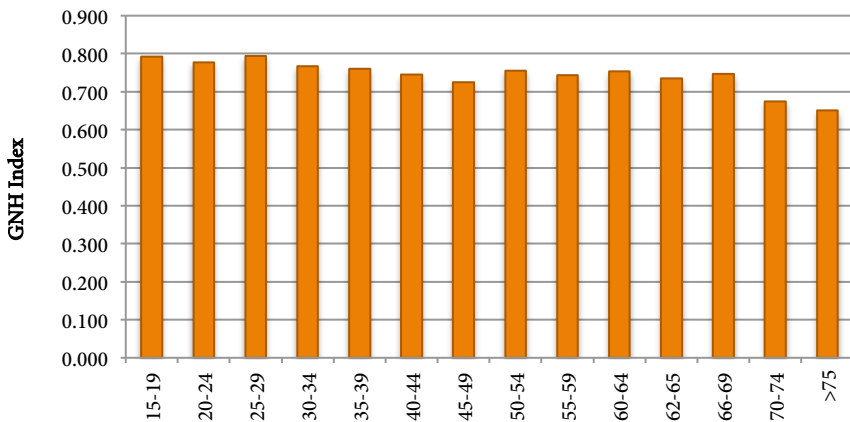
Figure 13: GNH Index, by educational level



Age

Happiness was the highest for those under 30 years of age, and lowest for those over 70. But it increased more for older persons, from 2010-2015, so there is an equalizing trend.

Figure 14: GNH Index, by age



Marital Status

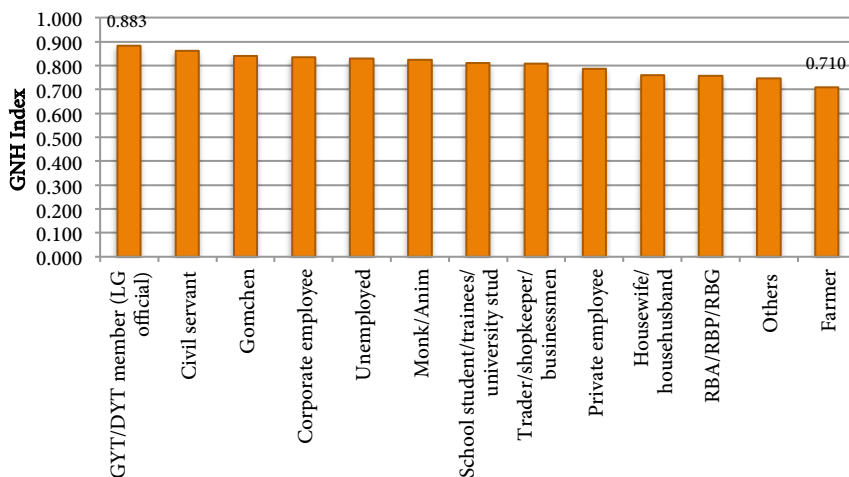
Happiness was highest for persons who never married (single people and monks), and lowest among widows.

Table 12: GNH Index, by marital status

	Never married	Married	Divorced	Separated	Widowed
GNH Index	0.801	0.754	0.730	0.703	0.658
Standard Error (SE)	0.006	0.003	0.013	0.042	0.010

Occupation

*Gewog Yargye Tshogchung*¹⁰ (GYT)/*Dzongkhag Yargye Tshogchung*¹¹ (DYT) members had the highest value of GNH Index, followed by civil servants and *gomchen*¹². Farmers were the least happy. Variations in the GNH Index levels amongst diverse occupational groups were significant¹³. Correspondingly, 72% of the GYT/DYT members were happy. 64% of civil servants were happy followed by *gomchen* (60%). Around 55% of monks/*anim*s¹⁴ were categorised as happy. Only 33 percent of the farmers were classified happy. GNH had increased somewhat among farmers and the unemployed since 2010.

Figure 15: GNH Index, by occupational group


¹⁰ Block level committee

¹¹ District level committee

¹² Lay man who undergoes meditation and perform rituals for living.

¹³ The F-statistic is 31.67 with 12 degrees of freedom. The corresponding p-value is 0.000, which is less than 0.05. Hence, the differences are significant.

¹⁴ Nuns are referred as *anim* in Bhutan.

It must be noted that sample is not representative by gender, age, marital status, educational background, or occupational status. There are varying sample sizes amongst the different occupation groups and educational levels. Hence, the results here should only be considered as illustrative.

1.3. Core Policy Focal Areas

1.3.1. How to increase GNH: addressing insufficiencies

In order to improve GNH, it is necessary to address some insufficiencies and to focus on problems that are experienced by those who are unhappy or narrowly happy. Figure 16 is focused on these two not-yet-happy groups, and it shows how much each indicator contributes to overall insufficiency among these people.

The ten biggest contributors to unhappiness, broadly understood, are the excessive amount of time spent working, a low level of self-reported spirituality, absence of sufficient schooling, a sense that fundamental rights are not met, and a lack of access to key services. Also, this group gives fewer donations to common causes, has lower levels of local knowledge, less time spent participating in cultural events, higher illiteracy, and poor housing.

What is at once striking about this portrait of unhappiness is that it mixes traditional domains of public action: schooling and literacy, rights and services (including water, sanitation, etc) and housing, with deficits in non-traditional areas like spirituality, the percentage of time spent at work, voluntary donations, local knowledge, and cultural participation. Thus advancing GNH among the unhappy requires a new approach to policy – one that encompasses new priorities alongside the old.

Furthermore, what is evident is that these ten indicators – which together contribute 55% of the overall composition of unhappiness – will require creative policy responses. Education contributes the most of any domain to GNH – 15.8% - followed by insufficiencies in governance and in psychological well-being. Education for both children and adults is needed to address insufficiencies in schooling and literacy. Education could also go a long way towards improving local knowledge and possibly also psychological well-being – so an integrated policy response is essential.

It is interesting to note that a lack of income is not among the top ten contributing indicators to unhappiness in Bhutan – a fact that further underlines the need to go far beyond GDP in order to understand the faces of unhappiness as well as of gross national happiness. Also as deprivations in psychological well-being contribute the third-most of any domain to unhappiness, this underscores the importance of analysing all aspects of GNH jointly for each person and community.

Finally, note that deprivations in health and environment contribute each less than 5% to unhappiness, and that insufficiencies in community vitality contribute less than 10% to unhappiness, so require less policy action overall.

Figure 17 reports the percentage of Bhutanese that a) are in the lower gradients of GNH (unhappy or narrowly happy) and b) experience insufficient attainments in each indicator, regardless of the weights on each indicator.

What we see at a glance is that the less happy citizens are particularly deprived of the knowledge of local legends, schooling, and spirituality. They do not perceive government to be supporting them extensively, work extra hours, and participate relatively less in community and culture through donations or attendance at festivals. Thus investments in these deprivations are required to boost GNH in the next period.

1.3.2. How to increase GNH: by Dzongkhag

Naturally, the particular profile of priorities will vary over space. To give one particular example that is relevant to Dzongkhag administrations, the profiles of unhappiness by Dzongkhag vary considerably. The figure below presents the composition of insufficiencies (censored headcount ratios) according to each Dzongkhag, and also considers the weights on each indicator.

We see, for example, that in Paro and Thimphu, income and housing quality affect those who do not enjoy the conditions of happiness less, whereas in Dagana or Tashi Yangtse, these are greater. This information can be used to inform Dzongkhag planning as well as allocation and programming priorities that will have an optimal impact on GNH.

Figure 16: Composition of insufficiencies in not-yet-happy

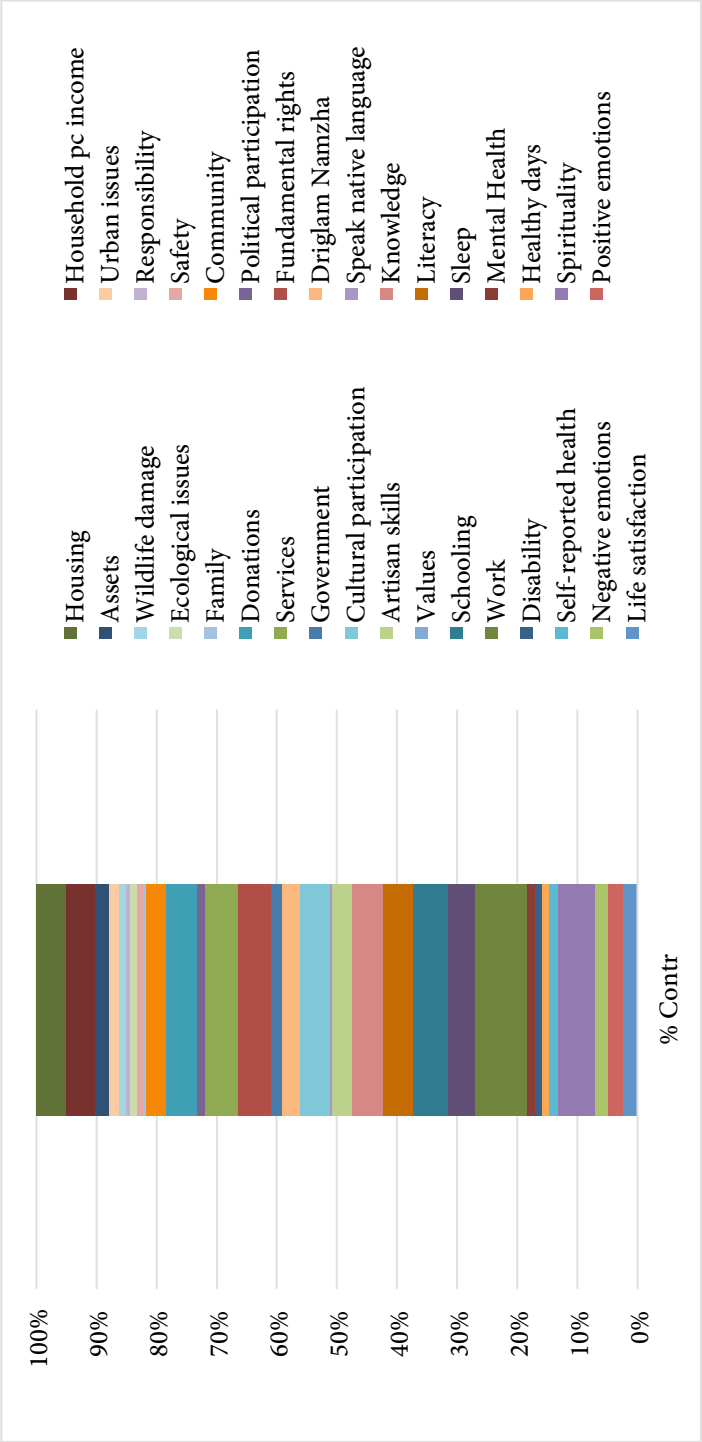


Figure 17: Percentage of not-yet-happy people suffering insufficiency in each of 33 indicators

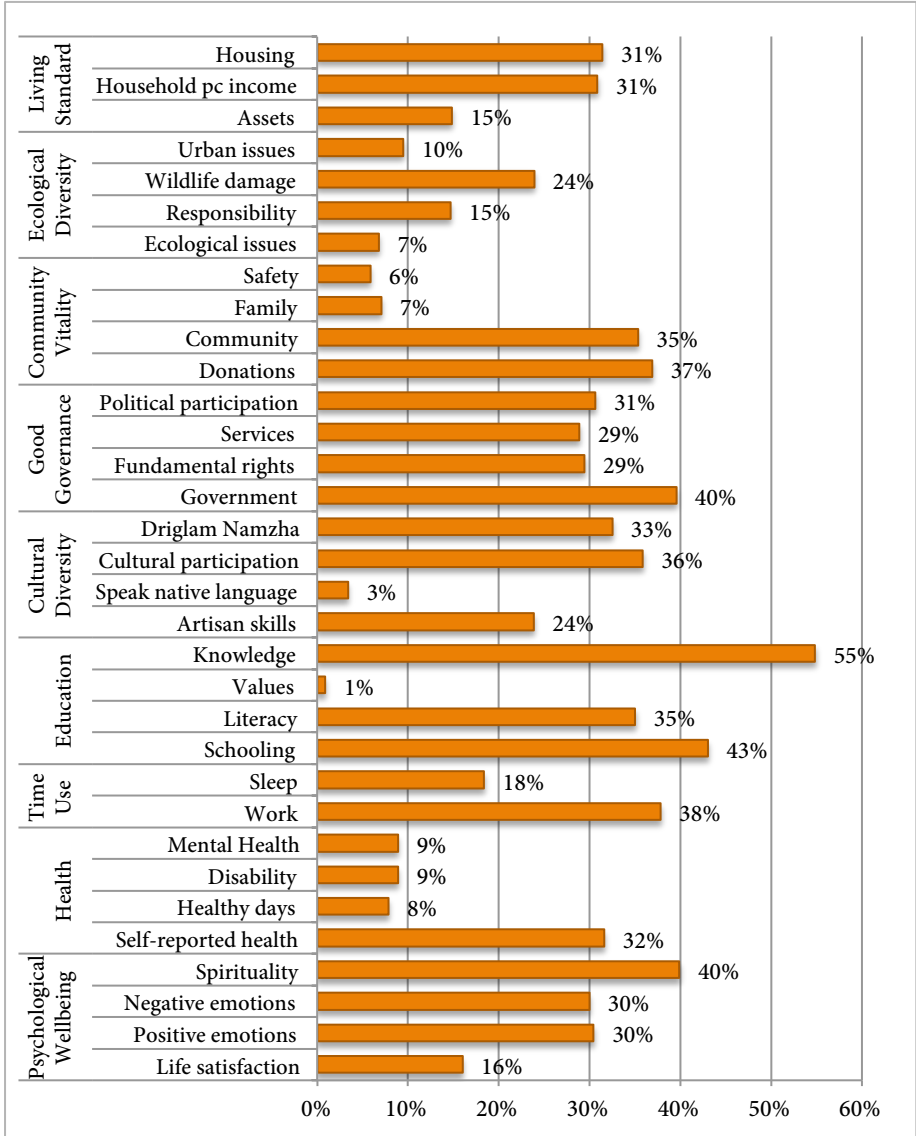
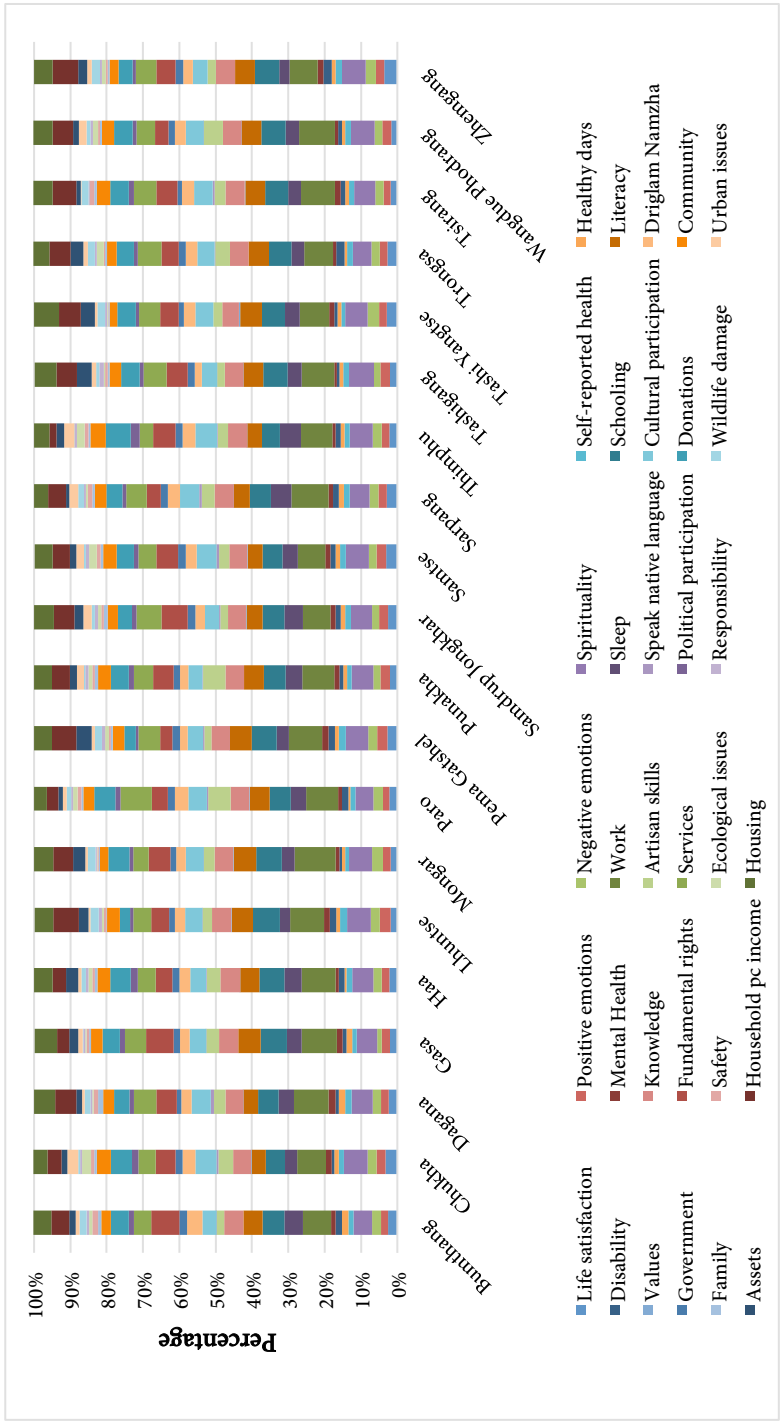


Figure 18: Composition of insufficiencies (censored headcount ratios), by Dzongkhags



PART 2: GNH SURVEY FINDINGS: CHANGES OVER THE LAST FIVE YEARS

The adoption of a similar sampling design for the two different surveys, in 2010 and 2015, allows comparison between the two survey findings. Moreover, the majority of the questions also remained unchanged between the 2010 and the 2015 surveys for complete comparison. The few questions that necessitated changes in 2015 from the 2010 survey were noted and discussed separately. Therefore, this section presents the results of cross-sectional analysis of selected variables that are completely comparable between 2010 and 2015 in terms of both question wording as well as response option choices.

2.1. Psychological Wellbeing

2.1.2 Level of Spirituality

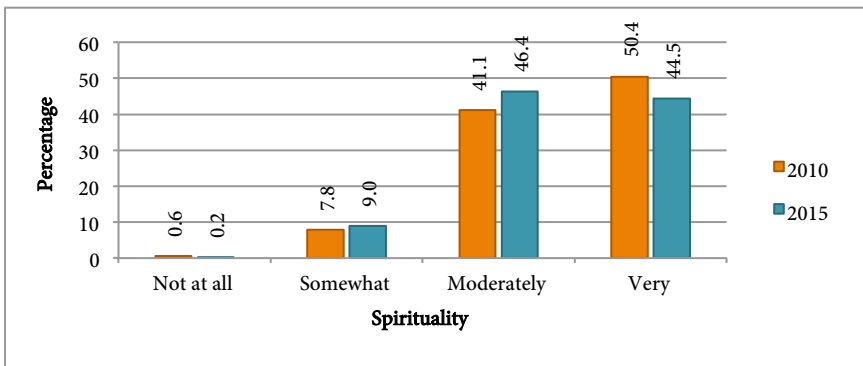
The proportion of people who consider themselves ‘very’ spiritual has declined substantially from 50.4 percent to 44.5 percent. But the proportion of those who consider themselves ‘moderately’ spiritual has increased from 41.1 percent to 46.4 percent. The change in the level of spirituality over the last five years was found to be statistically significant, $\chi^2(3)=67.97, p < 0.001$.

The level of spirituality has changed statistically significantly both in the rural and urban areas, and among both males and females. The proportion of respondents who reported being ‘very spiritual’ in nature declined from 53.5 percent to 46.7 percent in the rural areas and from 47.2 percent to 44.4 percent in the urban areas. By gender, the proportion of people who reported the same has also declined from 56 percent to 48.2 percent among males and from 48.5 percent to 44.6 percent among females. The rate of decline is comparatively higher among males and rural residents as compared to females and urban residents.

Table 13: Level of spirituality, by area, and by gender, 2010 and 2015

Area		Level of Spirituality				c ²	p-value
		Not at all % (n)	Somewhat % (n)	Moderately % (n)	Very % (n)		
Rural	2010	0.58 (32)	7.08 (393)	38.85 (2,158)	53.49 (2,971)	57.11	<0.001
	2015	0.27 (14)	8.41 (431)	44.59 (2,286)	46.73 (2,396)		
Urban	2010	0.69 (11)	8.63 (137)	43.45 (690)	47.23 (750)	12.17	<0.01
	2015	0.1 (2)	9.18 (186)	46.3 (938)	44.42 (900)		
Gender							
Male	2010	0.64 (22)	6.3 (216)	37.04 (1,269)	56.01 (1,919)	45.56	<0.001
	2015	0.3 (9)	8.16 (242)	43.32 (1,285)	48.21 (1,430)		
Female	2010	0.57 (21)	8.47 (314)	42.42 (1,573)	48.54 (1,800)	22.84	<0.001
	2015	0.17 (7)	8.96 (375)	46.32 (1,938)	44.55 (1,864)		

Figure 19: Level of spirituality, by area



2.1.3. Satisfaction with different aspects of life

There is a statistically significant increase in the proportion of people who are highly satisfied (who rated either ‘very satisfied’ or ‘satisfied’) with the standard of living and work-life balance in 2015 as compared to 2010 at a 0.1 percent significance level. Satisfaction with health also rose significantly at a 5 percent significance level. On the other hand, the proportion of people satisfied or very satisfied with one’s major occupation and their relationship with their immediate family members saw a slight but significant decline in 2015 as compared to 2010 (Table 14).

Table 14: Satisfaction with different aspects of life, 2010 and 2015

Satisfaction with different aspects of life					c ²	p-value	df
Dissatisfied/ Very Dissatisfied	Neither satisfied nor dissatisfied	Very satisfied/ Satisfied	Total				
% (n)	% (n)	% (n)	% (n)				
Satisfaction with health					8.19	< .05	2
2010	10.14 (724)	11.45 (817)	78.41 (5597)	100 (7138)			
2015	9.12 (652)	10.55 (754)	80.34 (5744)	100 (7150)			
Satisfaction with standard of living					15.42	< .001	2
2010	4.47 (318)	12.53 (891)	83.00 (5903)	100 (7112)			
2015	4.50 (322)	10.44 (746)	85.06 (6081)	100 (7149)			
Satisfaction with major occupation					6.70	< .05	2
2010	4.46 (318)	9.59 (684)	85.95 (6128)	100 (7130)			
2015	4.97 (355)	10.63 (758)	84.39 (6025)	100 (7138)			
Satisfaction with relationship with immediate family members					10.30	< .01	2
2010	1.22 (87)	2.25 (160)	96.53 (6878)	100 (7125)			
2015	1.12 (80)	3.10 (221)	95.77 (6821)	100 (7122)			
Satisfaction with work-life balance					33.80	< .001	2
2010	5.65 (403)	10.57 (754)	83.78 (5975)	100 (7132)			
2015	3.79 (270)	12.13 (864)	84.08 (5995)	100 (7129)			

2.2. Health

2.2.1. Healthy days

The mean number of healthy days per month has increased by about two days from 26.03 days ($SD = 7.88$) in 2010 to 28.4 days ($SD = 4.96$) in 2015; $t(14,288) = -21.56$, $p < .001$. The number of healthy days increased by an average of four days among people aged above 50 years, compared to the national mean of two days. Nonetheless, as expected, the number of healthy days drops as age increases (Fig. 21).

The mean number of healthy days among rural residents has increased significantly from 25.67 days ($SD = 8.25$) in 2010 to 28.31 days ($SD = 5.11$) in 2015; $t(10,679) = -19.67$, $p < .001$. Similarly, among urban residents, the mean number of healthy days increased statistically significantly, although by a lesser margin as compared to rural population, from 27.31 ($SD = 6.25$) in 2010 to 28.66 days ($SD = 4.54$) in 2015; $t(3,607) = -7.52$, $p < .001$.

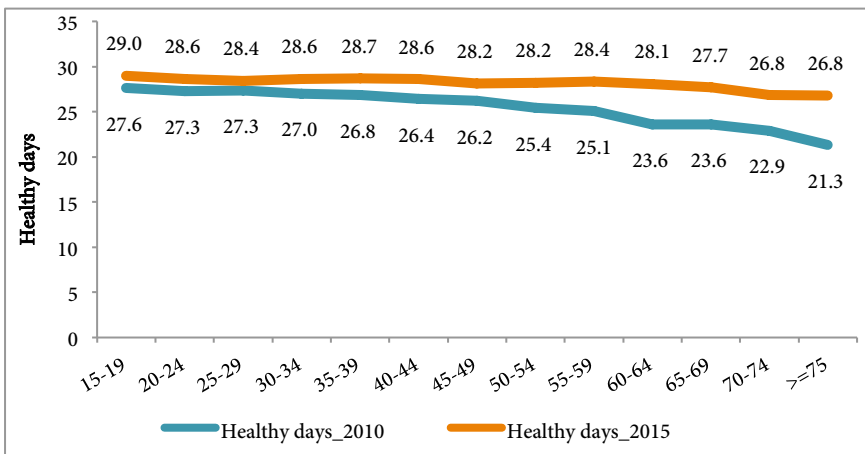
Likewise, the increase in the number of healthy days between 2010 and 2015 is higher among females (increased by 2.89 days) than males (increased by 1.86 days). The mean number of healthy days among males increased from 26.7 days ($SD=7.27$) to 28.6 days ($SD=4.69$), $t(6,387)=-11.94$, $p<0.001$. Among females, the mean number of healthy

days increased from 25.4 days ($SD=8.36$) to 28.3 days ($SD=5.15$), $t(7,889)=-18.64$, $p<0.001$.

Figure 20: Mean healthy days, by gender, 2010 and 2015



Figure 21: Mean healthy days, by age, 2010 and 2015

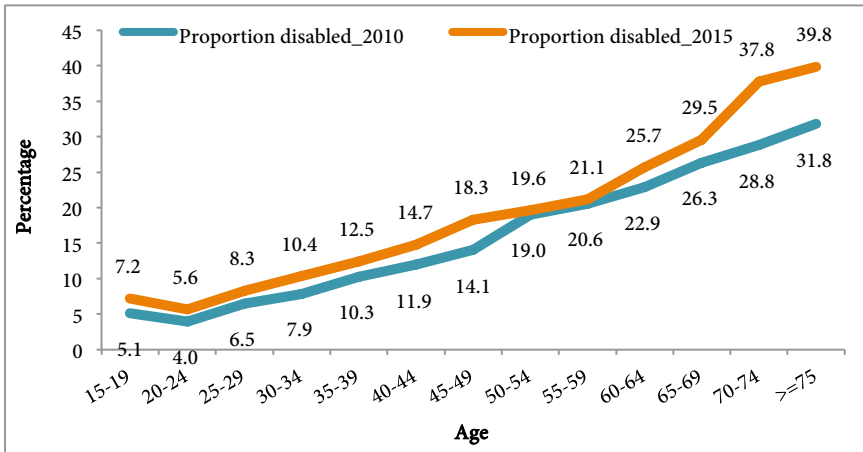


2.2.2. Disability

The number of people having a long-term disability has increased slightly but statistically significantly from 13.03 percent in 2010 to 15.50 percent in 2015, $\chi^2(1, N = 14286) = 14.95$, $p < .001$. However, the proportion of persons with a disability who reported that the disability has restricted their normal activities either ‘all the time’ or ‘sometimes’ has significantly reduced in 2015, $\chi^2(2, N = 2020) = 34.75$, $p < .01$. In 2010, 84.41 percent of persons with a disability reported that they were restricted from doing their normal activities by their disability condition either ‘all the time’ or ‘sometimes’. This has reduced to 75.46

percent in 2015. Taking both these aspects into account, it was found that the proportion of persons with a disability and who face severe activity limitations has remained fairly stable in 2015 (11.2%) as compared to 2010 (11.4%) at about 11% of the population, $c^2(1) = 0.25$, $p = 0.620$. The prevalence of disability increases as age increases. Therefore, disability seems to be largely caused by old age.

Figure 22: *Proportion of persons living with disability, by age, 2010 and 2015*



2.2.3. Mental health

The proportion of people who have ‘normal mental wellbeing’ has statistically significantly increased in 2015 (from 85.82% to 89.68%), $c^2(2, N = 13932) = 82.20$, $p < .001$. The increase in the proportion of people with ‘normal mental health’ is substantially higher among males than females. In 2010, 89.3 percent of male respondents had ‘normal mental wellbeing’, and this has increased to 91.38 percent in 2015, $c^2(2, N = 6234) = 8.64$, $p < .05$. Among female respondents, 81.6 percent were found to have ‘normal mental wellbeing’ and the proportion increased to 88.5 percent in 2015, $c^2(2, N = 7687) = 95.67$, $p < .001$.

Figure 23: *Distribution of people by mental health, 2010 and 2015*

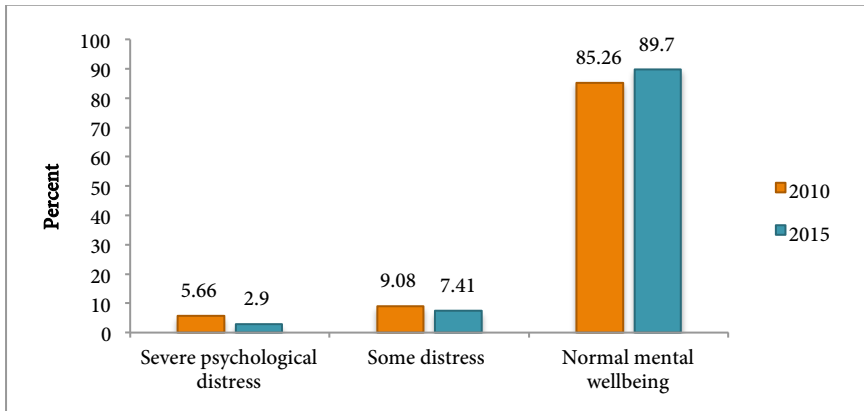


Table 15: *Mental health, by area, 2010 and 2015*

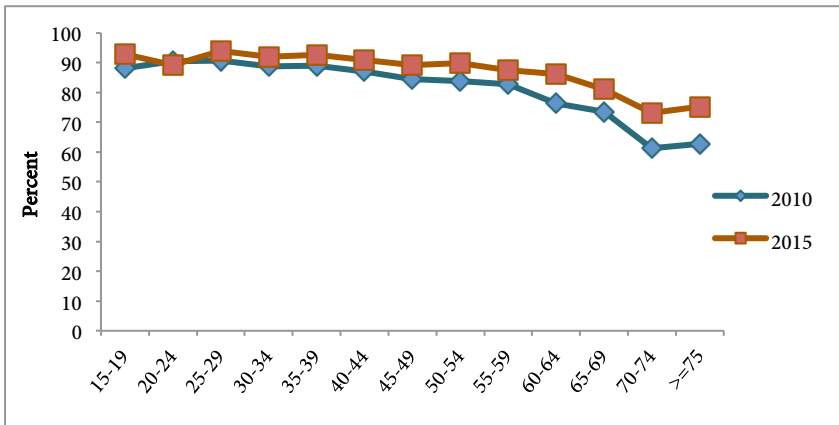
		Severe psychological distress	Some distress	Normal mental being	c ²	p-value
		% (n)	% (n)	% (n)		
Rural	2010	6.46 (346)	9.82 (526)	83.72 (4484)	67.07	<0.01
	2015	3.36 (170)	8.03 (406)	88.61 (4483)		
Urban	2010	2.88 (44)	6.47 (99)	90.65 (1387)	6.16	<0.05
	2015	1.71 (34)	5.84 (116)	92.45 (1837)		

Table 16: *Mental health, by gender, 2010 and 2015*

		Severe psychological distress	Some distress	Normal mental being	c ²	p-value
		% (n)	% (n)	% (n)		
Male	2010	3.44 (114)	7.28 (241)	89.28 (2956)	8.64	<0.05
	2015	2.46 (72)	6.16 (180)	91.38 (2671)		
Female	2010	7.68 (274)	10.77 (384)	81.55 (2909)	95.67	<0.001
	2015	3.2 (132)	8.3 (342)	88.5 (3646)		

A higher increase in the proportion of people with ‘normal mental health’ in 2015 was observed among the older age groups (Fig. 24). The proportion of urban people with ‘normal mental health’ has increased significantly from 90.7 percent in 2010 to 92.5 percent in 2015, $c^2(2, N = 3517) = 6.16, p < .05$. Similarly, a statistically significant increase in the proportion of rural people with ‘normal mental health’ was also observed from 83.7 percent in 2010 to 88.6 percent in 2015, $c^2(2, N = 10,415) = 67.07, p < .001$.

Figure 24: Proportion of respondents enjoying 'normal mental wellbeing, by age category, 2010 and 2015



2.3. Time Use and Balance

2.3.1. Time spent on work and related activities

The mean time spent on work and related activities increased by about three minutes from 475 minutes ($SD = 210$) in 2010 to 478 minutes per day ($SD=226$) in 2015. However, the mean difference is not statistically significant; $t(14,263) = -0.71, p = 0.48$.

By gender, the mean time spent on work and related activities among males increased by about 19 minutes from 443 minutes ($SD = 221$) in 2010 to 462 minutes ($SD = 239$) in 2015 and the difference is statistically significant; $t(6,375) = -3.27, p < .01$. On the other hand, the mean time spent on work and related activities among females went down by about 16 minutes from 506 minutes ($SD = 194$) in 2010 to 490 minutes ($SD = 216$) in 2015; $t(7,875) = 3.43, p < .001$.

By area of residence, people in both rural and urban areas recorded an increase in mean time spent on work and related activities by about four and eight minutes, respectively, although the increase is not statistically significant in both areas.

Table 17: Average time spent and participation rate, 2010 and 2015

Activities	2015			2010		
	Population average (hrs.)	Participation average (hrs.)	Participation rate	Population average (hrs.)	Participation average (hrs.)	Participation rate
Work	7:56	8:13	97%	7:49	7:58	98%
Non-work	7:16	7:16	100%	7:42	7:42	100%
Sleep	8:46	8:47	100%	8:28	8:28	100%

Note: The figures in the table are sample weighted

2.3.2. Time spent on non-work and related activities

The mean time spent on non-work and related activities significantly declined from 452 minutes ($SD = 213$) in 2010 to 434 minutes ($SD = 217$) in 2015; $t(14,263) = 4.84, p < .001$. Among males, the time spent on non-work and related activities declined significantly from 491 minutes ($SD = 225$) in 2010 to 454 minutes ($SD = 230$) in 2015; $t(6,375) = 6.38, p < .001$. On the contrary, the time spent on non-work and related activities among females increased slightly. The increase is not statistically significant though; $t(7,875) = -0.97, p = 0.33$.

2.3.3. Time spent sleeping

Survey results show that on average, the Bhutanese slept a quarter of an hour per day longer in 2015 compared to 2010 and the results are statistically significant; $t(14,263) = -8.25, p < .001$. The average sleeping time in 2010 was 513 minutes ($SD=98$) and it increased to 528 minutes ($SD=115$) in 2015.

2.3.4. Time spent praying

The amount of time spent praying among those who prayed increased statistically significantly from 89 minutes ($SD = 125$) in 2010 to 106 minutes ($SD = 140$) in 2015 (Table 18).

2.3.5. Time spent viewing TV/Movies

The average time spent watching television or movies among those who participated in the activity increased by about 10 minutes in 2015 from 2010 and the increase is statistically significant (Table 18)

2.3.6. Time spent cooking

The average time spent on cooking has decreased by about seven minutes in 2015 from 2010, which is statistically significant (Table 18).

2.3.7. Time spent eating

The amount of time spent eating and drinking also decreased by about seven minutes in 2015 from 2010, and the changes are statistically significant (Table 18).

Table 18: Results of *t*-test and descriptive statistics for time spent on different time use activities (in minutes), by year

	Year						95% CI for		t	df
	2010			2015			Mean			
	M	SD	n	M	SD	n	Difference			
Work	476	230	7,115	478	226	7,150	-9.75, 4.56		-0.71	14,263
Non-work	452	213	7,115	434	217	7,150	10.37, 24.50		4.84***	14,263
Sleep	513	98	7,115	528	115	7,150	-18.26, -11.25		-8.25***	14,263
Praying†	89	125	2,894	106	140	2,544	-23.47, -9.37		-4.56***	5,436
TV†	156	110	2,829	166	162	4,046	-14.92, -3.90		-3.35***	6,873
Cooking†	104	57	5,045	96	61	5,067	5.04, 9.64		6.25***	10,110
Eating	89	41	7,115	82	44	7150	5.48, 8.26		9.67***	14,263

* significance at $p < 0.05$; ** significance at $p < 0.01$; *** significance at $p < .001$.

† only among those who participated in the activity.

2.4. Education

2.4.1. Literacy rate

The literacy rate has increased to 52.34 percent in 2015 from 48.66 percent in 2010. The difference is statistically significant, $c^2(1, N=14,293) = 35.43, p < .01$.

Literacy rate declines as one moves from young to older age groups, ranging from 95 percent among population aged 15-20 years to 19.8 percent among persons aged above 65 years. It is noteworthy that the literacy rate of the population aged 15-20 years increased substantially from 81.8 to 95 percent over the last five years.

Literacy rate in the rural areas has increased statistically significantly from 40.2 percent in 2010 to 43.0 percent in 2015, $c^2(1, N = 10,681) =$

14.40, $p < .01$. In the urban areas, although the literacy rate has increased in 2015 from 2010 (72.4% in 2015 from 71.0% in 2010), the increase is not statistically significant, $\chi^2(1, N = 3614) = 1.59, p = 0.21$.

The literacy rate among males has increased significantly to 64.0 percent in 2015 from 58.8 percent in 2010, $\chi^2(1, N = 6392) = 13.36, p < .001$. The literacy rate among females has also increased significantly to 44.0 percent in 2015 from 37.4 percent in 2010, $\chi^2(1, N = 7892) = 53.04, p < .001$.

2.4.2. Years of schooling

The average years of schooling increased to 3.6 years ($SD = 5.0$) in 2015 from 2.8 years ($SD = 4.9$) in 2010 and the difference is statistically significant; $t(14,293) = -9.92, p < .001$. The results also indicated that there existed significant difference in the years of schooling between 2010 and 2015 at gender and area of residence disaggregated levels (Table 19).

Table 19: Results of *t*-test and descriptive statistics for years of schooling, by year

	Year						95% CI for		
	2010			2015			Mean Difference	<i>t</i>	<i>df</i>
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>			
Years of schooling (male)	3.5	5.5	3426	4.2	5.2	2966	-0.99, -0.47	-5.49***	6390
Years of schooling (female)	2.2	4.2	3708	3.2	4.8	4184	-1.21, -0.81	-9.99***	7890
Years of schooling (rural)	1.9	4.0	5554	2.5	4.2	5127	-0.74, -0.43	-7.36***	10679
Years of schooling (urban)	6.1	6.0	1588	6.6	5.9	2026	-0.87, -0.12	-2.59**	3612

* significance at $p < 0.05$; ** significance at $p < 0.01$; *** significance at $p < .001$.

2.4.3. Cultural and historical literacy

The proportion of respondents having either ‘good’ or ‘very good’ knowledge and understanding of the National Day has increased statistically significantly from 29.1 percent to 32.7 percent of the respondents, $\chi^2(2)=29.38, p<0.001$. There is no significant change in the proportion of people that has adequate knowledge and understanding of local legends and folktales, $\chi^2(2)=1.19, p=0.55$.

Pearson's chi-square test showed a significant rise in the proportion of people who have either 'good' or 'very good' knowledge and understanding of local tshechus/festivals. It increased from 40.5 percent in 2010 to 46.1 percent in 2015, $c^2(2)=46.79$, $p<0.001$. Despite a slight decline in the percentage of people having either 'very good' or 'good' knowledge and understanding of traditional Bhutanese songs from 21.4 percent to 20.2 percent in 2015 against 2010, the decline is not statistically significant at a 95 percent confidence level, $c^2(2)=3.01$, $p=0.22$.

Table 20: Cultural knowledge, by year

	2010	2015	c ²	p-value
	% (n)	% (n)		
Knowledge and understanding of local <i>tshechus</i> /festivals				
Poor/Very poor	28.63 (2,044)	25.04 (1,789)	46.79	<.001
Average	30.84 (2,202)	28.92 (2,066)		
Very good/Good	40.52 (2,893)	46.05 (3,290)		
Knowledge and understanding of traditional Bhutanese songs				
Poor/Very poor	56.36 (4,024)	57.26 (4,091)	3.01	0.22
Average	22.23 (1,587)	22.51 (1,608)		
Very good/Good	21.41 (1,529)	20.24 (1,446)		

Table 21: Historical knowledge, by year

	2010	2015	c ²	p-value
	% (n)	% (n)		
Knowledge and understanding of local legends and folktales				
Poor/Very poor	65.4 (4,669)	64.8 (4,630)	1.19	0.55
Average	22.87 (1,633)	22.9 (1,636)		
Very good/Good	11.72 (837)	12.3 (879)		
Knowledge and understanding of National day				
Poor/Very poor	51.84 (3,699)	47.55 (3,398)	29.38	<.001
Average	19.07 (1,361)	19.72 (1,409)		
Very good/Good	29.08 (7,135)	32.73 (2,339)		

2.4.4. Artisan skills

At a 0.1 percent significance level, Pearson's chi-square test of association showed a statistically significant rise in the proportion of people possessing skills in embroidery (from 6.10% in 2010 to 9.53% in 2015) but a significant drop in the proportion of people with skills in bamboo works (from 16.62% in 2010 to 12.93% in 2015). The proportion of people with skills in gold/silver smithing and paper making has also increased slightly but statistically significantly from 0.32 percent in 2010 to 0.73 percent in 2015, and from 0.7 percent in

2010 to 1.16 percent in 2015, respectively. On the other hand, those with masonry skills have declined significantly from 16.84 percent of the population in 2010 to 15.28 percent in 2015. The proportion of people with skills in weaving, carving, sculpture, casting, and blacksmithing has increased slightly, but the increase is not statistically significant. Likewise, though there is a slight decrease in the proportion of people having skills in carpentry and leather works in 2015 as compared to 2010, the differences are not statistically significant (Table 22).

Table 22: *Proportion of people possessing different artisan skills, by year*

	Year	Yes % (n)	No % (n)	Total % (n)	χ^2	p - value
Weaving	2010	32.39 (2311)	67.61 (4825)	100 (7136)	3.33	= .07
	2015	33.81 (2417)	66.19 (4729)	100 (7146)		
Embroidery	2010	6.10 (435)	93.90 (6699)	100 (7134)	58.80	< .001
	2015	9.53 (682)	90.47 (6464)	100 (7146)		
Painting	2010	5.93 (423)	94.07 (6712)	100 (7135)	91.52	< .001
	2015	10.30 (736)	89.70 (6409)	100 (7145)		
Carpentry	2010	16.98 (1211)	83.02 (5923)	100 (7134)	2.49	= .12
	2015	15.99 (1143)	84.01 (6003)	100 (7146)		
Carving	2010	2.13 (152)	97.87 (6982)	100 (7134)	3.25	= .07
	2015	2.59 (185)	97.41 (6961)	100 (7146)		
Sculpture	2010	0.74 (53)	99.26 (7083)	100 (7136)	1.41	= .23
	2015	0.92 (66)	99.08 (7080)	100 (7146)		
Casting	2010	0.60 (43)	99.40 (7091)	100 (7134)	1.46	= .23
	2015	0.77 (55)	99.23 (7091)	100 (7146)		
Blacksmithing	2010	1.30 (93)	98.70 (7040)	100 (7133)	0.18	= .67
	2015	1.39 (99)	98.61 (7047)	100 (7146)		
Bamboo works	2010	16.62 (1186)	83.38 (5949)	100 (7135)	38.60	< .001
	2015	12.93 (924)	87.07 (6221)	100 (7145)		
Gold/silver-smithing	2010	0.32 (23)	99.68 (7109)	100 (7132)	11.22	< .01
	2015	0.73 (52)	99.27 (7093)	100 (7145)		
Masonry	2010	16.84 (1202)	83.16 (5934)	100 (7136)	6.47	< .05
	2015	15.28 (1092)	84.72 (6054)	100 (7146)		
Leather works	2010	1.16 (83)	98.84 (7051)	100 (7134)	0.54	= .46
	2015	1.04 (74)	98.96 (7072)	100 (7146)		
Paper-making	2010	0.70 (50)	99.30 (7085)	100 (7135)	8.22	< .01
	2015	1.16 (83)	98.84 (7062)	100 (7145)		

2.5. Cultural Diversity and Resilience

2.5.1. Community participation

The proportion of people attending social and cultural activities more than five days per year in the community has increased statistically significantly [$\chi^2(3) = 328.61$, $p < .001$] in 2015, from 33.2 percent in 2010 to 45.8 percent in 2015.

The number of people who have contributed more than five days in the community events has increased significantly both in rural and urban areas, but the rate of attendance continues to be higher in the rural areas. In the rural areas, 50.4 percent has contributed more than five days in 2015 against 38.9 percent in 2010. In the urban areas, those who contributed more than five days rose from 26.2 percent to 38.2 percent in 2015. On the other hand, a higher rate of increase in the proportion of persons who have contributed more than five days was observed among females (from 33.3% to 45.5%) compared to their male counterparts (from 39.1% to 49.1%). The proportion of people attending more than five days of community socio-cultural events has increased relatively more among the middle-aged population.

Figure 25: Proportion of people who contributed more than five days, by age category, 2010 and 2015

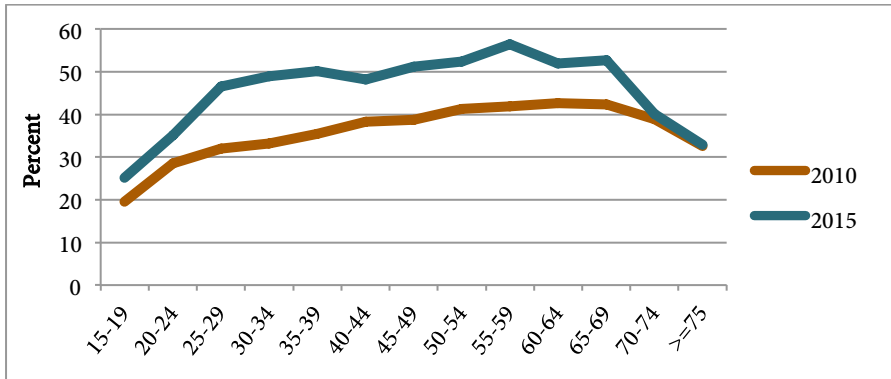


Table 23: Community participation, by area and, by gender, 2010 and 2015

		None	1-5 days	More than 5 days	c ²	P-value	df
		% (n)	% (n)	% (n)			
Rural	2010	3.36 (185)	57.79 (3,179)	38.85 (2,137)	278.4	<0.001	2
	2015	7.21 (366)	42.4 (2,152)	50.39 (2,558)			
Urban	2010	10.75 (164)	63.02 (961)	26.23 (400)	73.82	<0.001	2
	2015	13.08 (261)	48.7 (972)	38.23 (763)			
Male	2010	4.12 (139)	56.74 (1,915)	39.14 (1,321)	152.4	<0.001	2
	2015	8.63 (253)	42.29 (1,239)	49.08 (1,438)			
Female	2010	5.76 (210)	60.97 (2,221)	33.27 (1,212)	186.9	<0.001	2
	2015	9.01 (373)	45.54 (1,885)	45.45 (1,881)			

2.5.2. Bhutanese Code of Conduct and Etiquette

There is a very slight but significant difference in people's perceived importance of *Driglam Namzha* between 2010 and 2015, $\chi^2(3, N=14,287)=27.70, p<0.001$. As compared to 2010, there is about a one percent drop in the proportion of people who considers *Driglam Namzha* as 'very important' (93.1% in 2010, 92.2% in 2015). *Driglam Namzha* is considered 'very important' by a large majority, irrespective of their gender and area of residence.

Figure 26: Perception of change in the practice and observance of *Driglam Namzha*, 2010 and 2015

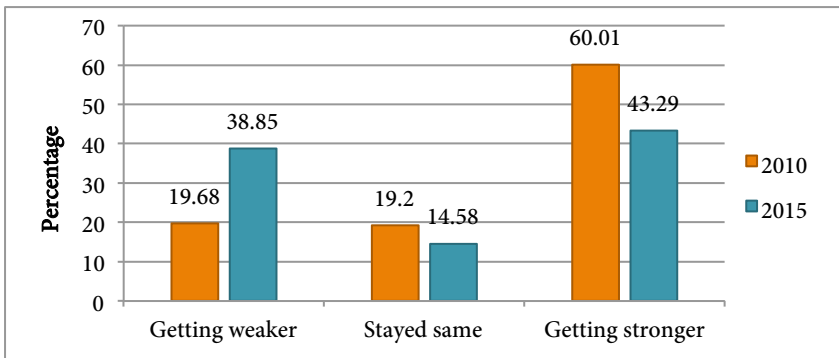
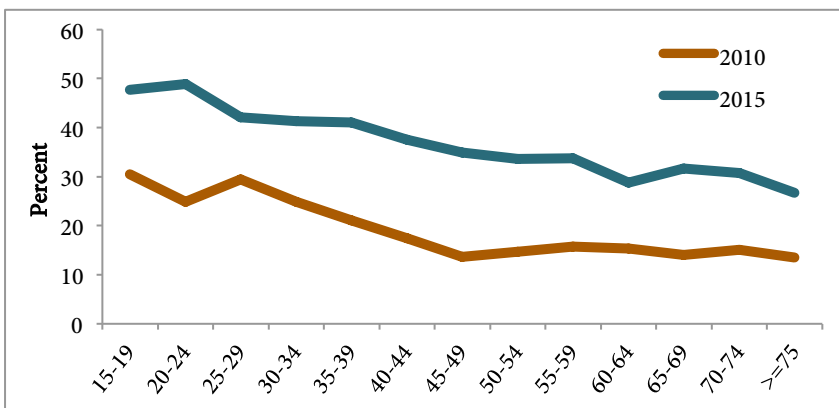


Figure 27: Proportion of people who thinks that the *Driglam Namzha* is getting weaker, by age category, 2010 and 2015



In terms of perceived change in the practice and observance of *Driglam Namzha*, the proportion of people who think that the practice and

observance of *Driglam Namzha* is ‘getting weaker’ has increased (from 19.7% in 2010 to 38.9% in 2015) whereas the proportion of people who think that the practice and observance of *Driglam Namzha* is getting stronger has decreased (from 60% in 2010 to 43.3% in 2015). The differences are statistically significant, $c^2(3, N = 14,281) = 726.04$, $p < 0.001$. The proportion of people who have a perception that the practice of *Driglam Namzha* is ‘getting weaker’ is high among the younger people and drops as age increases.

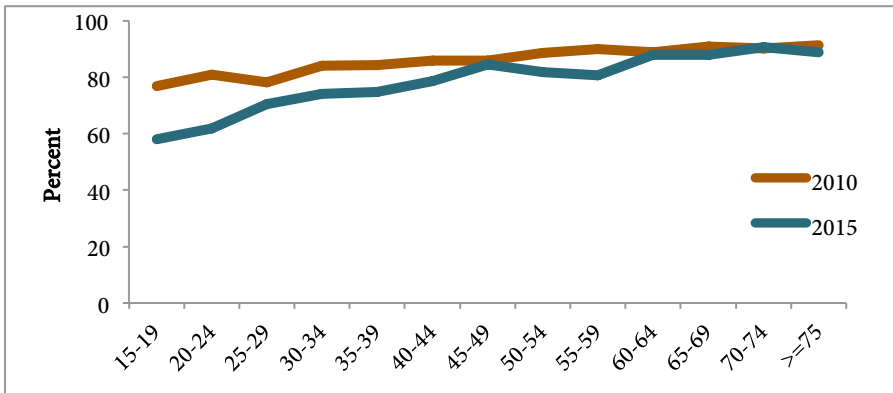
2.5.3. Values

Compared to 2010, the proportion of people who think that killing, stealing, creating disharmony in the society, and sexual misconduct ‘can never be justified’ has increased in 2015 as compared to 2010. But there is a slight but statistically significant decrease in the proportion of people who thinks that lying ‘can never be justified’, $c^2(2)=172.75$, $p<0.001$. This decrease in the proportion of people who thinks that lying ‘can never be justified’ is partly a result of a significant drop in the proportion of young people who holds the view that lying ‘can never be justified’. About 58 percent of people aged between 15 and 19 years, and 62 percent of those aged 20-24 years thinks that lying ‘can never be justified’ in 2015. In 2010, 77.09 percent and 80.86 percent of those aged 15-19 and 20-24 years had the same view towards justifiability of lying, respectively.

Table 24: Contingency table of people’s perception on justifiability of certain actions, by year

		Year		c^2	p-value
		2010 % (n)	2015 % (n)		
Killing	Can always be justified	0.70 (50)	0.48 (34)	174.57	< 0.001
	Can sometimes be justified	10.58 (754)	4.76 (340)		
	Can never be justified	88.72 (6321)	94.76 (6762)		
Stealing	Can always be justified	0.21 (15)	0.34 (24)	29.03	< 0.001
	Can sometimes be justified	2.90 (207)	1.61 (115)		
	Can never be justified	96.89 (6906)	98.05 (7003)		
Lying	Can always be justified	0.41 (29)	0.52 (37)	172.75	< 0.001
	Can sometimes be justified	14.94 (1065)	23.57 (1683)		
	Can never be justified	84.65 (6033)	75.91 (5420)		
Creating disharmony in relations	Can always be justified	0.29 (21)	0.35 (25)	67.30	< 0.001
	Can sometimes be justified	3.09 (220)	1.12 (80)		
	Can never be justified	96.62 (6881)	98.53 (7032)		
Sexual misconduct	Can always be justified	0.25 (18)	0.35 (25)	38.29	< 0.001
	Can sometimes be justified	2.32 (165)	1.01 (72)		
	Can never be justified	97.43 (6938)	98.64 (7034)		

Figure 28: Proportion of people who feels that lying 'can never be justified', by age category, 2010 and 2015



2.6. Good Governance

2.6.1. Performance of the Government

The proportion of people who rated the performance of the government as either 'very good' or 'good' has declined statistically significantly in 2015 from 2010 for all seven indicators (Table 25). The highest decline in the proportion of people rating either 'good' or 'very good' is observed with regard to government's performance in creating jobs, reducing the gap between the rich and poor, and fighting corruption.

2.7. Community Vitality

2.7.1. Sense of belonging

People's sense of belonging to the local community has undergone significant changes in the last five years, $\chi^2(3, N = 14,283) = 116.66, p < 0.001$. The proportion of people reporting their sense of belonging to the local community as 'very strong' has reduced from 72.48 percent in 2010 to 65.75 percent in 2015. On other hand, the proportion of people who describe their sense of belonging as 'somewhat strong' has increased from 23.77 percent in 2010 to 31.24 percent in 2015.

There is a statistically significant change in the sense of belonging to one's local community among both rural and urban people in the last five years. For instance, in the rural areas, the proportion of people who reported a 'very strong' sense of belonging has declined from 79.6

percent to 71.6 percent. On the other hand, the proportion of urban people who have a 'very strong' sense of belonging has increased relatively slightly but statistically significantly at a one percent significance level, from 47.9 percent to 51.7 percent. However, the sense of belonging continues to be higher among rural people.

Similarly, the proportion of people who have reported a 'very strong' sense of belonging to the local community has declined among males (from 73.97% to 68.3%) as well as females (from 71.2% to 64%) over the last five years.

Table 25: Perception of government performance in the past 12 months preceding the survey, by year

Government performances					
		Very poor/Poor/Average/Don't Know		Good/Very good	
		% (n)	% (n)	% (n)	Total
Performance in creating jobs	2010	16.23 (1158)	83.77 (5959)	100 (7137)	3200
	2015	62.13 (4437)	37.87 (2704)	100 (7141)	< 0.001
Performance in reducing gap between rich and poor	2010	20.54 (1465)	79.46 (5667)	100 (7132)	2600
	2015	62.58 (4467)	37.42 (2671)	100 (7138)	< 0.001
Performance in providing educational facilities	2010	5.76 (411)	94.24 (6723)	100 (7134)	906
	2015	23.60 (1685)	76.40 (5456)	100 (7141)	< 0.001
Performance in improving health facilities/services	2010	5.83 (416)	94.17 (6715)	100 (7131)	760
	2015	21.75 (1969)	78.25 (5587)	100 (7140)	< 0.001
Performance in fighting corruption	2010	26.99 (1923)	73.01 (5203)	100 (7126)	1000
	2015	53.42 (3814)	46.58 (3325)	100 (7139)	< 0.001
Performance in protecting the environment	2010	6.39 (456)	93.61 (6675)	100 (7131)	500
	2015	18.82 (1344)	81.18 (5797)	100 (7141)	< 0.001
Performance in preserving culture and traditions	2010	7.59 (541)	92.41 (6591)	100 (7132)	603
	2015	22.22 (1587)	77.78 (5554)	100 (7141)	< 0.001

Table 26: *Distribution of respondents by sense of belonging, by area of residence, 2010 and 2015*

	Year		c ²	p-value	df
	2010 % (n)	2015 % (n)			
Rural					
Weak	2.72 (151)	1.93 (99)			
Somewhat strong	17.71 (982)	26.46 (1354)	122.35	< .001	2
Very strong	79.57 (4412)	71.60 (3664)			
Urban					
Weak	6.96 (110)	4.48 (90)			
Somewhat strong	45.13 (713)	43.83 (880)	12.75	< .01	2
Very strong	47.91 (757)	51.69 (1040)			

Table 27: *Distribution of respondents by sense of belonging, by gender, 2010 and 2015*

	Year		c ²	p-value	df
	2010 % (n)	2015 % (n)			
Male					
Weak	3.66 (125)	2.13 (63)			
Somewhat strong	22.37 (765)	29.59 (876)	51.91	< .001	2
Very strong	73.97 (2529)	68.28 (2021)			
Female					
Weak	3.65 (135)	3.00 (125)			
Somewhat strong	25.12 (929)	32.56 (1356)	53.20	< .001	2
Very strong	71.23 (2634)	64.43 (2683)			

2.7.2. Sense of trust towards neighbours

Compared to 2010, the proportion of people who reported that they ‘trust most’ of their neighbours has significantly declined from 47.29 percent in 2010 to 26.36 percent in 2010, $c^2(3, N = 14,272) = 1200$, $p < 0.001$. When the response category ‘trust most’ and ‘trust some’ of their neighbours are taken together, it was found that, from 85.3 percent of people who reported that they trust either most or some of their neighbours in 2010, the figure has dropped to 61.6 percent in 2015. The differences are statistically highly significant, $c^2(2, N=14,272)=1000$, $p<0.001$.

So far as the differences in areas is concerned, the proportion of people who trust either most or some of their neighbours has statistically significantly declined in both rural and urban areas, and slightly more in the latter (Table 28).

From 88.3 percent of males and 82.5 percent of females who reported that they trust either most or some of their neighbours in 2010, the proportion of those who reported the same has statistically significantly dropped to 67.3 percent of male and 57.5 percent of female respondents in 2015 (Table 29).

Table 28: *Sense of trust, by area, 2010 and 2015*

	2010 % (n)	2015 % (n)	c ²	p-value	df
Rural					
Trust none of them	1.06 (59)	3.26 (167)	739.68	<0.001	2
Trust a few of them	10.75 (596)	30.5 (1,563)			
Trust most/some of them	88.19 (4,891)	66.24 (3,394)			
Urban					
Trust none of them	3.1 (49)	8.75 (177)	241.29	<0.001	2
Trust a few of them	21.96 (347)	41.54 (840)			
Trust most/some of them	74.94 (1,184)	49.7 (1,005)			

Table 29: *Sense of trust, by gender, 2010 and 2015*

	2010 % (n)	2015 % (n)	c ²	p-value	df
Male					
Trust none of them	0.85 (29)	3.21 (95)	417.96	<0.001	2
Trust a few of them	10.84 (371)	29.5 (874)			
Trust most/some of them	88.31 (3,021)	67.3 (1994)			
Female					
Trust none of them	2.14 (79)	5.96 (249)	574.81	<0.001	2
Trust a few of them	15.39 (569)	36.53 (1,527)			
Trust most/some of them	82.47 (3,049)	57.51 (2,404)			

2.7.3. Frequency of socialization with neighbours

Pearson's chi-square test of association has revealed a significant change in the pattern of people's socialization with neighbours over the last five years, $c^2(3, 14,258)=27.38$, $p < 0.001$. The proportion of people who socialized with their neighbours either a 'few times per week' or a 'few times a month' has increased in 2015, from 25.9 percent to 26.7 percent, and from 36.7 percent to 39.9 percent, respectively. On the other hand, the proportion of people who socialized only 'once a month' has declined from 17.2 percent to 15 percent. Similarly, the proportion of people who did not socialize with their neighbours at all in the last month has declined slightly from 20.1 percent in 2010 to 18.3 percent in

2015. Overall, the results indicate that the frequency of socialization has slightly but significantly increased over the last five years.

Among the rural population, the frequency of socialization has increased significantly. The proportion of rural people who socialized a ‘few times per week’ has increased from 25.9 percent to 27.7 percent, and those who socialized a ‘few times a month’ has also increased from 37.1 percent to 40.6 percent. The differences were statistically significant (Table 30). No statistically significant change in the frequency of socialization was observed at a 95 percent confidence interval among urban residents over the last five years.

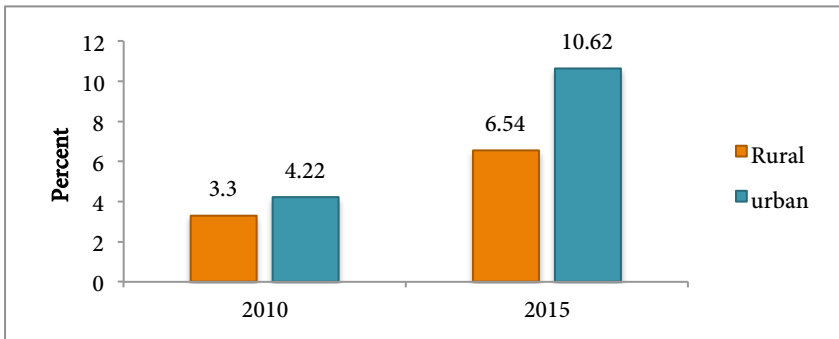
Table 30: *Frequency of socialization, by area, 2010 and 2015*

	2010	2015	c2	p-value	df
	% (n)	% (n)			
Rural					
Not in the last month	19.41 (1,073)	16.22 (831)	33.89	<0.001	3
Once a month	17.54 (970)	15.44 (791)			
Few times a month	37.11 (2,052)	40.63 (2,082)			
Few times per week	25.94 (1,434)	27.71 (1,420)			
Urban					
Not in the last month	22.71 (359)	23.72 (488)	6.28	0.099	3
Once a month	16.19 (256)	13.98 (283)			
Few times a month	35.17 (556)	38.04 (770)			
Few times per week	25.93 (410)	24.26 (491)			

2.7.4. Safety

Victimization rates have almost doubled to 7.7 percent in 2015 from 3.5 percent in 2010 and the change is statistically significant, $c^2(1)=118.86$, $p<0.001$. Victimization rates have increased statistically significantly by equal proportion in both rural and urban areas (both figures doubled). For instance, the proportion of people who are victims of crimes in rural areas has increased from 3.3 percent in 2010 to 6.54 percent in 2015 [$c^2(1, N=10,671)=60.70$, $p<0.001$] and in urban areas has increased from 4.2 percent to 10.6 percent [$c^2(1, N=3,612)=50.69$, $p<0.001$]. But, the rate of victimization is substantially higher in urban areas (10.9% as compared to 6.7% in rural areas). The crime victimization rate is equal between both males and females in both 2010 (2.92%) and in 2015 (6.78%).

Figure 29: Victimization, by area of residence, 2010 and 2015



2.8. Ecological Diversity and Resilience

2.8.1. Energy use for cooking

The primary sources of energy used for cooking are electricity and LPG. The use of both has increased statistically significantly over the last five years, $\chi^2(3)=444.23$, $p<0.001$. On the other hand, the proportion of people who use fuel wood has reduced substantially from about one-third to about one-fifth of the population in 2015.

A chi-square test of association shows a significant change in the primary use of energy for cooking in both rural [$\chi^2(3, 10,666)=330.47$, $p<0.001$] and urban areas [$\chi^2(3, 3,606)=118.71$, $p<0.001$]. The use of wood for cooking has drastically decreased in rural areas from 44.8 percent to 28 percent. The use of LPG has increased relatively more in urban areas (from 31.2% to 48.8% of the urban residents) than in rural areas (which saw an increase from 11.23% to 14.9%). The rise in LPG use in urban areas seems to have partially substituted the use of electricity for cooking. The use of electricity as a primary energy for cooking in the urban areas has decreased substantially from 67.3 percent to 49.7 percent. But, electricity use has increased among rural residents from 43.7 percent to 56.1 percent.

2.8.2. Household waste disposal

There was a significant change in the waste disposal method between 2010 and 2015, $\chi^2(6)=483.19$, $p<0.001$. Waste disposal through municipal garbage pickups has increased substantially from 19.8 percent to 28.2 percent of the population while the proportion of people

who opt for composting has decreased from 24.4 percent to 13.8 percent. Burning has slightly increased from 52.2 percent to 54.5 percent. Burning continues to be the major waste disposal method in the country.

By area of residence, the proportion of people who use municipal garbage pickups in urban areas has increased from 68.1 percent to 77.4 percent. There is an increase in the proportion of rural people who burn their household waste (from 64.4% to 72.8%), but a decline from 19.9 percent to 15 percent in the proportion of urban people who do that. The proportion of people who compost their waste decreased from 30.4 percent to 17.8 percent in rural areas compared to 8.2 percent to 5 percent in urban areas.

2.8.3. Responsibility for conserving natural environment

There is a drastic change in the proportion of people who feel 'highly responsible' for conserving the natural environment between rural and urban areas in 2015 when compared to 2010. The proportion of rural people who feel 'highly responsible' has declined by a huge margin from 82.4 percent to 78.7 percent, which is statistically significant, $\chi^2(3, N=10,676)=38.41, p<0.001$. Among urban people, the proportion of people who feel highly responsible for conserving the natural environment has not changed significantly, $\chi^2(3, N=3,614)=5.72, p=0.13$. It was 82.6 percent in 2010 and 82.1 percent in 2015.

By gender, there is an almost equal drop in the proportion of both males and females who feel 'highly responsible' for conserving the natural environment. Among male respondents, the proportion of those who feel 'highly responsible' for conserving the natural environment has declined from 85 percent to 83.1 percent at a one percent significance level, $\chi^2(3, N=6,389)=16.61, p<0.01$. On the other hand, the proportion of females who feels the same has shown a decline from 80 percent in 2010 to 77.3 percent in 2015, $\chi^2(3, N=7,890)=17.67, p<0.01$.

Figure 30: Sense of responsibility towards conserving natural environment, 2010 and 2015

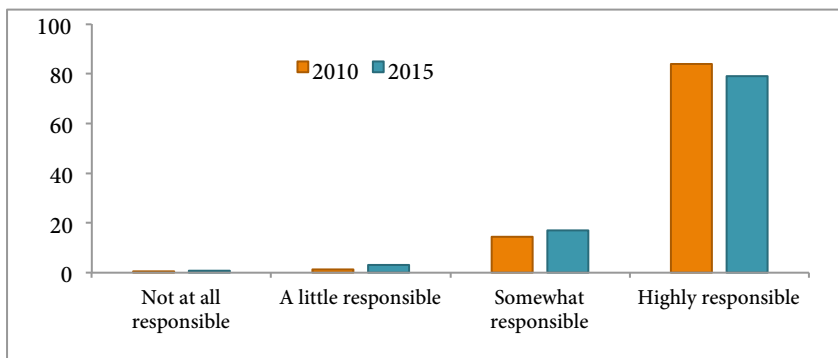


Table 31: Sense of responsibility towards environmental conservation, by area, and by gender, 2010 and 2015

		Not at all responsible	A little responsible	Somewhat responsible	Highly responsible	c ²	p-value
		% (n)	% (n)	% (n)	% (n)		
Rural	2010	0.49 (27)	1.6 (89)	15.53 (862)	82.38 (4,571)	38.41	<0.001
	2015	0.72 (37)	3.1 (159)	17.44 (894)	78.74 (4,037)		
Urban	2010	0.44 (7)	1.2 (19)	15.81 (251)	82.56 (1,311)	5.72	0.126
	2015	0.69 (14)	2.12 (43)	15.1 (306)	82.08 (1,663)		
Male	2010	46.15 (12)	34.62 (36)	52.6 (465)	54.14 (2,910)	16.63	<0.01
	2015	53.85 (14)	65.38 (68)	47.4 (419)	45.86 (2,465)		
Female	2010	37.29 (22)	34.95 (72)	45.3 (646)	47.85 (2,966)	17.67	<0.01
	2015	62.71 (37)	65.05 (134)	54.7 (780)	52.15 (3,233)		

2.9. Living Standards

2.9.1. Household equipment ownership

Compared to 2010, there is a statistically highly significant increase in the proportion of people who own mobile phones (from 86.4% to 97.6%), computers/laptops (from 8.8% to 18.5%), refrigerators (29.9% to 51.1%), washing machines (7.5% to 16.7%), televisions (47.2% to 73.8%), and four-wheel vehicles (from 16.1% to 23.2%) in 2015 at $p < 0.001$ significance level. On the other hand, the proportion of people who own fixed line phones and radio sets has declined significantly from 9.88% to 5.15% and from 63.7% to 31.7%, respectively. No statistically significant change in the proportion of people who own tractors, power tillers, power threshers, rice/maize mill sets, oil mill sets, power reapers, and two-wheel vehicles was observed between 2010 and 2015, as per the GNH surveys.

Table 32: Household equipment ownership, 2010 and 2015

	2010 % (n)	2015 %(n)	c ²	p-value
Tractors				
No	99.48 (7,100)	99.33 (7,094)	1.42	0.23
Yes	0.52 (37)	0.67 (48)		
Power tillers				
No	96.47 (6,886)	96.91 (6,922)	2.12	0.15
Yes	3.53 (252)	3.09 (221)		
Power threshers				
No	99.48 (7,101)	99.51 (7,108)	0.06	0.81
Yes	0.52 (37)	0.49 (35)		
Paddle threshers				
No	98.78 (7,051)	99.24 (7,089)	7.82	<.01
Yes	1.22 (87)	0.76 (54)		
Rice/maze mill sets				
No	95.42 (6,810)	95.80 (6,843)	1.24	0.27
Yes	4.58 (327)	4.20 (300)		
Oil mill sets				
No	99.82 (7,124)	99.82 (7,130)	0.00	1.00
Yes	0.18 (13)	0.18 (13)		
Power reapers				
No	99.75 (7,120)	99.85 (7,132)	1.70	0.19
Yes	0.25 (18)	0.15 (11)		
Mobile phones				
No	13.62(972)	2.41 (172)	610.20	<.001
Yes	86.38% (6,167)	97.56 (6,969)		
Fixed line phones				
No	90.12 (6,433)	94.83 (6,774)	115.65	<.001
Yes	9.88 (705)	5.15 (368)		
Computers/laptops				
No	91.20 (6,510)	81.55 (5,825)	282.69	<.001
Yes	8.80 (628)	18.45 (1,318)		
Refrigerators				
No	70.08 (5,002)	48.93 (3,495)	662.53	<.001
Yes	29.92 (2,136)	51.07 (3,648)		
Washing machines				
No	92.55 (6,606)	83.31 (5,951)	286.83	<.001
Yes	7.45 (532)	16.69 (1,192)		
Radio				
No	36.30 (2,591)	68.35 (4,882)	1469.95	<.001
Yes	63.70 (4,547)	31.65 (2,261)		
Television				
No	52.79 (3,768)	26.24 (1,874)	1052.46	<.001
Yes	47.21 (3,370)	73.76 (5,267)		
Four-wheel vehicles				
No	83.89 (5,977)	76.79 (5,493)	113.73	<.001
Yes	16.11 (1,148)	23.21 (1,660)		

	2010	2015	c ²	p-value
	% (n)	%(n)		
Two-wheel vehicles				
No	96.77 (6,895)	96.65 (6,904)	0.16	0.69
Yes	3.23 (230)	3.35 (239)		

2.9.2. Livestock ownership

At a 0.1 percent significance level, a chi-square test of association has shown a statistically significant decline in the proportion of people owning cows (from 57.5% to 51.9%), bulls (from 43.4% to 35.98%), horses (from 15.14% to 8.95%), donkeys (from 0.9% to 0.41%), chickens (from 37.3% to 30.8%), and pigs (from 12.4% to 5.6%) in the last five years. Likewise, the proportion of people owning mules has also decreased significantly from 37.3 percent to 30.8 percent at a one percent significance level. Though there is a slight increase in the proportion of people owning yaks/zow/zom and goats, and a slight decline in the proportion of people owning sheep, these differences are not statistically significant.

Table 33: Livestock ownership, 2010 and 2015

	2010	2015	c ²	p-value
	% (n)	%(n)		
Yak/zow/zom				
No	98.74 (7,049)	98.45 (7,041)	2.19	0.139
Yes	1.26 (90)	1.55 (111)		
Cows				
No	42.51 (3,035)	48.13 (3,442)	45.43	<.001
Yes	57.49 (4,104)	51.87 (3,710)		
Bulls				
No	56.63 (4,043)	64.02 (4,579)	81.56	<0.001
Yes	43.37 (3,096)	35.98 (2,573)		
Goat				
No	90.08 (6,431)	89.82 (6,424)	0.27	0.603
Yes	9.92 (708)	10.18 (728)		
Sheep				
No	98.26 (7,014)	98.34 (7,033)	0.11	0.735
Yes	1.74 (124)	1.66 (119)		
Horses				
No	84.86 (6,058)	91.05 (6,512)	129.39	<0.001
Yes	15.14 (1,081)	8.95 (640)		
Donkeys				
No	99.10 (7,075)	99.59 (7,123)	13.32	<0.001
Yes	0.90 (64)	0.41 (29)		
Mules				

		2010	2015	c ²	p-value
		% (n)	% (n)		
	No	97.06 (6,929)	97.80 (6,995)	7.96	<0.01
	Yes	2.94 (210)	2.20 (157)		
Chicken				68.65	<0.001
	No	62.68 (4,474)	69.17 (4,945)		
	Yes	37.29 (2,662)	30.83 (2,204)		
Pigs				199.49	<0.001
	No	87.62 (6,255)	94.38 (6,750)		
	Yes	12.38 (884)	5.62 (402)		

2.9.3. Person to room ratio

Over the last five years, the person to room ratio has increased slightly but significantly at a 5 percent significance level, from 1.71 (*SD* = 1.33) in 2010 to 1.77 (*SD* = 1.26) in 2015, $t(14,272)=-2.49$, $p< 0.05$.

When disaggregated by area of residence, it was found that there is no significant change in the person to room ratio among rural households over the last five years. However, there is a statistically significant increase in the person to room ratio in urban areas, as indicated by the results of an independent-sample t-test (Table 34). The ratio increased to 1.68 in 2015 from 1.45 in 2010.

Table 34: Person to room ratio, 2010 and 2015

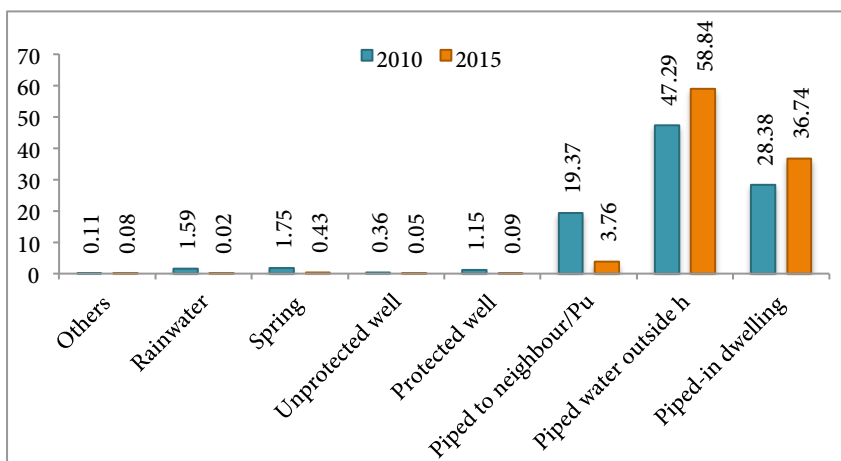
	M	SD	n	95% C.I.		t	df
Rural							
2010	1.79	1.43	5,543	1.75	1.83	-0.54	10,664
2015	1.80	1.39	5,123	1.77	1.84		
Urban						-7.79***	3,606
2010	1.45	0.87	1,583	1.41	1.50		
2015	1.68	0.87	2,025	1.64	1.72		

Note: * significance at $p < .05$; ** significance at $p < .01$; ***significance at $p < .001$.

2.9.4. Access to improved water sources

There is a significant surge in the proportion of people having access to piped water outside their houses and piped-in dwelling water from 2010 to 2015, $c^2(7)=1300$, $p<0.01$. This seem to have substituted the access to drinking water which is piped to neighbour or public water taps over the last five years (Fig. 31).

Figure 31: Sources of drinking water supply, 2010 and 2015



A significant rise in the proportion of people having access to either ‘piped-in dwelling’ or ‘piped outside house’ drinking water in 2015 was observed primarily against the backdrop of a significant rise in the equality of access to these water sources amongst the twenty Dzongkhags (Fig. 32).

Access to adequate drinking water has improved statistically significantly, $\chi^2(1)=6.696$, $p=0.01$. From 77.7 percent of the people who had access to adequate drinking water in 2010, 80.6 percent had an adequate drinking water supply in 2015.

Adequacy of water supply has greatly increased in urban areas (from 79.4% to 85.1%) as compared to rural areas (from 77.1% to 78.5%) in the last five years.

The proportion of people who reported their quality of drinking water as either ‘good’ or ‘very good’ as increased statistically significantly, $\chi^2(2)=320.17$, $p<0.001$. Consequently, those rating their drinking water quality either ‘poor’ or ‘very poor’ has declined significantly, from 6.9 percent in 2010 to 1.8 percent in 2015.

Figure 32: Proportion of people having access to ‘piped-in dwelling’ and ‘piped outside house’ drinking water sources by Dzongkhag, 2010 and 2015

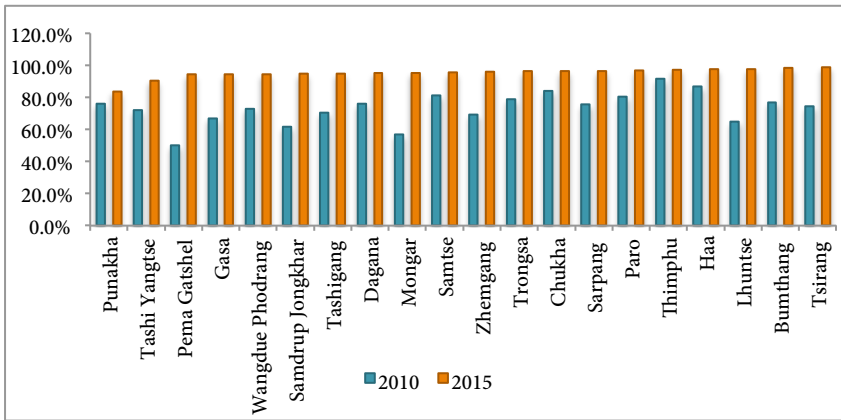
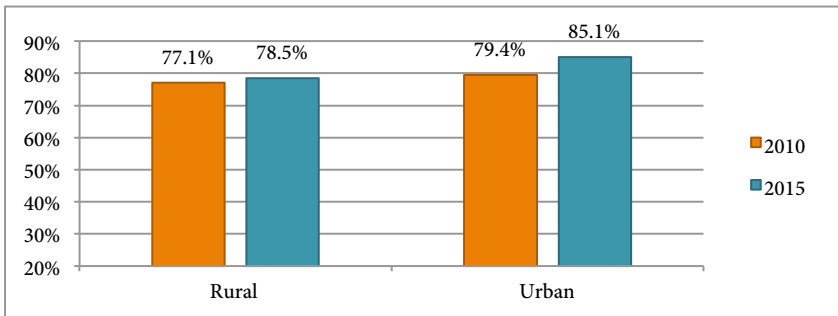
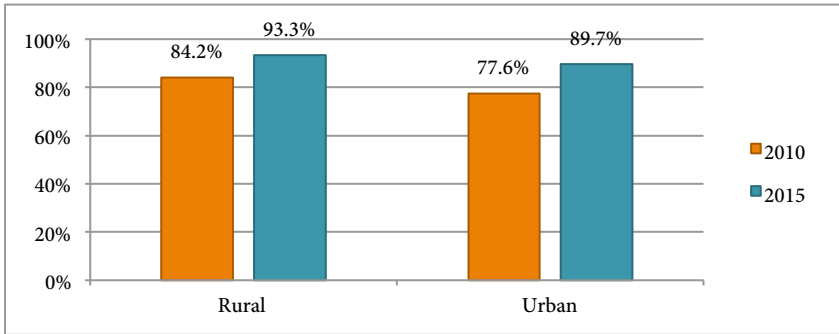


Figure 33: Access to adequate drinking water supply, by area of residence, 2010 and 2015



The proportion of people who rate the quality of drinking water as ‘good’ or ‘very good’ has increased both in rural and urban areas. Both are statistically significant, $\chi^2(2) = 230.95$, $p < 0.001$, and $\chi^2(2) = 103.07$, $p < 0.001$, respectively.

Figure 34: Quality of drinking water supply (% who rated 'good' or 'very good'), by area of residence, 2010 and 2015



2.9.5. Access to electricity

Access to grid electricity has statistically significantly increased in 2015 compared to 2010, $\chi^2(2)=1,700$, $p<0.001$. In particular, the proportion of people having access to grid electricity has increased substantially from 72.1 percent in 2010 to 96.5 percent in 2015. With the increasing connectivity of grid electricity, the access to solar electricity has declined from 6.9 percent to 2.5 percent in 2015. On the other hand, the number of people deprived of both grid and solar electricity has decreased from 19.8 percent in 2010 to 1.05 percent in 2015.

PART 3: GNH SURVEY FINDINGS 2015

3.1. Psychological Wellbeing

The Psychological wellbeing domain is one of the nine domains of GNH. This domain covers subjective happiness, life satisfaction, social support, mental wellbeing, spirituality, emotional wellbeing, and feeling of anxiety.

3.1.2. Life satisfaction

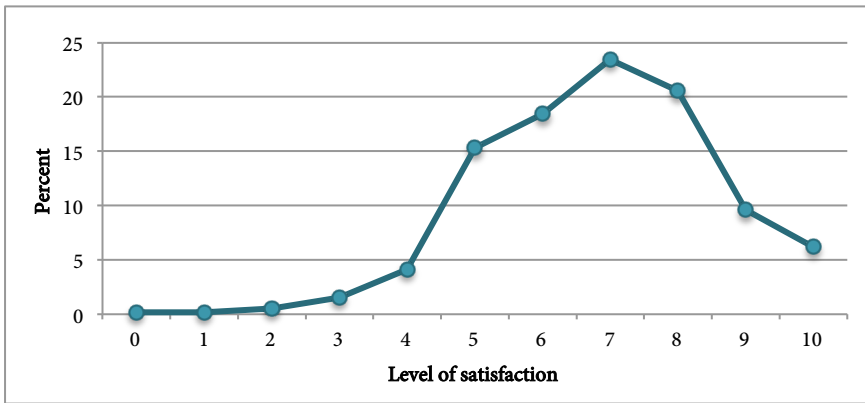
People were asked to rate their level of satisfaction with their life as a whole as well as for each specific aspect of their life such as their satisfaction with health, standard of living, major occupation, relationships with immediate family members, and work-life balance.

1.2.1. Satisfaction with life as a whole

The question *All things considered, how satisfied are you with your life as a whole these days?* was asked to assess the level of satisfaction experienced by people. The response ranges between 0-10 where 0 indicates 'not at all satisfied' and 10 indicates 'very satisfied' with life. The mean satisfaction level in 2015 was 6.86 ($SD = 1.68$). The mean satisfaction levels for males and females were 7.00 ($SD = 1.68$) and 6.71 ($SD = 1.68$), respectively, and the mean difference is statistically significant. By area of residence, the mean satisfaction level was 6.78 ($SD = 1.68$) among rural residents and 6.97 ($SD = 1.70$) among urban residents, and the difference, although small, is statistically significant. Among Dzongkhags, Gasa (7.52), Tsirang (7.51), and Samdrup Jongkhar (7.23) reported higher satisfaction levels compared to the rest of the Dzongkhags.

The distribution is negatively skewed, indicating that a higher proportion of people reported high satisfaction levels. The data show that over 78 percent of people reported satisfaction levels over five on a 0-10 point scale.

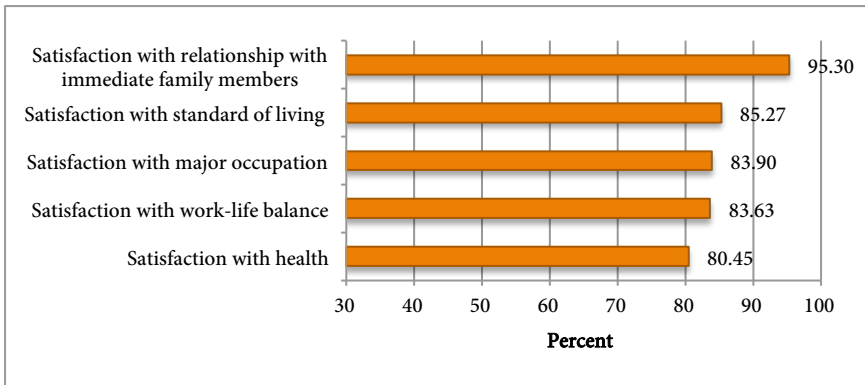
Figure 35: Distribution of population by level of life satisfaction



1.2.2. Satisfaction with different aspects of life

In addition to the assessment of satisfaction with life as whole, the GNH survey also asked questions to assess satisfaction with different aspects of life. Over 80 percent of respondents have reported either 'satisfied' or 'very satisfied' with all five aspects of life (Fig. 36).

Figure 36: Satisfaction with different aspects of life (% of population who rated either 'Satisfied' or 'Very satisfied')



The satisfaction with different aspects of life by gender is presented in Figure 37. As seen in the figure, the male-female disparity is observed more in satisfaction with health, followed by satisfaction with one's major occupation. A higher proportion of males than females reported being either satisfied or very satisfied with all aspects of life except the

work-life balance, but the difference in satisfaction with standard of living is not statistically significant between males and females (Table 36). A higher proportion of females reported satisfaction with work-life balance than their male counterparts, and the percentage of the population rating different levels of satisfaction with work-life balance differ statistically significantly between males and females, $\chi^2(4, N = 7126), p < .05$.

By area of residence, a higher proportion of urban residents reported being either 'satisfied' or 'very satisfied' with all aspects of life than their rural counterparts, except satisfaction with major occupation. A higher proportion of rural residents reported being satisfied with major occupation than their urban counterparts. However, the satisfaction with one's major occupation and work-life balance is not statistically significantly associated with the area of residence (Table 37).

Figure 37: *Satisfaction with different aspects of life (% of population who rated either 'Satisfied' or 'Very satisfied'), by gender*

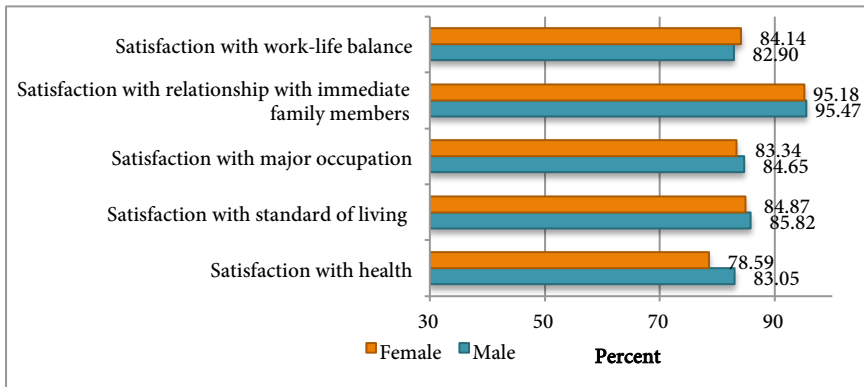


Figure 38: Satisfaction with different aspects of life (% of population who rated either 'Satisfied' or 'Very satisfied'), by area of residence

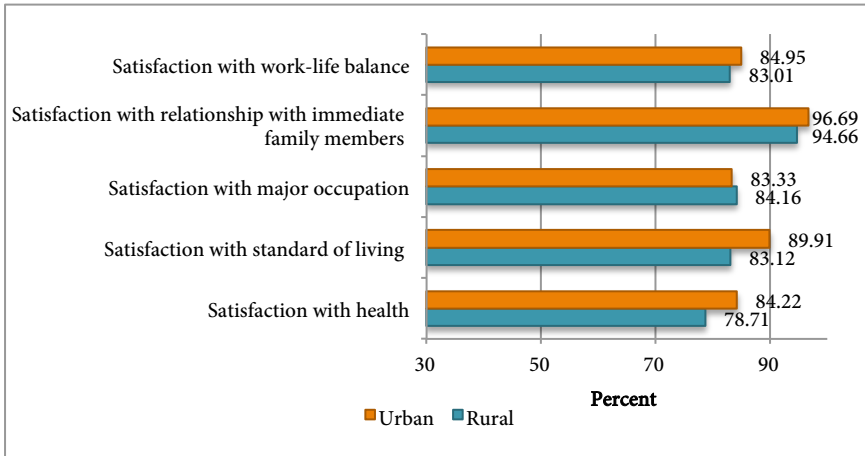


Table 35: Distribution of population by satisfaction level with different aspects of life (%)

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied	Don't know	Total
Satisfaction with health	0.71	8.19	10.58	61.36	19.09	0.06	100
Satisfaction with standard of living	0.24	4.02	10.47	71.2	14.07	0	100
Satisfaction with major occupation	0.47	4.46	10.95	65.45	18.45	0.23	100
Satisfaction with relationship with immediate family members	0.19	0.91	3.14	52.09	43.21	0.46	100
Satisfaction with work-life balance	0.15	3.63	12.24	65.92	17.71	0.36	100

Table 36: Satisfaction with different aspects of life, by gender

		Satisfaction with different aspects of life						c2	p-value
		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied	Total		
		% (n)	% (n)	% (n)	% (n)	% (n)	% (n)		
Satisfaction with health	Male	0.51 (15)	7.45 (221)	9.04 (268)	60.22 (1786)	22.79 (676)	100 (2966)	51.6	< .001
	Female	0.81 (34)	9.14 (382)	11.62 (486)	61.59 (2575)	16.84 (704)	100 (4181)		
Satisfaction with standard of living	Male	0.20 (6)	4.12 (122)	9.92 (294)	70.24 (2082)	15.52 (460)	100 (2964)	5.13	0.28
	Female	0.29 (12)	4.35 (182)	10.81 (452)	70.64 (2954)	13.92 (582)	100 (4182)		
Satisfaction with major occupation	Male	0.64 (19)	4.96 (147)	9.12 (270)	62.95 (1864)	22.32 (661)	100 (2961)	48.3	< .001
	Female	0.31 (13)	4.22 (176)	11.69 (488)	66.91 (2793)	16.87 (704)	100 (4174)		
Satisfaction with relationships with immediate family members	Male	0.10 (3)	0.68 (20)	3.05 (90)	50.36 (1486)	45.81 (1352)	100 (2951)	10.8	< .05
	Female	0.26 (11)	1.10 (46)	3.14 (131)	52.59 (2192)	42.90 (1788)	100 (4168)		

		Satisfaction with different aspects of life						c2	p-value				
		Very dissatisfied		Disatisfied		Neither satisfied nor dissatisfied				Satisfied		Very satisfied	
		% (n)	% (n)	% (n)	% (n)	% (n)	% (n)			% (n)	% (n)	% (n)	% (n)
Satisfaction with work-life balance	Male	0.07 (2)		4.16 (123)		12.37 (366)		63.69 (1884)		19.71 (583)		100 (2958)	
	Female	0.22 (9)		3.24 (135)		11.95 (498)		66.87 (2787)		17.73 (739)		100 (4168)	

Table 37: Satisfaction with different aspects of life, by area of residence

Satisfaction with different aspects of life										
		Very dissatisfied	Neither satisfied nor dissatisfied				Very satisfied	Total	c2	p-value
			% (n)	% (n)	% (n)	% (n)				
Satisfaction with health	Rural	0.76 (39)	8.99 (461)	11.61 (595)	60.37 (3095)	18.28 (937)	100 (5127)	38.68	< .001	
	Urban	0.49 (10)	7.01 (142)	7.86 (159)	62.73 (1269)	21.90 (443)	100 (2023)			
Satisfaction with standard of living	Rural	0.35 (18)	5.19 (266)	11.44 (586)	69.28 (3550)	13.74 (704)	100 (5124)	74.39	< .001	
	Urban	0 (0)	1.88 (38)	7.90 (160)	73.53 (1489)	16.69 (338)	100 (2025)			
Satisfaction with major occupation	Rural	0.39 (20)	4.53 (232)	10.74 (550)	65.62 (3361)	18.72 (959)	100 (5122)	3.42	= 0.49	
	Urban	0.60 (12)	4.51 (91)	10.32 (208)	64.43 (1299)	20.14 (406)	100 (2016)			
Satisfaction with relationships with immediate family members	Rural	0.27 (14)	1.10 (10)	3.35 (171)	53.32 (2720)	41.95 (2140)	100 (5101)	43.57	< .001	
	Urban	0 (0)	0.49 (10)	2.47 (50)	47.45 (959)	49.58 (1002)	100 (2021)			
Satisfaction with work-life balance	Rural	0.16 (8)	3.86 (197)	12.51 (639)	65.52 (3347)	17.95 (917)	100 (5108)	8.31	= 0.08	
	Urban	0.15 (3)	3.07 (62)	11.13 (225)	65.56 (1325)	20.09 (406)	100 (2021)			

3.1.3. Social support

People's perception of safety and security is largely influenced by the availability of social safety nets. The GNH survey asked people to state the number of people that they can count on when they face various problems in life, such as during times of sickness, financial difficulties, emotional difficulties, and having to attend to important personal events. The average number of people they can expect to count on when faced with various problems in life is presented in Table 38.

Table 38: *Average number of people they can count on when faced with the following problems in life¹⁵*

	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>N</i>
Number of people you can count on when you are sick	13.3	15.8	0	100	7070
Number of people you can count on when you have financial problems	5.2	8.8	0	100	7035
Number of people you can count on when you have emotional problems	6.4	11.0	0	100	7039
Number of people you can count on when you have to attend to important personal events	26.4	24.4	0	100	6790

By gender, males reported a higher number of people they can count on when they have problems for all four categories, and the differences are statistically significant (Table 39). This indicates that males in general expect more help from others than females.

By area of residence, there is no significant difference in the mean number of people that individuals can count on when they are sick or have financial problems by area of residence. However, there exists a statistically significant mean difference in the number of people they can count on to when they have emotional problems or have to attend to important personal events between rural and urban residents (Table 40).

¹⁵ Those who reported that they can count on to 100 or more people are treated as outliers and hence excluded from the mean computation. Also we have excluded those who reported 'Don't Know'.

Table 39: Results of t-test and descriptive statistics for social support in terms of number[†] of people you can count on..., by gender

	Gender						95% CI for Mean Difference	<i>t</i>	<i>df</i>
	Male			Female					
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>			
Number of people you can count on when you are sick	16.53	18.42	2921	11.70	14.24	4146	4.07, 5.60	12.43***	7065
Number of people you can count on when you have financial problems	7.02	11.45	2919	4.16	6.77	4113	2.44, 3.29	13.13***	7030
Number of people you can count on when you have emotional problems	8.19	13.11	2917	5.67	5.36	4119	1.98, 3.07	9.12***	7034
Number of people you can count on when you have to attend to important personal events	29.67	26.06	2784	25.45	23.57	4003	3.03, 5.41	6.94***	6785

Note: * significance at $p < .05$; ** significance at $p < .01$; *** significance at $p < .001$.

†Those who reported that they can count on to 100 or more people are considered as outliers and excluded from this analysis

Table 40: Results of t-test and descriptive statistics for social support in terms of number[†] of people you can count on..., by area of residence

	Area of residence						95% CI for Mean Difference	<i>t</i>	<i>df</i>
	Rural			Urban					
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>			
Number of people you can count on when you are sick	13.85	16.28	5073	13.31	16.27	1997	-0.31, 1.37	1.24	7068
Number of people you can count on when you have financial problems	5.46	9.25	5040	5.06	8.79	1995	-0.08, 0.87	1.63	7033
Number of people you can count on when you have emotional problems	6.90	12.14	5036	6.26	9.70	2003	0.04, 1.24	2.11*	7037
Number of people you can count on when you have to attend to important personal events	27.57	24.81	4864	26.22	24.43	1926	0.05, 2.66	2.04*	6788

Note: * significance at $p < .05$; ** significance at $p < .01$; ***significance at $p < .001$.

†Those who reported that they can count on to 100 or more people are considered as outliers and excluded from this analysis

About 62 percent of people believe that there would be more than five people on whom they can count when they are sick. Similarly, 23 percent, 28 percent, and 84 percent believe that they can count on more than five people when they have financial problems, emotional problems, and have to attend to important personal events, respectively.

Table 41: *Distribution of population by number of people they can count on when they ... (%)*

	None	One	Two	Three	Four	Five	More than five	Not sure
Are sick	2.44	2.59	6.28	9.36	6.38	10.28	62.15	0.53
Have financial problems	17.01	7.34	18.55	15.14	6.45	10.79	23.27	1.45
Have emotional problems	14.72	10.99	16.51	12.09	6.05	10.18	28.12	1.33
Have to attend to important personal events	1.55	0.88	2.03	3.09	2.24	5.48	83.68	1.05

By gender, a much higher proportion of males than females reported that they can count on more than five people when they face the four specific problems.

Table 42: *Percentage of population who can count on more than five people when they ..., by gender*

	Male	Female
Are sick	69.54	56.88
Have financial problems	31.20	17.68
Have emotional problems	34.74	23.42
Have to attend to important personal events	86.00	82.02

As might be expected, a comparatively higher proportion of rural residents, compared to their urban counterparts, reported that they can count on more than five people when they face problems.

Table 43: *Percentage of population who can count on more than five people when they ..., by area of residence*

	Rural	Urban
Are sick	62.95	60.40
Have financial problems	23.76	22.20
Have emotional problems	28.43	27.45
Have to attend to important personal events	84.32	82.29

Table 44: *Percentage of population who can count on more than five people when they ..., by Dzongkhag*

Dzongkhag	Are sick	Have financial problems	Have emotional problems	Have to attend to important personal events
Bumthang	75.33	37.05	53.74	93.71
Chukha	53.94	21.45	23.23	78.31
Dagana	64.56	37.19	39.45	83.73
Gasa	63.95	28.79	39.86	83.79
Haa	74.16	32.79	44.07	92.19
Lhuntse	69.34	22.65	31.22	79.76
Mongar	70.75	14.91	14.91	91.18
Paro	73.63	24.35	35.82	88.2
Pema Gatshel	64.4	28.66	27.89	76.66
Punakha	47.11	7.36	15.98	80.8
Samdrup Jongkhar	58.13	20.32	23.79	81.2
Samtse	65.11	30.6	29	79.78
Sarpang	62.67	29.45	35.19	84
Thimphu	63.26	21.48	27.65	84.07
Tashigang	45.62	14.5	16.51	81.47
Tashi Yangtse	57.67	12.29	11.78	92.73
Trongsa	59.08	17.79	28.56	89.37
Tsirang	73.74	46.76	42.43	86.17
Wangdue Phodrang	63.95	19.57	35.46	83.79
Zhemgang	69.24	21.94	35.67	86.88
Bhutan	62.15	23.27	28.12	83.68

3.1.4. Mental health

In order to assess the mental health condition of people, a commonly used mental health assessment tool called general health questionnaire (GHQ-12), consisting of 12 items, was used. A composite mental health index was constructed using these 12 items after testing for internal consistency reliability of each item. The internal consistency reliability of items, when tested using Cronbach's alpha, showed good results (Cronbach's alpha score=0.83). Generally, an alpha value of 0.70 is considered as being an acceptable value.

The mental health index revealed that about 90 percent of the population enjoy 'normal mental wellbeing'¹⁶. Only about three percent

¹⁶ A score ranges between 0-36. A score of 15 or less is considered as "normal mental wellbeing", 16-20 is considered as having "some distress" and a score above 20 is considered as having "severe mental distress".

of people are found to be suffering from severe psychological distress (a score above 20).

By gender, a higher proportion of males enjoy normal mental wellbeing as compared to females. On the other hand, a comparatively higher proportion of females (3.32%) were suffering from severe psychological distress compared to males (2.38%). The proportion of people enjoying normal mental wellbeing differ significantly by gender of the respondents, $\chi^2(2, N=7043)=15.42, p < .001$.

Table 45: *Distribution of population by level of mental wellbeing, by gender*

	Severe psychological distress	Some distress	Normal mental wellbeing	Total
Male	2.38	6.11	91.51	100
Female	3.32	8.29	88.38	100
Both gender	2.93	7.39	89.68	100

A slightly higher proportion of urban residents (92.08%) enjoys 'normal mental wellbeing' than their rural counterparts (88.59%). On the other hand, a comparatively higher proportion of rural residents (3.43%) suffer from 'severe psychological distress' than urban residents (1.84%). The proportion of people enjoying normal mental wellbeing differs significantly between rural and urban residents, $\chi^2(2, N= 7046) = 24.96, p < .001$.

Among Dzongkhags, a relatively higher proportion of those residing in Haa, Thimphu, and Paro Dzongkhags reported enjoying 'normal mental wellbeing' compared to the rest (Table 47).

Table 46: *Distribution of population by level of mental wellbeing, by area of residence*

	Severe psychological distress	Some distress	Normal mental wellbeing	Total
Rural	3.43	7.99	88.59	100
Urban	1.84	6.08	92.08	100
Bhutan	2.93	7.39	89.69	100

Table 47: *Distribution of population by level of mental wellbeing, by area of Dzongkhag*

Dzongkhag	Severe psychological distress	Some distress	Normal mental wellbeing	Total
Bumthang	2.54	5.85	91.61	100
Chukha	2.49	9.87	87.64	100
Dagana	6.65	11.64	81.71	100
Gasa	3.19	5.40	91.41	100
Haa	0.73	5.52	93.75	100
Lhuntse	2.38	9.59	88.03	100
Mongar	3.33	5.56	91.11	100
Paro	2.58	4.30	93.11	100
Pema Gatshel	3.26	11.35	85.39	100
Punakha	3.97	6.14	89.89	100
Samdrup Jongkhar	3.40	8.18	88.42	100
Samtse	4.82	8.04	87.14	100
Sarpang	2.46	8.99	88.54	100
Thimphu	1.43	5.43	93.14	100
Tashigang	2.28	5.26	92.46	100
Tashi Yangtse	6.08	7.22	86.70	100
Trongsa	0.73	7.39	91.88	100
Tsirang	4.41	8.49	87.11	100
Wangdue Phodrang	2.31	5.74	91.95	100
Zhemgang	2.35	11.1	86.56	100
Bhutan	2.93	7.39	89.69	100

3.1.5. Spirituality

Under the spirituality sub-domain, respondents were asked a series of questions related to spiritual practices as well as their perception of the level of spirituality.

To the question: *How spiritual do you consider yourself to be?* 90.83 percent reported that they are either ‘moderately’ or ‘very’ spiritual. However, when it comes to actual practice such as reciting prayer, practising meditation, visiting places of spiritual significance, consideration of karma, or receiving or attending religious teachings, the figures vary largely. As regards reciting prayers, 58.66 percent reported that they recite prayers at least once a day or more. There is also a substantial proportion of people (10.2%) who reported that they never recite prayers.

Meditation seems to be the least practised spiritual activity. Only 7.54 percent reported practising some form of meditation once a day or more, while more than 80 percent reported that they never practise meditation.

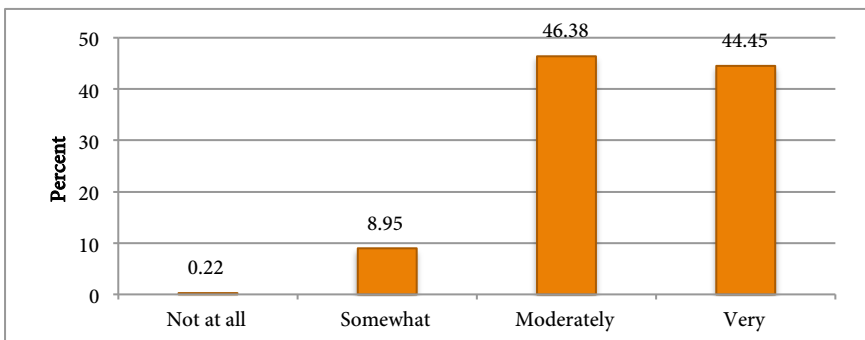
One form of spiritual practice is making visits to places of spiritual significance in the locality. About 97 percent reported having visited places of spiritual significance in their locality. Although this spiritual activity seems to be the most practised spiritual activity, it is mostly practised only on certain occasions.

Most people also seem to be conscious of their actions and consequences. When asked how often they consider karma in the course of their daily life, 88.51 percent reported that they consider it either 'occasionally' or 'regularly' during the course of their daily life.

Table 48: *Distribution of population by frequency of prayer recitation, meditation, and visit to places of spiritual significance*

	Several times a day	Once a day	A few times a week	Only on certain occasions	Never	Total
Frequency of pray recitation	31.13	27.53	7.76	23.38	10.2	100
Frequency of meditation	2.79	4.75	2.7	9.27	80.49	100
Frequency of visit to places of spiritual significance in the locality	1.09	1.09	7.54	87.63	2.65	100

Figure 39: *Distribution of population by level of spirituality*



A one-way ANOVA was conducted to determine whether the mean age is different for groups with different levels of spirituality. Overall there

is a statistically significant association between age and spirituality, $F(3, 7149)=131.51$, $p<.001$. The Scheffe multiple-comparison test indicates that the mean age of those who identified themselves as 'very spiritual' ($M=44$, $SD=16$) is significantly higher than those who identified themselves as 'moderately spiritual' ($M=38$, $SD=15$) and 'somewhat spiritual' ($M=33$, $SD=14$). However, there is no statistically significant difference in mean age between those who identified themselves as 'very spiritual' and those who identified themselves as 'not at all spiritual'. Similarly, the mean age of those who identified themselves as 'moderately spiritual' ($M=38$, $SD=15$) is significantly higher than those who identified themselves as 'somewhat spiritual' ($M=33$, $SD=14$), but it is not significantly different from those who identified themselves as 'not at all spiritual' ($M=41$, $SD=17$). There is also no statistically significant mean difference between those who identified themselves as 'somewhat spiritual' and 'not at all spiritual'.

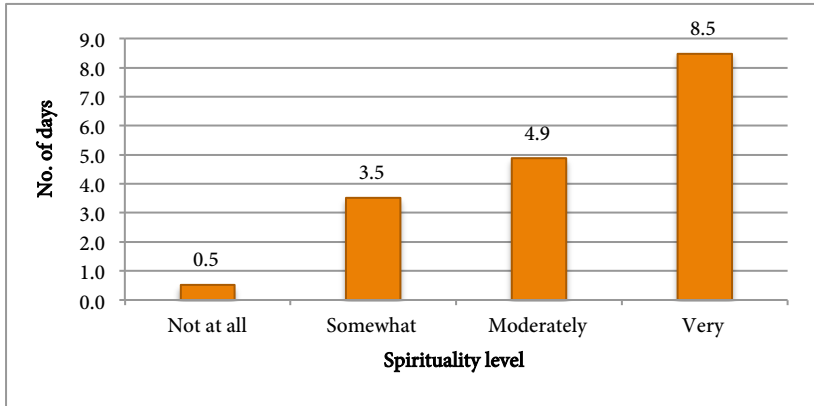
In order to assess the number of days people spend attending or receiving religious teachings, they were asked to report the number of days they have spent attending or receiving religious teachings in the past 12 months preceding the survey. The average number of days spent attending or receiving religious teachings in a year is 6.34 days ($SD=15.43$) and the median is three days per year.

A one-way ANOVA was conducted to determine whether the mean days spent attending or receiving religious teaching is different for groups with different levels of spirituality. Overall there is a statistically significant association between the days spent attending or receiving religious teachings and spirituality, $F(3, 7118)=38.69$, $p < .001$. The Scheffe multiple-comparison test indicates that the mean days spent attending or receiving religious teachings by those who identified themselves as 'very spiritual' ($M=8.5$, $SD=20.2$) are significantly higher than those who identified themselves as 'moderately spiritual' ($M=4.9$, $SD=10.0$) and 'somewhat spiritual' ($M=3.5$, $SD=7.7$). However, there is no statistically significant difference in mean days between those who identified themselves as 'very spiritual' and those who identified themselves as 'not at all spiritual', although there also exists a relatively large difference (about 8 days) in the number of days spent attending religious teachings between the two.

Similarly, the mean days spent attending or receiving religious teachings of those who identified themselves as 'moderately spiritual' ($M=4.9$, $SD=10.0$) are significantly higher than those who identified themselves

as 'somewhat spiritual' ($M=3.5$, $SD=7.7$), but is not significantly different from those who identified themselves as 'not at all spiritual' ($M=0.5$, $SD=1.5$). There is also no statistically significant mean difference between those who identified themselves as 'somewhat spiritual' and 'not at all spiritual'.

Figure 40: Average days spent attending/receiving religious teachings by level of spirituality



3.1.6. Emotional experience

People were asked to self-report the frequency of experience of 11 different emotions during the past four weeks preceding the survey. The list contains six negative emotions and five positive emotions. The negative emotions include anger, selfishness, jealousy, fear, worry, and sadness. The five positive emotions are calmness, compassion, forgiveness, contentment, and generosity. The distributions of people by frequency of experience of different emotions are presented in Table 48 below.

Among the five positive emotions, 88.85 percent of people reported feelings of compassion with varying frequency from 'once or twice a month' to 'few times a day' during the month preceding the survey. The second highest reported positive emotional experience is the feeling of generosity (83.45%) followed by feeling of calmness (80.31%), contentment (72.82%) and forgiveness (71.19%).

Of the six negative emotions, worry seems to be the most commonly experienced emotion followed by anger, fear, and sadness. 76.60 percent

of people reported experiencing worry with varying frequency from 'once or twice a month' to a 'few times a day' during the month preceding the survey which is closely followed by anger (74.38%), fear (59.40%), and sadness (53.90%). On the other hand, jealousy and selfishness are the least experienced negative emotions. Only 16.59 percent of people reported experiencing jealousy with varying frequency from 'once or twice a month' to a 'few times a day'. This is followed by selfishness (24.85%).

Table 49: *Distribution of population by frequency of different emotional experience*

	Few times a day	Once a day	Few times a week	Once a week	Once or twice in the last month	Not in the last month	Never	Total
Calmness	12.59	11.64	21.46	13.01	21.61	17.55	2.15	100
Compassion	16.5	17.29	23.82	11.33	19.91	10.54	0.61	100
Forgiveness	11.88	10.02	18.02	9.01	22.26	26.61	2.2	100
Contentment	7.85	10	18.98	12.18	23.81	22.65	4.53	100
Generosity	13.76	15.05	21.56	10.3	22.78	15.44	1.11	100
Anger	9.14	6.35	24.09	10.15	24.65	20.9	4.71	100
Selfishness	0.74	1.23	4.38	4.95	13.55	44.51	30.65	100
Jealousy	0.33	0.59	2.92	3.3	9.45	46.17	37.24	100
Fear	7.76	6.87	15.55	8.08	21.04	32.76	7.94	100
Worry	13.35	11.69	21.08	9.54	20.94	20.37	3.03	100
Sadness	4.18	4.83	13.89	8.89	22.11	40	6.09	100

3.1.7. Anxiety

Respondents are asked to report about the frequency of anxiety caused by different issues related to their life using the five point Likert scale. Among five issues that people were asked to report on the frequency of anxiety, most (79.82%) reported being anxious ('always anxious' or 'sometime anxious') about children's futures (Table 50). The next most common cause of anxiety reported is the fear of old age abandonment (70.86%) followed by unemployment (57.87%), food security (52.49%) and finally the fear of not having enough to meet living expenses later in life (51.36%).

Table 50: *Distribution of population by frequency of anxiety*

	Always anxious	Sometimes anxious	Neither anxious nor unconcerned	Normally do not feel anxious	Do not feel anxious at all	Not applicable
Old age abandonment	23.87	46.99	5.68	11.8	10.66	1.01
Unemployment	24.40	33.47	8.1	7.83	8.72	17.48
Food security	14.51	37.98	11.67	19.36	16.24	0.24
Children's future	44.41	35.41	3.51	3.96	3.46	9.26
Living expenses for later in life	16.90	34.46	8.2	7.21	8.05	25.19

3.2. Health

The health domain assesses various physical health conditions of Bhutanese people. The domain covers self-rated health, disability and activity limitation, physical health functioning, healthy days and short-term activity restriction, suicidal ideation and attempts, and barriers of health care services.

3.2.1. Self-reported health

Self-reported health is an important health indicator. In some contexts it has been found to have very good predictability for general health conditions, but in others it suffers from ‘adaptive preferences’: that is, the frame of reference is not stable, making it difficult to compare changes over time.

When asked, *In general, how would you say your health is*, about 90 percent rated their health as ‘good’, ‘very good’ or ‘excellent’. Only 10 percent reported their health as ‘poor’ or ‘fair’. By gender, a slightly higher proportion of males (90.8%) rated their health as good, very good, or excellent compared with their female counterparts (88.8%). The proportion of population rating different levels of health status differs significantly by gender, $\chi^2(4) = 57.33, p < .001$.

Similarly, by area of residence, a higher proportion of those residing in urban areas rated their health as either excellent or very good compared to those residing in rural areas, and the differences are statistically significant, $\chi^2(4) = 15.00, p < .01$.

Table 51: *Distribution of population by self-rated health status, by gender*

	Poor	Fair	Good	Very good	Excellent	Total
Male	0.94	8.24	35.98	38.85	15.99	100
Female	1.3	9.94	40.1	38.08	10.59	100
Both gender	1.15	9.23	38.39	38.4	12.83	100

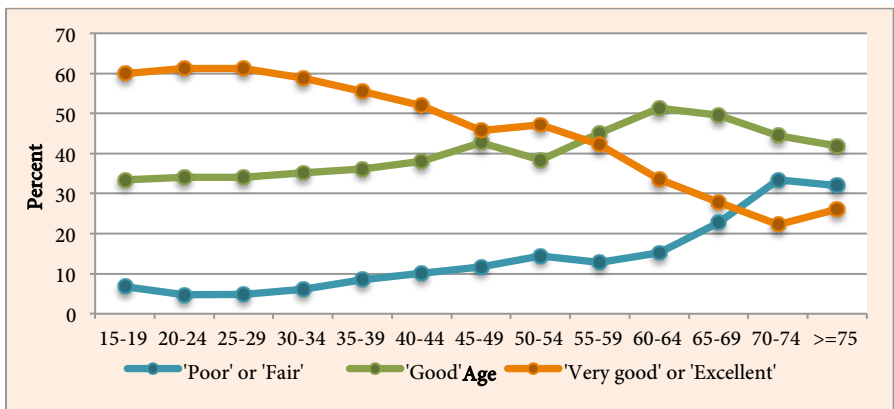
As might be expected, age and general health status are inversely correlated (Fig. 41). The proportion of population who rated their health status as ‘very good’ or ‘excellent’ decreases as age increases, and the differences are statistically significant, $\chi^2(24, N = 7153) = 532.57, p < .001$. Similarly, a one-way ANOVA shows that there exists a statistically

significant difference in mean age of the population for groups with different health statuses, $F(4, 7148)=123.29$, $p<.001$. Scheffe multiple-comparison test indicates that the mean age of those reporting 'poor' health ($M = 51$, $SD = 18$) is significantly lower than that of those reporting 'fair' health ($M = 49$, $SD = 17$), 'good' health ($M=42$, $SD=16$), 'very good' health ($M = 38$, $SD= 14$), and 'excellent' health ($M = 35$, $SD = 13$). Thus, there is a negative relationship between health condition and age. As age increases, health status becomes poorer.

Table 52: Self-rated health status, by area of residence

	Self-rated health status				c^2	p -value
	Poor/Fair	Good	Very good/Excellent	Total		
	% (n)	% (n)	% (n)	% (n)		
15-19	6.55 (30)	33.41 (153)	60.04 (275)	100 (458)	532.57	< .001
20-24	4.66 (32)	34.26 (235)	61.08 (419)	100 (686)		
25-29	4.79 (42)	33.9 (297)	61.3 (537)	100 (876)		
30-34	6.3 (60)	35.29 (336)	58.4 (556)	100 (952)		
35-39	8.17 (74)	36.75 (333)	55.08 (499)	100 (906)		
40-44	10.13 (68)	37.41 (251)	52.46 (352)	100 (671)		
45-49	11.79 (75)	42.92 (273)	45.28 (288)	100 (636)		
50-54	14.23 (80)	38.08 (214)	47.69 (268)	100 (562)		
55-59	12.44 (52)	45.93 (192)	41.63 (174)	100 (418)		
60-64	15.76 (58)	51.36 (189)	32.88 (121)	100 (368)		
65-69	22.96 (59)	48.64 (125)	28.4 (73)	100 (257)		
70-74	32.67 (66)	46.53 (94)	20.79 (42)	100 (202)		
>=75	33.54 (54)	40.99 (66)	25.47 (41)	100 (161)		

Figure 41: Percentage of population rating 'Poor' or 'Fair' health status, by age



3.2.2. Disability and activity limitation

The different types of disabilities suffered by the population were assessed using a set of questions. Table 53 below shows the percentage of the population that reported different type of disabilities. Besides the ‘other’ category, ‘difficulty in using their arms or legs’ (3.86%) is the most reported disability condition, followed by respiratory (1.48%), visual (1.27%), cardiovascular (0.94%), hearing (0.66%), and mental or psycho-social impairment (0.55%).

A relatively high proportion of the population reported suffering from ‘other’ forms of impairments or disabilities (8.46%). However, further analysis revealed that the majority of those who reported suffering from ‘other’ forms of disabilities (n=624) are actually those living with different medical conditions such as high blood pressure (21.72%), ulcer (13.87%), diabetes (7.12%), and backache/pain (5.83%), which cannot be identified as a disability. Only 3.1% (19 respondents out of 624) who reported suffering from ‘other’ disabilities can be classified as living with disabilities. The remaining 97% are, therefore, living with some medical condition or diseases that cannot be classified as disability (Table 54).

Table 53: *Percentage of population who reported suffering from the following disabilities*

	Yes	No	Don't know
Visual impairments/disabilities	1.22	98.76	0.03
Hearing impairments/disabilities	0.64	99.34	0.03
Speech impairments/disabilities	0.14	99.83	0.03
No use of arms/legs	0.33	99.64	0.03
Difficulty using arms/legs	3.67	96.30	0.03
Missing body part	0.25	99.72	0.03
Cardiovascular	0.87	99.10	0.03
Respiratory	1.47	98.50	0.03
Mental/psycho-social	0.54	99.43	0.03
Other impairments/disabilities	8.46	91.51	0.03

Table 54: *Distribution of people who reported suffering from the ‘other’ disabilities, by type of medical condition*

	Percent
Other Disabilities	3.1
Blood pressure	21.72

	Percent
Ulcer	13.87
Diabetes	7.12
Backache/pain	5.83
Joints/knee/leg/hand pain	5.5
Gastritis/gallstone	5.14
Headache	4.45
Other diseases	4.28
Stomach ache	3.64
Fractures/injuries	3.1
Kidney problems	2.95
Giddiness/dizziness	2.67
Tuberculosis (TB)	2.12
Liver/lung infections	1.91
Other medical condition	1.89
Tonsillitis/Throat pain	1.61
Piles	1.42
Body-ache	1.38
Jaundice	1.24
Arthritis/Gout	1.19
Skin infections	0.99
Epilepsy	0.87
Appendicitis	0.8
Dental problems	0.71
UTI	0.48
Total	100

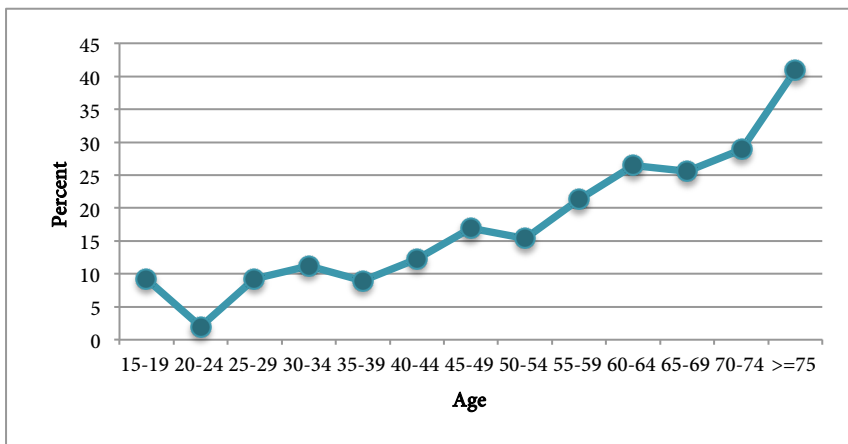
Of those who reported suffering from some form of disability, about 18 percent reported that their disability condition restricts them from carrying out their usual activity 'all the time' and 58 percent 'sometimes'. Six percent of those who reported having some form of disability reported that their disability condition has no impact on their usual daily activities and the remaining 18.35 percent reported their disability condition rarely restricts their usual activities.

The proportion of respective age group's population who reported that the disability condition restricted their usual activities 'all the time' increases with an increase in age (Fig. 42), which is statistically significant, $\chi^2(36, N=1088)=92.40$, $p<0.001$. Similarly, a one-way ANOVA shows that there exists a statistically significant difference in mean age of the population for groups reporting different degrees of activity restrictions, $F(3, 1084)=24.04$, $p<0.001$. The Scheffe multiple-comparison test indicates that the mean age of those reporting activity restriction 'all the time' ($M=57$, $SD=17$) is significantly higher than

those reporting activity restriction 'sometimes' ($M=48$, $SD=16$), activity restriction 'rarely' ($M=45$, $SD=15$), and activity restriction 'never' ($M=42$, $SD=15$). However, there is no statistically significant difference in mean age between those reporting activity limitation 'sometimes' and 'rarely', 'sometimes' and 'never', and 'rarely' and 'never'.

A higher proportion of males living with disability (21.25%) reported being activity restricted 'all the time' by the disability condition than their female counterparts (15.08%), and the difference is statistically significant, $\chi^2(3, N=1087)=16.30$, $p < .01$. Similarly, by area of residence, a significantly higher proportion of people living with disability in rural areas (20.21%) reported being activity restricted 'all the time' by disability condition, compared with those living in urban areas (10.28%), and the difference is statistically significant, $\chi^2(3, N = 1088) = 19.20$, $p < .001$.

Figure 42: *Proportion of population who reported that disability condition restricted their usual activities 'all the time' by age*

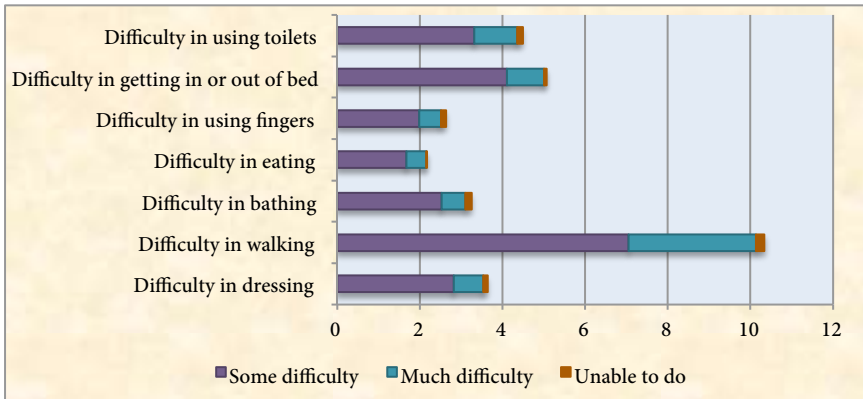


3.2.3. Health functioning

Health functioning was assessed using seven items or daily activities of living. People were asked the degree of difficulty in performing the listed daily activities of living due to their health condition. These seven items are: 1) difficulty in dressing, 2) walking, 3) bathing, 4) eating, 5) using fingers, 6) getting in or out of bed, and 7) using toilets. As shown in the Fig. 45, among the seven activities, most reported difficulty in walking (10.34%), followed by difficulty in getting in or out of bed

(5.07%), difficulty in using toilets (4.49%), and difficulty in dressing (3.64%).

Figure 43: *Percentage of people who reported difficulties in performing activities of daily living*



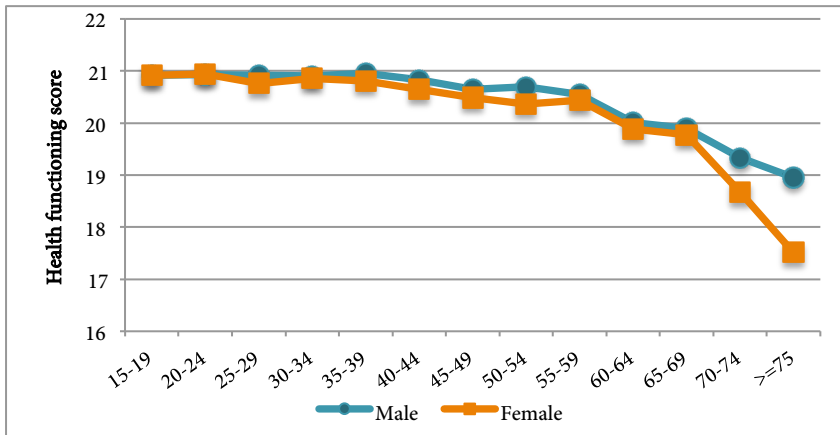
The internal consistency reliability, checked using Cronbach's alpha, yielded a result of above .90, which indicates strong internal consistency among the items. Therefore, a composite health functioning index was constructed using these seven indicators. The index value ranges between 0–21, where zero indicates severe problems of health functioning while 21 indicates complete absence of problem of health functioning.

The mean health functioning index is 20.60 ($SD=1.51$). Although males ($M=20.60$, $SD=1.49$) seem to enjoy slightly better health functioning compared to their female counterparts ($M=20.58$, $SD=1.55$), it is not statistically significant; $t(7144)=0.59$, $p=0.55$. The difference in the health functioning by gender seems to widen as people age (Fig. 44). By area of residence, those residing in urban areas ($M=20.78$, $SD=1.13$) reported better health functioning than their rural counterparts ($M=20.51$, $SD=1.65$) and the difference is statistically significant; $t(7147)=-6.54$, $p<0.001$).

By Dzongkhags, people residing in Tashi Yangtse ($M = 20.83$, $SD = 1.02$), Chukha ($M = 20.81$, $SD = 0.89$), Mongar ($M = 20.76$, $SD = 1.07$), and Thimphu ($M = 20.71$, $SD = 1.33$) Dzongkhags scored relatively better in health functioning while residents of Dagana ($M = 20.30$, $SD = 2.16$), Pema Gatshel ($M = 20.35$, $SD = 2.11$), Trongsa ($M = 20.36$, SD

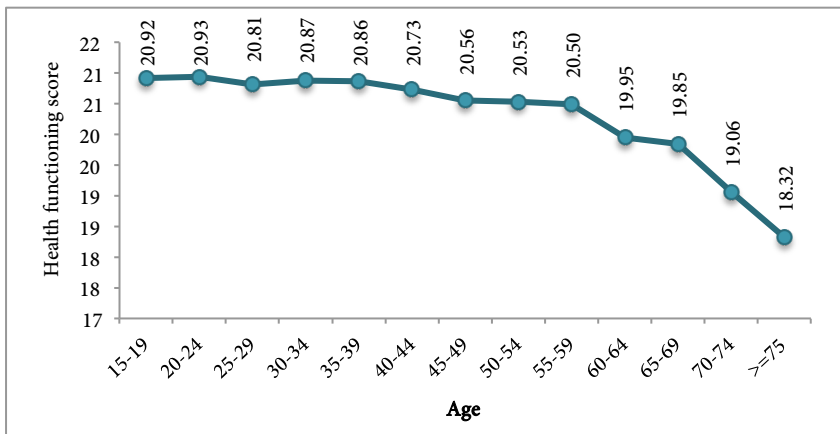
=1.85), and Bumthang ($M = 20.39$, $SD = 1.76$) scored relatively lower in health functioning.

Figure 44: Health functioning score, by age, and by gender



As expected, the health functioning score is higher for younger people and lower for the old (Fig. 45). The health functioning score sharply drops beginning with 60 years of age, indicating that people face increasing difficulties in performing daily activities of living, and the functioning deteriorates further thereafter.

Figure 45: Average health functioning score by age



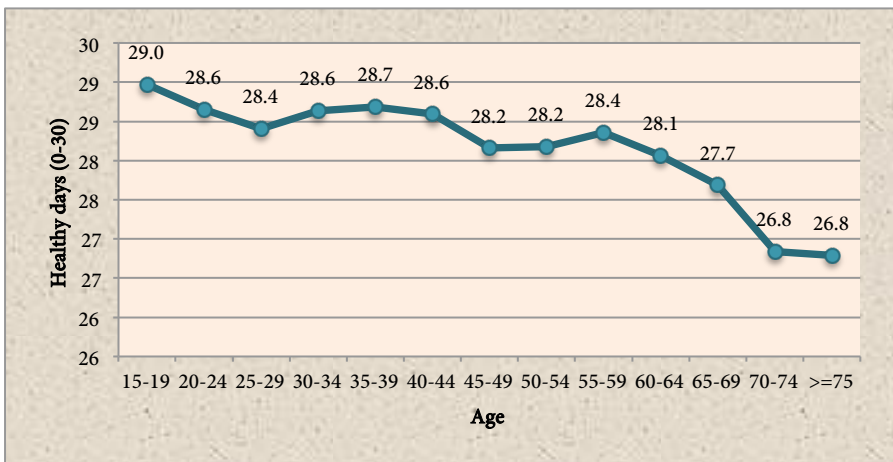
3.2.4. Healthy days and short-term activity restriction

Healthy days are calculated by taking into consideration both physical as well as mental health conditions. The average number of healthy days in the past 30 days was 28.39 days ($SD = 4.98$). Males reported slightly more healthy days than their female counterparts (28.57 days for males and 28.26 days for females), but the mean difference is not statistically significant at a 95% level. By area of residence, those residing in urban areas ($M = 28.66$, $SD = 4.54$) reported a slightly higher number of healthy days than their rural counterparts ($M = 28.31$, $SD = 5.11$), and the mean difference is statistically significant; $t(7150) = -2.73$, $p < .01$.

People residing in Haa ($M = 29.06$, $SD = 4.13$), Mongar ($M = 28.94$, $SD = 3.57$), and Paro ($M = 28.94$, $SD = 4.39$) Dzongkhags reported a relatively higher number of healthy days while residents of Dagana ($M = 26.62$, $SD = 7.89$), and Bumthang ($M = 27.72$, $SD = 6.24$) reported relatively fewer healthy days.

As expected, age and healthy days are negatively correlated. As age increases, the number of healthy days decreases (Fig. 46).

Figure 46: Mean healthy days, by age



Of the 1,290 people who reported suffering from physical or mental sickness in the 30 days preceding the survey, about 72 percent reported activity restriction from 1 to 30 days, while the remaining 28 percent reported no activity restriction due to sickness. The average number of

days lost due to poor physical or mental sickness in the month preceding the survey among those who reported sickness was 4.8 days.

Males (5.0) lost a slightly higher number of days due to sickness compared to their female counterparts (4.6). Similarly, by area of residence, people residing in rural areas (4.9) lost a slightly higher number of days to sickness compared with their urban counterparts (4.3).

3.2.5. Suicidal ideation and attempts

About 5 percent of the population reported having seriously thought of committing suicide in life. Out of this, about 62 percent of them had thought of committing suicide in the 12 months preceding the survey. About 20 percent of those who had suicidal ideation in life had also reported having attempted to commit suicide in life. And about 11 percent of those who had suicidal ideation in life had attempted to commit suicide in the 12 months preceding the survey.

Comparatively, a higher proportion of females (5.88%) reported experiencing suicidal ideation in life compared to their male counterparts (2.66%), which is statistically significant, $\chi^2(1, N = 7150) = 41.37, p < .001$. By area of residence, there is no statistically significant difference between rural (4.45%) and urban (4.79%) residents in reporting suicidal ideation in life at a 95% level.

In terms of suicidal attempts, less than one percent of the population reported having attempted to commit suicide in life. A significantly higher proportion of females (1.29%) reported having attempted to commit suicide in life compared to males (0.47%), $\chi^2(2, N = 7150) = 39.52, p < .001$. There is no statistically significant difference in the proportion of population who reported having attempted to commit suicide in life by area of residence at a 95% level.

3.2.6. Health services barriers

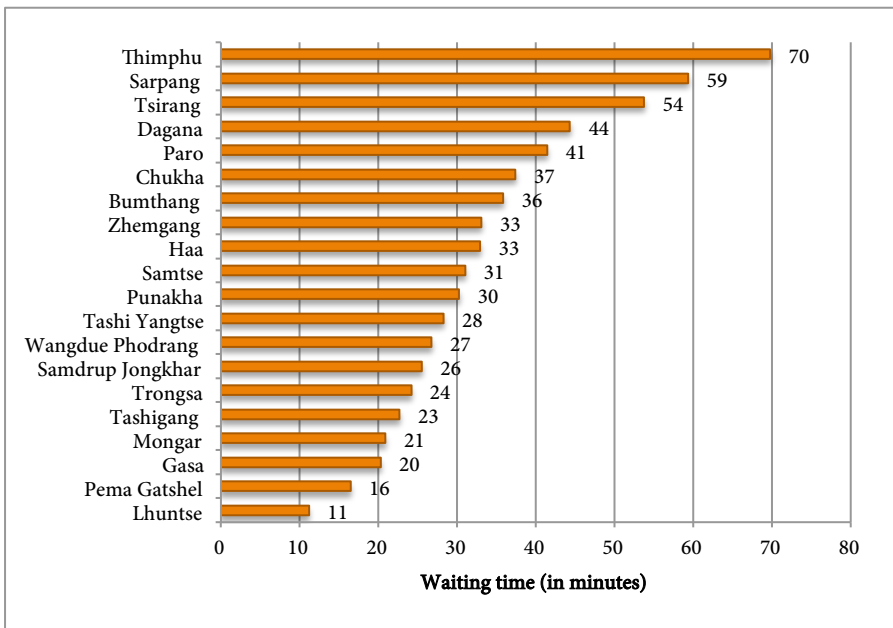
Barriers to health are studied by collecting data on the average waiting time to receive healthcare services and the average time taken to reach the nearest healthcare centre by walking.

3.2.6.1. Waiting time for healthcare service

The average waiting time to receive healthcare services is 38 minutes. As might be expected, people residing in urban areas reported much longer waiting times (51 minutes) to receive healthcare services compared with rural residents (32 minutes).

The average waiting time for receiving healthcare services is greatest in Thimphu (70 minutes) followed by Sarpang (59 minutes), and Tsirang (54 minutes). The average waiting time is least in Lhuntse (11 minutes) followed by Pema Gatshel (16 minutes), and Gasa (20 minutes).

Figure 47: Average waiting time to receive healthcare services, by Dzongkhag

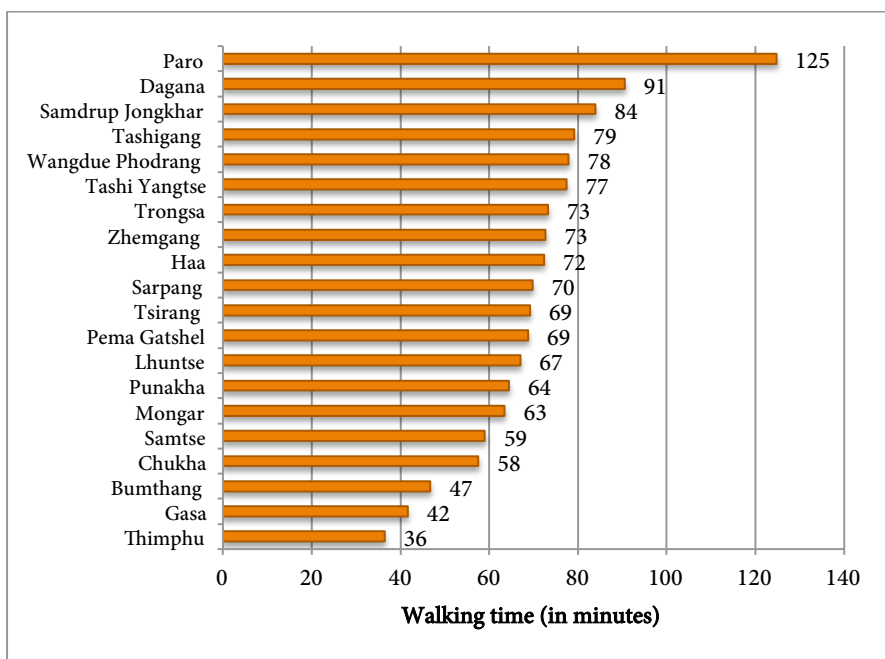


3.2.6.2. Walking time to reach the nearest healthcare centre

The average time taken to reach the nearest healthcare centre by walking is 67 minutes. By area of residence, as expected, rural residents reported taking a much longer time ($M = 84$ minutes, $SD = 98$) to reach the nearest healthcare centre as compared to urban residents ($M = 26$ minutes, $SD = 26$), and the mean difference is statistically significant; $t(7150) = 26.28$, $p < 0.001$.

The average time taken to reach the nearest healthcare centre by walking is more than an hour in 15 of the 20 Dzongkhags (Fig. 48). The longest average walking time taken to reach the nearest healthcare centre was reported by the residents of Paro¹⁷ Dzongkhag (125 minutes), followed by Dagana (91 minutes), and Samdrup Jongkhar (84 minutes). The residents of Thimphu, Gasa, Bumthang, Chukha, and Samtse Dzongkhags reported less than an hour to reach the nearest healthcare centre by walking to avail themselves of health care services.

Figure 48: Average walking time to reach the nearest healthcare centre, by Dzongkhag



¹⁷ The longest travelling distance in terms of time taken to reach the nearest healthcare centre in Paro Dzongkhag could be due to the existence of a comparatively lower number of healthcare centres in the Dzongkhag. As per the Statistical Yearbook of Bhutan, 2015, Paro Dzongkhag has only 3 BHUs, which is the lowest among the Dzongkhags. Mongar Dzongkhag has the highest number BHUs (a total of 23 BHUs including one BHU-I). Ten of the 20 Dzongkhags have 10 or more BHUs.

3.3. Time Use

The information on use of time is currently scarce and inadequate for shaping any major policies in Bhutan and in most countries around the world. Time use studies are gaining momentum due to their wide applicability in shaping policies, such as labour policies, transport policies, economic policies, etc. The time use domain of GNH tried its best to make the time use information both locally appropriate as well as internationally comparable.

The time use statistics are commonly collected using three different diaries. They are i) Fixed and open interval diaries, ii) Light diaries, and iii) Stylised activity questions. As the name suggests, the first method, that is fixed and open interval diaries, uses two slightly different methods to collect time use information. The open interval diary¹⁸ asks respondents to report their time use episodes with start and end times. On the other hand, the fixed interval diary notes the activities that respondents carried out during each time interval, usually consisting of 5, 10, or 30-minute time slots. The current GNH survey used 10-minute time slots as shown in Fig. 49.

The United Nations Economic Commission for Europe (2013), in its *Guidelines for Harmonizing Time-Use Surveys*, recommends fixed interval diaries for collecting time use information due to their several advantages (refer to the report for details).

The time use information is collected using the day reconstruction method (DRM), in which the respondents are asked to reconstruct the day they just spent. All activities performed within a 24 hour period, between 4:00 a.m. in the day preceding the survey (diary day) and 4:00 a.m. in the morning of the day of the survey (interview day) were recorded for every 10-minute time interval.

¹⁸ The Centre for Bhutan Studies used open interval diaries during its earlier GNH surveys.

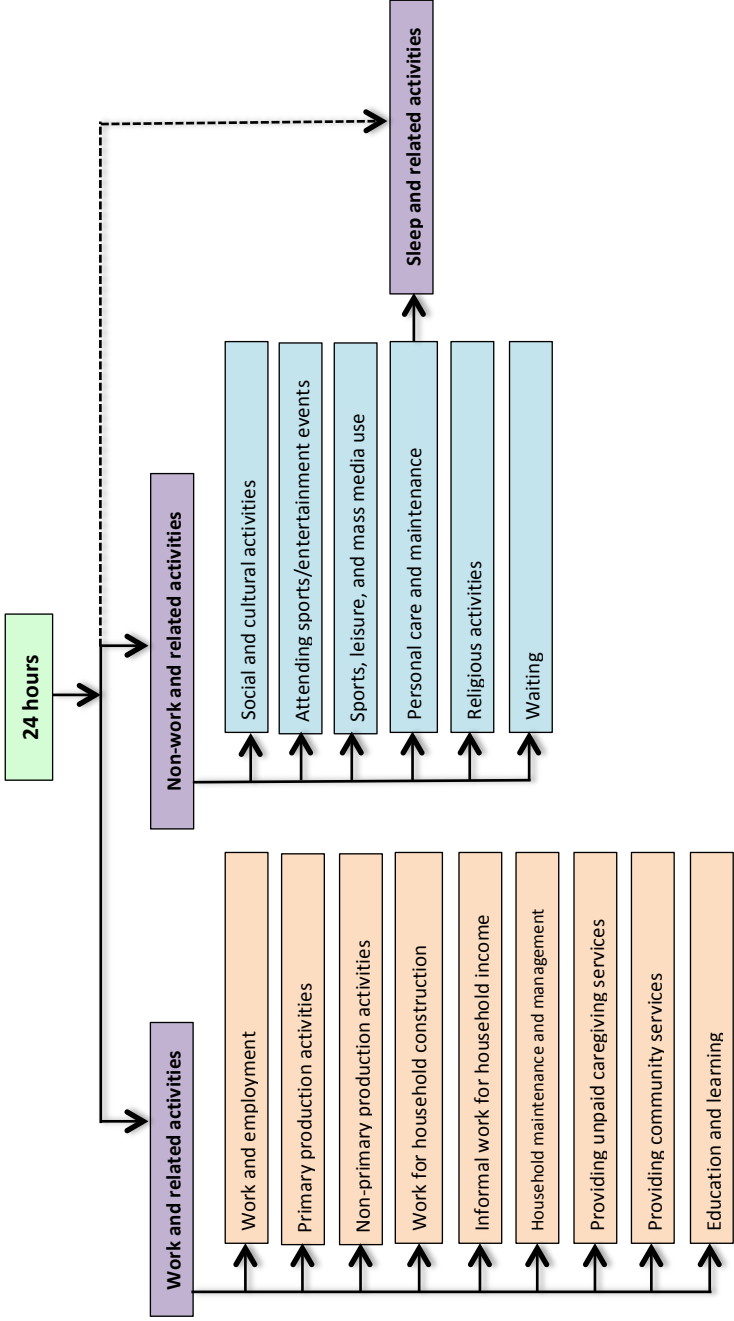
Figure 49: Time use data collection form (sample)

	What were you doing? (Enter one main activity on each line)	Code (for official use only)	What else were you doing? (Record the most important secondary activity if more than one secondary activities were performed)	Code (for official use only)
07:00				
07:10				
07:20	Woke up and washed face			
07:30	↓			
07:40	Said prayers			
07:50	↓			
08:00	Went for jogging		Listened to music	
08:10	↓		↓	
08:20	Had breakfast		Watched TV	
08:30	Watched TV			
08:40	↓			
08:50	Went to office			
09:00	↓			
09:10	Started office work			
09:20				
09:30				
09:40				
09:50				
10:00				
10:10				

Time use activities are coded and classified into pre-defined groups of time use activities by trained time use activity coders. The time use activities were classified into 15 major groups and 89 sub-groups (see details in the annexure Table A1.3).

However, the analysis of the time use activities was presented using three broad groupings, 15 major groups, and 89 sub-groups. The three broad time use activity groupings are; 1) Work and related activities, 2) Non-work and related activities, and 3) Sleep. The latter actually falls under the 'Personal care and maintenance' related activities sub-group of the non-work related activities. The time use activities classification framework is presented in Fig. 50. A table containing the pre-coded classification system adopted for the GNH survey is presented in the annexure Table A1.3.

Figure 50: Framework of time use activities classification



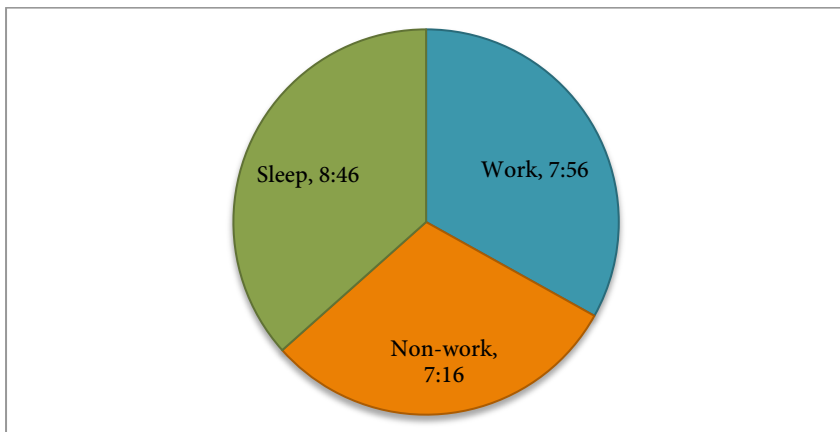
Time use information is presented in two distinct measures; **participation rate** and **average time** spent on each specific activity. Furthermore, an average time spent on each specific activity can be presented in two different forms: i) **population average**, and ii) **participation average**. Population average is the average time spent on an activity per person across the whole population. It is computed by summing up the time spent on a specific activity which is then divided by the whole population, including those who did not participate in the specific activity. On the other hand, participation average is the average time spent on an activity by those people who performed the activity. It is computed by summing up the time spent on a specific activity which is then divided by the total number of people who had participated in the specific activity.

3.3.1. Broad categories of time use activities

This section presents time use statistics for three broad categories of time use activity levels, which consists of ‘work’, ‘non-work’, and ‘sleep’. The participation rates and average time spent, both population average and participation average, on each of these three broad levels is presented at the national level as well as by gender, area of residence, and Dzongkhag levels.

On average, people spent 33% of their 24 hours on work and related activities, 30% on non-work and related activities, and 37% on sleep and related activities.

Figure 51: Time spent on work, non-work, and sleep



3.3.1.1. Work and related activities

As shown in Fig. 51, people spent on average 7 hours and 56 minutes on work and related activities during the diary day. About 97 percent of people were involved in work and related activities at some point of time during the reference period. The average time spent by those involved in work and related activities was 8 hours and 13 minutes.

Table 55: *Average time spent and participation rate by broad categories of time use activities*

Activities	Population average (hrs.)	Participation average (hrs.)	Participation rate
Work	7:56	8:13	97%
Non-work	7:16	7:16	100%
Sleep	8:46	8:47	100%

The data indicates that females spent about half an hour more time working than males. Overall, females spent 28 minutes more doing work and related activities compared to males, and the difference is statistically significant (Table 56). A higher proportion of females (98%) had been involved in work and related activities compared to males (94%) during the diary day. Among those who had actually been involved in work and related activities, the average time spent by females was 8 hours and 16 minutes while males spent 8 hours and 10 minutes.

People residing in rural areas spent 42 minutes longer than those residing in urban areas on work and related activities, and the difference is statistically significant (Table 57). The average time spent on work and related activities by those residing in rural areas was 8 hours and 10 minutes while urban residents spent 7 hours and 27 minutes. In terms of rate of participation in work and related activities, an almost equal proportion of people in both rural (97%) and urban (96%) areas had participated.

Compared to the rest of the Dzongkhags, people residing in Mongar Dzongkhag spent substantially more time on work and related activities. At 9 hours and 47 minutes per day, people living in Mongar worked about three hours more than people living in Gasa. People in Gasa spent just 6 hours and 50 minutes on work and related activities.

The proportion of people who had engaged in work and related activities among Dzongkhags ranges between 94-99%. Samdrup Jongkhar (93.6%), Bumthang (94.6%), Thimphu (94.8%), and Gasa (95.4%) recorded comparatively lower participation rates in work and related activities compared with other Dzongkhags. On the other hand, Haa (98.9%), Tsirang (98.7%), Mongar (98.5%), Lhuntse (98.4%), and Sarpang (98.0%) have higher participation rates in work and related activities.

As expected, people in prime working-age groups spent relatively longer hours on work and related activities, compared to others. All those falling between the age groups of 25-29 and 50-54 spent over 8 hours on work and related activities on the diary day (Fig. 55).

A similar trend is also observed in terms of participation rates in work and related activities by age groups. The participation rate in work and related activities for those between the age groups of 25-29 and 55-59, ranges between 97-99%, which is higher than those below 25 and above 59 years of age. The participation rates after the 55-59 age group constantly drops and was lowest among those aged 75 years and above (Fig. 56).

Table 56: Results of t-test and descriptive statistics for time spent on different time use activities in minutes), by gender

	Gender						95% CI for		
	Male			Female			Mean Difference	t	df
	M	SD	n	M	SD	n			
Work	462	239	2,963	490	216	4,184	-39, -18	-5.24***	7,145
Non-work	454	230	2,963	419	206	4,184	25, 45	6.71***	7,145
Sleep	524	125	2,963	531	107	4,184	-12, -1	-2.36*	7,145

* significance at $p < 0.05$; ** significance at $p < 0.01$; *** significance at $p < .001$.

Table 57: Results of t-test and descriptive statistics for time spent on different time use activities in minutes), by area of residence

	Area of residence						95% CI for Mean		
	Rural			Urban			Difference	t	df
	M	SD	n	M	SD	n			
Work	489	220	5,124	451	239	2,026	26, 49	6.29***	7,148
Non-work	419	215	5,124	471	218	2,026	-63, -41	-9.10***	7,148
Sleep	532	114	5,124	518	116	2,026	8, 20	4.77***	7,148

* significance at $p < 0.05$; ** significance at $p < 0.01$; *** significance at $p < .001$.

Figure 52: Average time spent on three broad categories of time use activities, by gender

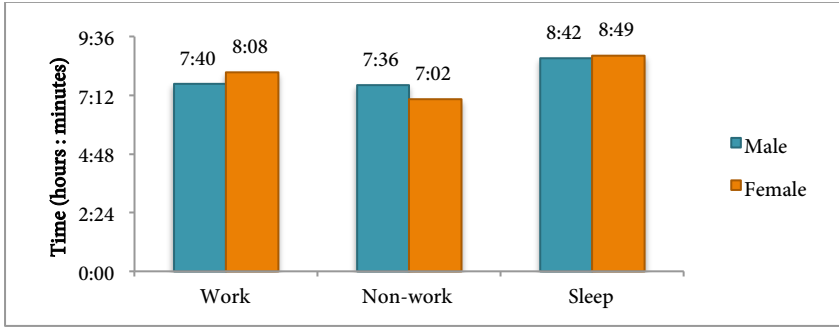


Figure 53: Average time spent on three broad categories of time use activities, by area of residence

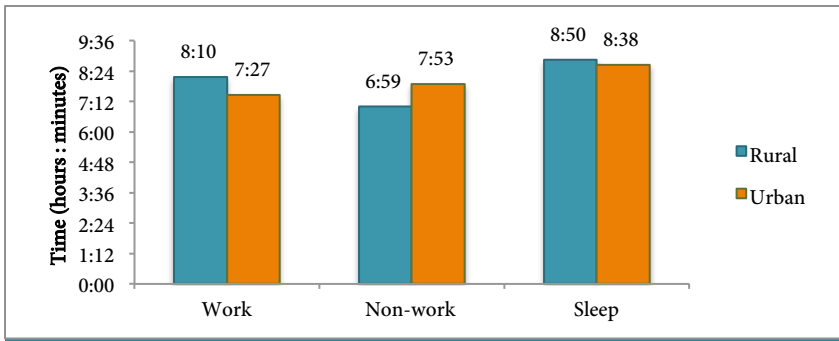


Figure 54: Average time spent on work and related activities, by Dzongkhag

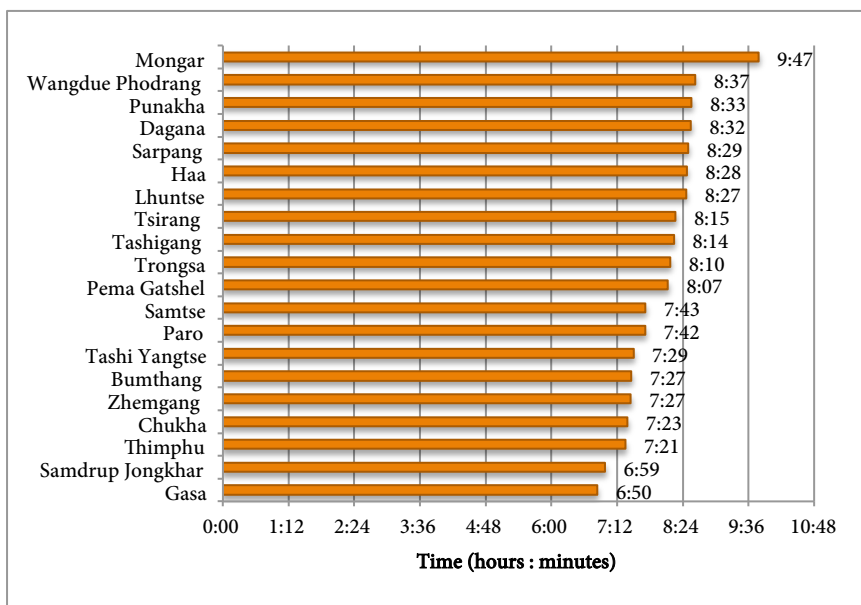


Figure 55: Average time spent on work and related activities by age

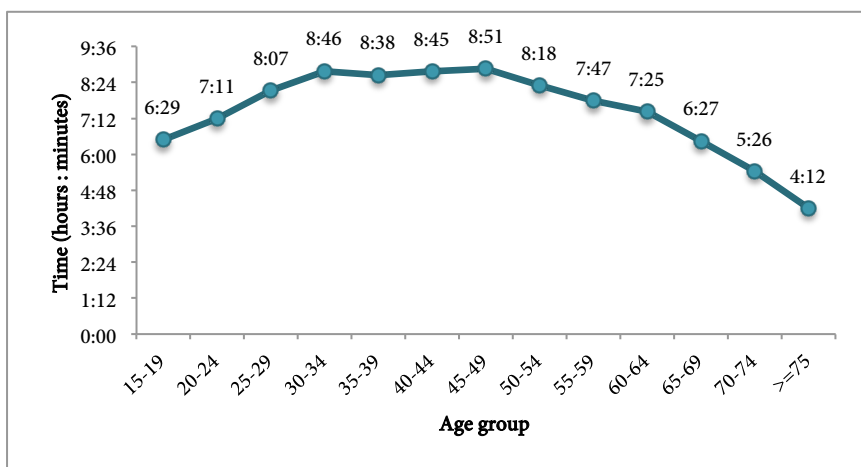
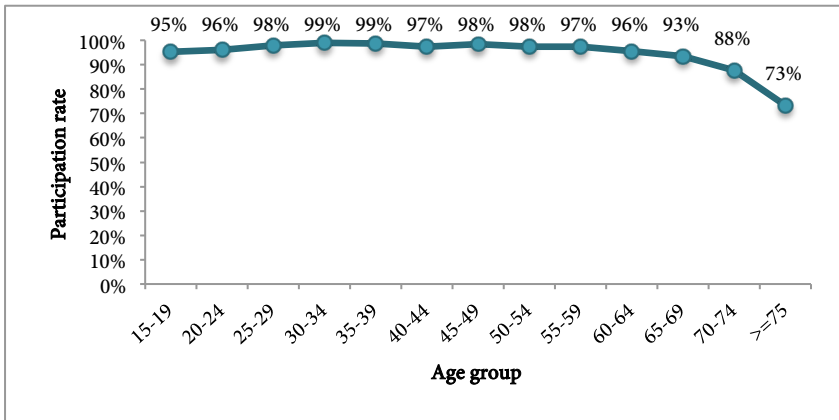


Figure 56: Participation rate in work and related activities, by age

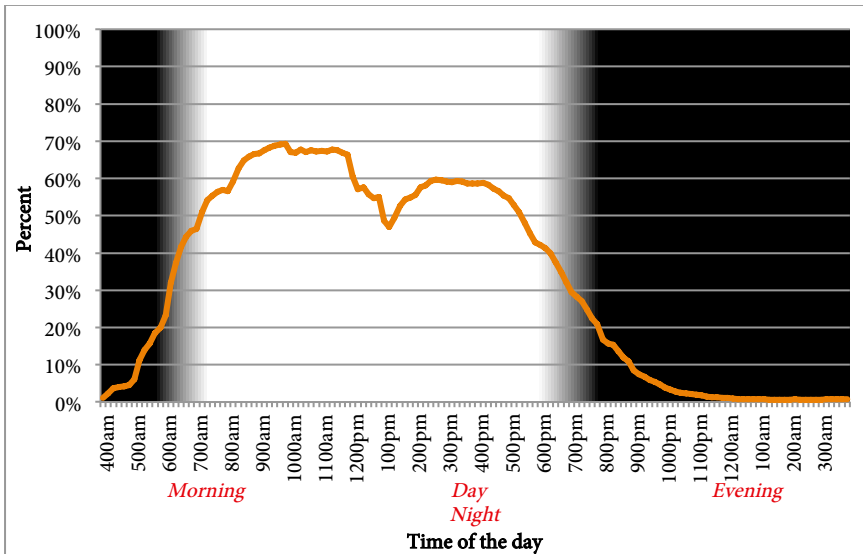


The fixed interval time use diary also allows us to see what proportion of people is engaged in a specific activity through the day during a 24-hour period. The figure below shows the proportion of people engaged in work and related activities through the day starting at 4:00 a.m. in the morning and ending at 4:00 a.m. the next day. For instance, the data show that about two percent of people were engaged in some work and related activities at 4:10 a.m. in the morning. The proportion of people engaged in work and related activities increases as the day progresses and peaks at around 9:40 a.m. in the morning, during which about 69 percent of people were involved in work and related activities.

As expected, the proportion of people engaged in work and related activities decreases as the day progresses towards mid-day, when people are expected to retire for lunch. At around 1:00 p.m., only about 49 percent of people were engaged in work and related activities.

The proportion of people engaged in work and related activities once again increases after 1:00 p.m. and peaks between 2:20 and 4:20 p.m., when about 59 percent were engaged in work and related activities. The proportion then constantly decreases until 11:20 p.m., when only about one percent of people engaged in work and related activities. Between 11:20 p.m. and 4:00 a.m., about one percent of people were still involved with some form of work.

Figure 57: *Proportion of population who were engaged in work and related activities through the day*



3.3.1.2. Non-work and related activities

As non-work and related activities includes time spent on activities such as eating, washing, using restrooms, sleeping, etc., which are also referred to as ‘necessary time’, it has a 100 percent participation rate. The average time spent on non-work and related activities, excluding time spent on sleep and related activities, was 7 hours and 16 minutes. Since this activity recorded 100 percent participation, there is no difference between population average and participation average.

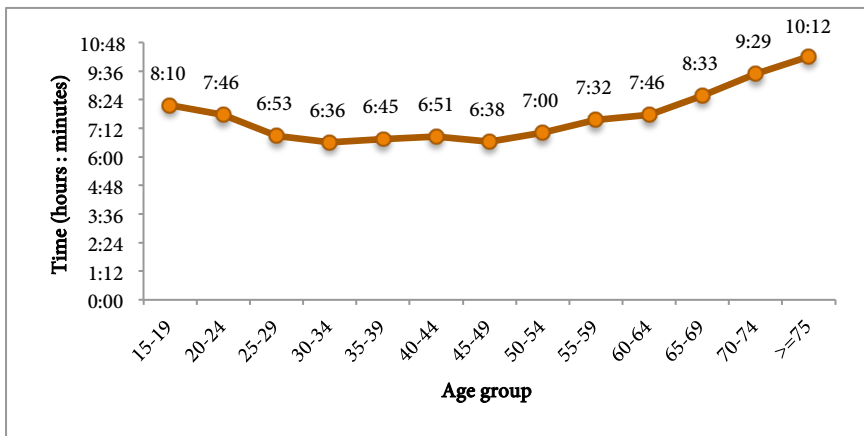
By gender, males spent 7 hours and 36 minutes per day on non-work and related activities, which was 35 minutes more than what females spent on the same activity, and the difference is statistically significant (Table 59).

People residing in urban areas spent substantially more time than their rural counterparts on non-work and related activities. People in urban areas, on average, spent 7 hours and 53 minutes on non-work and related activities while those in rural areas spent 6 hours and 59 minutes, a difference of about an hour, which is statistically significant (Table 60).

The people residing in Samdrup Jongkhar (8:27), Thimphu (7:59), Bumthang (7:57), and Gasa (7:56) spent a comparatively longer time on non-work and related activities compared to the rest of the Dzongkhags. On the other hand, people living in Mongar (5:27), Dagana (6:19), and Lhuntse (6:27) spent a much shorter time on non-work and related activities compared to other Dzongkhags.

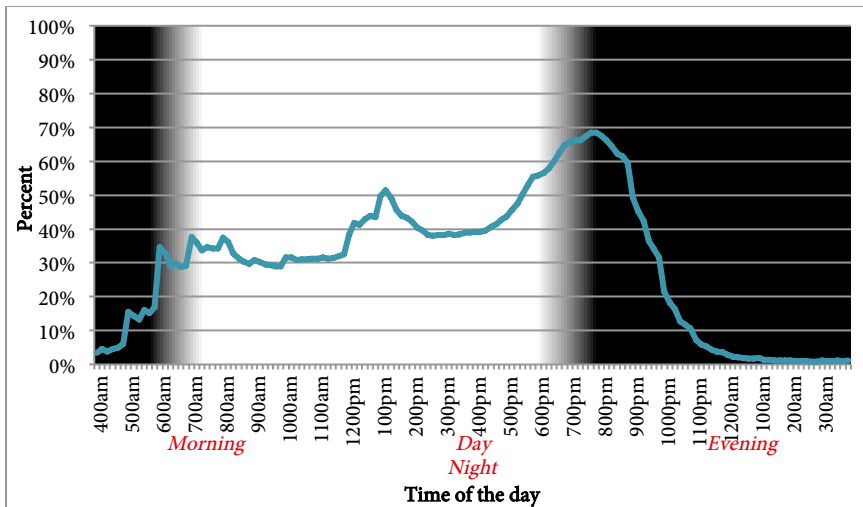
Contrary to what was observed in the case of work and related activities, people in the age groups of 25-29 and 50-54 spent relatively less time than their younger and older age groups on non-work and related activities, as shown in Fig. 58.

Figure 58: Average time spent on non-work and related activities, by age



The participation rate in non-work and related activities through the day starting from 4:00 a.m. to 4:00 a.m. the next day is shown in the Fig. 59. The proportion of people who engaged in non-work and related activities increases as the day progresses and peaks in the evening, at around 7:40 p.m., when about 69 percent are engaged in non-work and related activities. As expected, the data also show a comparatively higher proportion of people engaged in non-work and related activities at around 1:00 p.m. This is the time the official lunch break starts for public and corporate offices in Bhutan.

Figure 59: *Proportion of population who were engaged with non-work and related activities through the day*



3.3.1.3. Sleep and related activities

The third broad time use category is sleep and related activities. Of the three broad time use categories, about 37 percent of the total 24 hours in a day was spent on sleep and related activities. This translates to 8 hours and 46 minutes per day.

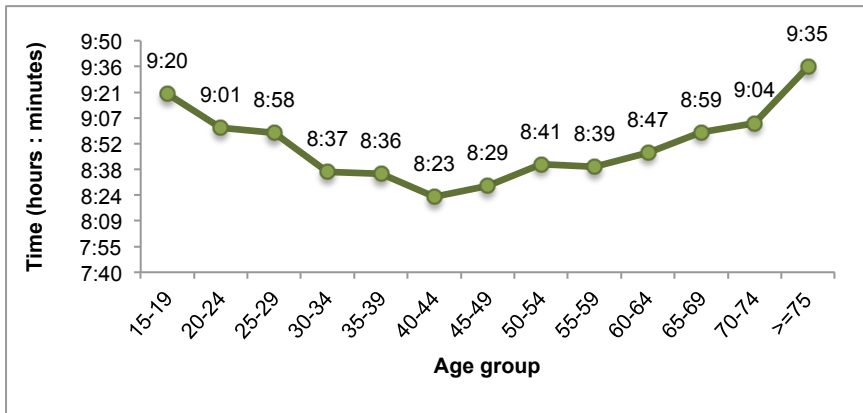
Females spent slightly longer time on sleep and related activities compared with males (Table 59), which is statistically significant. Females spent 8 hours and 49 minutes on sleep and related activities while males spent 8 hours and 42 minutes.

Similarly, by area of residence, people residing in rural areas spent slightly more time on sleep and related activities than their urban counterparts, which is statistically significant (Table 60). People residing in rural areas spent 8 hours and 50 minutes while those in urban areas spent 8 hours and 38 minutes on sleep and related activities.

By Dzongkhag, people living in Punakha (8:26) and Sarpang (8:30) spent relatively less time on sleep and related activities compared to other Dzongkhags while those residing in Zhemgang (9:19), and Gasa (9:12) spent a relatively longer time on sleep and related activities compared to the rest.

Sleeping time tends to decrease with an increase in age, but increases after a certain age. Like in the case of non-work and related activities, people in the prime working age groups spent relatively less time sleeping compared to younger and older populations, as shown in Fig. 60. People below 25 and above 69 years old spent more than 9 hours sleeping while those between 25 and 69 years old spent less than 9 hours sleeping per day.

Figure 60: Average time spent on sleep and related activities by age



The time spent on sleep and related activities decreases as age increases and is lowest for those in the 40-44 age groups for both sexes. The time spent on sleep and related activities then increases starting with the 45-49 age groups for both sexes. A similar trend was also observed in the United States of America.

Figure 61: Average time spent sleeping, by gender and age

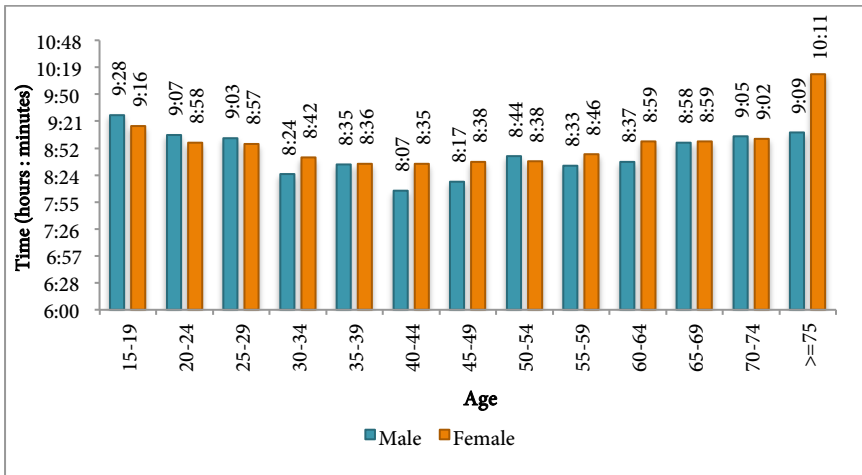
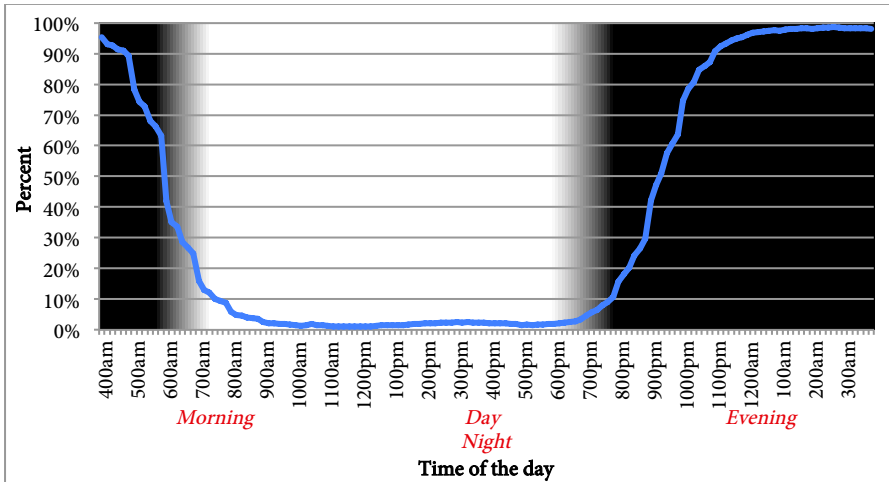


Fig. 62 shows the proportion of people who were sleeping at different points of time through the day. Within a three and a half hour period, the proportion of people sleeping drops sharply from 93% at 4:00 a.m. to about 10% at around 7:30 a.m. The data also show that about 2-3% of people were also sleeping during the day, i.e., between 9:00 a.m. and 6:30 p.m.

As expected, the proportion of people sleeping increases sharply from just three percent at around 6:30 p.m. to over 90 percent at around 11:00 p.m.

However, it is also interesting to observe that about a quarter of the population was still up and engaged in various activities at around 10:00 p.m.

Figure 62 *Proportion of population who were sleeping through the day:*



3.3.2. Major categories of time use activities under work and related activities

The three broad time use activity categories can further be disaggregated into 16 major groups, which in turn can be further broken down into 89 sub-groups of time use activities (refer the annexure Table A1.3). This section, and the one that follows, will present time use information disaggregated at major grouping levels of time use activities for work and non-work categories.

The work and related activities are categorised into nine major groups and 58 sub-groups. These nine major time categories under work and related activities are presented below.

3.3.2.1. Work and employment related activities

The ‘work and employment related activities’ includes time spent on one’s main job, secondary and other jobs, internships or apprenticeships, seeking employment, unspecified breaks in between works, own business, and religious activities performed as part of one’s occupation.

The average time spent on ‘work and employment related activity’ was 1 hour and 32 minutes. Only about 20 percent participated in this activity.

Therefore, the average time spent on this activity by those involved was 7 hours and 33 minutes.

By gender, males spent a substantially longer duration of time on ‘work and employment related activity’ than females. The participation rates were also substantially higher for males (29%) as compared to females (13%). This result confirms the fact that more males than females work in formal sectors of the economy.

People residing in urban areas spent 2 hours and 57 minutes on ‘work and employment related activity’ while those in rural areas spent just 53 minutes. As expected, due to the existence of more formal economic sectors in urban areas, a higher participation rate was observed in urban areas (39%) than rural areas (12%).

The participation rate in ‘work and employment related activity’ was highest in Thimphu (29%) followed by Chukha (28%). It is lowest in Tsirang (8%) followed by Tashigang and Tashi Yangtse with 10% each.

On average, people residing in Thimphu spent 2 hours and 10 minutes on ‘work and employment related activity’ per day, which is the highest among the Dzongkhags, followed by Chukha with 2 hours and 8 minutes. On the other hand, those living in Tsirang spent the least with just 32 minutes followed by Tashi Yangtse with 42 minutes.

3.3.2.2. Primary production and related activities

‘Primary production and related activities’ includes agriculture and related activities, livestock and related activities, forestry and related activities, mining or quarrying and related activities, and fishery and related activities.

The overall average time spent on primary production and related activities was 2 hours and 13 minutes. The average time spent on this activity amongst those involved was 4 hours and 55 minutes per day. A little less than half (47%) of the population participated in this activity. The fact that about half of the population participated in primary production and related activities indicates that the economy is predominantly composed of the primary sector.

The same proportion (47% each) of males as well as females participated in this activity. However, males spent slightly more time on this activity

than females. The average time spent by males was 2 hours and 26 minutes while females spent 2 hours and 4 minutes.

As expected, people residing in rural areas spent substantially more time (3 hours and 8 minutes) than urban residents (14 minutes) on primary production and related activities. Even among those involved in this activity, the average time spent by those in rural areas (5 hours and 3 minutes) was substantially higher than those in urban areas (2 hours and 58 minutes). About 62 percent of those residing in rural areas had participated in this activity as compared to just nine percent of urban residents.

More than 60 percent of the people in Tsirang (75%), Dagana (68%), Mongar (68%), and Pema Gatshel (64%) participated in primary production and related activities. The average time spent on this activity was also comparatively greater in these four Dzongkhags compared to the rest. The average time spent by people in these four Dzongkhags was more than three hours. Residents of Tsirang spent the most time (4:08) on primary production and related activity, followed by Dagana (3:44), Mongar (3:36), and Pema Gatshel (3:17).

3.3.2.3. Non-primary production and related activities

The ‘non-primary production and related activity’ includes time spent on processing of food products, production of beverages, weaving and related activities, tailoring and related activities, wood crafting and carpentry works, bamboo or cane and related works, and other craft works and related activities.

Overall, about 16 percent of people participated in non-primary production and related activities and spent over half an hour doing so. However, amongst those engaged in this activity, the average time spent was 3 hours and 47 minutes.

A significantly higher proportion of females (23%) participated in non-primary production and related activities than males (6%). The average time spent by females was 52 minutes while males spent only 11 minutes. Amongst those who were involved in this activity, the average time spent by females (3:54) was longer than males (3:10).

The participation rates among urban and rural residents in this activity do not vary much (15% in rural and 18% in urban areas). The average

time spent on this activity by rural residents was 31 minutes while it was 44 minutes among urban residents. Similarly, the average time amongst those involved in this activity was also higher among urban residents (4:12) than among rural residents (3:33).

The average time spent on non-primary production and related activity is the highest in Lhuntse (1:14) followed by Tashigang (1:09) and Tashi Yangtse (0:53). However, the participation rate is highest in Tashigang (27%) followed by Lhuntse (24%), Haa (22%) and Tashi Yangtse (21%).

3.3.2.4. Work for household construction and related activities

The ‘work for household construction and related activity’ includes time spent on activities such as construction and repairs of one’s own house, sheds for animals, fences and other physical structures.

Only about four percent of the population participated in this activity. Because of this very low participation rate, the average time spent on this activity was only 12 minutes. However, the average time spent by those who were involved in this activity was 5 hours and 43 minutes.

About seven percent of males and two percent of females were engaged in this activity. The average time spent by males and females was 25 minutes and 4 minutes, respectively. Amongst those who were actually involved, the average time spent by males and females was 5 hours and 57 minutes and 4 hours 55 minutes, respectively.

By area of residence, about five percent of rural residents and less than one percent of urban residents participated in this activity. In terms of the amount of time spent on this activity, rural residents spent substantially more time as compared to those people residing in urban areas.

3.3.2.5. Informal work for household income

‘Informal work for household income’ includes time spent selling household produces, and providing repair, installation, maintenance, transport and other professional services for pay or fees.

Of the nine major activities related to ‘work and related activity’, the ‘informal work for household income’ has the lowest participation rate,

with only about one percent involved in this activity. Because of the extremely low participation rate, the overall average time spent on this activity was only 3 minutes, which is very low. However, amongst those who were involved in this activity, the average time spent was 3 hours and 43 minutes per day.

About one percent each of males and females were involved in this activity, and the overall average time spent was 3 minutes and 2 minutes, respectively. However, amongst those involved, males spent substantially more time on this activity than females (4:12 for males vs. 3:18 for females).

By area of residence, a higher proportion of rural (2%) residents were involved in this activity as compared to urban residents (1%). The overall average time spent by rural residents was 3 minutes while urban residents spent just a minute. Amongst those who participated in this activity, the average time spent does not vary much between rural (3:42) and urban (3:49) residents.

3.3.2.6. Household maintenance and management

‘Household maintenance and management’ activity includes time spent on cooking, dish washing, fetching water, cleaning and upkeep of dwelling, laundry, pet care, shopping, and availing of commercial and administrative services.

Among the nine major categories under ‘work and related activities’, ‘household maintenance and management’ had the highest participation rate. About 81 percent of people participated in this activity. The overall average time spent on this activity was 2 hours and 15 minutes. The average time spent by those who participated in this activity was 2 hours and 47 minutes.

As expected, a significantly higher proportion of females (95%) participated in this activity compared to males (61%). Even in terms of time spent on this activity, females spent significantly more time than males performing activities related to household maintenance and management. The average time spent by females was about three hours while males spent just a little over an hour. Even amongst those who participated in activities related to household maintenance and management, females (3:09) spent substantially more time than males (1:58).

By area of residence, the average time spent on activities related to household maintenance and management was slightly greater among those living in urban areas compared to their rural counterparts. The participation rate was also a little higher in urban areas (82%) compared to rural counterparts (80%).

3.3.2.7. Unpaid care giving services

The ‘unpaid care giving services’ includes those activities related to caring for children, teaching and training of children, accompanying children to places, caring of adults who are old, sick, or disabled, and accompanying those adults to places.

The average time spent on unpaid care giving services was 28 minutes, and 24 percent of the population was involved in this activity during the diary day. The average time spent by those who participated in it was close to two hours (1 hour 58 minutes).

Like in the case of household maintenance and management related activities, the care giving activities seems predominantly performed by females. A significantly higher proportion of females (33%) were engaged in this activity than their male counterparts (12%). The average time spent by females was 37 minutes against just 14 minutes for males. However, amongst those who were involved in this activity, the average time spent on this activity was slightly higher for males (2 hours and 4 minutes) as compared to their female counterparts (1 hour and 58 minutes).

By area of residence, a significantly higher proportion of those living in urban areas (33%) participated in this activity than rural residents (20%). The average time spent by those living in urban areas was 36 minutes against only 24 minutes for those residing in rural areas. Amongst those involved in this activity, the average time spent was slightly higher among those living in rural areas (2 hours and 2 minutes) compared to their urban counterparts (1 hour and 53 minutes).

3.3.2.8. Community services

Activities under the ‘community services’ category include time spent on unpaid help provided to others, works done for community-organised events, *woola* (compulsory labour contribution for communal services), and attendance in community meetings.

The average time spent on this activity was 27 minutes. Only 9% of the population participated in this activity. The average time spent on this activity by those involved in this activity was 5 hours and 3 minutes.

A slightly higher proportion of males than females participated in this activity (12% of males and 8% of females). Males spent much more time on community services than their female counterparts. The average time spent by those involved in this activity was also much higher among males (5 hours 37 minutes) than their female counterparts (4 hours and 26 minutes).

By area of residence, a substantially higher proportion of those living in rural areas (11%) participated in this activity as compared to their urban counterparts (4%). The average time spent on this activity by those living in rural areas was 35 minutes while those in urban areas spent just 8 minutes. Even amongst those who participated in the activity, the average time spent by rural residents (5 hours and 22 minutes) was much higher than urban residents (3 hours and 15 minutes).

3.3.2.9. Education and learning

The activities under 'education and learning' include time spent attending classes in schools or monasteries, unspecified breaks at place of general education, homework, course review, or research related to general education, self-study for distance and continuing education courses, and non-formal or informal education.

Only eight percent of the population was found to have engaged in education and learning related activities during the diary day. The very low participation rate in education and learning related activities can be attributed to the fact that the sampling design excluded children below 15 years of age. The average time spent on education and learning related activities was 8 minutes. However, the average time spent by those involved was 4 hours and 59 minutes.

The participation rate and the average time spent on education and learning related activities do not vary much between males and females. However, the average time spent by those involved in the activity was much higher among males (5 hours 35 minutes) as compared to female counterparts (4 hours and 42 minutes).

By area of residence, both participation rates as well as average time spent on education and learning related activities were much higher among urban residents as compared to their rural counterparts.

Table 58: *Time spent on different activities and participation rates by major categories of time use activity*

Activities	Population average (hrs.)	Participation average (hrs.)	Participation rate
Work	7:56	8:13	97%
Work and employment	1:32	7:33	20%
Primary production activities	2:13	4:55	47%
Non-primary production activities	0:35	3:47	16%
Work for household construction	0:12	5:43	4%
Informal work for household income	0:03	3:43	1%
Household maintenance and management	2:15	2:47	81%
Providing unpaid care giving services	0:28	1:58	24%
Providing community services	0:27	5:03	9%
Education and learning	0:08	4:59	3%
Non-work	7:16	7:16	100%
Social and cultural activities	1:30	2:28	61%
Attending sports/entertainment events	0:03	2:41	2%
Sports, leisure, mass media use	1:54	3:06	60%
Personal care and maintenance*	2:52	2:52	100%
Religious activities	0:51	1:41	51%
Waiting	0:02	1:24	3%
Not elsewhere classified	0:02	4:54	1%
Sleep	8:46	8:47	100%
Sleep	8:46	8:47	100%

**Although, time spent on sleep and related activities are usually included under 'Personal care and maintenance', it is shown separately because sleep and related activities took about one-third of the total time available in a day.*

Table 59: Time spent on different activities and participation rate by major categories of time use activity and by gender**

Activities	Average hours per day (Population)			Average hours per day (Participation)			Participation rate (%)		
	Male	Female	Both gender	Male	Female	Both gender	Male	Female	Both gender
Work	7:40	8:08	7:56	8:10	8:16	8:13	94%	98%	97%
Work and employment	2:22	0:57	1:32	7:49	7:08	7:33	29%	13%	20%
Primary production activities	2:26	2:04	2:13	5:24	4:35	4:55	47%	47%	47%
Non-primary production activities	0:11	0:52	0:35	3:10	3:54	3:47	6%	23%	16%
Work for household construction	0:25	0:04	0:13	5:57	4:55	5:43	7%	2%	4%
Informal work for household income	0:03	0:02	0:03	4:12	3:18	3:43	1%	1%	1%
Household maintenance	1:11	2:59	2:15	1:58	3:09	2:47	61%	95%	81%
Providing unpaid care giving services	0:14	0:37	0:28	2:04	1:56	1:58	12%	33%	24%
Providing community services	0:37	0:19	0:27	5:37	4:26	5:03	12%	8%	9%
Education and learning	0:07	0:08	0:08	5:35	4:42	4:59	2%	3%	3%
Non-work	7:36	7:02	7:16	7:36	7:02	7:16	100%	100%	100%
Social and cultural activities	1:35	1:26	1:30	2:34	2:23	2:28	62%	60%	61%
Attending sports/entertainment	0:03	0:03	0:03	2:25	2:58	2:41	3%	2%	2%
Sports, leisure, mass media use	1:57	1:51	1:54	3:19	2:56	3:05	57%	61%	60%
Personal care and maintenance*	3:01	2:46	2:52	3:01	2:46	2:52	100%	100%	100%
Religious activities	0:53	0:49	0:51	1:56	1:32	1:41	47%	54%	51%
Waiting	0:02	0:02	0:02	1:21	1:27	1:24	3%	3%	3%
Not elsewhere classified	0:02	0:02	0:02	4:31	5:13	4:54	1%	1%	1%
Sleep	8:42	8:49	8:46	8:43	8:50	8:47	100%	100%	100%
Sleep	8:42	8:49	8:46	8:43	8:50	8:47	100%	100%	100%

** Excluded three respondents who identified themselves as belonging to 'others' category.

Table 60: Time spent on different activities and participation rate by major categories of time use activity and by area of residence

Activities	Average hours per day (Population)			Average hours per day (Participation)			Participation rate (%)		
	Rural	Urban	Bhutan	Rural	Urban	Bhutan	Rural	Urban	Bhutan
Work	8:10	7:27	7:56	8:25	7:48	8:13	97%	96%	97%
Work and employment	0:53	2:57	1:32	7:14	7:46	7:33	12%	39%	20%
Primary production activities	3:08	0:14	2:13	5:03	2:58	4:55	62%	9%	47%
Non-primary production activities	0:31	0:44	0:35	3:33	4:12	3:47	15%	18%	16%
Work for household construction	0:18	0:00	0:12	5:49	2:50	5:43	5%	0%	4%
Informal work for household income	0:03	0:01	0:03	3:42	3:49	3:43	2%	1%	1%
Household maintenance and management	2:09	2:27	2:15	2:41	2:59	2:47	80%	82%	81%
Providing unpaid care giving services	0:24	0:36	0:28	2:02	1:53	1:58	20%	33%	24%
Providing community services	0:35	0:08	0:27	5:22	3:15	5:03	11%	4%	9%
Education and learning	0:04	0:16	0:08	4:05	5:42	4:59	2%	5%	3%
Non-work	6:59	7:53	7:16	6:59	7:53	7:16	100%	100%	100%
Social and cultural activities	1:31	1:27	1:30	2:28	2:27	2:28	61%	59%	61%
Attending sports/entertainment events	0:03	0:03	0:03	3:09	2:03	2:41	2%	3%	2%
Sports, leisure, mass media use	1:26	2:54	1:54	2:49	3:27	3:06	50%	84%	60%
Personal care and maintenance*	2:59	2:36	2:52	2:59	2:36	2:52	100%	100%	100%
Religious activities	0:53	0:46	0:51	1:46	1:33	1:41	51%	51%	51%
Waiting	0:02	0:02	0:02	1:35	1:09	1:24	3%	4%	3%
Not elsewhere classified	0:02	0:01	0:02	5:07	4:16	4:54	1%	1%	1%
Sleep	8:50	8:38	8:46	8:50	8:39	8:47	100%	100%	100%
Sleep	8:50	8:38	8:46	8:50	8:39	8:47	100%	100%	100%

3.3.3. Major categories of time use activities under non-work and related activity

Like work and related activities, non-work and related activities can be broken down into seven major groups, which can further be disaggregated into 32 sub-groups as shown in the annexure Table A1.3.

3.3.1. Social and cultural activity

The 'social and cultural activity' category includes time spent on socialisation, on unsocial or antisocial activities like fights and quarrels, and on participating in social and cultural events. The average time spent on this activity was one and a half hours. Sixty-one percent of the population participated in this activity, and the average time spent by those involved was 2 hours and 28 minutes.

Both the participation rates as well as the time spent on it do not vary much between males and females (Table 58). Similarly, both the participation rates as well as the amount of time spent on this activity do not vary much between rural and urban residents.

3.3.2. Attending sports or entertainment events

The activities under this category includes time spent attending theatre or concerts, and attending sports events as spectators. The participation rate in this activity was only 2%, and the rates do not vary much between males and females or between rural and urban residents. Similarly, the average time spent on it also does not vary much between males and females or between rural and urban residents.

However, the average time amongst those involved in this activity was a little higher among females (2:58) than males (2:25). Similarly, amongst those involved in this activity, rural residents spent about one hour more than urban residents.

3.3.3. Sports, leisure, and mass media use

The time spent on games and sports, card or dice games, computer or video games, reading (for leisure), watching television or movies, listening to radio or audio devices, and surfing nets are classified as time spent on 'sports, leisure, and mass media use'. On average, people spent

1 hour and 54 minutes on this activity. Sixty percent of people participated in this activity and the average time among those who participated was a little over three hours per day.

The average time spent on this activity by males (1:57) and females (1:51) does not vary much. A slightly higher proportion of females (61%) participated in this activity as compared to males (57%). Amongst those who participated in this activity, males (3:19) spent a little more time than females (2:56) on activities related to sports, leisure, mass media use. The higher average time spent by males, despite their lower participation rate compared to females, could be due to engagement in sports activities such as archery and *khuru*, which requires play almost throughout the day in most cases.

By area of residence, both participation rates as well as time spent on sports, leisure, and mass media related activities are significantly higher among urban residents as compared to their rural counterparts.

3.3.4. Personal care and maintenance

The activities under ‘personal care and maintenance’ include time spent on eating and drinking, personal hygiene and care, physical fitness, receiving personal health or medical care, and activities associated with resting or relaxing. Although the time spent on sleep and related activities are also usually classified under the ‘personal care and maintenance’ related activity, it is classified separately, since people spent more than a third of the total 24-hour time on sleep and related activities.

As ‘personal care and maintenance’ related activities include activities such as eating and drinking, washing and using restrooms, resting, etc., which are also termed as ‘necessary time’, all people participated in this activity thereby recording a 100 percent participation rate. The average time spent on this activity was 2 hours and 52 minutes. By gender, males spent about 15 minutes more on personal care and maintenance related activities than their female counterparts. By area of residence, rural residents spent about 23 minutes more on personal care and maintenance than their urban counterparts.

3.3.5. Religious activities

The 'religious activities' include time spent on reciting prayers, making water, food, incense, or butter lamp offerings, meditating, prostrating, circumambulating, hoisting prayer flags, attending religious teachings, and pilgrimage.

On average, people spent 51 minutes per day on religious related activities. Fifty-one percent of people participated in this activity. The average time spent on religious activities by those who actually engaged in it was 1 hour and 41 minutes.

The average time spent on religious activities does not vary much between males and females (53 minutes and 49 minutes respectively). The participation rate is a little higher among females (54%) than males (47%). The average time spent on religious activities amongst those who participated in it was much higher among males (1:56) as compared to their female counterparts (1:32), despite the participation rate being lower among males.

Although there exists no difference between rural and urban residents in terms of participation rates in religious activities, rural residents spent a little more time than urban residents on religious activities.

3.3.6. Waiting

Waiting here means time spent waiting for services, such as at Gup's office, hospitals, banks, etc., during the reference period.

The data revealed that about three percent of the people spent time 'waiting' during the reference period. The average time spent waiting during the diary day was two minutes. However, among those who waited, the average time spent waiting was 1 hour 24 minutes.

By gender, there does not exist a significant difference, both in terms of time spent as well as the participation rate, between males and females in waiting.

By area of residence, although a higher proportion of urban residents (4%) as compared to rural residents (3%) spent time waiting, the average waiting time amongst those who waited was longer for rural residents.

3.3.4. Sub-categories of time use activities

The major categories of time use activities can be further disaggregated into sub-categories. There are 57 sub-categories of time use activity under 'work and related activity' and 33 sub-categories of time use activity under 'non-work and related activity'. The time spent on each sub-categories of time use activity is presented in the annexed Table A1.3.

In the interest of space, only those sub-categories of time use activities that are deemed important are discussed here.

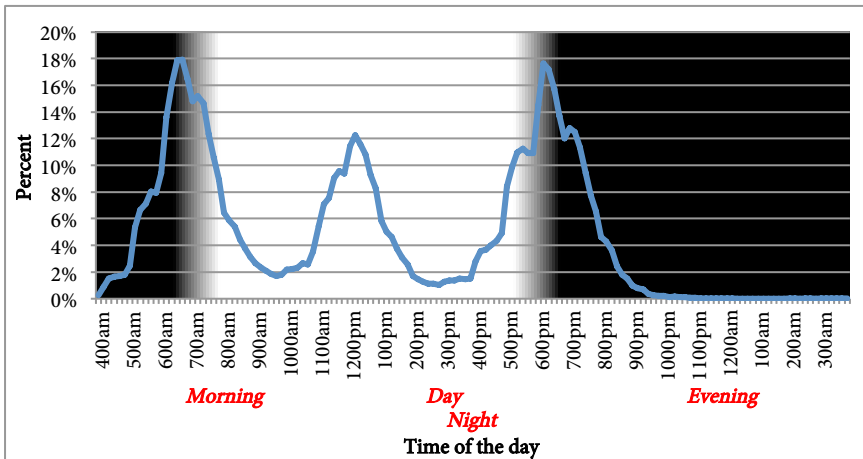
3.3.4.1. Time spent cooking

The average time spent on cooking meals was a little over an hour per day (1:07). About 71 percent of people had actually engaged in cooking and related activities during the diary day. The average time spent by those who actually cooked meals during the diary day was 1 hour and 35 minutes.

Cooking seems to be predominantly associated with females. The average time spent on cooking by females was 1 hour and 35 minutes while males spent just 27 minutes on cooking. By area of residence, both rural and urban residents have spent 1 hour and 7 minutes each on cooking.

As expected, most cooking took place in the morning, mid-day, and in the evening, although some cooking also took place throughout the day (Fig. 63).

Figure 63: *Proportion of population who were cooking through the day*



3.3.4.2. Time spent doing laundry

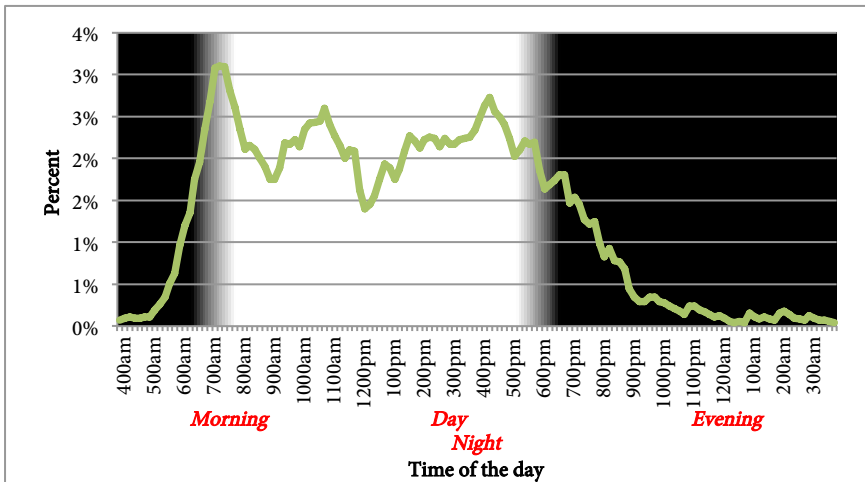
The average time spent doing laundry and related works was 13 minutes per day. About 21 percent of the population had done laundry and related activities during the diary day. The average time spent by those who actually did laundry was 1 hour and 2 minutes.

Females spent substantially more time doing laundry (20 minutes) compared to males (3 minutes). People residing in urban areas also spent substantially more time doing laundry (17 minutes) compared with those residing in rural areas.

3.3.4.3. Physical care of children

Time spent on physical care of children excluded time spent teaching and accompanying children to places of education and recreation. The average time spent providing physical care of children was 18 minutes. About 18 percent of people had provided physical care for children during the diary day. The average time spent by those who provided care was 1 hour and 44 minutes per day. Females spent substantially more time (27 minutes) than males (6 minutes) providing physical care for children. By area of residence, urban residents spent more time (22 minutes) than rural residents (16 minutes) providing physical care for children.

Figure 64: Proportion of population who were providing physical care for children through the day



3.3.4.4. Unpaid voluntary helps

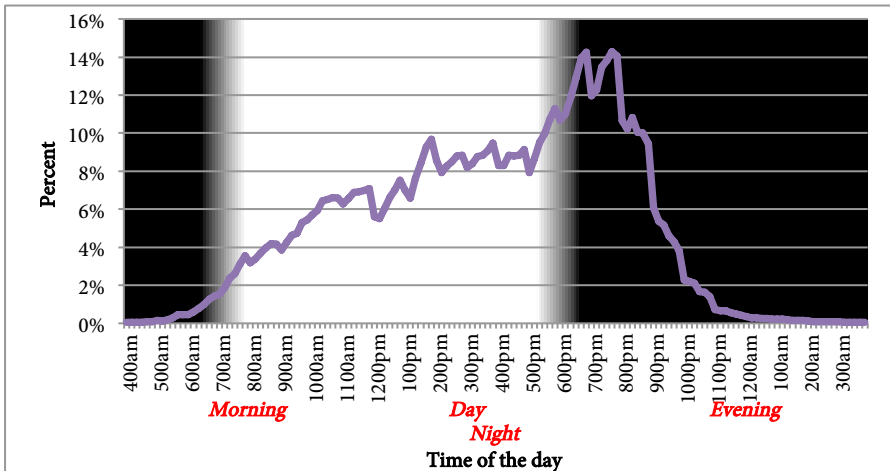
The amount of unpaid voluntary helps provided to individuals, households, or institutions were recorded. The average time spent providing unpaid voluntary help was 13 minutes. About 5% of the population was found to have provided unpaid voluntary help to others during the diary day. The average time spent by those who provided unpaid voluntary help was 4 hours and 22 minutes per day. Males spent twice the amount of time (18 minutes) than females (9 minutes) providing unpaid voluntary help. By area, rural residents spent three times more minutes (17 minutes) than urban residents (4 minutes) doing unpaid voluntary help for others.

3.3.4.5. Time spent socialising

On average, people spent 1 hour and 11 minutes socialising during the diary day. About 58 percent of the population reported socialising, and the average time amongst those who socialised was 2 hours and 2 minutes. The average time spent socialising was slightly higher among males compared to females. By area of residence, an equal amount of time (1 hour and 11 minutes) was spent socialising by both rural and urban residents.

Socialising mostly took place in the evenings (Fig. 65). Through the day, over 10 percent of the population was socialising between 5:30 p.m. and 8:40 p.m. in the evening.

Figure 65: *Proportion of population who were socialising through the day*



3.3.4.6. Time spent gambling

The national average time spent on gambling or playing card games was 1 minute. About one percent of the population reported having spent time gambling during the diary day. The average time spent gambling amongst those who gambled was 3 hours and 10 minutes. Gambling was predominantly prevalent among urban males.

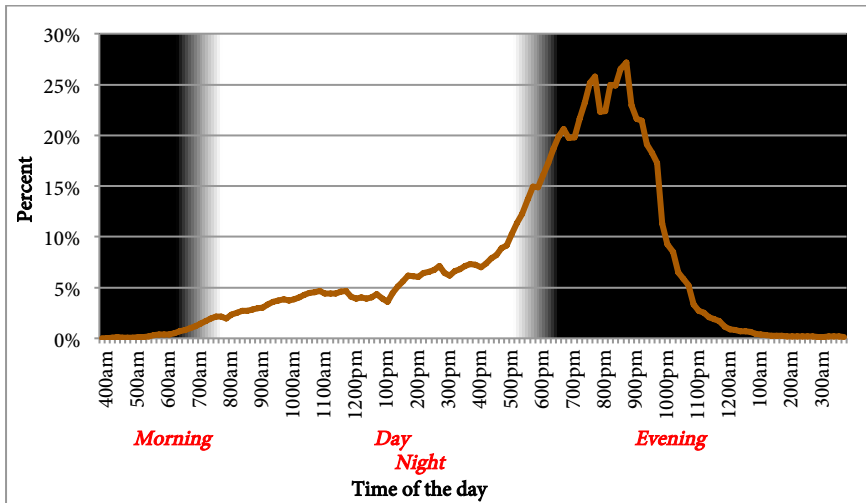
3.3.4.7. Time spent viewing TV or movies

The average time spent viewing television (TV) or movies was 1 hour and 38 minutes. About 57 percent of people had viewed TV or movies during the reference period. The average time spent by those who viewed TV or movies was 2 hours and 48 minutes. Females (1:44) spent slightly more time than males (1:28) viewing TV or movies. By area of residence, urban residents (2:31) spent twice as much time as rural residents (1:13) viewing TV or movies.

In terms of the timing of viewing TV or movies, as shown in Figure 66, below, it took place mostly during the evenings. Between 6:40 p.m. and

9:30 p.m., more than 20 percent of people were engaged in this activity. The highest viewership is at around 8:50 p.m. in the evening, when about 27 percent were involved in this activity. Therefore, the airing of social messages could have maximum returns if such advertisements are aired around 8:50 p.m. in the evenings. The maximum television viewership concentrated around 8:50 p.m. in the evenings could also be attributed to the fact that the complete news programme of the day by Bhutan Broadcasting Service (BBS) is aired at 8:00 p.m. every day.

Figure 66: *Proportion of population who were watching television through the day*



3.3.4.8. Time spent eating and drinking

On average, people spent 1 hour and 22 minutes per person per day on eating and drinking. Males spent about six minutes more than females eating and drinking. Similarly, rural residents spent about eight minutes more than urban respondents eating and drinking.

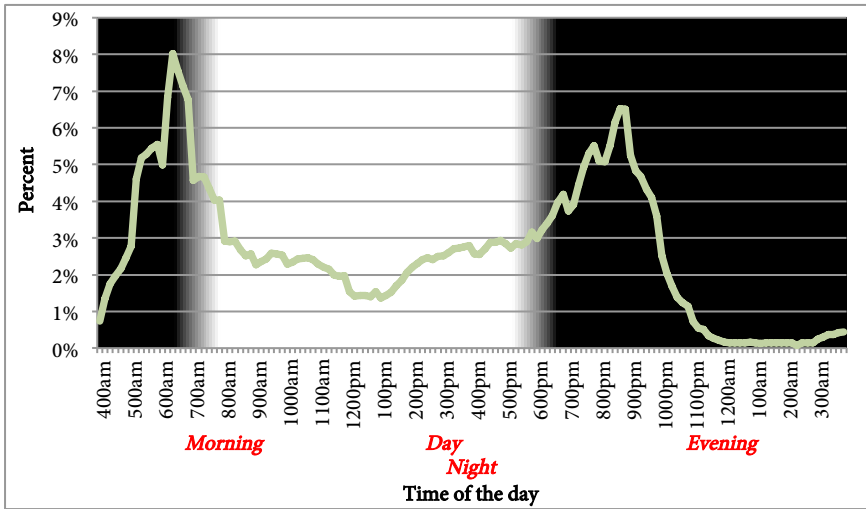
3.3.4.9. Time spent praying

On average, people also spent 36 minutes per person per day reciting prayers, chanting mantras, or counting rosary beads. About 36 percent of the population took part in this activity, and the average time spent on this activity amongst those who participated in it was 1 hour and 43 minutes. Males spent about nine minutes more time than females, and

rural residents spent about 13 minutes more than urban respondents reciting prayers.

In terms of timing of the prayer recitations, a relatively higher proportion of population recited prayers at around 6:20 a.m. in the morning and 8:50 p.m. in the evening (Fig. 67).

Figure 67: *Proportion of population who were reciting prayers through the day*



3.4. Education

The education domain of the GNH covers aspects on both conventional as well as non-conventional education such as artisan skills and traditional knowledge.

3.4.1. Years of schooling

The average years of formal¹⁹ schooling is the average years of formal education received by people in the formal school-based classroom setting. The average years of formal schooling reported by people was 3.81 years ($SD = 5.03$). The mean years of schooling is very low due to the existence of very high proportion of people who never attended the formal schooling. This is evident from the fact that 56.45 percent of the people reported having no formal education²⁰.

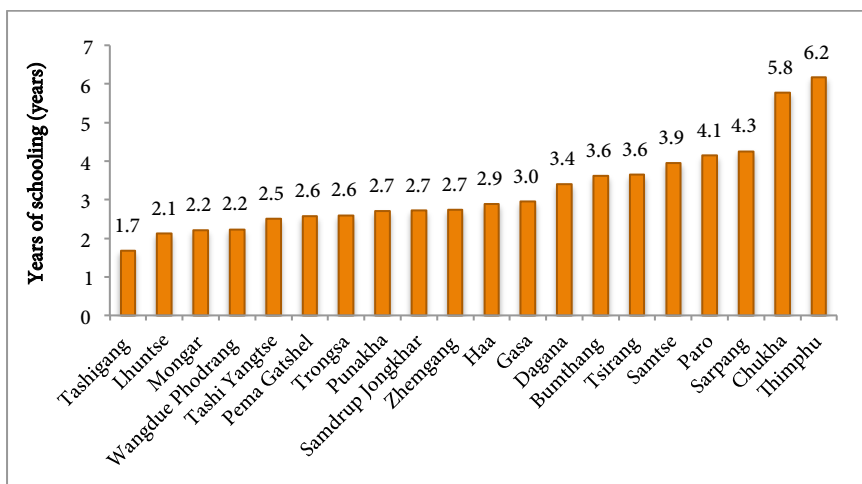
On average, males have one additional year of schooling ($M = 4.21$ years, $SD = 5.15$) compared to females ($M = 3.24$ years, $SD = 4.76$) and the mean difference is statistically significant, $t(7148) = 8.21$, $p < .001$. By area, average year of schooling is much higher among those living in urban areas ($M = 6.56$ years, $SD = 5.49$) compared with those living in rural areas ($M = 2.49$ years, $SD = 4.20$) and the mean difference is statistically significant, $t(7151) = -33.74$, $p < .001$.

The average year of schooling was reported much higher in Thimphu and Chukha Dzongkhags compared to other Dzongkhags. Thimphu and Chukha also have relatively large urban population; 85 percent of Thimphu and 48 percent of Chukha's population lives in urban areas. The other Dzongkhags that have average years of schooling above national average are Sarpang, Paro, and Samtse. Tashigang, Lhuntse, Mongar, and Wangdue Phodrang have comparatively lower average years of schooling (Fig. 68).

¹⁹ This excludes the monastic and non-formal education both of which are offered in a formal setting.

²⁰ The mean year of schooling among those who attend formal school is 8.74 years ($SD = 3.87$).

Figure 68: Average years of schooling, by Dzongkhag



3.4.2. Literacy

Literacy status was assessed based on whether people can read and write in Dzongkha, Nepali, English, or any other languages. People were considered as literate if they can read and write in any languages listed above. Based on the responses, 52.32 percent were classified as literate²¹.

By area of residence, comparatively a higher proportion of people living in urban areas is literate (72.39%) as compared to their rural counterparts (43.03%). Similarly, by gender, comparatively higher proportions of males are literate (64.01%) as compared to their female counterparts (44%)

Like years of schooling, Thimphu and Chukha once again lead the literacy rate ranking list with 66.6 percent and 64.73 percent respectively. Twelve of the 20 Dzongkhags have literacy rate less than 50 percent (Fig. 70).

²¹ This is slightly lower than the adult (15 years and above) literacy rate estimated by NSB through their 2012 Bhutan Living Standard Survey.

Figure 69: Literacy by gender and area of residence

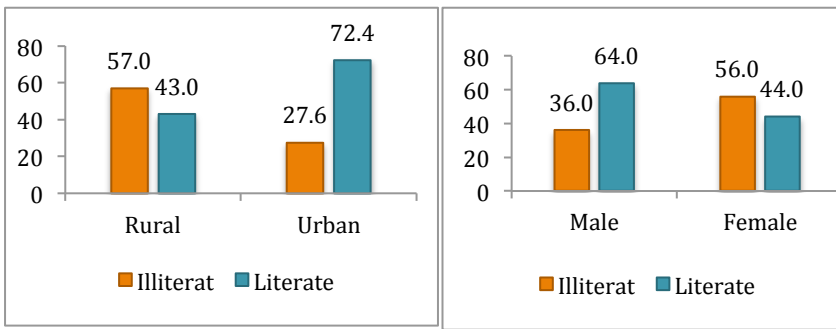
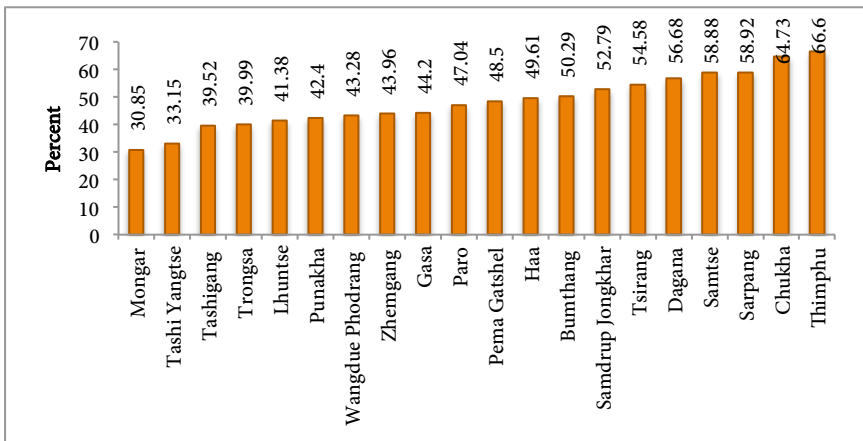


Figure 70: Literacy rate, by Dzongkhag



3.4.3. Historical knowledge

Historical literacy is tested using four different questions. People were asked to rate their level of knowledge and understanding of:

- ① Local legends and folktales,
- ② Historical events of our kings,
- ③ National day, and
- ④ Names of the five Kings of Bhutan.

Of the four items, most people (54.16%) reported 'good' or 'very good' knowledge of the names of the five Kings of Bhutan. The knowledge and understanding of local legends and folktales seems to be seriously lacking among the people as only 12.45 percent reported having either

‘good’ or ‘very good’ knowledge and understanding of local legends and folktales. The distribution of people by the level of their knowledge and understanding in each of these four specific areas is presented in the Table 61.

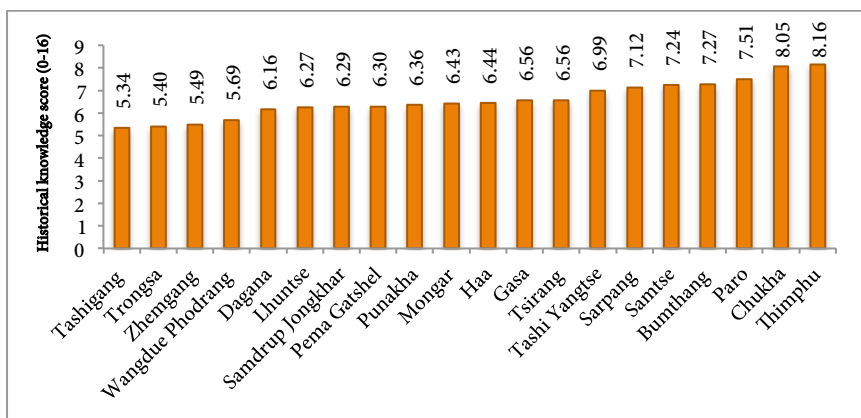
Table 61: *Distribution of people by the level of their historical knowledge and understanding*

	Very poor	Poor	Average	Good	Very good
Knowledge and understanding of local legends and folktales	39.77	24.61	23.14	10.17	2.31
Knowledge and understanding of historical events of kings	32.05	24.72	21.91	15.6	5.71
Knowledge and understanding of National day	23.56	22.79	19.92	16.77	16.95
Knowledge of names the five Kings of Bhutan	10.89	15.76	19.2	9.47	44.69

The score of individual items were aggregated to form a single number historical knowledge index after checking internal consistency reliability among items. The four items yielded a good internal consistency (Cronbach’s alpha = 0.84). The factor analysis also yielded a single factor with all factor loadings above 0.54. The historical knowledge score ranges between 0 and 16 where higher score represents better historical knowledge.

The mean historical knowledge score is 6.91 ($SD = 4.30$), which is only 43 percent of the maximum possible score of 16. Hence, the average historical knowledge could be considered as very low. The mean historical knowledge score for males is 8.08 ($SD = 4.16$) which is two points higher than females score which stands at 6.06 ($SD = 4.20$). For those living in urban areas, the mean historical knowledge score is 8.74 ($SD = 4.09$) and for those residing in rural areas it is 6.06 ($SD = 4.12$). By Dzongkhag, Thimphu and Chukha once again top the historical knowledge ranking list while Tashigang, Trongsa, and Zhemgang trail in the ranking list (Fig. 71).

Figure 71: Historical knowledge score, by Dzongkhag



3.4.4. Cultural knowledge

Cultural knowledge is tested using two questions. People are asked to rate their knowledge and understanding of local *tshechus* or festivals and traditional Bhutanese songs. Although 46.27 percent of people rated their knowledge and understanding of local *tshechus* or festivals as either ‘good’ or ‘very good’, only 19.88 percent rates same for the traditional Bhutanese songs. Considering the fact that most younger Bhutanese prefer modern Bhutanese and other songs to traditional Bhutanese songs, it poses a serious challenge for the relevant organisations entrusted with the preservation and promotion of Bhutanese cultural heritage, since the traditional Bhutanese songs form an indispensable part of it.

Table 62: Distribution of people by the level of their cultural knowledge and understanding

	Very poor	Poor	Average	Good	Very good
Knowledge and understanding of local <i>tshechus</i> /festivals	9.89	14.59	29.25	29.16	17.11
Knowledge and understanding of traditional Bhutanese songs	35.31	22.09	22.71	14.8	5.08

By gender, comparatively higher proportion of males (52.9%) rated their knowledge and understanding of local *tshechus*/festivals as either ‘good’ or ‘very good’ compared to females (41.56%). However, there is no substantial difference between males (20.38%) and females (19.55%)

as regards the knowledge and understanding of traditional Bhutanese songs.

No substantial difference is also observed between rural and urban areas in terms of percentage of people rating ‘good’ or ‘very good’ for both indicators.

3.4.5. Civic knowledge

The civic knowledge is tested using three questions; one each on the knowledge of the minimum age to be eligible for voting, knowledge of the names of political parties, and the knowledge and understanding of the constitution.

People’s political participation, through electoral process such as voting, may depend on their knowledge of the minimum voting age²² eligibility. About 74 percent of Bhutanese knows the minimum age at which Bhutanese are eligible to vote. The remaining 26 percent does not know the minimum age at which Bhutanese can vote.

The knowledge of the minimum voting age is higher among males (79.15%) compared to females (70.21%). It is also higher among those residing in urban areas (81.89%) as compared to those living in rural areas (70.21%).

As evidenced by the findings, where only 35.4 percent of people reported knowing the names of all four political parties who participated in the primary rounds of election in 2013, it seems that people’s civic knowledge is very low. More alarmingly, more than 20 percent reported that they do not know the names of all four political parties who participated in the primary rounds in 2013.

Substantially higher proportion of males (45.5%) reported knowing the names of all four political parties than women (28.23%). Similarly, by area of residence, higher proportion of people living in urban areas (49.35%) reported knowing the names of all four political parties than those living in rural areas (28.95%).

²² The minimum age to become eligible to vote in Bhutan, as per the Constitution of the Kingdom of Bhutan and the Election Act of Kingdom of Bhutan, is 18 years of age.

When asked to rate their knowledge and understanding of the constitution using the five-point Likert scale (1= very poor and 5 = very good), only 12.96% rated their knowledge and understanding as either ‘good’ or ‘very good’. This indicates the prevalence of very large proportion of people who needs to be educated on the constitution. Once again, the prevalence of people with ‘good’ or ‘very good’ knowledge and understanding of the constitution is higher among males (20.1%) than females (7.89%), and among urban (19.16%) than their rural counterparts (10.08%).

3.4.6. Ecological knowledge

People were asked to rate their knowledge of plants and wild animals present in their locality to test their ecological knowledge. Over three-fourth of people reported having ‘good’ or ‘very good’ knowledge of the names of plants (75.9%) and wild animals (80.32%) in their locality.

Comparatively higher proportion of males reported having ‘good’ or ‘very good’ knowledge of names of plants and wild animals present in their locality.

As expected, comparatively higher proportion of those living in rural areas reported having ‘good’ or ‘very good’ knowledge of names of plants and wild animals present in their locality as compared to those living in urban areas.

Table 63: Distribution of people by level of knowledge of names of plants and animals

	Very poor	Poor	Average	Good	Very good
Knowledge of names of plants	1.46	4.73	17.91	26.54	49.36
Knowledge of names of wild animals	0.94	3.87	14.87	27.18	53.14

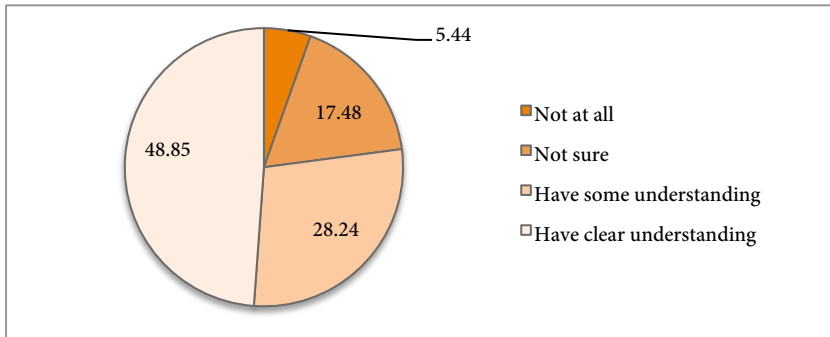
3.4.7. Health knowledge

The health literacy is tested using two indicators: knowledge and understanding of HIV/AIDS and exclusive breastfeeding.

As can be seen from the figure below, less than half of respondents reported having clear understanding of how HIV/AIDS is transmitted.

This is deeply worrying considering the fact that both incidence and prevalence of HIV/AIDS is increasing year after year in Bhutan.

Figure 72: *Distribution of population by level of understanding of how HIV/AIDS is transmitted*



An exclusive breastfeeding is very important for the growth and development of a child. Exclusive breastfeeding is defined as feeding only breast milk without any supplementary foods. Internationally, it is recommended that a child have exclusive breastfeeding for the initial six month of its life. This standard is also followed in Bhutan. In order to assess people's knowledge of the length of period for exclusive breastfeeding, they were asked to report how long a child should be breastfed exclusively. About 72 percent of people knows how long a child needs to be breastfed exclusively. The proportion of those who know how long the child should be breastfed exclusively is higher among females (78.23%) than their male counterparts (62.83%). By area of residence, about 79 percent of those living in urban and 69 percent of those living in rural areas knows how long a child should be breastfed exclusively.

3.4.8. Artisan skills

People were asked to report whether they possess skills in 13 different arts and crafts, commonly referred to as *Zorig-Chhusum* in Dzongkha. The 13 different arts and crafts are: 1) Weaving, 2) Embroidery²³, 3)

²³ It is the art of tailoring, sewing, and stitching intricate patterns on clothes. For example, an artisan tailoring and stitching intricate designs on cloth pieces to produce traditional objects like tsho lham, thannga, thongdrel, etc., are called tshem-zo.

Painting²⁴, 4) Carpentry, 5) Carving²⁵, 6) Sculpture²⁶, 7) Casting²⁷, 8) Black-smithing, 9) Bamboo works, 10) Gold/silver-smithing²⁸, 11) Masonry, 12) Leather works, and 13) Papermaking.

About 33 percent of people reported possessing skills in weaving which is the highest among thirteen arts and crafts. A little over 10 percent of the people also reported possessing skills in carpentry (15.77%), masonry (14.66%), bamboo works (12.60%), and painting (10.49%). A very small proportion of population possesses skills in arts and crafts like carving, black-smithing, papermaking, leather works, sculpture, casting, and gold/silver-smithing (Table 64).

Table 64: *Distribution of population by the level of skills in each of the thirteen arts and crafts*

	No	Yes, a little	Yes, very well
Weaving	66.70	17.25	16.05
Carpentry	84.23	12.32	3.45
Masonry	85.34	10.01	4.65
Bamboo works	87.40	7.64	4.96
Painting	89.52	9.14	1.35
Embroidery	90.19	8.21	1.6
Carving	97.39	2.20	0.41
Black-smithing	98.63	0.89	0.48
Paper-making	98.81	0.95	0.25
Leather works	98.94	0.81	0.25
Sculpture	99.05	0.72	0.23
Casting	99.21	0.59	0.2
Gold/silver-smithing	99.24	0.49	0.27

²⁴ Painting here should not mean only the modern painting, but also traditional painting such as painting of thangka, thongdrel, etc.

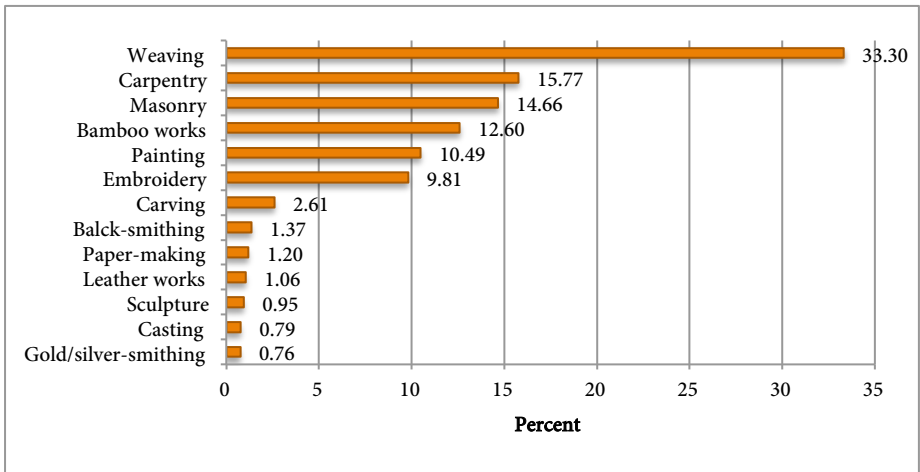
²⁵ It is the art of carving either images or scripts on materials like wood, stone and slate. Although carving wood is still practised in the form of house and choesham constructions, slate and stone carving is hardly seen being practised. However, images of deities and religious scripts carved on slates or stones are common sights in and around lhakhangs and chortens.

²⁶ It is commonly referred to the art of making statues and other religious objects from clay. However, with the availability of brass and other metals, sculpting work is now commonly carried out using brass and other metals.

²⁷ It is the art of making containers, shields, swords, religious objects, etc., by melting materials such as bronze.

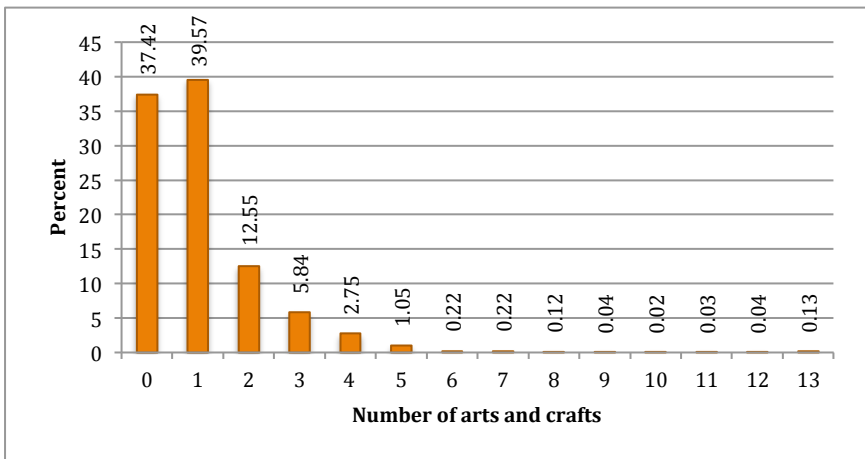
²⁸ Gold/silver-smithing is also commonly called *troe-ko*. The most common objects produced are brooches, earrings, and ritual and religious objects like dung, *jaling*, and *karmi-kom*.

Figure 73: % of people possessing skills in 13 arts and crafts (those who reported ‘Yes, a little’ or ‘Yes, very well’)



About 37 percent of population does not have any skill in any of the 13 different arts and crafts while remaining 62.58 percent possesses skills in at least one of them.

Figure 74: Percentage of people by their skills in number of arts and crafts



3.5. Cultural Diversity and Resilience

3.5.1. Language

The survey collected information on the respondents' mother tongue and their ability to speak mother tongue. The survey captured some 20 different dialects spoken across the country. Among them, Tshangla (Sharchop), Dzongkha and Nepali (Lhotshamkha) together form the mother tongue for almost three-fourth of the total population (Table 65). About one-third of the total population's mother tongue is Tshangla. Dzongkha is the mother tongue for 21.2 percent, closely followed by Nepali for about 18.7 percent of the population.

Table 65: Distribution of population by mother tongue

Mother tongue	Percent
Tshangla (sharchop)	33.72
Dzongkha	21.13
Nepali (Lhotshamkha)	18.69
Khengkha	8.05
Cho-cha nga-chakha (kurmedkha)	2.95
Kurtop (variant of Bumthangkha)	2.93
Bumthangkha	2.89
Nyenkha (Henkha or Mangdebikha)	1.70
Dzala	1.22
Dakpa	0.61
Gongduk	0.36
Chali kha	0.30
Layap	0.26
Bokha (Tibetan)	0.25
Monpakha	0.19
Brokpa	0.16
Lepcha	0.15
Lhokpu	0.13
Lakha	0.02
English	0.02
Others	4.28
Total	100

As a mother tongue, Dzongkha is dominant in Punakha (79.23%), Paro (79.02%), Wangdue Phodrang (65.78%) and Haa (52.14%). Thimphu is the only western Dzongkhag, besides Gasa, where majority of the population reported Tshangla (sharchop) as their mother tongue (35.9%). About 26 percent and 14 percent of Thimphu's population also reported Dzongkha and Nepali (Lhotshamkha), as their mother tongue. In Gasa, majority (52.44%) reported Layap as their mother tongue.

Mother tongue for more than half of the population in Pema Gatshel (96.86%), Tashigang (85.52%), Samdrup Jongkhar (77.14%), and Mongar (74.46%) is Tshangla (sharchop). Majority of those living in Samtse (56.25%), Tsirang (43.75%), Sarpang (39.80%), Chukha (38.74%), and Dagana (34.23%) reported Nepali (Lhotshamkha) as their mother tongue.

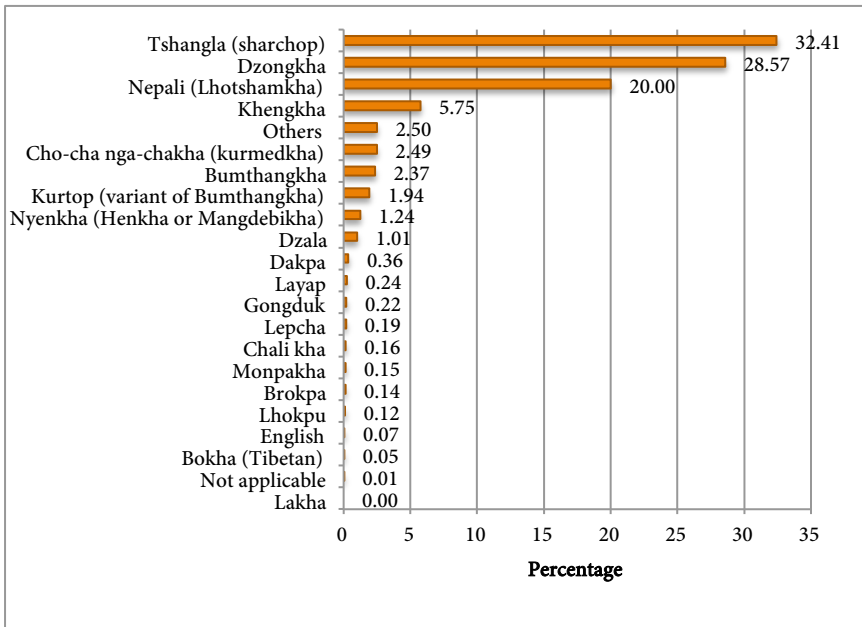
The survey also asked how well the respondents can speak their mother tongue. Majority of the population (94.91%) reported that they could speak their mother tongue ‘very well’ (Table 66). Although slightly higher proportion of people residing in rural areas reported being able to speak the mother tongue ‘very well’ than those residing in urban areas, the difference is not statistically significant.

Table 66: *Distribution of population by their ability to speak mother tongue*

Ability to speak mother tongue	Rural	Urban	Bhutan
Not at all	0.14	0.15	0.14
Only a little	0.81	1.10	0.90
Quite well	4.02	4.09	4.05
Very well	95.02	94.65	94.91
Total	100	100	100

Besides information on the mother tongue and how well people can speak it, the survey also asked about the most commonly spoken language at home. For majority of the population, *Tshangla (sharchop)* is the most commonly spoken language at home, followed by Dzongkha and *Nepali (Lhotsahmkha)*. Together these three languages account for over 81 percent of the population’s mother tongue (Fig 75).

Figure 75: *Distribution of population by language most commonly spoken at home*



3.5.2. Values

Pro-social values such as restraining from killing, stealing, lying, creating disharmony in human relations, and sexual misconduct are identified as some of the key core values necessary in a society. An overwhelming majority of population thinks that creating disharmony (98.36%), committing sexual misconduct (98.35%), stealing (97.85%), and killing (94.52%) can never be justified (Table 67). However, only three quarters thinks that lying can never be justified. About a quarter of population thinks that lying can sometimes be justified which is quite disconcerting. About five in 100 people (4.8%) also thinks that killing can sometimes be justified. Surprisingly, the proportion of people agreeing with this statement is higher as compared to stealing (1.7%), creating disharmony in society (1.2%) and sexual misconduct (1.02%). About six percent of males compared to 3.74 percent of females agree to the statement. The proportion who agree that killing can sometimes be justified is the highest among those aged below 20 years (9.58%) and between 21 and 25 years (6.6%).

Since a substantial proportion of population believes that lying can sometimes be justified, it is analysed at population sub-group levels to understand it more.

Table 67: *Distribution of population by the level of agreement*

	Can always be justified	Can sometimes be justified	Can never be justified	Don't know	Total
Killing	0.53	4.81	94.52	0.15	100
Stealing	0.38	1.73	97.85	0.05	100
Lying	0.56	24.25	75.10	0.09	100
Creating disharmony	0.39	1.15	98.36	0.11	100
Sexual misconduct	0.38	1.02	98.35	0.25	100

By area of residence, a relatively higher proportion of urban population believes that lying can sometimes be justified (29.29%) compared with the rural people (21.90%) and the difference is statistically significant. On the other hand, a higher proportion of rural people believes that lying can never be justified (77.40%) against the urban population (70.14%). This indicates that lying is a much acceptable act amongst the growing urban population.

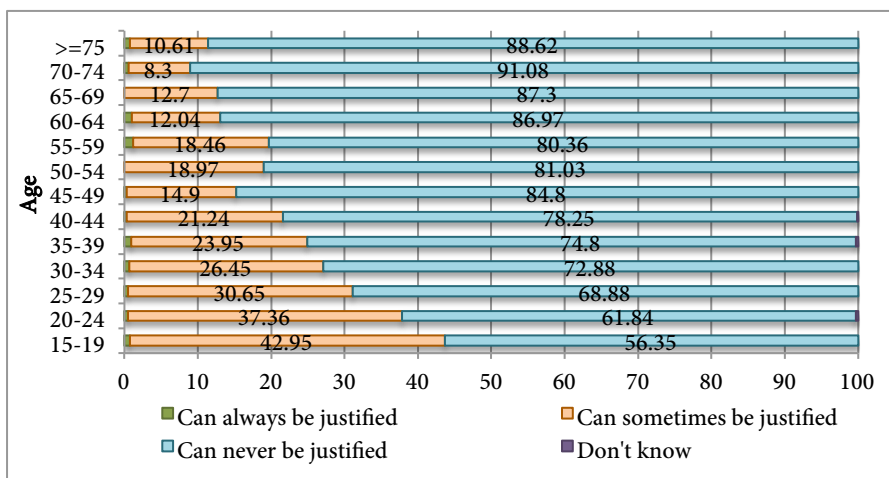
By gender, although slightly higher proportion of males (25.25%) believe that lying can sometimes be justified compared to their female counterparts (23.52%), the difference is not statistically significant.

Table 68: *Perception on justifiability of lying, by area of residence*

	Can always be justified	Can sometimes be justified	Can never be justified	Don't know	Total
Rural	0.64	21.90	77.40	0.05	100
Urban	0.39	29.29	70.14	0.18	100
Bhutan	0.56	24.24	75.11	0.09	100

The results also indicate that the older the age, the stronger the belief that lying is not justifiable and vice-versa (Fig. 76). Significantly higher proportions of younger population believe that lying can sometimes be justified compared to older population, and the difference is statistically significant. The fact that a high proportion of younger population accepts lying as a justifiable action is a cause of concern.

Figure 76: Distribution of population by level of agreement to the statement that lying can be ..., by age



3.5.3. Traditional Bhutanese Values, Etiquette and Conduct

The survey asked people about their perceived importance of traditional Bhutanese code of etiquette and conduct and, the change in observance and practice of it during the last few years in their view. Regarding the perceived importance, majority (92.2%) reported that it is 'very important'.

No significant difference between male and female was found with regard to their perception on the importance of traditional Bhutanese code of etiquette and conduct (Table 69). A significant difference was also not found between the rural and urban people (Table 70). This signifies that all sections of the society equally regard traditional Bhutanese code of conduct as very important.

Table 69: Distribution of population by the level of perceived importance of Driglam Namzha, by gender

Driglam Namzha	Male	Female	Both
Not important	0.67	0.22	0.41
Important	5.89	6.95	6.51
Very important	92.57	91.93	92.20
Don't know	0.87	0.90	0.88
Total	100	100	100

Table 70: *Distribution of population by the level of perceived importance of Driglam Namzha, by area of residence*

Driglam Namzha	Rural	Urban	Bhutan
Not important	0.46	0.30	0.41
Important	6.82	5.82	6.51
Very important	91.71	93.27	92.20
Don't know	1.01	0.60	0.88
Total	100	100	100

In terms of perceived change in the observance and practice of traditional Bhutanese code of etiquette and conduct, the opinion is divided. While about 43 percent of the population believes that the observance and practice of traditional Bhutanese code of etiquette and conduct is getting stronger, almost equal proportion of the population (39%) perceives that it is getting weaker. About 15 percent of population thinks that the observance and practice of these values have remained unchanged over the last few years.

Further analysis reveals that a large proportion of rural population (48.8%) thinks that the observance and practice of traditional Bhutanese etiquette and conduct is getting stronger in contrast to about half of the urban population (51.2%) who thinks otherwise.

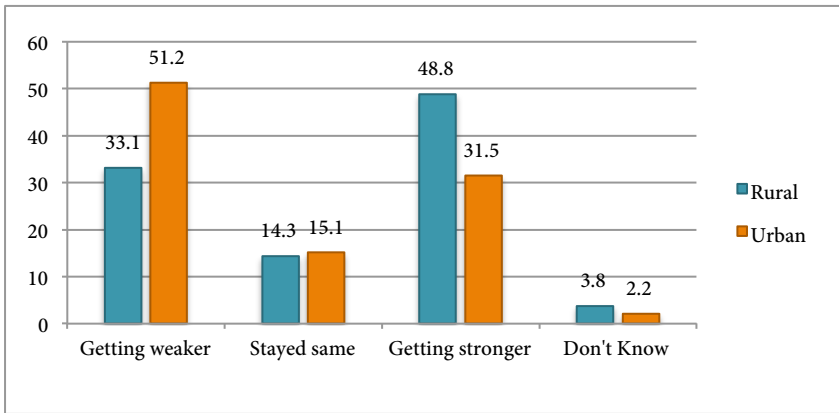
Table 71: *Perception on importance of Driglam Namzha*

	Percent
Not important	0.41
Important	6.51
Very important	92.2
Don't know	0.88
Total	100

Table 72: *Distribution of population by the perceived changes in observance and practice of Driglam Namzha*

	Percent
Getting weaker	38.85
Stayed same	14.58
Getting stronger	43.29
Don't Know	3.28
Total	100

Figure 77: *Distribution of population by the perceived changes in observance and practice of Driglam Namzha, by area of residence*

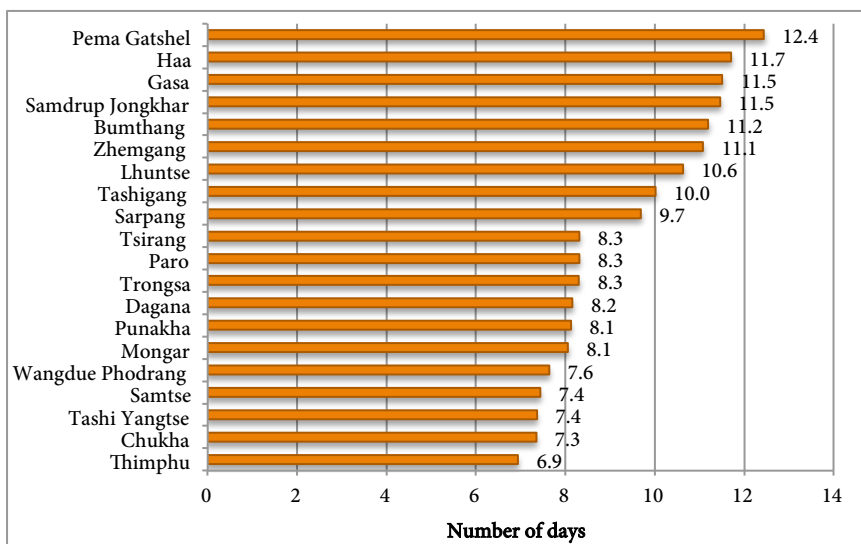


3.5.4. Cultural participation

To assess people's participation in community events, the survey collected data on the average number of days spent attending social and cultural activities, such as community festivals or *choku* of neighbours, in the past 12 months preceding the survey. The average days spent attending social and cultural activities is 8.6 days in the past once year. At 9.5 days, males spent one and a half days more than females attending social and cultural activities in the past 12 months. The average number of days spent attending social and cultural activities by rural residents is 9.3 days, while those residing in urban areas spent 7.2 days.

People residing in Pema Gatshel, Haa, Gasa, Samdrup Jongkhar, Bumthang, and Zhemgang Dzongkhags reported spending relatively higher number of days attending social and cultural events compared to the rest (Fig. 78). The average days spent participating in social and cultural events is the lowest in Thimphu, followed by Chukha, the two most urbanised Dzongkhags in Bhutan.

Figure 78: Average number of days spent attending social and cultural activities, by Dzongkhag



3.6. Good Governance

The good governance domain covers three distinct dimensions. They are political participation, people's perception of government performance, and fundamental rights and freedom.

3.6.1. Political participation

3.6.1.1. Participation in Zomdue

Political participation was assessed by asking whether people had participated in community meetings and in electoral processes through voting in various elections.

When asked, *In the past 12 months, have you attended a zomdue*²⁹? 50 percent reported 'Yes' and 21 percent reported 'No'. Half of the population has attended *zomdue* in the past 12 months preceding the survey. The remaining 29 percent were marked as 'Not applicable' indicating that their census registration is not in their current place of residence.

A higher proportion of males (58%) attended *zomdue* compared to their female counterparts (45%). By area, substantially higher proportion of rural residents (66%) participated in *zomdue* compared to their urban counterparts (16%). The low participation rate in *zomdue* in urban areas can be attributed to the fact that most people residing in urban areas have their civil registration elsewhere. This can be confirmed by the fact that about 69 percent of urban residents has opted 'not applicable' response option compared to only 10 percent of the rural counterparts.

The attendance in *zomdue* was classified into three different types: 1) village or Chiwog level *zomdue*, 2) Gewog level *zomdue*, and 3) Thromdey level *zomdue*. The average number of times a person attended a *zomdue* at Chiwog level is 6.8 in the past 12 months preceding the survey. The average number of *zomdue* attended at Gewog and Chiwog levels was 5.2 and 5.6 times, respectively.

²⁹ *Zomdue* is a decentralised forum where community members come together to discuss, deliberate and take decisions in a democratic setup on issues related to or affecting the community.

Table 73: Average number of *zomdue* attendance among those who attended

	Average number	sd	N
Chiwog	6.8	7.09	3176
Gewog	5.2	6.05	3170
Thromdey	5.6	7.07	257

In order to assess the rate of active participation in *zomdue*, they were asked to report whether they spoke at the *zomdue*. Among those who attended *zomdue*, less than one-third (28.2%) reported speaking at *zomdue*, indicating active participation. More than two-thirds (72%) were passive participants.

Males were found to be more active during the *zomdue*. About 42.87 percent of males reported speaking at the *zomdue* compared to just 14.83 percent of females. Among Dzongkhags, *zomdue* in Chukha, Dagana, Sarpang, and Paro Dzongkhags saw a higher proportion of active participants compared to the rest.

Most eastern Dzongkhags were found to be less actively participative in *zomdue*. For instance, Table 79 shows that only 16.6 percent of participants in Tashigang, 23.8 percent in Mongar, 24.1 percent in Pema Gatshel, 24.1 percent in Lhuntse, and 24.2 percent in Bumthang did speak at the *zomdue* in the past 12 months.

Table 74: Percentage of people who reported they spoke at *zomdue*

Dzongkhag	No	Yes	Total
Chukha	59.92	40.08	100
Dagana	63.5	36.5	100
Sarpang	65.63	34.37	100
Paro	65.79	34.21	100
Haa	66.96	33.04	100
Gasa	67.98	32.02	100
Thimphu	68.92	31.08	100
Tsirang	69.3	30.7	100
Samtse	71.54	28.46	100
Zhemgang	71.75	28.25	100
Trongsa	72.06	27.94	100
Tashi Yangtse	72.11	27.89	100
Wangdue Phodrang	72.45	27.55	100
Samdrup Jongkhar	73.13	26.87	100
Punakha	74.65	25.35	100

Dzongkhag	No	Yes	Total
Bumthang	75.76	24.24	100
Lhuntse	75.89	24.11	100
Pema Gatshel	75.92	24.08	100
Mongar	76.41	23.59	100
Tashigang	83.44	16.56	100
Bhutan	71.76	28.24	100

When asked how often they spoke, about one-fourth did every time (8.9%) and most of the time (17.01%). This indicates that decisions in *zomdue* are predominantly influenced by about one-fourth of the participants. Gender wise, a higher proportion of males frequently spoke as compared to females.

3.6.1.2. Participation in electoral process

People's participation in electoral processes through voting is also used as a measure for assessing people's participation in political process.

Of the three different elections, maximum reported having voted in the National Assembly elections (78.2%) followed by the National Council elections (76.2%). Of the three elections, the Local Government or *Thromdey* elections saw the least participation in terms of voter turnout with just 64.6 percent.

Taking into account the last National Assembly election, the proportion of population who did not vote is higher in the urban areas (20.7%) as compared to the rural areas (11.6%). Slightly lower proportion of males (13.1%) did not vote compared to females (15.4%).

Table 75: Participation in political process through voting

	Yes³⁰	No	Not applicable
National Assembly elections	78.2%	14.5%	7.4%
National Council elections	76.2%	16.5%	7.4%
Local Government/ <i>Thromday</i> elections	64.6%	23.4%	12.0%

Besides actual participation, people's intention to participate in future political processes through voting was assessed. When asked, *Will you participate in the next general election (through voting)?*, an

³⁰ The actual voter turnout for the NC and NA general elections were 45.2 percent and 55.3 percent, respectively in 2013.

overwhelming majority (91.2%) reported that they will participate in the next general election through voting. 3.28 percent was undecided whether to vote and 2.76 percent reported that they can't vote. The remaining 2.76 percent reported that they would not participate in the next general election through voting.

The reasons for not intending to participate through voting were also collected from those who reported that they would not participate in the next general election through voting. Besides 'others' (31.88%), most stated their inability to trust politicians (23.74%) as a reason behind their intention to avoid voting in the next general election, followed by their lack of interest in politics (17.90%), and polling station being too far (14.90%).

3.6.2. Performance of government

In order to assess the performance of the government, people were asked to rate the performance of the government in provision of various services in the past 12 months preceding the survey. Most people rated the government's performance very favourably (rating 'very good' or 'good') in protecting the natural environment (80.78%), providing health services/facilities (78.25%), preserving culture and traditions (77.40%), and providing educational services/facilities (76.43%).

Less than half of the population rated either 'very good' or 'good' with regard to government's performance in reducing gap between the rich and the poor (36.84%), creating jobs (37.92%), and fighting corruption (45.87%).

Table 76: Distribution of population by level of government performance in ... (%)

	Very poor	Poor	Average	Good	Very good	Don't Know	Total
Government performance in creating jobs	7.02	12.82	31.52	31.53	6.39	10.72	100
Government performance reducing gap between rich and poor	7.04	14.51	32.76	30.09	6.75	8.84	100
Government performance providing educational services/facilities	1.13	3.03	15.81	52.83	23.60	3.61	100
Government performance providing health services/facilities	1.12	2.78	15.19	53.58	24.67	2.66	100
Government performance fighting corruption	3.13	8.50	25.39	35.56	10.31	17.10	100
Government performance protecting natural environment	0.78	1.51	13.34	55.24	25.54	3.60	100

	Very poor	Poor	Average	Good	Very good	Don't Know	Total
Government performance preserving culture and traditions	1.09	2.19	14.99	54.86	22.54	4.33	100

People's perception of the performance of government in provision of various services by area of residence is provided in the Table 77. Government's performance in creating jobs, and reducing gap between the rich and the poor was rated more favourably by rural residents (39.92% and 39.65% respectively) compared to their urban counterparts (33.60% and 30.78% respectively). For the remaining five services, there is no substantial difference between rural and urban residents in rating government performance favourably, except preserving culture and traditions for which a slightly higher proportion of rural residents (78.24%) rated favourably compared to their urban counterparts (75.59%).

Table 77: *Government performance in ... (% reporting 'very good' or 'good')*

	Rural	Urban	Bhutan
Government performance in creating jobs	39.92	33.60	37.92
Government performance reducing gap between rich and poor	39.65	30.78	36.84
Government performance providing educational services/facilities	76.52	76.23	76.43
Government performance providing health services/facilities	78.12	78.55	78.25
Government performance fighting corruption	45.46	46.77	45.87
Government performance protecting natural environment	81.20	79.87	80.78
Government performance preserving culture and traditions	78.24	75.59	77.40

3.6.3. Fundamental rights and freedoms

The survey collected information on people's assessment of the fundamental rights and freedoms they enjoyed. Over 80 percent of people reported enjoying all fundamental rights and freedoms (Table 78). Of the 10 fundamental rights and freedoms, a higher proportion of people reported enjoying right in 'who to vote' (97.27% reported "yes, maybe' or 'yes, definitely'), and freedom in 'speech and opinion' (90.94%) compared with other rights and freedoms. On the other hand, 'right to equal access and opportunity to join public service' (80.70%), and 'freedom from discrimination based on political affiliation'

(81.09%) has been expressed by a comparatively lower proportion of people (who reported 'yes, maybe' or 'yes, definitely') compared with other rights and freedoms.

Table 78: *Distribution of population by degree of fundamental rights and freedoms enjoyed (%)*

	No	Yes, maybe	Yes, definitely	Don't know	Total
Would have right to freedom of speech and opinion	6.73	13.22	77.72	2.33	100
Would have right who to vote	1.50	4.27	93.00	1.23	100
Would have right to join political party of your choice	8.54	13.17	73.48	4.81	100
Would have right to form <i>tshogpa</i> or be a member of <i>tshogpa</i>	11.29	20.31	61.84	6.56	100
Would have right to equal access and opportunity to join public service	12.92	20.24	60.46	6.38	100
Would have right to equal pay for work of equal value	8.33	16.93	70.45	4.29	100
Are free from discrimination based on gender	12.16	9.67	76.85	1.32	100
Are free from discrimination based on religion	12.22	9.72	76.08	1.99	100
Are free from discrimination based on language	9.55	7.88	81.23	1.35	100
Are free from discrimination based on political affiliation	13.37	14.35	66.74	5.54	100

3.7. Community Vitality

3.7.1. Length of stay and migration

The survey collected information on the length of stay in the current village or town. If they have migrated to the current village or town, then their previous places of residence prior to moving to the current place of residence was asked.

3.7.1.1. Length of stay

The average length of stay in their current place of residence was 27.09 years ($SD = 20.70$ years). The length of stay in their current place of residence is a little higher for males (29.75 years) compared with their female counterparts (25.21 years). By area of residence, the average length of stay among rural residents is significantly higher (32.34 years) compared with their urban counterparts (13.81 years).

Amongst Dzongkhags, the average length of stay in the current place of residence is relatively lower in Thimphu (13.86 years), Haa³¹ (21.30 years), Chukha (22.12 years), and Sarpang (22.62 years) Dzongkhags. On the other hand, the length of stay in the current place of residence is relatively higher in Lhuntse (36.69 years), Pema Gatshel (36.22 years), and Bumthang (34.72 years) Dzongkhags.

Table 79: Average length of stay in the current place of residence by Dzongkhag

Dzongkhag	Average length of stay (years)	sd	N
Lhuntse	36.69	20.71	252
Pema Gatshel	36.22	21.68	248
Bumthang	34.72	19.08	240
Tashigang	33.84	19.47	443
Punakha	33.76	22.31	234
Tashi Yangtse	33.58	20.03	262
Mongar	33.55	20.10	390
Trongsa	33.52	20.93	269
Zhemgang	32.84	19.65	250
Paro	32.62	22.61	349
Gasa	31.73	21.36	131
Samdrup Jongkhar	30.60	20.82	298

³¹ The relatively lower length of stay in Haa, which is unexpected, is because of the inclusion of a military camp in the sampled PSU.

Dzongkhag	Average length of stay (years)	sd	N
Wangdue Phodrang	28.53	22.21	308
Dagana	25.55	17.12	217
Tsirang	25.37	19.09	297
Samtse	24.31	19.18	592
Sarpang	22.62	17.49	405
Chukha	22.12	19.30	705
Haa	21.30	23.38	270
Thimphu	13.86	13.80	991
Bhutan	27.09	20.70	7,151

3.7.1.2. Migration and origin of migrants

Overall, slightly more than half of the total population (52.60%) had migrated to their current place of residence from another place. Of the total migrants, majority are inter-dzongkhag migrants (71.98%), which is followed by intra-dzongkhag migrants (25.97%). The remaining 2.06 percent migrated from a place outside Bhutan.

By gender, a slightly higher proportion of females (54.38%) had migrated compared to their male counterparts (50.04%), which is quite unexpected. However, by area of residence, as expected a very high proportion of urban residents are migrants (84.83%) compared to their rural counterparts (37.68%).

There exists a substantial difference between rural and urban residents in terms of the origin of the migrants. For instance, 36.04 percent of rural migrants are intra-dzongkhag migrants compared to 16.30 percent in urban areas. Similarly 62.64 percent of rural migrants are inter-dzongkhag migrants as against 80.93 percent of urban migrants.

The proportion of migrant population as a percentage of total Dzongkhag population varies largely among the Dzongkhags. The migrant population as a proportion of the Dzongkhag population ranged from a low of about 26 percent to a high of 86 percent (Table 79). As expected, Thimphu Dzongkhag has the highest proportion of migrant population (84.92%). Over 60 percent of people residing in Sarpang (70.76%), Haa (65.39%), and Chukha (62.86%) are also migrants. In seven of the 20 Dzongkhags, the migrant population constitutes more than half of the Dzongkhag population. None of the six eastern Dzongkhags falls in this list of seven Dzongkhags. On the other hand, Dzongkhags like Lhuntse (25.58%), Bumthang (29.0%), and

Pema Gatshel (29.50%) have the lowest migrant population as a proportion of total Dzongkhag population.

Table 80: *Proportion of Dzongkhag population who were migrants (%)*

Dzongkhag	Migrants (%)
Thimphu	84.92
Sarpang	70.76
Haa	65.39
Chukha	62.86
Samtse	57.93
Tsirang	57.00
Dagana	50.49
Samdrup Jongkhar	49.08
Wangdue Phodrang	45.30
Punakha	42.16
Paro	40.47
Trongsa	37.10
Zhemgang	32.79
Mongar	32.47
Tashigang	31.81
Gasa	31.80
Tashi Yangtse	30.07
Pema Gatshel	29.50
Bumthang	29.01
Lhuntse	25.58
Bhutan	52.60

The origin of migrants by Dzongkhag is presented in the Table 81. In Haa, 90.93 percent of the Dzongkhag's migrant population are inter-dzongkhag migrants which is the highest among the Dzongkhags. The remaining 9.07 percent of Haa's migrant population comprises intra-dzongkhag migrants. Over 80 percent of migrants in Thimphu (85.36%), Wangdue Phodrang (83.01%), Gasa (82.17%), and Pema Gatshel (80.95%) are inter-dzongkhag migrants. The proportion of inter-dzongkhag migrants as a percentage of total migrant population is the lowest in Tashi Yangtse (44.37%), followed by Tashigang (50.93%), and Mongar (54.38%).

Table 81: *Distribution of Dzongkhag migrant population by origin of migrants*

Dzongkhag	Intra-dzongkhag migrants	Inter-dzongkhag migrants	Migrated from outside Bhutan	Total
Haa	9.07	90.93	0	100
Thimphu	12.38	85.36	2.27	100
Wangdue Phodrang	16.38	83.01	0.6	100
Gasa	17.83	82.17	0	100
Pema Gatsel	17.75	80.95	1.3	100
Trongsa	18.24	79.65	2.11	100
Tsirang	21.27	78.73	0	100
Sarpang	20.59	77.17	2.24	100
Bumthang	22.92	77.08	0	100
Lhuntse	23.23	76.77	0	100
Paro	23.35	74.52	2.13	100
Punakha	28.66	71.34	0	100
Samtse	26.55	69.58	3.87	100
Samdrup Jongkhar	36.67	63.33	0	100
Zhemgang	37.09	62.91	0	100
Dagana	40.21	59.79	0	100
Chukha	38.62	57.31	4.08	100
Mongar	45.62	54.38	0	100
Tashigang	46.05	50.93	3.01	100
Tashi Yangtse	53.13	44.37	2.5	100
Bhutan	25.97	71.98	2.06	100

The database also allows us to identify the originating Dzongkhag of the migrant population. For instance, of the total inter-dzongkhag migrants in Thimphu, most (13.36%) came from Chukha Dzongkhag followed by Tashigang (12.81%), and Samtse (7.18%). Similarly, of the total inter-dzongkhag migrants in Chukha, most (24.14%) came from Thimphu Dzongkhag followed by Tashigang (10.58%), and Samtse (10.36%).

3.7.2. Voluntary contributions of time, money, and other resources

The survey collected information on donations given in the form of time, money, or other resources in the past 12 months preceding the survey. Specifically, information on voluntary works done for different institutions and individuals, and both cash and in-kind donations offered to different institutions and individuals were collected. In addition, non-voluntary labour contributions, commonly known as

woola, made to different institutions and establishments were also collected.

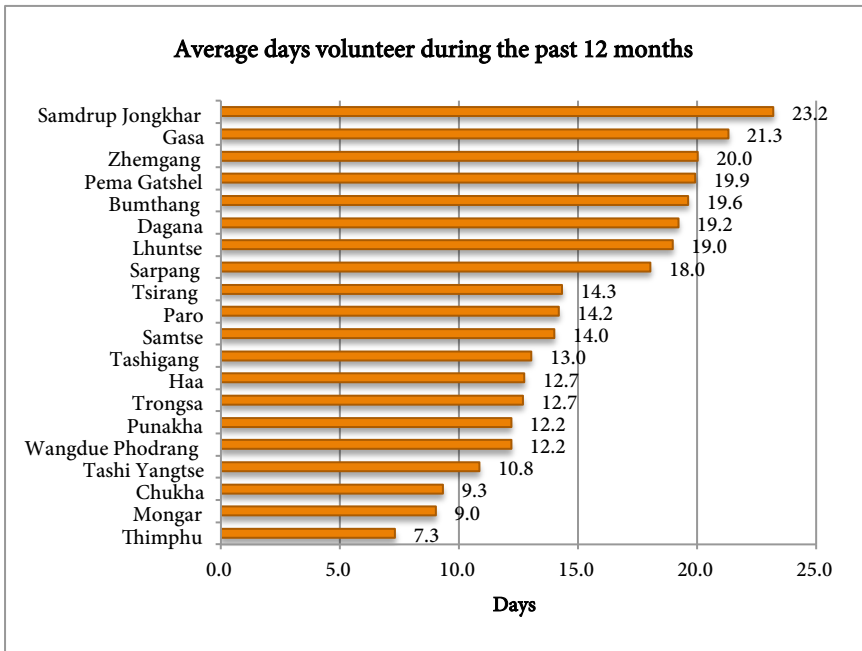
3.7.2.1. Volunteerism

Data on the number of days of voluntary works done for different individuals and institutions during the past 12 months preceding the survey were collected. The list includes voluntary works done for construction/renovation of religious establishments, conduct of festivals, help to religious figures, help during house construction/repair, help during times of death in the community, clean-up campaign, fund-raising events, and help provided to any other.

The average number of days volunteered is 13.4 ($SD = 23.8$) days during the past 12 months preceding the survey. The median days volunteered is 5 days. Males had volunteered significantly higher number of days compared to their female counterparts. The average number of days volunteered by males is 18.0 ($SD = 29.2$, Median = 8) days, while for females it is 10.1 ($SD = 18.5$, Median = 4) days. By area of residence, rural residents volunteered significantly higher number of days in the past 12 months preceding the survey compared with their urban counterparts. The average number of days volunteered by rural residents is 15.4 ($SD = 24.9$, Median = 7) days compared with just 8.9 ($SD = 20.4$, Median = 2) days for urban residents.

Among Dzongkhags, people residing in Samdrup Jongkhar volunteered the highest average number of days, followed by Gasa, and Zhemgang (Fig. 79). Thimphu, which has recorded the highest proportion of urban population in the country, has the lowest average days spent on voluntary activities with just 7.3 days in the past 12 months.

Figure 79: Average number of days spent doing voluntary works in the past 12 months, by Dzongkhag



3.7.2.2. Donations

Like in the case of voluntarism, information on donations made, in the form of both cash and in kind, to various individuals and institutions was collected. For donations made in kind, respondents were asked to provide approximate cash value of such in-kind donations. These approximate cash value of in-kind donations were added to the cash donations to arrive at the total value of donations made by the people.

The mean amount of money, including estimated value of in-kind donations, donated by people in the past 12 months preceding the survey is Nu 10,084³² ($SD = \text{Nu } 51,838$, Median = 2,000). Unlike volunteering, urban residents made substantially higher donations compared with their rural counterparts. The average amount donated in the past 12 months by urban residents is Nu 15,816 which is more than twice the amount donated by rural residents (Nu 7,457).

³² 1 BTN = 0.0157 USD as on May 31st, 2015

3.7.2.2. Woola

Woola, according to Ura (2005), is a “labour contributions made by households, primarily rural, to the construction and maintenance of a wide range of communal infrastructure.”

Only a little over one-third of the population (34.21%) contributed *woola* in the past 12 months preceding the survey. The mean number of days of *woola* contribution is 7.3 ($SD = 21.1$) days.

A slightly higher proportion of males (38.75%) contributed *woola* compared with their female counterparts (31.03%). The average number of days of *woola* contribution by males and females is 9.4 ($SD = 25.8$) and 5.9 ($SD = 16.8$) days, respectively.

As expected, *woola* is largely a rural phenomenon. About 48.48 percent of rural residents contributed *woola* as against just 4.08 percent of the urban residents. The average number of days of *woola* contribution by rural residents is substantially higher compared with their urban counterparts. Rural residents contributed 10.5 ($SD = 24.5$) days as *woola* in a year while the urban residents contributed less than a day ($M = 0.7$ and $SD = 6.6$ days).

3.7.3. Sense of belonging, community relationship, and trust

A strong relationship and trust among community members can contribute to the wellbeing and happiness of the people. It can also foster a sense of belonging to the community in which one lives.

3.7.3.1. Sense of belonging

People were asked to rate their sense of belonging to the local community on a three-level ordinal scale: weak, somewhat strong, and very strong. About two-third of the population (64.38%) reported that their sense of belonging to their local community is ‘very strong’. The remaining 32.44% and 2.78% of the population rated the sense of belonging to their local community as ‘somewhat strong’ and ‘weak’, respectively.

There exists a significant difference in the sense of belonging to the local community between rural and urban areas (Table. 82). While 71.49

percent of rural residents reported their sense of belonging to the local community as ‘very strong’, only 51.33 percent of urban residents rated the same, and the difference is statistically significant. The distribution of population by the level of sense of belonging to the local community for rural and urban residents is presented below.

Table 82: *Distribution of population by sense of belonging, by area of residence*

	Weak	Some- what	Very strong	Don't know	Total	χ^2	<i>p</i> - value
	% (n)	% (n)	% (n)	% (n)	% (n)		
Rural	1.93 (99)	26.42 (1354)	71.49 (3664)	0.16 (8)	100 (5125)	276.28	< .001
Urban	4.44 (90)	43.44 (880)	51.33 (1040)	0.79 (16)	100 (2026)		

As expected, the length of stay in the community is significantly higher for those reporting very strong sense of belonging to the community, $F(2, 7123) = 272.88$, $p < .001$. People reporting ‘very strong’ sense of belonging to their local community ($M = 30$, $SD = 21$) lived statistically significantly longer in the current place compared to those reporting their sense of belonging as ‘somewhat’ strong ($M = 20$, $SD = 18$) and ‘weak’ ($M = 13$, $SD = 14$). Similarly, those reporting their sense of belonging as ‘somewhat’ strong ($M = 20$, $SD = 18$) lived significantly longer in the community compared to those who reported their sense of belonging as ‘weak’ ($M = 13$, $SD = 14$).

3.7.3.2. Community interactions

The frequency of interactions among the community members was assessed through the frequency of socialisation and frequency of help provided to each other among the community members. Besides socialisation and help, which are positive aspects of community interactions, the survey also assessed enmity, which represents negative aspect of community interactions.

When asked, *Would you say this is a neighbourhood where neighbours help one another?*, majority reported that neighbours help each other ‘always’ (42.75%) or ‘sometimes’ (48.66%). Only small proportion of population reported that neighbours help each other ‘rarely’ (6.50%) or ‘never’ (1.75%). Although the frequency of availability of help among

neighbourhood does not vary much by gender of the people, as expected, it varies between rural and urban residents (Table 83).

Table 83: *Frequency of helps among community members by area of residence*

	Never	Rarely	Some-times	Always	Don't know	Total
Rural	0.82	4.5	46.5	48.04	0.15	100
Urban	3.76	10.83	53.35	31.33	0.73	100
Bhutan	1.75	6.5	48.66	42.75	0.33	100

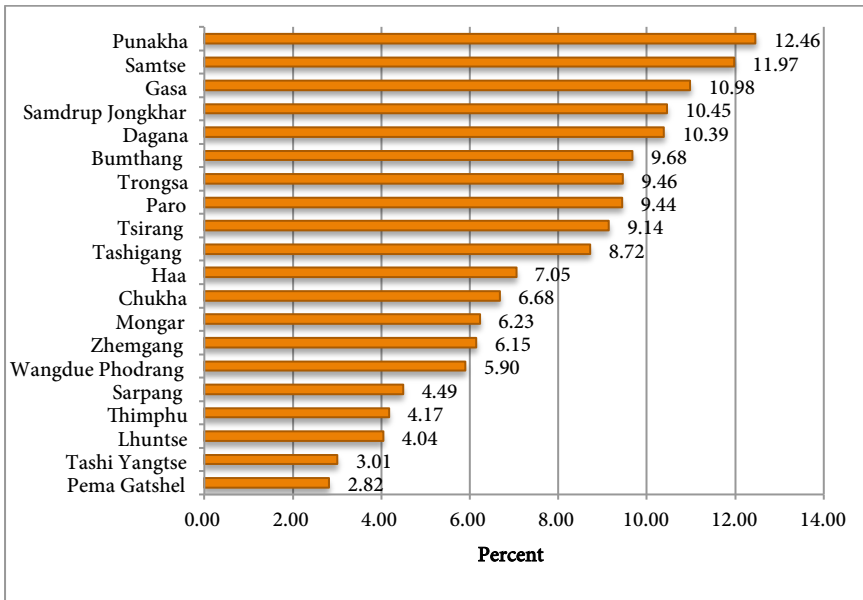
Another indicator used for assessing the positive interactions among the community members is the frequency of socialisation. A majority (81.63%) of the population reported having socialised with their neighbours in the past one month preceding the survey. The remaining 18.37% had not socialised with their neighbours. The proportion of population who socialised and the frequency of socialisation in the month preceding the survey do not vary much by gender. However, both the proportion of people who socialised, as well as the frequency of socialisation, varies between rural and urban residents (Table 84).

Table 84: *Frequency of socialisation by area of residence (%)*

	Not in the last month	Once a month	Few times a month	Few times per week	Don't know	Total
Rural	16.05	15.76	40.58	27.58	0.03	100
Urban	23.4	14.07	37.55	24.88	0.09	100
Bhutan	18.37	15.22	39.62	26.73	0.05	100

The incidence of enmity in the community during the past 12 months preceding the survey was assessed by asking respondents: *Did enmity arise between you and any other person in the community during the last 12 months?* During the past 12 months preceding the survey, enmity arose among 7.38 percent of the population. However, this should be interpreted with caution, as the rate might be little overestimated, due to possibility of double reporting of the same incident by two respondents who might have been involved with the same incident. The incidence of enmity does not seem to vary between males (7.90%) and females (7.10%), as well as by area of residence (7.63% in rural and 6.83 percent in urban areas). The incidence of enmity by Dzongkhag ranges between 2.82 percent and 12.46% (Fig. 80).

Figure 80: Incidence of enmity by Dzongkhag (%)



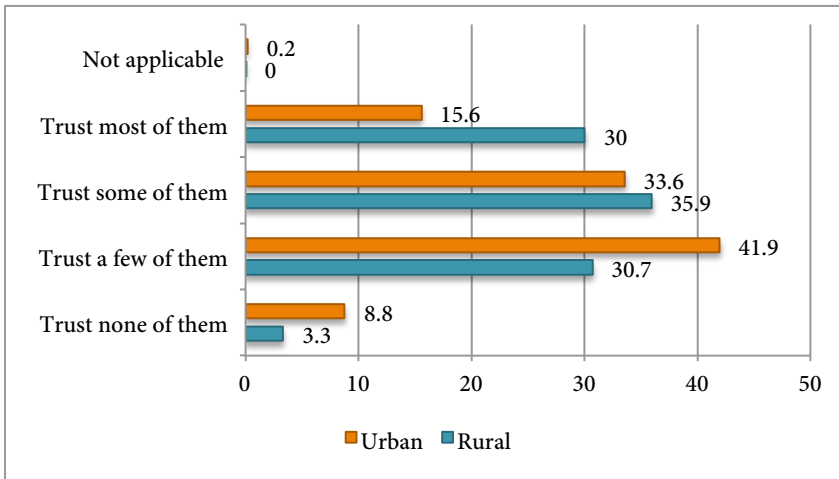
3.7.3.3. Sense of trust

People's trust in their neighbours and trust in Bhutanese people in general were assessed. One in four (25.46%) Bhutanese 'trust most' of their neighbours while another 35.19 percent reported that they 'trust some' of their neighbours. About five percent of Bhutanese don't trust any of their neighbours. The remaining 34.24 percent reported trusting only 'few' of their neighbours.

A higher proportion of males (29.39%) 'trust most' of their neighbours compared to their female counterparts (22.69%). On the other hand, a relatively higher proportion of females (6.21) reported trusting 'none' of their neighbours compared with their male counterparts (3.39%).

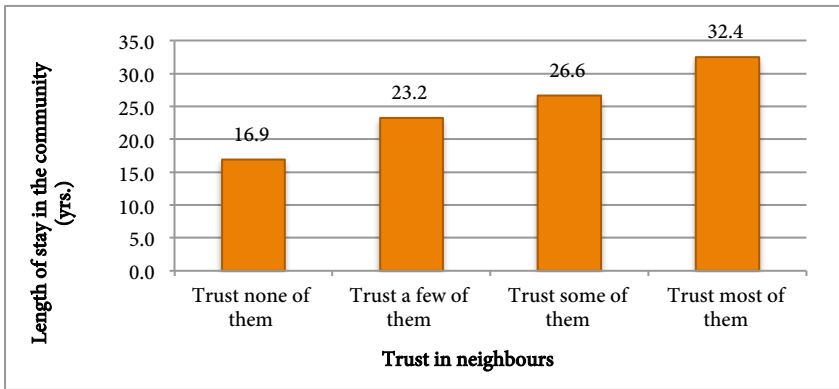
Trust also varies greatly between the rural and urban residents. As expected, significantly higher proportions of rural residents (30%) trust most of their neighbours, which is almost twice as high as that of urban residents (15.63%). The reverse trend is observed in the case of people trusting none of their neighbours. While only 3.31 percent of rural residents reported trusting none of their neighbours, 8.77 percent of the urban residents reported the same.

Figure 81: *Distribution of population by level of trust, by area of residence*



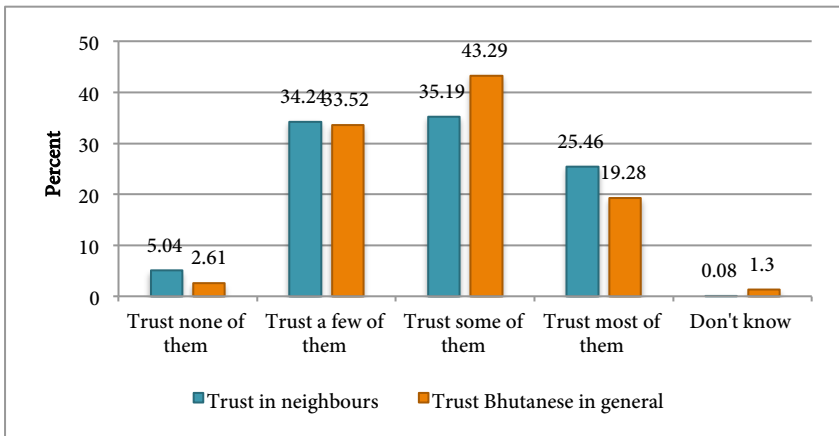
The length of stay in the community and trust in neighbours are also positively correlated, $F(3, 7141) = 103.37, p < .001$. People who reported trusting ‘most’ of their neighbours ($M = 32, SD = 21$) lived significantly longer in the current community compared with those who reported trusting ‘some’ of their neighbours ($M = 27, SD = 20$), trusting a ‘few’ of their neighbours ($M = 23, SD = 20$), and trusting ‘none’ of their neighbours ($M = 17, SD = 17$). Similarly, people who reported trusting ‘some’ of their neighbours ($M = 27, SD = 20$) lived statistically significantly longer in the current community compared to those reported trusting a ‘few’ of their neighbours ($M = 23, SD = 20$), and trusting ‘none’ of their neighbours ($M = 17, SD = 17$). And lastly, people who reported trusting a ‘few’ of their neighbours ($M = 23, SD = 20$) also lived significantly longer in the current community compared to those reported trusting ‘none’ of their neighbours ($M = 17, SD = 17$). The length of stay in the community level of trust in neighbours is presented in the Fig. 82.

Figure 82: Average length of stay in the community by level of trust in neighbours



Although the distribution of people by the level of trust for both ‘trust in neighbours’ and ‘trust Bhutanese in general’ are similar (Fig. 83), the data indicate that trust in neighbours is slightly higher than trust in Bhutanese in general. For instance, only about one-fifth (19.28%) trust most Bhutanese in general while about one-fourth (25.46%) trust most of their neighbours.

Figure 83: Distribution of people by level of trust



3.7.4. Family relationships

In order to assess the strength of family relationships, respondents are asked to agree or disagree to a series of seven statements read out to

them. The suitability of constructing a single number family index was explored using factor analysis and internal consistency reliability tests. All the seven items loaded on a single factor with all loading .86. The items also have a perfect internal consistency (Cronbach's alpha = .98). Therefore, a single number composite family index was constructed by aggregating the scores of all the items. The index value range between 0 and 14, where higher value indicates better family relationships.

The mean family index is 13.04 ($SD = 1.54$) which is very high considering that the value ranges between 0 and 14. The mean family index score does not vary much between males (13.09) and females (13.01), as well as between rural (13.04) and urban (13.05) residents. The average family relationship index is the highest among residents of Mongar Dzongkhag (13.44) followed by Trongsa (13.41). The index is lowest among the residents of Dagana Dzongkhag (12.32) followed by Samtse (12.67).

The family relationship index seems to have inverse relation with age. The average family relationship index is lower among the younger age group and increases with the increase in age (Fig. 85).

Figure 84: Family relationship index by Dzongkhag

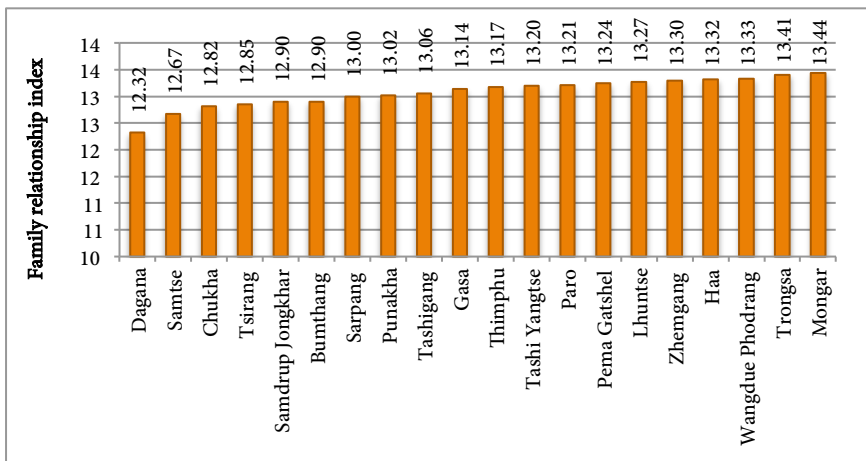
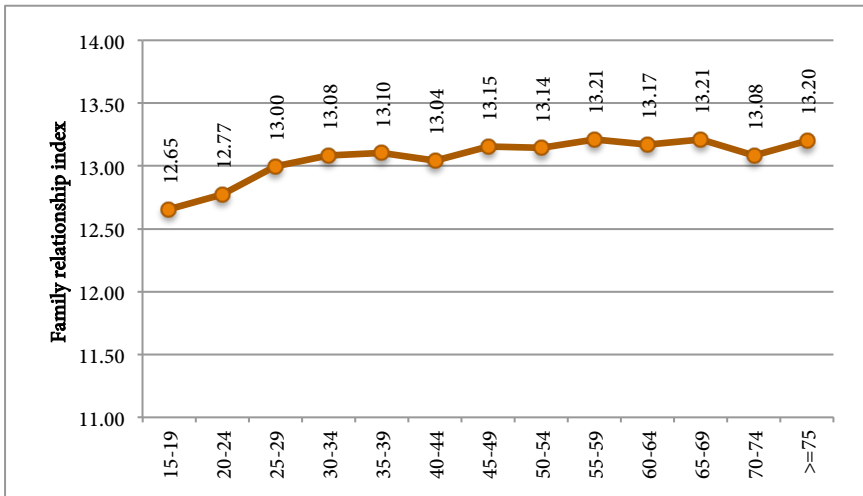


Figure 85: Family relationship index by age



3.7.5. Safety

Safety is measured using two indicators: 1) victimisation by crime, and 2) feeling of safety in the neighbourhood.

3.7.5.1. Victimisation by crime

In order to assess the rate of victimisation by crime, people were asked whether they had been victims of any crimes in the past 12 months preceding the survey. The crimes include theft, robbery, fraud, vandalism, physical assault, sexual assault, cyber bullying, and family violence³³. The data showed that 8.15 percent of the population had been victims of at least one of the eight crimes listed in the past 12 months preceding the survey.

The victimisation rate by any crime does not vary much between males (7.37%) and females (8.70%). However, by area of residence, the victimisation by any crimes varies between rural and urban residents. As expected, the victimisation rate is much higher in urban areas

³³ Although an additional crime named 'others' was also included to make the offence list exhaustive, only six respondents reported being victim of crime under 'others' category. However, since the specified crime under 'others' category were 'oral fights' or 'ULFA', which cannot be considered as a crime, the 'others' list was excluded from the analysis.

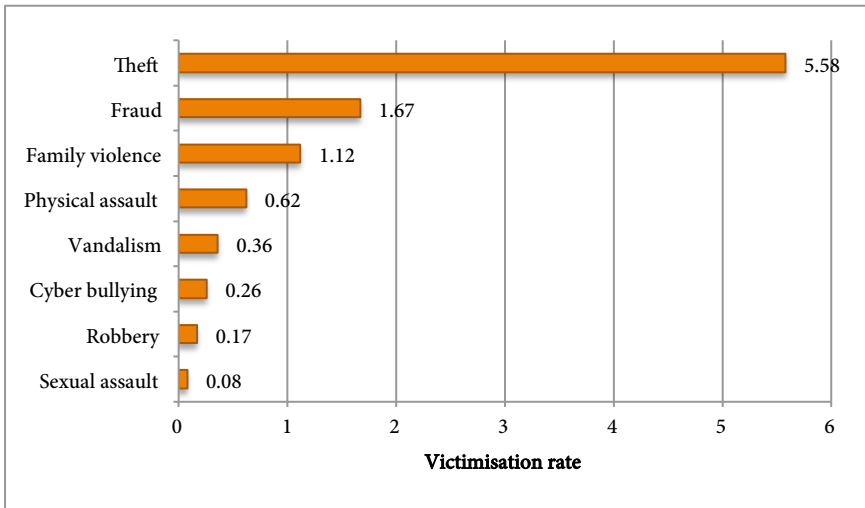
(10.97%) compared to rural areas (6.84%). Among Dzongkhags, the rate of victimisation is over 10% in Dagana, Sarpang, Bumthang, and Tsirang Dzongkhags. On the other hand, Tashi Yangtse, Mongar, Pema Gatshel, and Trongsa Dzongkhags had victimisation rate below five percent.

Table 85: *Victimisation by any crime by Dzongkhag (%)*

Dzongkhag	Victimisation rate
Dagana	15.08
Sarpang	12.37
Bumthang	11.37
Tsirang	10.82
Samtse	9.90
Thimphu	9.41
Paro	8.90
Samdrup Jongkhar	7.99
Chukha	7.96
Gasa	7.44
Zhemgang	7.40
Punakha	6.72
Lhuntse	6.56
Tashigang	6.40
Haa	5.11
Wangdue Phodrang	5.01
Trongsa	4.89
Pema Gatshel	4.78
Mongar	4.38
Tashi Yangtse	1.92
Bhutan	8.15

The victimisation rate by type of crime is provided in the Fig. 86. As seen in the Fig. 86, the most common crime is theft with the victimisation rate of 5.58 percent followed by fraud and family violence with victimisation rate of 1.67 percent and 1.12 percent, respectively.

Figure 86: Victimisation by crime type (%)



People who have been victims of any crime were also asked to report the perpetrator or suspected perpetrator of the crime.

3.7.5.2. Perception of safety

Peoples' feeling of safety in the neighbourhood, both during the day as well as after dark, was assessed using a five-point Likert scale response options, which ranges between 'completely safe' to 'completely unsafe'. The three items used were safety from human harm, safety from wild animals, and safety from ghosts/spirits. The Table 86 summarises the responses of the people.

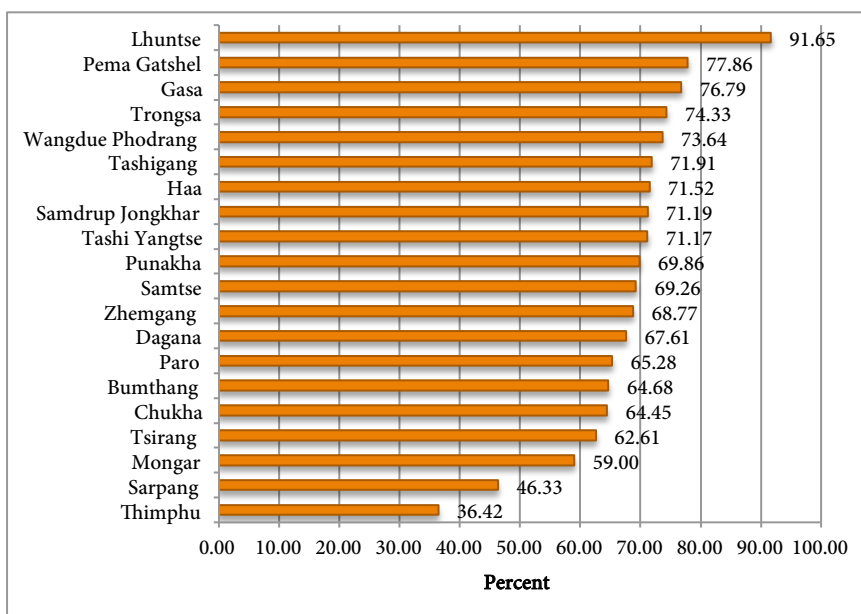
The results show that about one-third of the population reported feeling either 'safe' or 'completely safe' (62.72%) when walking alone in their neighbourhood after dark from human harm. The proportion of population who reported feeling safe from humans when walking alone in their neighbourhood after dark varies by sex. While 73.72 percent of males reported feeling either 'safe' or 'completely safe', only 54.92 percent of females reported the same. There also exists substantial difference between rural and urban areas in terms of feeling of safety from human harm after dark. For instance, 70.48 percent of rural residents reported feeling either 'safe' or 'completely safe' while walking alone after dark in the neighbourhood, only 45.96 percent of urban residents reported the same.

Going by the results, Lhuntse is the safest place (91.65% reported either 'safe' or 'completely safe' to walk alone in the neighbourhood after dark), followed by Pema Gatshel (77.86%), and Gasa (76.79%). On the other hand Thimphu is the most unsafe place (52.35% reported either 'completely unsafe' or 'unsafe' to walk alone in the neighbourhood after dark), followed by Sarpang (50.45%), Paro (28.98%), and Tsirang (28.65%).

Table 86: *Distribution of population by perceived level of safety (%)*

	Completely unsafe	Unsafe	Neither safe nor unsafe	Safe	Completely safe
Safety from human harm after dark	6.02	23.63	7.64	36.83	25.89
Safety from wild animals after dark	5.22	20.28	7.78	39.67	27.04
Safety from ghost/spirits after dark	4.58	19.91	11.63	37.11	26.77
Safety from human harm during day	0.62	3.08	1.86	22.29	72.14
Safety from wild animals during day	0.82	4.06	2.10	22.78	70.25

Figure 87: *Percentage of population reported feeling 'safe' or 'very safe' while walking alone after dark in their neighbourhood*



3.8. Ecological Diversity and Resilience

Bhutan has always played a central role in conserving her rich natural environment in *pursuit of Gross National Happiness*. Every citizen of Bhutan is responsible for the protection of the rich natural environment and biodiversity of the country. The ecology domain of GNH covers areas such as pro-environmental beliefs and behaviours, environmental issues faced by people, human-wildlife conflicts, and fuel uses.

3.8.1. Pro-environmental beliefs

The question, *Do you agree with the statement: “Nature is the domain of spirits and deities”?* was asked to assess whether people possess pro-environmental beliefs. The responses were collected using a five-point response option ranging between ‘strongly agree’ and ‘strongly disagree’. In addition, a ‘don’t know’ option was allowed.

About 84 percent of the population either ‘strongly agree’ or ‘agree’ to the statement indicating a high prevalence of pro-environmental beliefs among the population. The data indicate that pro-environmental beliefs do not vary by gender. However, there exists a slight difference in pro-environmental beliefs between rural and urban residents. For instance, 85.96 percent of rural residents ‘strongly agree’ or ‘agree’ to the statement, while only 81.47 percent of the urban residents did the same. Similarly, 7.08 percent of the rural residents ‘strongly disagree’ or ‘disagree’ with the statement as against 10.05 percent of the urban population.

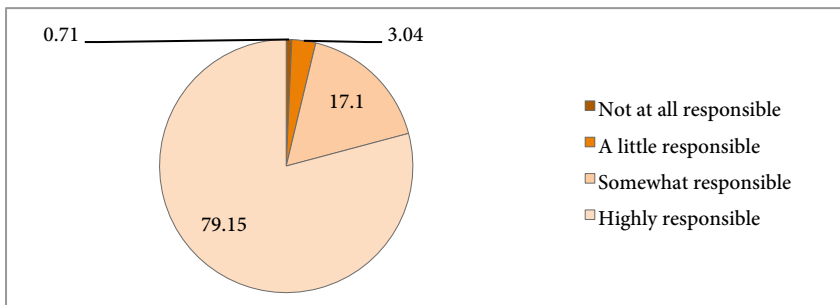
Table 87: *Pro-environmental beliefs by area of residence*

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
Rural	2.75	4.33	6.36	35.48	50.48	0.60
Urban	4.71	5.34	7.88	39.56	41.91	0.61
Total	3.37	4.65	6.84	36.77	47.77	0.6

Another indicator used to assess the prevalence of pro-environmental beliefs is feeling of responsibility for conserving the natural environment. People were also asked to report whether they feel that it is their responsibility to conserve the natural environment. The responses were collected using a four-point scale ranging from ‘highly responsible’ to ‘not at all responsible’.

A large majority of the population (79.15%) reported that they feel 'highly responsible' for conserving the natural environment (Fig. 88), while less than one percent reported they feel 'not at all responsible' for conserving the natural environment. The remaining 17.10 percent and 3.04 percent reported 'somewhat responsible' and 'a little responsible' respectively.

Figure 88: *Feeling of responsibility for conserving the natural environment*



The proportion of population who reported feeling 'highly responsible' for conserving the natural environment varies by gender as well as area of residence. By gender, 82.58 percent of males reported feeling 'highly responsible' for conserving the natural environment, while only 76.73 percent of females did the same. Similarly, 78.03 percent of rural residents reported 'highly responsible' for conserving the natural environment, while 81.58 percent of urban respondents did the same.

3.8.2. Environmental issues

The environmental issues faced by people were assessed using two different sets of questions. The first focused on assessing the level of contentment, or for that matter, discontentment, people experienced with a set of seven living conditions existing in their locality. These living conditions are noise, air pollution, river and stream pollution, crime and violence, litter, pedestrian footpaths, and streetlights. The Table 93 summarises the results of contentment levels experienced by people in each of these seven living conditions. Over 80 percent of people reported being contented (reporting 'do not have complaint' or 'no complaint at all') with all the seven living conditions except contentment with litter where slightly lower proportion (78.07%) rated the same. Of the seven living conditions, most people were discontented

(either reporting ‘very discontented’ or ‘discontented’) with litter (15.24%) followed by noise pollution (14.48%).

Table 88: *Contentment/discontentment with living conditions in the locality (%)*

	Very discontented	Discontented	Neither discontented nor contented	Do not have complain	No complain at all
... with noise	2.51	11.97	5.51	55.66	24.35
... with air pollution	2.31	9.56	5.05	57.63	25.45
... with river and stream pollution	0.78	5.9	4.89	62.53	25.89
... with crime and violence	1.61	8.43	6.95	60.79	22.22
... with litter	2.17	13.07	6.69	58.1	19.97
... with pedestrian footpaths	1.08	7.51	5.15	54.08	32.18
... with street lights	1.28	7.98	4.33	49.96	36.45

The proportion of people discontented with the living conditions in their locality differs substantially between people living in rural and urban areas. As seen in the Table 94, a significantly higher proportion of urban residents is discontented with noise, litter, and crime and violence than their rural counterparts.

Table 89: *Discontentment with the following living conditions in the locality (percentage reporting ‘very discontented’ or ‘discontented’)*

	Rural	Urban	Bhutan
... with noise	7.39	29.80	14.48
... with air pollution	7.95	20.34	11.87
... with river and stream pollution	3.87	12.75	6.68
... with crime and violence	4.47	22.08	10.04
... with litter	9.58	27.45	15.24
... with pedestrian footpaths	5.28	15.72	8.59
... with street lights	6.57	15.06	9.26

Table 90: *Contentment with the following living conditions in the locality (percentage reporting ‘do not have complain or ‘no complain at all’)*

	Rural	Urban	Bhutan
... with noise	89.57	59.34	80.01
... with air pollution	88.51	71.36	83.08
... with river and stream pollution	92.63	79.35	88.42

	Rural	Urban	Bhutan
... with crime and violence	91.84	63.95	83.01
... with litter	85.48	62.08	78.07
... with pedestrian footpaths	91.15	75.69	86.26
... with street lights	90.22	78.19	86.41

The second part of the environmental issues questions focused on the affects of selected environmental issues on family or properties of people in the last 12 months. The list of environmental issues covered are issues of forest fire, river pollution, soil erosion, flood, inadequate waste disposal sites, inadequate pedestrian paths, air pollution, depredation of crops by wild animals, and earthquake. People were asked to state whether these environmental issues significantly affected them during the reference period.

The data revealed that the single most environmental issue that affected the largest proportion of population is the wild animals (Fig. 89). Crop depredation is the most common problem faced by people (29.95%) followed by having to guard crops against wild animals (24.63%), and loss of livestock to wild animals (5.18%) (Fig. 91).

Over five percent of the population reported having affected by air pollution (6.30%) and inadequate waste disposal sites or littering (6.18%).

The three most common environmental issues faced by rural residents are wild animals, air pollution, and inadequate waste disposal sites. Sixty-one percent of rural respondents reported having affected by wild animals, 5.42 percent by air pollution, and 4.57 percent by inadequate waste disposal sites or littering.

In urban areas, inadequate waste disposal sites or littering, air pollution, and inadequate pedestrian footpaths and facilities are the three most common issues facing residents.

Figure 89: *Proportion of people affected by different environmental issues (%)*

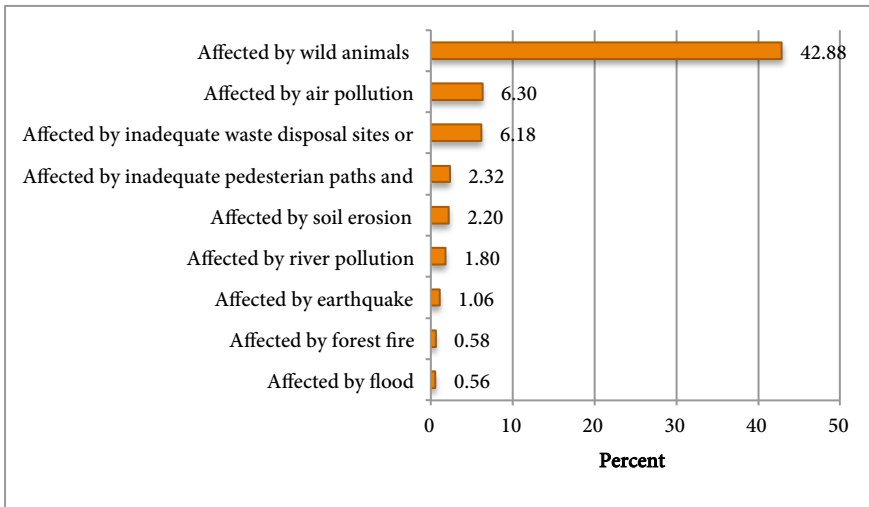


Figure 90: *Proportion of population affected by different environmental issues, by area of residence*

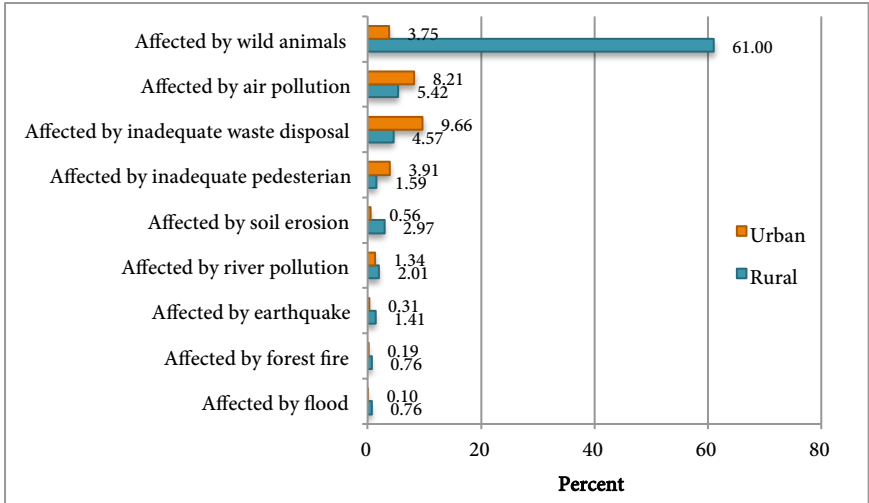
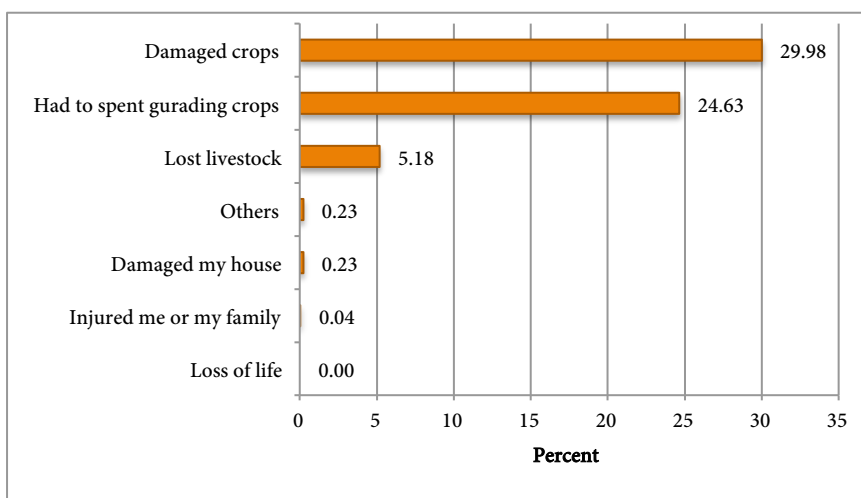
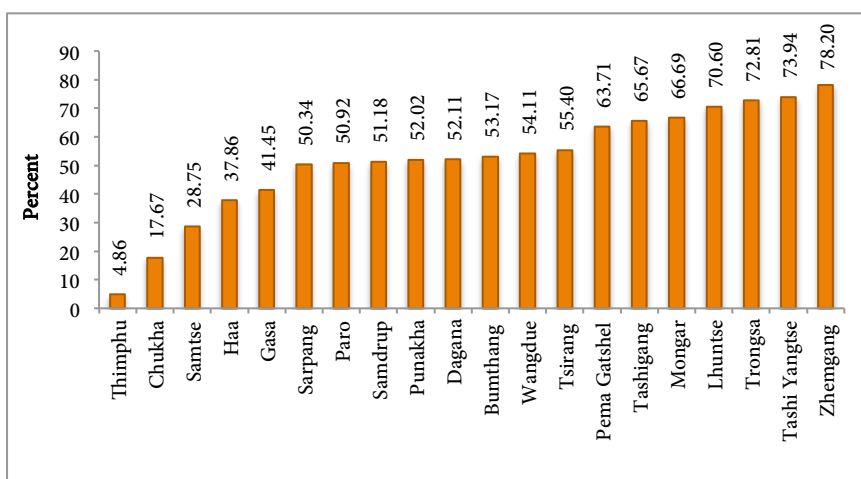


Figure 91: *Proportion of population affected by wild animals (%)*



Among Dzongkhag, over 70 percent of population in Zhemgang, Tashi Yangtse, Trongsa, and Lhuntse reported having affected by wild animals in the past 12 months preceding the survey. The proportion of population who reported having affected by wild animals is relatively lower in Thimphu, Chukha, and Samtse Dzongkhags compared to the rest of the Dzongkhags (Fig. 92).

Figure 92: *Proportion of population affected by wild animals, by Dzongkhag*



3.8.3. Fuel use

The information on the type of fuels people use for various purposes is very important, both from environmental as well as health policy perspectives. The survey collected information on the types of fuels people use for cooking food and heating dwellings. Electricity is the most commonly used fuel for cooking for majority of the population (53.41%) followed by LPG (26.26%), and wood (19.59%).

For over 98 percent of the urban population, the most commonly used fuel for cooking is either electricity or LPG, while only about 70 percent of rural residents use the same. On the other hand, as expected, substantially higher proportion of rural residents (27.96%) reported wood as the most commonly used fuel for cooking compared to their urban counterparts (1.51%).

Among Dzongkhags, for over one thirds of population in Gasa, Samdrup Jongkhar, Pema Gatshel, and Samtse, the most commonly used fuel for cooking is wood. On the other hand, less than 10 percent of the residents of Thimphu, Paro, Punakha, Wangdue Phodrang, and Haa reported wood as their most commonly used fuel for cooking.

For heating dwellings, wood is the most commonly used fuel for most of the population (52.65%) followed by electricity (20.89%). About 24 percent of the population reported that they don't heat their dwellings.

Over 70 percent of rural residents reported that wood is the most commonly used fuel for heating dwellings against just 15 percent of urban residents. On the other hand, about 49 percent of urban residents reported electricity as the most commonly used fuel for heating dwellings as against just eight percent of the rural residents.

The information on most commonly used fuel for heating dwellings by Dzongkhag is presented in the Table 91. It is interesting to observe that, comparatively, a higher proportion of population living in relatively urbanised Dzongkhags like Thimphu, Chukha, and Paro reported electricity as the most commonly used fuel for heating dwellings. And as expected, most people in warmer Dzongkhags like Sarpang (85.49%), Samtse (63.61%), and Samdrup Jongkhar (41.57%) reported not heating the dwellings at all.

Figure 93: Proportion of population reporting wood as the most commonly used fuel for cooking, by Dzongkhag

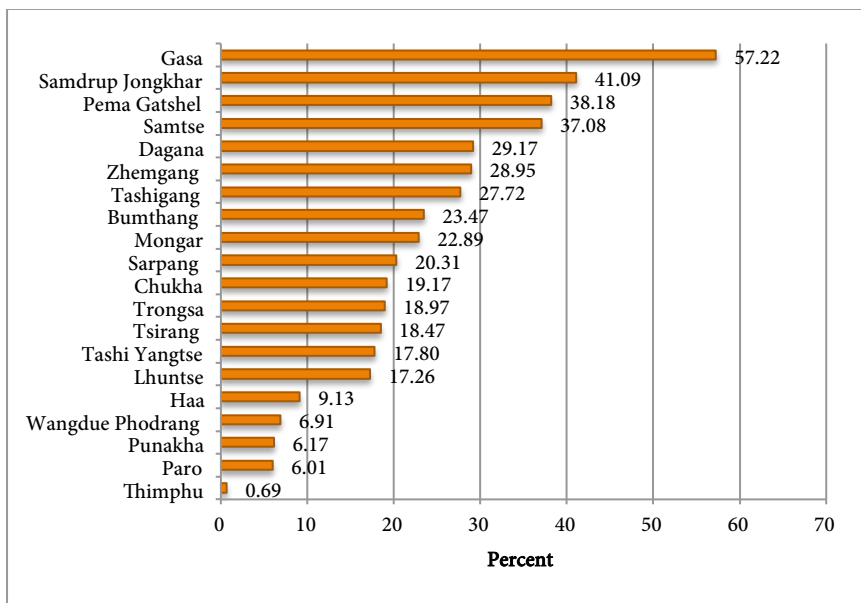


Table 91: Most commonly used fuel for heating dwellings by Dzongkhag (percentage of population)

Dzongkhag	Don't heat	Others	Wood	Electricity	Total
Bumthang	0.00	0.87	95.64	3.49	100
Chukha	35.68	0.67	37.06	26.59	100
Dagana	5.39	0.99	87.32	6.30	100
Gasa	0.00	0.00	97.34	2.66	100
Haa	3.72	0.79	75.38	20.11	100
Lhuntse	11.27	0.84	80.03	7.86	100
Mongar	7.85	0.61	79.57	11.98	100
Paro	0.86	7.75	69.56	21.83	100
Pema Gatshel	20.22	0.41	69.24	10.14	100
Punakha	30.98	0.38	55.04	13.61	100
Samdrup Jongkhar	41.57	0.31	52.76	5.36	100
Samtse	63.61	0.32	28.62	7.46	100
Sarpang	85.49	0.00	13.21	1.30	100
Thimphu	2.40	7.44	18.43	71.73	100
Tashigang	10.19	0.44	82.25	7.13	100
Tashi Yangtse	10.37	0.42	85.24	3.97	100
Trongsa	7.28	1.68	79.78	11.26	100
Tsirang	3.03	0.34	86.35	10.28	100
Wangdue Phodrang	35.10	0.82	46.00	18.07	100
Zhemgang	26.46	0.00	70.45	3.09	100

Dzongkhag	Don't heat	Others	Wood	Electricity	Total
Bhutan	24.48	1.98	52.65	20.89	100

3.8.4. Disposal of household wastes

Appropriate disposal of household wastes is critical to maintaining environmental and human health, as well as for aesthetics. The data show that over 95 percent of the population disposed their household wastes either by composting (13.80%), burning (54.48%), or using municipal garbage pick-up (28.17%). The disposing of household wastes in ecologically unfriendly ways, such as dumping on open land, dumping in forest, or dumping in rivers and streams, was reported by only 2.3 percent of the people.

By gender, the mode of disposal of household wastes does not differ greatly. A slightly higher proportion of females reported using municipal garbage pick-up services (29.76% of females as against 25.91 percent of males) while a slightly higher proportion of males reported disposing of household wastes by composting (16.58% of males against 11.81% of females).

As expected, the mode of disposing of household wastes differs greatly between rural and urban areas. While majority of rural residents (72.78%) reported disposing of their household wastes by burning, majority of urban residents (77.40%) use municipal garbage pick-up services.

3.8.5. Human-wildlife conflicts

In addition to the issue of wild animals discussed above, this section attempts to quantify the impact of wild animals using two indicators: land remaining fallow due to wildlife threats and livestock lost to wildlife depredation.

About one in ten people (9.94%) reported having left their land fallow in the past one year specifically because of the wildlife threats. As expected, a substantially higher proportion of people living in rural areas (13.92%) reported having left their land fallow in the past one year due to wildlife threats compared with their urban counterparts (1.35%). In terms of acreage, the average land left fallow was 155 decimals ($SD = 170$) among those who reported having left their land fallow due to

wildlife threats. The median acreage of land left fallow was 100 decimals (one acre). By area of residence, the average acreage of land left fallow in rural areas was 157 decimals as against 128 decimals in urban areas.

It is estimated that a total of about 75,942 acres of land were left fallow due to wildlife threats in the year preceding the survey. By area of residence, it was 73,241 acres in rural and 2,071 acres in urban areas.

The loss of domestic animals to wildlife depredation is another problem faced by people. The average number of different domestic animals lost to wildlife depredation during the year preceding the survey is presented in the Table 92. Among the list of 11 domestic animals, the highest average loss to wildlife depredation was yak/zow/zom³⁴, which is expected considering the nature of their grazing habitat. In terms of absolute numbers, the most livestock lost to wildlife depredation are chicken and cows compared to other animals.

Table 92: Domestic animals lost to wildlife depredation

	Mean	sd	Median	N
Yak/Zow/Zom	10.5	15.3	6	63
Cow	2.5	3.7	2	207
Bull	2.0	3.8	1	98
Goat	2.8	2.6	2	29
Sheep	6.8	5.6	5	12
Horse	1.5	0.8	1	33
Donkey	1.0		1	1
Mule	6.2	7.1	4	13
Chicken	6.9	12.0	4	427
Pig	6.1	5.7	5	9
Buffalo	.	.	.	0

3.9. Living standard

The living standard domain covers topics such as income, debt, housing condition, and asset ownership.

3.9.1. Income and financial security

The annual total household income, both cash as well as in-kind, was assessed using a list of 45 potential sources of income for a household. This list of income sources is grouped into three different categories:

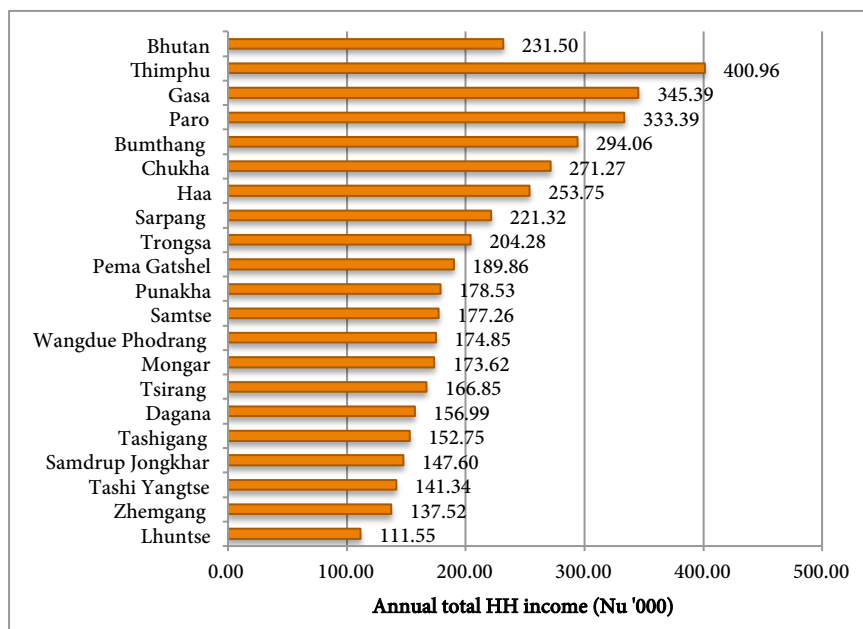
³⁴ Zow/Zom is an offspring of a yak bull and cattle

income from salary or wages, from sale of agricultural, livestock, or forestry products, and from non-agricultural activities. The income reported here does not include those produced and consumed by the household, unless it was sold or traded with another product. In the latter case, an estimated cash value was taken into account to determine the annual total household income.

The average annual total household income is Nu 231,502. The average annual total household income for urban residents is Nu 394,606, which is about 2.5 times the annual total household income of rural residents (Nu 156,124).

Residents of Thimphu, Gasa, and Paro Dzongkhags reported relatively higher annual total household income compared to those from the rest of the Dzongkhags (Fig. 94). On the other hand, the residents of Lhuntse, Zhemgang, Tashi Yangtse, and Samdrup Jongkhar Dzongkhags reported relatively lower annual total household income compared to those from the rest of the Dzongkhags.

Figure 94: Mean annual total household income, by Dzongkhag



Overall, majority of annual total household income is accrued from salary or wages, which constitutes 47 percent of the annual total

household income. Income from non-primary economic sources constitutes 38 percent of the annual total household income. Income from primary economic activities such as agriculture, livestock, or forestry constitutes only 15 percent of the annual total household income.

As expected, sources of income for rural and urban residents are very different (Table 93). People in urban areas receive income mostly from salaries or wages (53%) and from non-primary economic sources (45%). Only two percent of the annual total household income in urban areas is received from primary economic activity. Although, like urban residents, salaries or wages constitutes the largest proportion of annual total household income for rural residents (39%), unlike in urban areas, contribution from primary economic activities to the annual total household income is substantial. The contribution to annual total household income for rural residents from primary economic activities is 32 percent as compared with just two percent for urban residents.

Table 93: *Mean annual total household income, by source, by area of residence*

	Income from salaries/ wages	Income from agri./liv./ forestry	Income from non- agri.	Annual total HH income
Rural	60,912	49,545	45,667	156,124
Urban	209,661	6,538	178,407	394,606
Bhutan	107,928	35,952	87,623	231,502

Table 94: *Share of total household income, by source, by area of residence*

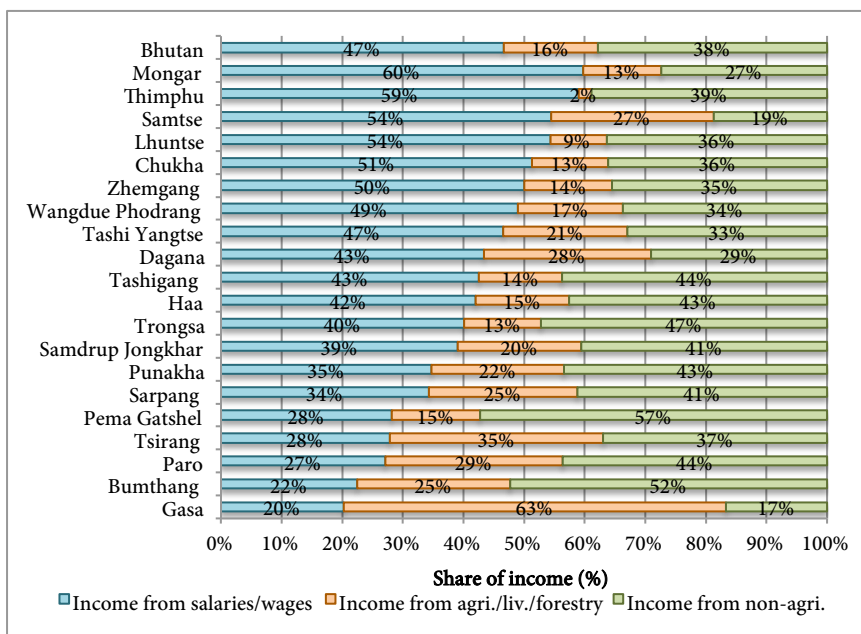
	Income from salaries/ wages	Income from agri./liv./ forestry	Income from non- agri.	Annual total HH income
Rural	39%	32%	29%	100%
Urban	53%	2%	45%	100%
Bhutan	47%	15%	38%	100%

Among the Dzongkhags, Gasa (63%) has the highest income contribution from primary economic activity to its total income, followed by Tsirang (35%), Paro (29%), and Dagana (28%). The comparatively large income from primary economic activity in Gasa is because of the high income they derive from hiring animals for transportation and from the sale of *cordyceps sinensis*.

Table 95: *Share of total household income, by source, by Dzongkhag*

Dzongkhag	Income from salaries/wages	Income from agri./liv./forestry	Income from non-agri.	Annual total HH income
Bumthang	22%	25%	52%	100%
Chukha	51%	13%	36%	100%
Dagana	43%	28%	29%	100%
Gasa	20%	63%	17%	100%
Haa	42%	15%	43%	100%
Lhuntse	54%	9%	36%	100%
Mongar	60%	13%	27%	100%
Paro	27%	29%	44%	100%
Pema Gatshel	28%	15%	57%	100%
Punakha	35%	22%	43%	100%
Samdrup				
Jongkhar	39%	20%	41%	100%
Samtse	54%	27%	19%	100%
Sarpang	34%	25%	41%	100%
Thimphu	59%	2%	39%	100%
Tashigang	43%	14%	44%	100%
Tashi Yangtse	47%	21%	33%	100%
Trongsa	40%	13%	47%	100%
Tsirang	28%	35%	37%	100%
Wangdue				
Phodrang	49%	17%	34%	100%
Zhemgang	50%	14%	35%	100%
Bhutan	47%	16%	38%	100%

Figure 95: Share of total household income, by source, and by Dzongkhag



3.9.2. Household debts

The average household debt owed by Bhutanese households having outstanding loan is Nu 469,752. The average outstanding loan balance is about 4.5 times higher among urban residents compared with rural residents who have outstanding loan. The average outstanding loan is the highest for housing loan followed by business loan and vehicle loan (Table 96).

Table 96: Average outstanding debt (in Nu) by type of debts (only among those who owe debts)

Debt type	Rural	Urban	Bhutan
Housing loan	213,628	2,279,792	880,336
Vehicle loan	253,387	325,303	292,752
Agriculture loan	88,098	129,239	92,778
Business/commercial loan	218,757	646,508	448,203
Education loan	116,974	221,120	181,449
Personal/consumer/employee	150,966	190,939	170,037
Others	100,813	284,261	153,792
Total debt	190,122	864,229	469,752

The most common debt type is the housing loan followed by personal, consumer, or employee loan, and vehicle loan (Table 97). Much higher proportion of people living in urban area (46.25%) live in households that owe debts compared with their rural counterparts (30.12%). By debt type, relatively higher proportion of urban population is indebted with vehicle loan, business loan, education loan, and consumer loan as compared with those residing in rural areas.

Table 97: *Proportion of population living in households by type of debt (%)*

	Rural	Urban	Bhutan
Housing loan	11.81	12.19	11.93
Vehicle loan	3.99	10.45	6.03
Agriculture loan	3.57	0.99	2.76
Business/commercial loan	2.69	6.74	3.97
Education loan	2.2	7.76	3.96
Personal/consumer/employee	5.4	10.67	7.06
Others	2.14	1.89	2.06
Any loans	30.12	46.25	35.21

Bhutan Development Bank Limited (BDBL) is single biggest dispenser of loan, in terms of number of loans granted (Table 98). Majority of people availed themselves of agriculture loan (86.6%), business loan (73.1%), housing loan (56.5%), consumer loan (40.7%), vehicle loan (36.2%), and 'other' loan (42.8%) from BDBL. However, the majority availed themselves of education loan from the National Pension and Provident Fund (NPPF).

Table 98: *Source of loan by loan type (%)*

	Source of housing loan	Source of vehicle loan	Source of agriculture loan	Source of business loan	Source of education loan	Source of consumer loan	Source of other loans
BNB	13.8	17.5	2.3	6.5	9.5	8.3	6.9
BoB	18.5	32.1	4.2	12.4	25.3	38.1	17.5
T-Bank	0.8	3.4	0.0	0.4	0.0	1.9	0.0
Druk PNB	0.5	1.1	0.0	1.4	0.7	0.0	0.0
BDBL	56.5	36.2	86.6	73.1	22.5	40.7	42.8
NPPF	2.9	1.7	0.0	1.0	35.5	4.6	2.5
RICB	2.2	3.4	0.0	2.9	1.0	0.5	0.0
BIL	0.1	0.3	0.0	0.0	0.0	0.0	0.0
BOiC	0.1	0.0	0.0	0.4	0.0	0.0	0.0
Relatives	0.9	0.2	0.5	0.0	0.0	0.2	8.5
Friends	0.9	0.3	1.0	0.5	0.4	0.6	5.1
Cooperatives	0.5	0.7	0.6	0.4	0.0	1.2	2.4

	Source of housing loan	Source of vehicle loan	Source of agricult ure loan	Source of business loan	Source of educatio n loan	Source of consum er loan	Source of other loans
Informal lenders	0.5	0.3	0.5	0.6	1.3	0.2	6.8
Others*	1.8	3.0	4.2	0.4	3.9	3.7	7.4
Total	100	100	100	100	100	100	100

* Also includes those loans whose source is not specified

3.9.3. Housing

The housing quality is assessed using three indicators: a) Housing ownership and rent, b) Room ratio, and c) Roofing materials.

3.9.3.1. Housing ownership and rent

The ownership status of the dwelling in which the people reside was assessed. People were asked to state whether the dwelling they currently occupy is owned, rent-free, or rented. About two third of people (65%) own the dwelling they currently occupy while 11.7 percent reported that the dwelling they currently occupy is rent-free. The remaining 23.3 percent reside in rented apartments.

The ownership status of the dwelling currently occupied by people differs significantly between rural and urban areas. While large majority of people residing in rural areas own the dwelling they currently occupy (86.1%), majority in urban areas resides in rented apartments (58.4%). By Dzongkhag, over 90 percent of those residing in Pema Gatshel, Tsirang, Tashi Yangtse, and Tashigang reside in owned dwellings. On the other hand, only less than 50 percent of those residing in Thimphu, Haa³⁵, and Chukha reside in owned dwellings.

³⁵ This unexpected observation, once again like in the case of the length of stay in the current community, is because of the inclusion of a military camp in the sampled PSU in Haa. Military personnel and their families residing in military camp are provided rent-free accommodation. This can be confirmed by the fact that about 46% of those residing in Haa Dzongkhag reported that they are currently occupying rent-free dwellings.

Table 99: *Ownership status of the dwelling currently occupied by people (%)*

	Rented	Rent-free	Owned	Total
Rural	7.0%	6.9%	86.1%	100%
Urban	58.4%	22.2%	19.4%	100%
Bhutan	23.3%	11.7%	65.0%	100%

Table 100: *Ownership status of the dwelling currently occupied by people (%)*

Dzongkhag	Rented	Rent-free	Owned	Total
Thimphu	59.8%	24.3%	16.0%	100%
Haa	11.4%	45.9%	42.7%	100%
Chukha	47.9%	7.7%	44.4%	100%
Samtse	16.5%	20.1%	63.4%	100%
Samdrup Jongkhar	15.8%	13.9%	70.3%	100%
Wangdue Phodrang	14.6%	14.9%	70.5%	100%
Sarpang	16.8%	11.3%	71.9%	100%
Punakha	12.1%	10.1%	77.8%	100%
Gasa	13.5%	8.3%	78.2%	100%
Paro	18.4%	3.2%	78.4%	100%
Trongsa	11.3%	9.7%	79.0%	100%
Mongar	10.4%	6.2%	83.4%	100%
Bumthang	10.3%	4.6%	85.1%	100%
Lhuntse	8.6%	4.5%	86.9%	100%
Zhemgang	7.5%	4.6%	87.9%	100%
Dagana	4.1%	6.5%	89.4%	100%
Tashigang	7.6%	2.4%	90.0%	100%
Tashi Yangtse	6.2%	3.6%	90.2%	100%
Tsirang	6.2%	2.8%	91.0%	100%
Pema Gatshel	2.8%	5.5%	91.8%	100%
Bhutan	23.3%	11.7%	65.0%	100%

People residing in rented apartments are asked to report the amount they pay as a monthly rent. For those who occupy the dwelling rent-free or own the dwelling that they currently occupy, they are asked to estimate the amount they would have to pay as a monthly rent for the dwelling if they had to rent it.

The average monthly house rent paid by those occupying rented dwellings is Nu 4,731. By area, as expected, the average monthly house rent paid is substantially higher in urban areas (Nu 5,445) compared with rural areas (Nu 1,974).

3.9.3.2. Room ratio

Room ratio is an important indicator to assess the adequacy of housing in terms of overcrowding. The information on household size and number of rooms was used to compute the room ratio. People were asked to report the number of rooms they have in the dwelling they currently occupy, excluding bathrooms, toilets, and kitchens, if kitchens cannot be used for sleeping accommodation.

The adequacy of housing in terms of overcrowding is assessed using person-room ratio³⁶. The person-room ratio was calculated by dividing the total household members by total rooms for sleeping accommodation for the household. The person-room ratio is classified into three different categories as under³⁷:

1. **Not crowded:** Dwelling with one or less person per room,
2. **Crowded:** Dwelling with more than one person per room, and
3. **Severely crowded:** Dwelling with more than 1.5 people per room.

As per this definition, 45.72 percent of population live in ‘severely crowded’ households and another 19.31 percent in ‘crowded’ households. By area of residence, a higher proportion of people living in urban areas live in ‘severely crowded’ as well as ‘crowded’ households compared with those living in rural areas (Table 101). The proportion of population living in ‘crowded’ or ‘severely crowded’ households is comparatively lower in Paro, Punakha, and Bumthang compared to the rest of the Dzongkhags.

Table 101: *Proportion of population living in crowded households, by area of residence (%)*

	Not crowd	Crowded	Severely crowded	Total
Rural	37.69	18.20	44.11	100
Urban	29.11	21.70	49.18	100
Bhutan	34.97	19.31	45.72	100

³⁶ Although there exists several other crowding indices, which takes into account the quality of rooms (room area) and sex and age of the household members, it is not possible to use them due to unavailability of information on room surface area.

³⁷ This classification system is being used by the US Census Bureau.

Figure 96: Proportion of population living in ‘crowded’ or ‘severely crowded’ households, by Dzongkhag (%)

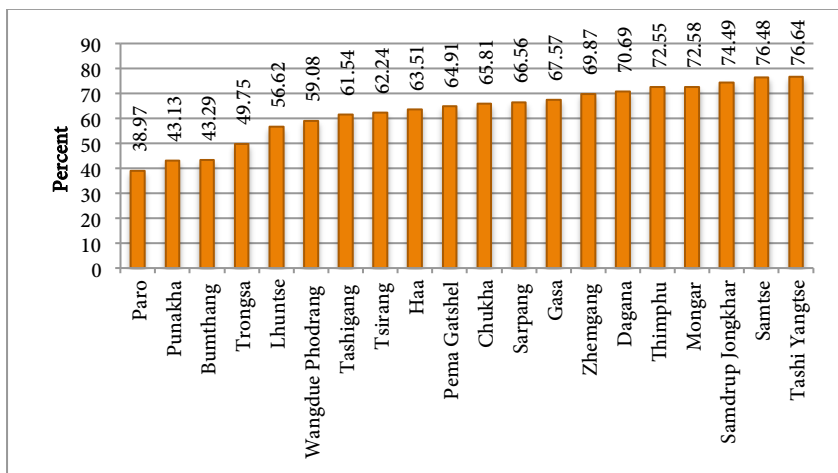
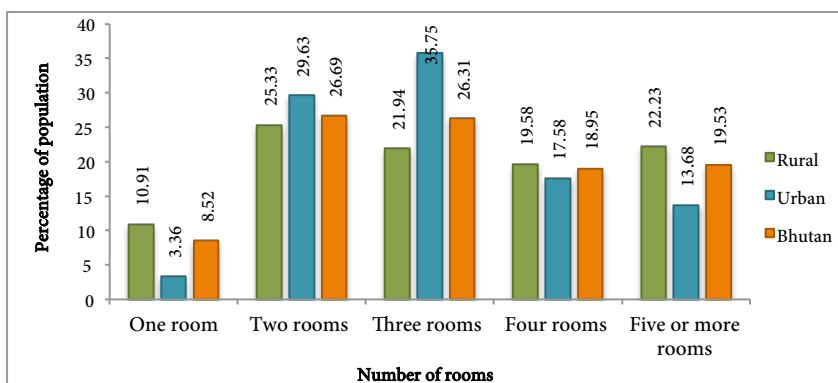


Figure 97: Distribution of population by number of rooms, by area of residence (%)



3.9.3.2. Roofing materials used

The type of roofing material used was also collected to assess the quality of housing. An overwhelming majority (95.63%) of population lives in houses that have corrugated galvanised iron (CGI) sheet or metals as the main roofing material. The other roofing materials used were concrete, brick, or cement (1.36%), straw or leaves (1%), and wood (83%). The type of roofing materials used does not differ much between rural and urban areas. A slightly higher proportion of urban people lives in houses that have CGI/metal or concrete/brick/stone roofs compared

with rural residents. On the other hand, a slightly higher proportion of rural people lives in houses that have straw/leaves or wood as main roofing material compared with rural residents (Table 102).

Table 102: *Distribution of population by type of roofing material used, by area of residence (%)*

	Others	Slate	Bam- boo	Straw/ leaves	Wood	Mud	CGI/ Metal	Concrete /brick/ stone	Total
Rural	0.47	0.19	0.73	1.43	1.16	0.02	95.10	0.90	100
Urban	0.13	0.10	0.39	0.06	0.12	0.07	96.80	2.33	100
Bhutan	0.36	0.16	0.62	1.00	0.83	0.03	95.63	1.36	100

Traditional roofing materials like wood, bamboo, and straw or leaves are still used as the main roofing materials in remote Dzongkhags. For instance, as seen in the Table 103, over three percent of population in Gasa (9.57%), Bumthang (3.70%), Haa (3.62%), and Paro (3.15%) lives in houses that have wood as the main roofing material. Similarly, over one percent of population in Tashigang (1.96%), Trongsa (1.82%), Chukha (1.29%), and Zhemgang (1.17%) lives in houses that have bamboo as the main roofing material. Straw or leaves roofing materials seems to be common in Samdrup Jongkhar (6.45%), Dagana (2.71%), Pema Gatshel (2.03%), and Zhemgang (1.96%) Dzongkhags.

Table 103: *Distribution of population by type of roofing materials used, by Dzongkhag (%)*

Dzongkhag	Others	Slate	Bam- boo	Straw/ leaves	Wood	Mud	CGI/ Metal	Concrete /brick/ stone	Total
Bumthang	0.00	0.44	0.87	0.00	3.70	0.41	94.58	0.00	100
Chukha	0.38	0.17	1.29	0.67	0.75	0.00	93.82	2.93	100
Dagana	1.81	0.00	0.90	2.71	0.00	0.00	94.58	0.00	100
Gasa	0.00	0.00	0.80	0.00	9.57	0.00	88.84	0.80	100
Haa	0.36	0.00	0.36	0.36	3.62	0.00	94.93	0.36	100
Lhuntse	0.00	0.00	0.78	0.00	1.18	0.00	98.04	0.00	100
Mongar	0.00	0.00	0.25	0.25	0.99	0.00	97.77	0.74	100
Paro	0.29	0.00	0.29	0.29	3.15	0.00	94.85	1.14	100
Pema Gatshel	0.81	0.81	0.41	2.03	0.41	0.00	95.13	0.41	100
Punakha	0.00	0.88	0.44	0.00	0.00	0.00	97.86	0.82	100
Samdrup Jongkhar	0.00	0.00	0.61	6.45	0.00	0.44	90.83	1.67	100
Samtse	1.27	0.00	0.72	1.43	0.48	0.00	94.76	1.35	100
Sarpang	0.24	0.47	0.00	1.65	0.24	0.00	95.64	1.77	100
Thimphu	0.31	0.00	0.00	0.00	0.43	0.00	96.71	2.55	100
Tashigang	0.00	0.22	1.96	0.44	0.22	0.00	96.73	0.44	100
Tashi Yangtse	0.00	0.00	0.38	0.00	0.38	0.00	99.25	0.00	100

Dzongkhag	Others	Slate	Bam-boo	Straw/leaves	Wood	Mud	CGI/Metal	Concrete/brick/stone	Total
Trongsa	0.00	0.00	1.82	0.36	0.42	0.00	96.67	0.73	100
Tsirang	0.35	0.34	0.00	1.34	0.00	0.00	97.97	0.00	100
Wangdue Phodrang	0.00	0.35	0.00	0.00	2.09	0.00	96.16	1.40	100
Zhemgang	0.39	0.00	1.17	1.96	0.00	0.00	95.70	0.78	100
Bhutan	0.36	0.16	0.62	1.00	0.83	0.03	95.63	1.36	100

3.9.4. Access to basic services

Access to basic services such as electricity, improved drinking water, improved sanitation, and waste disposal services were assessed.

3.9.4.1. Access to electricity

In terms of access to electricity, an overwhelming majority of people (97.10%) reported having access to electricity connections from an electricity supply grid. All the people residing in urban areas have access to electricity connection from an electricity supply grid. In rural areas, 95.76 percent have access to electricity connection from an electricity supply grid. The remaining 1.53 percent of rural residents reported having no access to electricity connection and another 2.71 percent reported using solar panel.

Among Dzongkhags, Gasa has the lowest proportion of population living in households connected to electricity supply from the supply grid (45.79%) followed by Samdrup Jongkhar (79.74%), and Zhemgang (88.26%). The remaining 17 Dzongkhags reported coverage over 90%.

About 9 percent of people living in Samdrup Jongkhar reported no access to electricity from either solar panel or from the electricity supply grid. About three percent of those residing in Zhemgang and Dagana also reported having no access to electricity from either solar panel or from the electricity supply grid.

Table 104: Access to electricity connection by area of residence

	No	Yes, from solar panel	Yes, from the grid	Total
Rural	1.53	2.71	95.76	100
Urban	0.00	0.00	100.00	100
Bhutan	1.05	1.95	97.00	100

Table 105: Access to electricity connection by Dzongkhag

Dzongkhag	No	Yes, from solar panel	Yes, from the grid	Total
Gasa	0.8	53.41	45.79	100
Samdrup Jongkhar	9.21	11.05	79.74	100
Zhemgang	3.13	8.61	88.26	100
Paro	0.29	6.58	93.13	100
Dagana	3.16	2.26	94.58	100
Sarpang	0.47	2.82	96.71	100
Trongsa	1.82	0.36	97.82	100
Tashi Yangtse	1.88	0	98.12	100
Punakha	0.88	0.44	98.68	100
Pema Gatshel	0.81	0.41	98.78	100
Samtse	0.63	0.48	98.89	100
Tashigang	0.65	0.22	99.13	100
Lhuntse	0	0.39	99.61	100
Wangdue Phodrang	0.35	0	99.65	100
Tsirang	0.34	0	99.66	100
Chukha	0.13	0	99.87	100
Thimphu	0	0.12	99.88	100
Bumthang	0	0	100	100
Haa	0	0	100	100
Mongar	0	0	100	100
Bhutan	1.05	1.85	97.1	100

3.9.4.2. Access to drinking water supply

Access to safe and adequate drinking water supply was assessed by asking people to report on adequacy in terms of quantity, quality and the source of their drinking water supply. In addition, if the drinking water is not piped into the dwelling, the time taken to fetch water, that is time taken to get to the water source, get water and come back, was recorded.

An overwhelming majority of people (95.58%) lives in households that have drinking water from piped outside their house (58.84%) or piped into their dwelling (36.74%). Only a small fraction of population lives in households dependent on other sources such as a neighbour's pipe (2.87%), an outdoor public tap (0.89%), and so on (Table 106).

The source of drinking water listed can be further classified into two groups: a) Improved water source, and b) Unimproved drinking water sources. Improved drinking water source includes i) piped-in dwelling, ii) piped water outside house, iii) piped to neighbour, iv) outdoor public tap, v) protected well, vi) protected spring, and vii) rainwater.

Unprotected well, unprotected spring, and ‘others’ sources are classified as unimproved water sources. All people living in urban areas live in households that have access to improved drinking water sources, while a negligible proportion of people in rural areas lives in households that have no access to improved drinking water source.

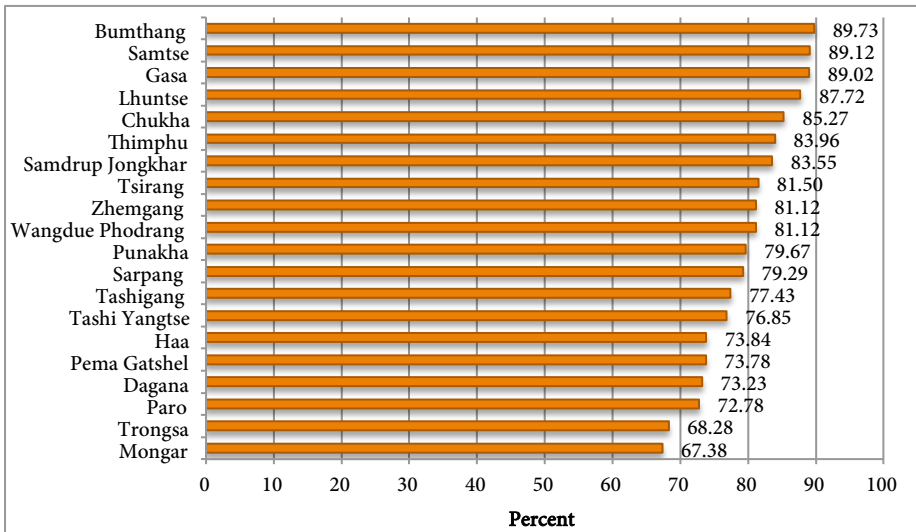
Table 106: *Distribution of population by main source of drinking water, by area of residence (%)*

	Rural	Urban	Bhutan
Piped-in dwelling	18.37	76.38	36.74
Piped water outside house	76.19	21.39	58.84
Piped to neighbour	3.57	1.35	2.87
Public outdoor tap	0.89	0.88	0.89
Protected well	0.12	0	0.09
Protected spring	0.40	0	0.28
Rain water	0.04	0	0.02
Improved water sources	99.58	100	99.73
Unprotected well	0.07	0	0.05
Unprotected spring	0.23	0	0.15
Others	0.11	0	0.08
Unimproved water sources	0.41	0	0.28

About 80 percent of the population lives in households that have access to adequate quantity of drinking water. By area of residence, 78.48 percent of rural and 85.08 percent of urban population lives in households with adequate access to drinking water supply.

The proportion of population living in households with access to adequate drinking water is relatively higher in Bumthang (89.73%), Samtse (89.12%), and Gasa (89.02%) Dzongkhags. Mongar and Trongsa Dzongkhags have relatively lower proportion of population living in households with access to adequate drinking water (Fig. 98).

Figure 98: Proportion of population living in households with access to adequate drinking water, by Dzongkhag (%)



For those whose source of drinking water is other than the ‘piped-in dwelling’, they were asked to report the time taken to fetch water. However, since an overwhelming majority of people (95.58%) live in households that have drinking water supply from piped outside their house or from piped into their dwelling, the average time taken to fetch water is very low (about four minutes). The time taken to fetch water for those whose main source of drinking water is other than ‘piped-in dwelling’ or ‘piped water outside house’ is about 10 minutes. There is no substantial difference in the average time taken to fetch water between rural (10 minutes) and urban (9 minutes) areas.

The quality of drinking water was assessed using five-point Likert scale question. About 92 percent rated their drinking water as either ‘good’ or ‘very good’. A slightly higher proportion of people living in rural areas (93.22%) rated the drinking water as either ‘good’ or ‘very good’ compared with urban residents (89.69%).

Among the Dzongkhags, a relatively lower proportion of residents of Thimphu (88.65%), Pema Gatshel (89.17%), and Trongsa (89.43%) reported the drinking water as either ‘good’ or ‘very good’ compared to the rest.

Table 107: *Distribution of population by quality of drinking water, by area of residence (%)*

	Very poor	Poor	Neither good nor poor	Good	Very good	Don't know	Total
Rural	0.19	1.47	5.07	56.46	36.76	0.04	100
Urban	0.17	2.02	8.12	57.53	32.16	0	100
Bhutan	0.19	1.65	6.04	56.8	35.3	0.03	100

Table 108: *Distribution of population by quality of drinking water, by Dzongkhag (%)*

Dzongkhag	Very poor	Poor	Neither good nor poor	Good	Very good	Don't know	Total
Bumthang	0.41	2.09	5.9	25.5	66.1	0	100
Chukha	0.33	0.58	6.48	60.45	32.16	0	100
Dagana	0.45	0.45	5.59	48.54	44.96	0	100
Gasa	0	0	3.19	41.9	54.92	0	100
Haa	0.36	2.54	6.92	52.48	37.71	0	100
Lhuntse	0	2.8	3.65	70.57	22.98	0	100
Mongar	0	0.55	5.16	60.39	33.65	0.25	100
Paro	0.57	1.15	4.59	49.75	43.94	0	100
Pema Gatsel	0	2.39	8.03	68.16	21.01	0.41	100
Punakha	0	0.75	5.29	55.58	38.38	0	100
Samdrup Jongkhar	0	2.55	6.72	53.24	37.48	0	100
Samtse	0.63	2.46	5.25	56.55	35.11	0	100
Sarpang	0.28	2.48	3.93	59.85	33.46	0	100
Thimphu	0	1.91	9.44	58.41	30.24	0	100
Tashigang	0	2.44	2.66	58.11	36.8	0	100
Tashi Yangtse	0	1.92	3.85	54.2	40.03	0	100
Trongsa	0.36	2.29	7.91	61.27	28.16	0	100
Tsirang	0	0	4.36	42.77	52.86	0	100
Wangdue Phodrang	0	1.67	8.09	64.33	25.91	0	100
Zhemgang	0	0.78	5.37	58.04	35.81	0	100
Bhutan	0.19	1.65	6.04	56.8	35.3	0.03	100

3.9.4.3. Access to sanitation facilities

Access to safe sanitation facilities is very important for human health and hygiene. Overall, 42.57 percent lives in households with ‘flush toilet’ facilities, followed by ‘pit latrine’ (17.74%), ‘ventilated improved pit latrine’ (14.49%), and ‘pit latrine without slab’ (13.50%). A large majority of urban residents (74.83%) lives in households with ‘flush

toilet' facilities. In rural areas, about half of the population lives in households with either 'flush toilet' or 'pit latrine with slab' facilities.

Sanitation facilities can be grouped into two different categories: 1) improved sanitation, and 2) unimproved sanitation. Flush toilet, ventilated improved pit latrine, pit latrine (with slab), and composting toilet are classified as 'improved sanitation', while 'unimproved sanitation' includes sanitation facilities such as flush to somewhere else, pit latrine (without slab), no facility (use open spaces), and 'others'.

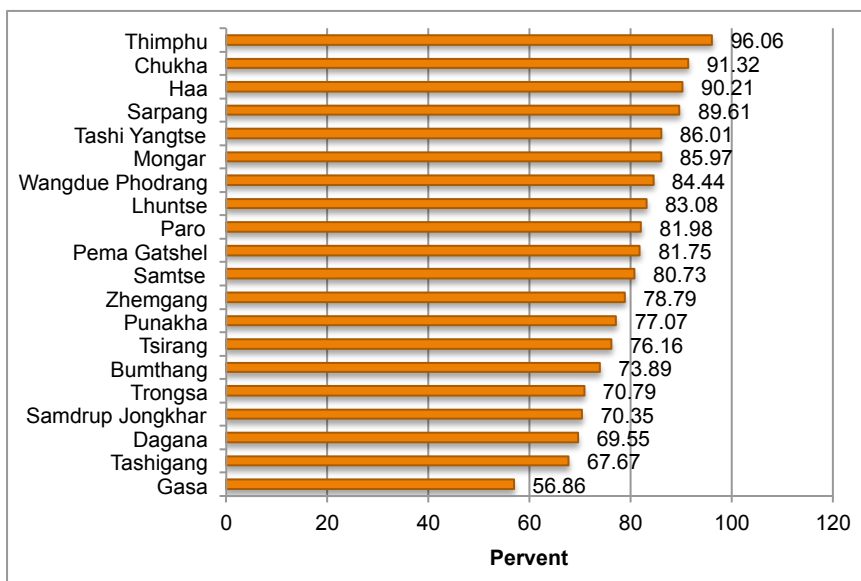
Nationally, about 83 percent of population lives in households with improved sanitation facilities. By area of residence, about 97 percent of urban population and 77 percent of rural population live in households with improved sanitation facilities.

Over 90 percent of population residing in Thimphu (96.06%), Chukha (91.32%), and Haa (90.21%) have access to improved sanitation, while a relatively low proportion of people living in Gasa (56.86%) have access to improved sanitation (Figure 99).

Table 109: *Distribution of population by sanitation facilities, by area of residence (%)*

	Rural	Urban	Bhutan
Flush toilet	27.63	74.83	42.57
Ventilated improved pit latrine	14.77	13.89	14.49
Pit latrine (with slab)	22.67	7.10	17.74
A composting toilet	11.72	0.71	8.23
Improved sanitation	76.79	96.53	83.03
Flush to somewhere else	2.31	1.56	2.07
Pit latrine (without slab)	18.93	1.77	13.50
No facility (Use open spaces)	1.90	0.14	1.34
Others	0.08	0.00	0.05
Unimproved sanitation	23.22	3.47	16.96

Figure 99: Proportion of population with access to improved sanitation, by Dzongkhag (%)



3.9.5. Asset ownerships

The ownership and control of different forms of assets by individuals or households are very critical to livelihood of people depending on the geographic location and climatic conditions. For instance, in a harsh climatic condition like in the alpine regions of Bhutan where proper agriculture is not possible or very unproductive, livestock like yaks are the only means of livelihood. Therefore, information on ownership of different assets such as land, livestock, machinery and household equipment were collected to assess the livelihood condition of the people.

3.9.5.1. Land holding

Land is a very important asset, and more so for a country like Bhutan where a large majority of the population lives off land. The land ownership in Bhutan is registered under five³⁸ different categories based on the type of usage. They are *Kamzhing* (or dry land), *Chuzhing* (or

³⁸ Two additional categories called *Tsamdro* (or grazing land) and *Sokshing* (or forested land for leaf litter collection) was nationalised recently.

wet land), *Ngueltho Dumra* (or orchards), *Tshoesa* (or vegetable garden), and *Khimsa* (housing plots). Legally, a household³⁹ cannot own more than 2500 decimals (25 acres) of land, and cannot sell it off if the ownership in terms of acreage falls below 500 decimal (5 acres).

The average land holding is 286 decimals (2.86 acres). The average land holding is comparatively higher in rural areas (353 decimals) compared with urban areas (125 decimals).

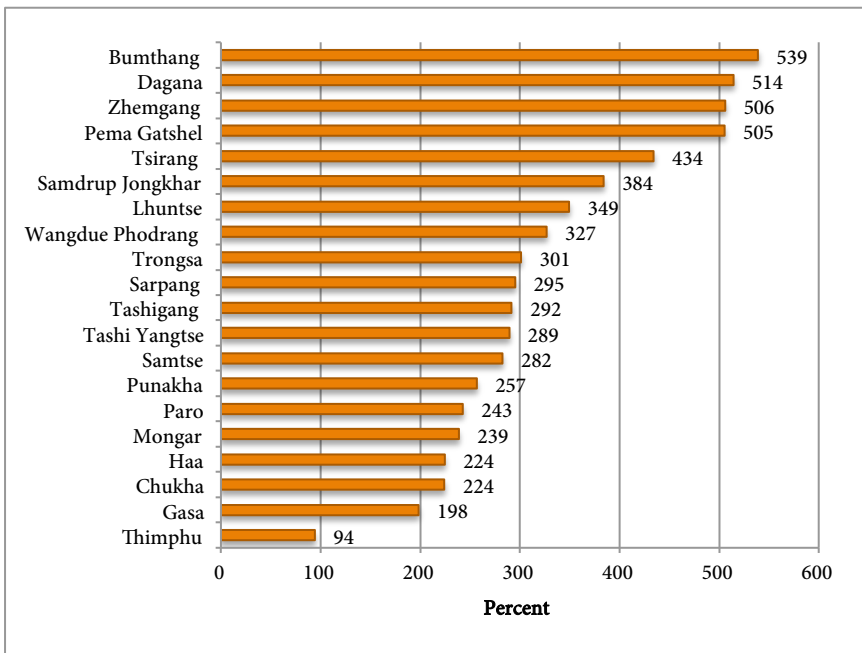
Table 110: Average land holding by area of residence

	Mean land holding (in decimals)	sd	N
Rural	353	340	4,534
Urban	125	256	1,591
Bhutan	286	335	6,125

Among the Dzongkhags, people residing in Bumthang have the highest average land holdings (539 decimals) followed by Dagana (514 decimals), Zhemgang (506 decimals), and Pema Gatshel (505 decimals). At just 94 decimals, residents of Thimphu Dzongkhag have the lowest average land holding among 20 Dzongkhags (Fig. 100).

³⁹ A household (or *Gung*) is a *de jure* household consisting of members having civil registration together irrespective of their current residence. The term household used in this report is *de facto* household.

Figure 100: Average land holding (in decimals), by Dzongkhag

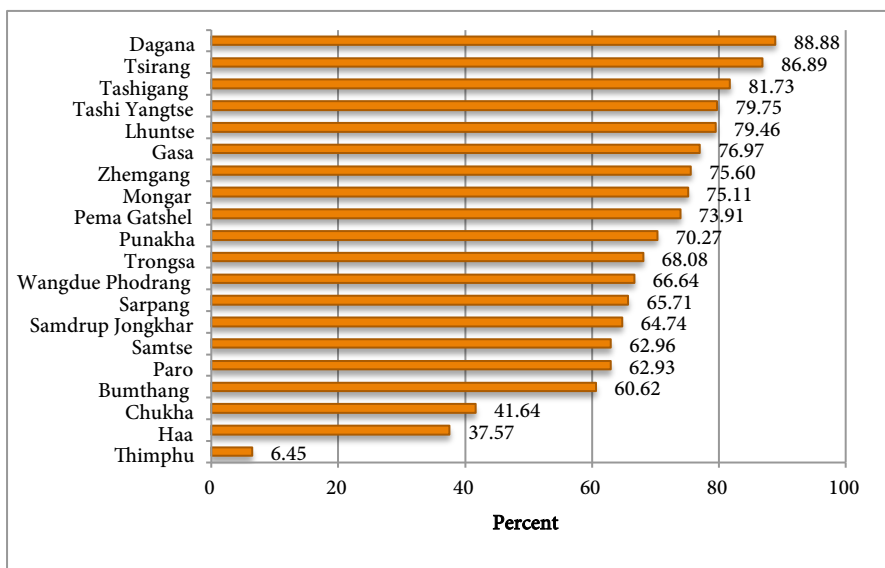


3.9.5.2. Livestock

Information on the ownership of 11 different species of livestock was collected. These 11 livestock species are 1) Yak/Zow/Zom, 2) Cow, 3) Bull, 4) Goat, 5) Sheep, 6) Horse, 7) Donkey, 8) Mule, 9) Chicken, 10) Pig, and 11) Buffalo. About 58 percent of the population lives in households that own one of the 11 livestock species. As expected, a substantially higher proportion of people in rural areas (79.91%) lives in households that own livestock species compared with urban counterparts (9.35%).

Among Dzongkhags, the proportion of population living in households that own one of the 11 livestock species is comparatively higher in Dagana and Tsirang and very low in Thimphu (Fig. 101).

Figure 101: Proportion of population living in households that own livestock species, by Dzongkhag (%)



Among livestock species, cow seems to be the most commonly owned livestock which is owned by 51.87 percent of households followed by bull (35.98%), and chicken (30.82%). Buffalo, donkey, and yak/zow/zom are the most rarely owned livestock species (Table 111).

Table 111: Mean livestock species ownership (No.) and proportion of population owning them (%)

	Mean	sd	N	% of population owning
Yak/Zow/Zom	64.4	53.1	111	1.55%
Cow	4.5	5.4	3710	51.87%
Bull	2.4	1.8	2573	35.98%
Goat	4.4	3.8	728	10.18%
Sheep	7.6	14.3	119	1.66%
Horse	2.4	2.3	640	8.95%
Donkey	2.6	2.7	29	0.41%
Mule	3.3	4.5	157	2.20%
Chicken	12.2	48.3	2204	30.82%
Pig	2.2	5.5	402	5.62%
Buffalo	3.6	3.3	16	0.22%

3.9.5.3. Ownership of other assets and household equipment

The survey has collected information on the ownership of about 26 major household assets, or durable goods. The most commonly owned equipment is the mobile phone (97.7%) followed by television sets (74.7%), *choesham*⁴⁰ (65.0%), and refrigerator (53.8%).

Although a very significant proportion of Bhutanese still depends on agriculture for living, equipment related to agriculture such as tractors, power tillers, power threshers, rice/maize mill sets, oil mill sets, and power reapers are owned by a very low proportion of households. These agriculture related equipment are owned by only 0.1-4.1 percent of the households. Since agriculture is mostly a rural phenomenon, the ownership of such equipment is found mostly in the rural areas.

The information on the ownership of information and communication technology related appliances such as mobile phones, fixed line telephones, computers or laptops, iPads, television sets, and radio were also collected. Almost every household seems to own a mobile phone. About one-fifth of the households also reported owning personal computers or laptops. The proportion of households owning personal computers or laptops is much higher in urban areas (28.5%) compared with rural areas (14%).

A television set is owned by almost three-fourth of the households. A significantly higher proportion of households in urban areas own television sets (96.4%) compared with rural households (64.6%). Radio is found in 30.9 percent of the total households. The ownership of radio is much higher among rural households (35%) than urban households (21%).

Almost a quarter of the total households (23.1%) own a family car. The proportion of family car ownership is much higher among the urban households (43.9%) than the rural households (13.5%).

⁴⁰ A specially designed multistoried altar with intricate designs, which usually houses statues and other sacred objects, where ritual offerings such as water or butter lamp are made.

Table 112: Proportion of population owning different household equipment (%)

Equipment	% of population owning
Tractor	0.7
Power tiller	3.1
Power thresher	0.5
Paddle thresher	0.8
Rice/maize mill set	4.1
Oil mill set	0.2
Power reaper	0.1
Mobile telephone	97.7
Fixed line telephone	5.6
Personal computer/Laptop	19.7
iPad	3.1
Camera	12.6
Sewing machine	4.1
Refrigerator	53.8
Washing machine	17.5
Radio or transistor	30.9
Television	74.7
VCR/VCD/DVD	24.0
Family car	23.1
Other vehicles (trucks, buses, DCMs, etc.)	3.1
Two-wheel vehicles	3.6
Compound bow	6.6
Power chain saw	10.3
<i>Choesham</i>	65.0
Sofa set	40.1
Others	9.3

PART 4: INTERLINKAGES ACROSS INDICATORS

This section presents cross analysis between different variables of interest to see the relationship between selected variables. Interlinkages across variables are important in the Sustainable Development Goals. Policies that address interconnected variables together can be more effective. A clearer understanding of interlinkages also supports high impact policy sequencing.

4.1. Environmental responsibility and household income

Household income seems to exert a significant effect on one's sense of responsibility towards conservation of the natural environment. There is a significant difference in the level of sense of responsibility towards conserving the natural environment between different income quintile groups, $\chi^2(12, 7,120)=66.98, p<0.001$. Most notably, the proportion of people who reported that they are 'highly responsible' for conserving the natural environment increases as one moves from poor to richer household groups [Figure 102].

Figure 102: *Sense of responsibility towards environmental conservation, by income quintiles*

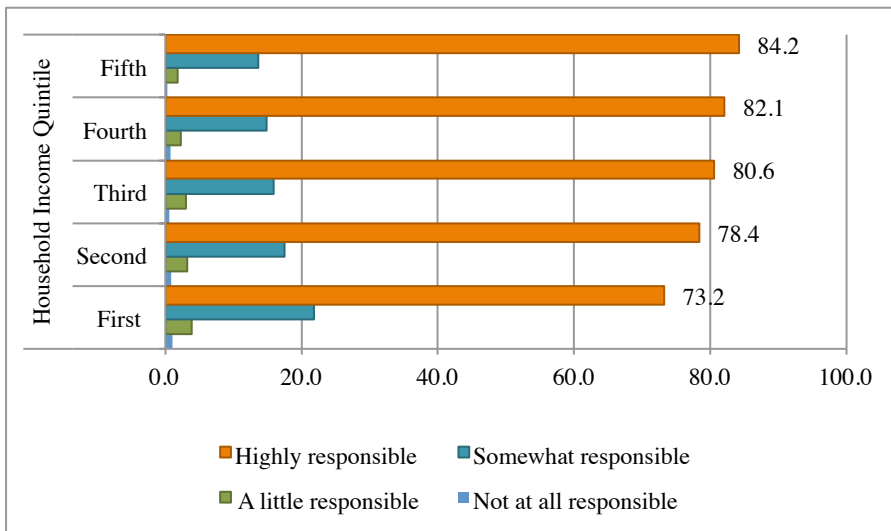


Table 113: *Sense of responsibility towards the environmental conservation, by income quintiles*

	Household Income Quintile					Total
	First	Second	Third	Fourth	Fifth	
Not at all responsible	1.1	0.9	0.6	0.8	0.3	0.7
A little responsible	3.9	3.2	3.0	2.3	1.8	2.8
Somewhat responsible	21.8	17.5	15.9	14.9	13.7	16.8
Highly responsible	73.2	78.4	80.6	82.1	84.2	79.7

4.2. Environmental responsibility and years of schooling

Years of schooling has significant impact on a person's sense of responsibility towards conservation of the natural environment, $F(3, 7149)=17.19$, $p<0.001$. Further, Scheffe multiple-comparison test revealed that the mean years of schooling of those who rated their sense of responsibility as 'highly responsible' ($M=3.85$, $SD=5.03$) was significantly higher than those who rated 'a little responsible' ($M=2.42$, $SD=4.32$) and 'somewhat responsible' ($M=2.93$, $SD=4.62$). No significant difference in years of schooling was found between the other groups.

4.3. Self-reported health status and income quintile

Health status of the respondents is significantly different across the different income quintiles as indicated by the results of Pearson's chi-square test of independence, $\chi^2(16, 7120)=93.896$, $p<0.001$. The proportion of persons who reported their current health status as 'very good' and 'excellent' increases as one moves from lower to higher income groups of the population. The opposite is true in case of persons who rated their health as either 'poor' or 'fair'. The results indicate a positive relationship between health status and household income.

Table 114: *Self-reported health status, by income quintiles*

Health Status	Income Quintile					Bhutan
	First	Second	Third	Fourth	Fifth	
Poor	1.7	1.0	1.1	1.0	0.8	1.1
Fair	13.3	10.5	8.2	8.1	6.6	9.3
Good	41.4	39.2	40.6	36.0	35.3	38.5
Very good	33.4	37.2	37.1	40.6	42.0	38.1
Excellent	10.2	12.2	13.1	14.3	15.3	13.0

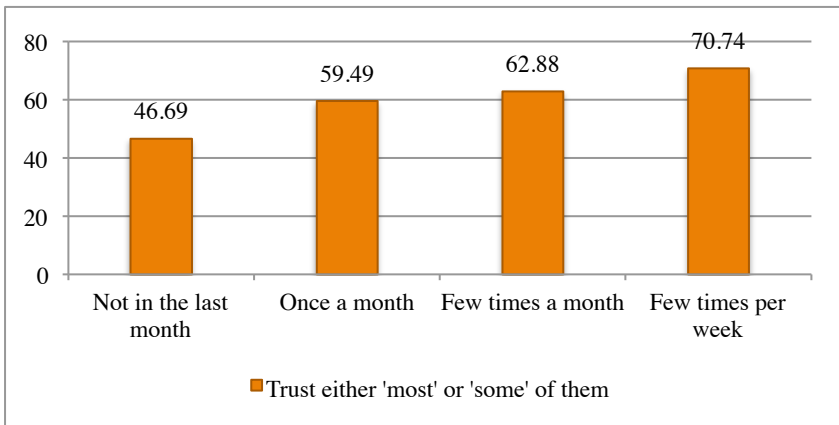
4.4. Sense of belonging and sense of trust

There is a statistically significant relationship between sense of belonging and sense of trust towards their neighbours, $\chi^2(12, 7151)=694.80$, $p<0.001$. The proportion of people who reported 'very strong' sense of belonging to the local community is higher among those who can trust a higher number of their neighbours.

4.5. Sense of trust and frequency of socialisation

Chi-square test of association has showed a statistically significant relationship between the sense of trust and the frequency of socialisation with the neighbours [$\chi^2(16, 7152)=438.693$, $p<0.001$]. Specifically, the proportion of people who reported that they can trust either 'most' or 'some' of their neighbours is significantly higher as the frequency of socialisation with the neighbour increases (Figure 103).

Figure 103: Frequency of socialisation among those who reported trust 'most' or trust 'some'



4.6. Fuel use and self-reported health status

Fuel use seems to have a significant impact on health status. This was indicated by the results of a chi-square test of association, $\chi^2(8)=19.596$, $p=0.012$. A slightly more than half of people who use electricity as a primary source of energy for cooking (52.8%) has reported their health as either 'excellent' or 'very good' as compared to exactly half of the people who use LPG and 46.9 percent of those who use fuel wood for cooking.

Table 115: Self-reported health status, by fuel use

Health Status	Mostly used fuel for cooking			Total
	Wood	LPG	Electricity	
Poor	1.4	1.0	1.1	1.1
Fair	10.8	10.0	8.6	9.4
Good	40.9	39.0	37.5	38.6
Very good	35.5	36.6	39.5	38.0
Excellent	11.4	13.4	13.3	12.9
Total	100	100	100	100

4.7. Migration and Volunteerism

The number of days volunteered in the past 12 months preceding the survey is statistically significantly more among the non-migrant respondents ($M=15.7$, $SD=24.67$) as compared to the migrant respondents ($M=11.9$, $SD=23.35$), $t(7147)=6.75$, $p<0.001$.

4.8. Sense of Belonging and Length of Stay

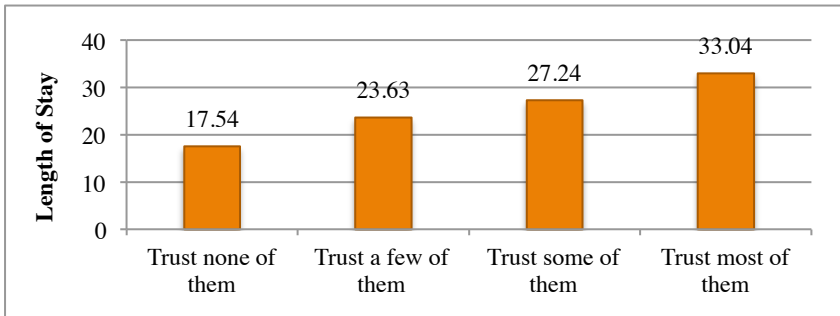
A one-way ANOVA showed a significant influence of length of stay on the sense of belonging to the local community, $F(2, 7123)=286.32$, $p<0.001$. By using post hoc Scheffe mean-comparison test, it was found that the length of stay of the people who have reported their sense of belonging as 'somewhat strong' ($M=20.04$, $SD=18.51$) is significantly higher than those who reported 'weak' sense of belonging ($M=12.47$, $SD=14.49$). Likewise, the mean length of stay of those who reported 'very strong' sense of belonging ($M=31.10$, $SD=20.74$) is significantly higher than those who reported 'weak' and 'somewhat strong' sense of belonging. This indicates that the higher the length of stay, the stronger the sense of belonging to the local community.

4.9. Sense of trust and length of stay

The length of stay also has a significant impact on the sense of trust towards the neighbours, $F(3, 7141)=102.8$, $p<0.001$. Scheffe mean-comparison test showed that the average length of stay of the people who reported that they 'trust a few of them' ($M=23.63$, $SD=19.93$) is higher as compared to those who 'trust none of them' ($M=17.53$, $SD=17.22$); average length of stay of those who 'trust some of them' ($M=27.24$, $SD=20.38$) is higher than those who 'trust none of them' and 'trust a few of them'; and the length of stay of those who 'trust most of them' ($M=33.04$, $SD=21.07$) is significantly higher than those who 'trust

none of them', 'trust a few of them', and 'trust some of them'. Therefore, it can be concluded that the longer the length of stay, the stronger the sense of trust towards the neighbours in the locality.

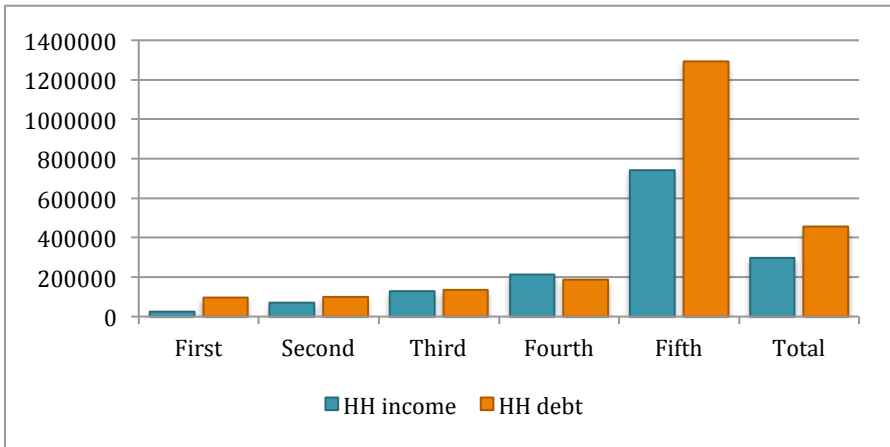
Figure 104: *Length of stay in the community by trust towards neighbours*



4.10. Household debt and income quintile

There is a statistically significant difference in the mean household debt between different household income quintile groups as indicated by one-way between subjects ANOVA, $F(4, 2458)=7.01$, $p<0.001$. However, Scheffe test revealed that significant differences in the mean household debt were only found between the mean household debt of the richest 20 percent ($M=1,294,714$, $SD=9,229,681$) and those falling under the first ($M=97,186$, $SD=164,722$), second ($M=99,064$, $SD=171,058$), third ($M=134,228$, $SD=201,718$), and the fourth quintile groups ($M=187,970$, $SD=329,876$). There isn't any significant difference in the mean household debt across other income quintile groups.

Figure 105: Household income and household debt, by quintile group



4.11. Household income quintile and house rent

A one-way between subjects ANOVA showed a statistically significant difference in the mean house rent across the household income quintiles at 5 percent level of significance, $F(4, 1506)=42.95$, $p<0.001$. Further analysis using Scheffe test, however, showed no significant difference in the mean house rent between first, second, third, and fourth income quintiles. It was only found that the mean house rent paid by the richest 20 percent of the respondents ($M=6,500$, $SD=5,668$) is significantly higher than the mean house rent paid by the first ($M=4,000$, $SD=3,540$), second ($M=3,589$, $SD=4,361$), third ($M=3,044$, $SD=2,749$), and fourth income quintiles ($M=3,785$, $SD=3,258$).

4.12. Self-reported health and suicide intention

There is a statistically significant relationship between self-reported health status and suicide intention as indicated by results of Chi-square test of independence, $\chi^2(4, 7,153)=28.54$, $p<0.001$. The proportion of persons who thought of committing suicide is significantly higher among those who reported their health status as 'fair', and lower among those who rated 'very good' and 'excellent' health conditions. Hence, poor health condition seem to have a considerable impact on suicidal ideation.

Figure 106: Self-reported health status and suicidal intention



4.13. Time Use Pattern during weekdays and weekends

There is no statistically significant difference in time spent on work and non-work activities between a weekday and a weekend (Figure 127). This is also confirmed by the fact that about 63 percent of the population, despite being on weekends, have described the dairy day as normal {Table 116). But, the sleep time is slightly longer at the weekends as compared to weekdays, $t(7,148) = 1.946$, $p = 0.05$.

As expected, time use pattern for majority of the respondents, who are farmers, does not have any statistically significant difference between a weekday and a weekend. No significant difference in time use pattern on weekdays and weekends is also found among the traders, shopkeepers, or businessmen, school students, trainees, or university students, and homemakers (housewives or husbands). As government offices are closed on Saturdays and Sundays, time spent on work by the civil servants is significantly lower during weekends whereas the time spent on non-work activities is much longer. These differences are statistically significant at one percent significance level, $t(365) = -4.64$, $p < 0.01$, and $t(365) = 4.29$, $p < 0.01$, respectively. But the sleep time among civil servant between a weekday and a weekend is not statistically significant.

Figure 107: Mean time spent on work, non-work, and sleep, between a weekday and a weekend

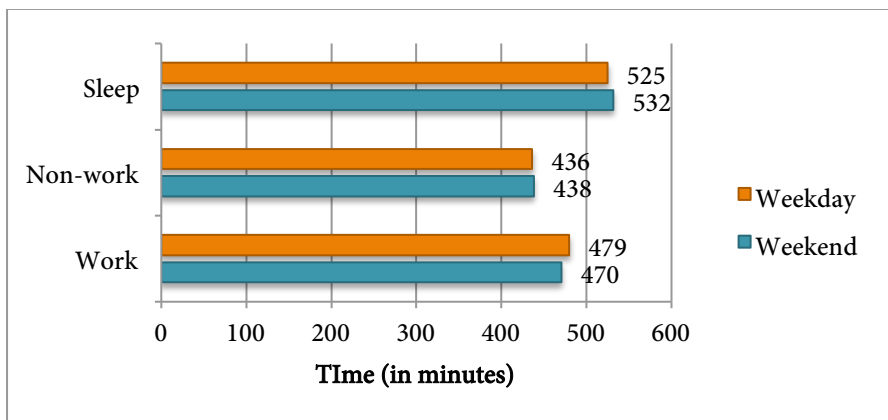


Table 116: Time use pattern between a weekday and a weekend, by major occupation

	Work	Non-work	Sleep
Farmers			
Weekend	508	397	536
Weekday	498	410	533
Trader/shopkeeper/businessman			
Weekend	572	360	508
Weekday	592	351	497
School students/trainees/university students			
Weekend	387	494	559
Weekday	379	508	553
Civil servant			
Weekend	401	513	526
Weekday	505	433	502
Homemaker			
Weekend	461	448	530
Weekday	449	462	529

Table 117: Type of day, weekdays and weekends

Type of day	Week-end	Week-day	Total
A usual day	62.98	67.72	66.28
It was a holiday (e.g. public holiday, weekends, day off)	9.91	4.98	6.48
I was sick or injured	1.66	1.65	1.65

Type of day	Week- end	Week- day	Total
I was on leave from work	0.97	0.76	0.83
I took time off from normal activities to do extra work paid/unpaid	7.84	6.22	6.71
I took time off from normal activities to arrange personal/family matters	2.26	3.07	2.83
I took time off for a special leisure/educational/religious/community/family activity (e.g. sports event, course, conference, festival, wedding, etc.)	0.51	0.84	0.74
I took time off to care for children during school holiday (not weekend)	7.93	8.97	8.66
Cared for children during school holiday (not weekend)	0.05	0.08	0.07
Other	5.9	5.7	5.76
Total	100	100	100

PART 5: SUBJECTIVE HAPPINESS

5.1. Subjective happiness in the 2015 GNH Survey

While the GNH Survey includes, and this section analyses, the data on subjective wellbeing, it is noteworthy that the GNH Index does not include subjective happiness, as the concept of GNH in Bhutan is far wider than the concept of subjective happiness – for example GNH includes consideration of others and of the environment. In fact, the people who are extensively and deeply happy by GNH may not have the highest subjective scores. The mismatch is very large, and this fact alone should spur significant research and reflection on the value-added of multidimensional measures of wellbeing such as the GNH Index. With the aim of furthering that research, and perhaps of widening an exclusive focus on subjective happiness, we analyse the relevant questions extensively in this section.

In the GNH survey, respondents were asked to rate their level of subjective happiness using a set of standard questions. Subjective happiness questions include:

- ① Current subjective happiness;
- ② Subjective happiness level experienced during the day preceding the survey;
- ③ Desired level of subjective happiness;
- ④ Expected change in subjective happiness level in future;
- ⑤ Perceived subjective happiness level experienced by household members; and
- ⑥ The source of happiness

The level of different types of subjective happiness reported by people is presented in the following paragraphs. After this, we consider the changes in current subjective happiness 2010-2015, and in closing we show how other indicators are associated with subjective happiness.

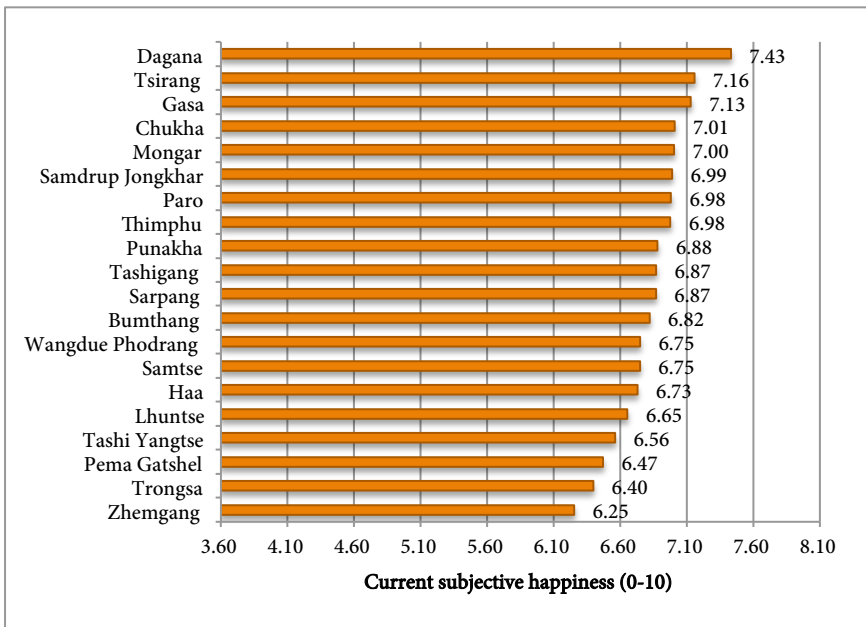
5.1.1. Current subjective happiness

In order to assess the level of current subjective happiness, respondents were asked the question: *Taking all things together, how happy would you say you are?* The responses were collected using an 11-point response scale that runs from 0 (not at all happy) to 10 (very happy).

The mean current subjective happiness score in 2015 was 6.88 ($SD = 1.70$).

An independent-samples t -test was conducted to compare the level of current subjective happiness score between males and females. The results indicated a statistically significant difference in mean scores of current subjective happiness between males ($M = 6.92$, $SD = 1.73$) and females ($M = 6.80$, $SD = 1.69$); $t(7147) = 2.79$, $p < .01$. Similarly, by area of residence, urban residents ($M = 7.07$, $SD = 1.68$) reported slightly higher current subjective happiness than their rural counterparts ($M = 6.76$, $SD = 1.71$) and the difference is statistically significant, $t(1750) = -6.96$, $p < .001$. Among Dzongkhags, people residing in Dagana, Tsirang, and Gasa Dzongkhags reported higher average current subjective happiness compared to others Dzongkhags (Fig. 108).

Figure 108: Mean current subjective happiness, by Dzongkhag



Subjective happiness across life cycles is U-shaped (Fig. 110). However, by gender, the results are quite different. Sex difference in subjective happiness has an evident trend (Fig. 111). Unlike males, the subjective happiness level of females constantly decreases as age increases.

Table 118: Results of t-test and descriptive statistics for subjective happiness and life satisfaction, by gender

	Gender						95% CI for			df
	Male			Female			Mean			
	M	SD	N	M	SD	N	Difference	t		
Current subjective happiness	6.92	1.73	2966	6.80	6.75	4183	0.03, 0.19		2.79**	7147
Subjective happiness experienced yesterday	7.27	2.00	2964	7.19	1.96	4183	-0.01, 0.17		1.69	7145
Desired subjective happiness	8.64	1.63	2965	8.75	1.57	4182	-0.19, -0.04		-2.93**	7145
Expected future subjective happiness	1.85	1.98	2965	1.66	1.93	4181	0.09, 0.28		3.96***	7144
Satisfaction with life as a whole	7.00	1.68	2965	6.71	1.68	4182	0.21, 0.37		7.10***	7145

Note: * significance at $p < .05$; ** significance at $p < .01$; *** significance at $p < .001$.

Table 119: Results of t-test and descriptive statistics for subjective happiness and life satisfaction, by area of residence

	Area of residence						95% CI for			df
	Rural			Urban			Mean			
	M	SD	N	M	SD	N	Difference	t		
Current subjective happiness	6.76	1.71	5126	7.07	1.68	2026	-0.40, -0.22		-6.96***	7150
Subjective happiness experienced yesterday	7.18	1.98	5126	7.32	1.97	2024	-0.25, -0.04		-2.78**	7148
Desired subjective happiness	8.64	1.63	5125	8.87	1.51	2025	-0.31, -0.15		-5.47***	7148
Expected future subjective happiness	1.69	1.99	5125	1.86	1.87	2024	-0.26, -0.06		-3.20**	7147
Satisfaction with life as a whole	6.78	1.68	5124	6.97	1.70	2026	-0.29, -0.11		-4.49***	7148

Note: * significance at $p < .05$; ** significance at $p < .01$; *** significance at $p < .001$.

Figure 109: *Subjective happiness, by Dzongkhags*

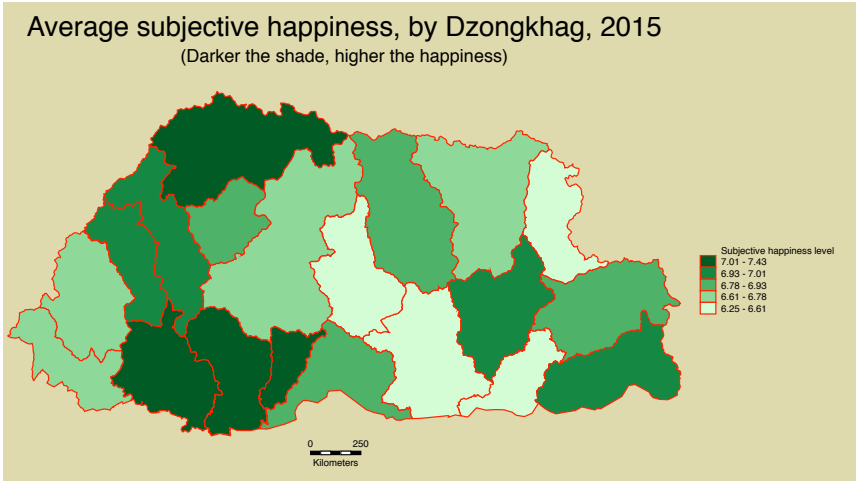


Figure 110: *Subjective happiness across life cycle*

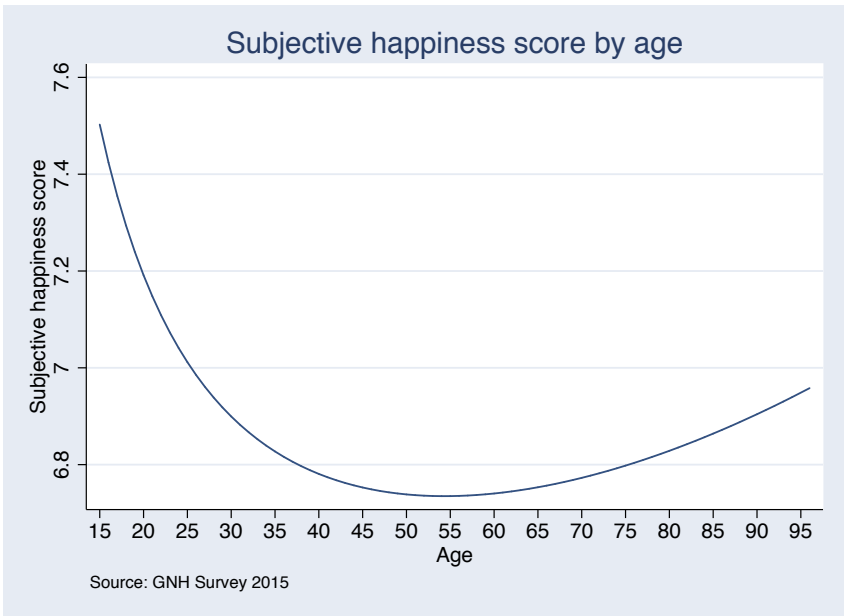


Figure 111: Subjective happiness across life cycle, by gender

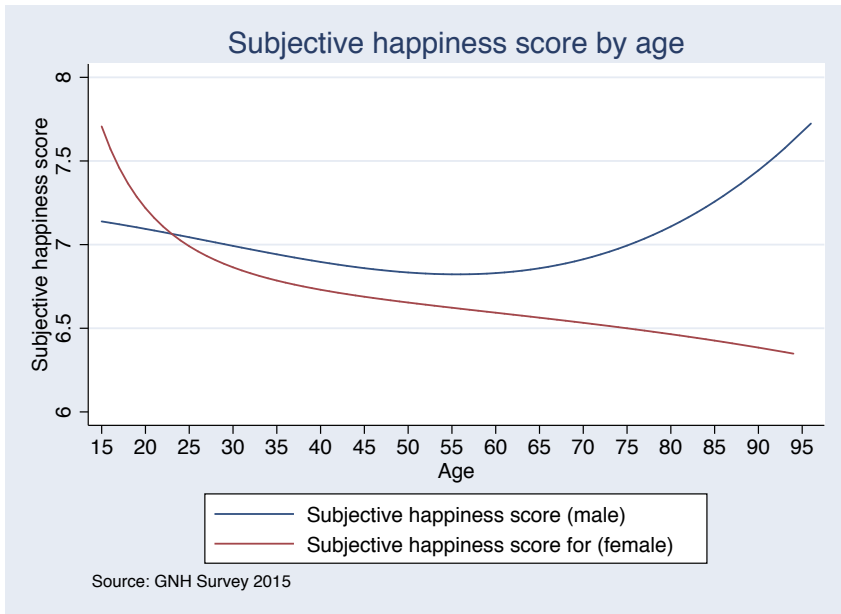
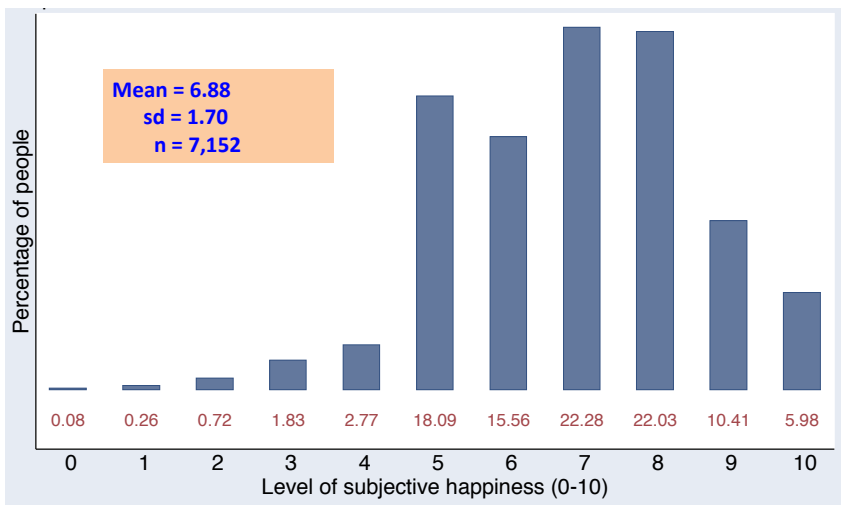


Figure 112: Distribution of population by current subjective happiness level



The distribution of people by subjective happiness level was found to be of three different types: normally distributed, skewed, or double/twin-

peaked (OECD, 2012). The subjective happiness distribution along the 11-point happiness scale is “double-peak” or “twin-peak” in Bhutan. As shown in Fig. 112, the distribution peaked at 5th and at 7th and 8th point on the 11-point response scale. The distribution trend is similar to those observed by studies conducted in Japan (Cabinet Office of Japan, 2011).

5.1.2. Subjective happiness experienced yesterday

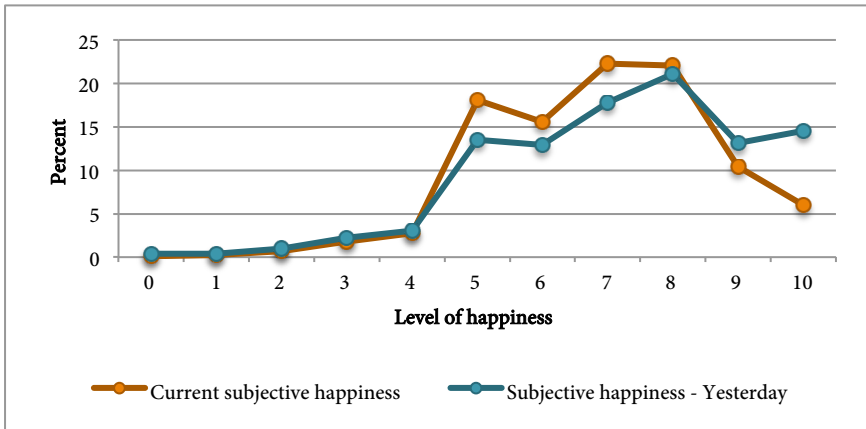
Besides assessing current level of subjective happiness, the survey also assessed the level of subjective happiness experienced during the day preceding the survey, desired subjective happiness level and expected future subjective happiness.

The question: *How happy did you feel yesterday?* was asked to assess the level of subjective happiness experienced during the day preceding the survey. The average subjective happiness experienced during the day preceding the survey is 7.23 ($SD = 1.97$). The subjective happiness level experienced during the day preceding the survey is slightly higher (by 0.35 points) than the current level of subjective happiness.

By gender, males ($M = 7.27$, $SD = 2.00$) reported slightly higher subjective happiness experienced during the day preceding the survey than females ($M = 7.19$, $SD = 1.96$). However, the mean difference is not statistically significant at a 95 percent confidence level; $t(7145) = 1.68$, $p = 0.09$. Similarly, by areas of residence, people residing in urban areas ($M = 7.32$, $SD = 1.97$) reported slightly, but statistically significantly, higher subjective happiness experienced during the day preceding the survey than their rural counterparts ($M = 7.18$, $SD = 1.98$); $t(7148) = -2.78$, $p < .01$. Among Dzongkhags, those residing in Tsirang ($M = 7.85$), Paro ($M = 7.67$), and Gasa ($M = 7.62$) reported higher subjective happiness experienced during the day preceding the survey than those in other Dzongkhags.

Like current subjective happiness, the distribution of the subjective happiness experienced during the day preceding the survey is “double-peak/twin-peak” (Fig. 113). However, the second peaks at 8-point as against 7-point observed in the case of current subjective happiness. This distribution is similar to the current subjective happiness distribution observed in Japan (Cabinet Office of Japan, 2011).

Figure 113: Distribution of population by current subjective happiness and subjective happiness experienced yesterday



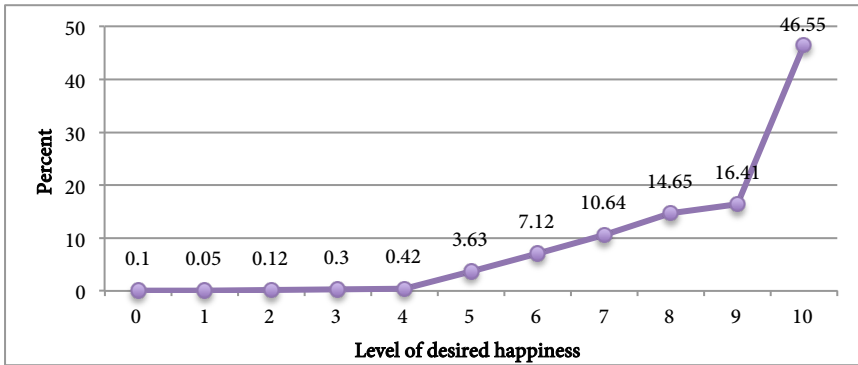
5.1.3. Desired happiness

Similarly, respondents were also asked to rate their desired level of subjective happiness on 0-10 scale, 0 indicating not at all happy while 10 indicating very happy. In 2015, the mean desired happiness level is 8.69 ($SD = 1.60$).

Contrary to what was observed in the case of current subjective happiness and subjective happiness experienced 'yesterday', females ($M = 8.75$, $SD = 1.57$) reported slightly higher desired subjective happiness than males ($M = 8.64$, $SD = 1.63$) and the mean difference is statistically significant (Table 29). By areas of residence, people residing in urban areas ($M = 8.87$, $SD = 1.51$) reported slightly higher desired subjective happiness than those residing in rural areas ($M = 8.64$, $SD = 1.63$) and the mean difference is once again statistically significant (Table 119). Among Dzongkhags, those residing in Haa ($M = 9.48$), Trongsa ($M = 9.43$), and Gasa ($M = 9.34$) reported higher desired subjective happiness than residents of other Dzongkhags.

Unlike the distribution trend observed for the current happiness and the happiness experienced 'yesterday', the distribution of desired happiness is left-skewed or negatively skewed as shown in Fig. 114.

Figure 114: *Distribution of population by level of ‘desired happiness’*



5.1.4. Expected change in the level of subjective happiness

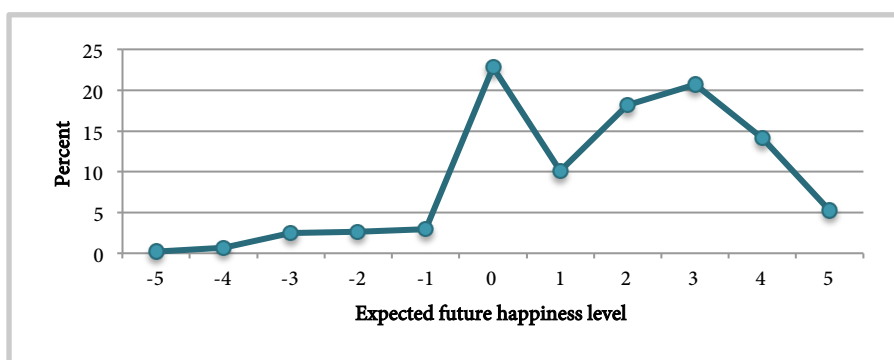
Respondents were also asked to assess expected change in the level of subjective happiness within five years on a -5 to +5 scale where -5 to -1 indicates that their happiness would be lower than their current happiness, 0 indicates their happiness would be equal to their current happiness, and +1 to +5 indicates their happiness would be more than their current happiness. The mean expected future happiness is 1.72, which indicates that overall, Bhutanese expects their subjective happiness to increase in about five years time by about 1.72 points.

The expected change in the level of subjective happiness among males ($M = 1.85$, $SD = 1.98$) is slightly higher than females ($M = 1.66$, $SD = 1.93$), and the mean difference is statistically significant (Table 29). By area of residence, people residing in urban areas ($M = 1.86$, $SD = 1.87$) expect greater positive change in their level of subjective happiness than their rural counterparts ($M = 1.69$, $SD = 1.99$), and the mean difference is statistically significant (Table 30). Among Dzongkhags, compared to the rest of the Dzongkhags, those residing in Dagana ($M = 2.80$), Tsirang ($M = 2.44$), and Sarpang ($M = 2.33$) Dzongkhags reported a higher mean expected change in the level of subjective happiness.

The distribution is once again “double-peak” or “twin-peak”. The distribution peaks at 0-point and at 3-point on a scale ranging between minus five to plus five scale.

The result also shows that over 91 percent of people reported that the level of their subjective happiness would either stay the same as now or increase (score between 0-5) in Fig. 115. Interestingly, more than 68 percent of people expect their subjective happiness to increase within five years. Only about nine percent of the remaining population reported that the level of their subjective happiness would decrease from the current level (score between -5 to -1) in Fig. 115.

Figure 115: *Distribution of population by expected future happiness level*



5.1.5. Difference in current and desired subjective happiness

The difference in the level of current subjective happiness and desired level of happiness is assessed in order to find the gap between the two. At the national level, the gap between desired and current levels of subjective happiness is 1.81. The gap between desired and current levels of happiness in Bhutan is three times more than what was found in Japan (Economic and Social Research Institute, 2012).

As shown in Table 120 below, about 27 percent of Bhutanese reported that their current level of subjective happiness is greater than or equal to their 'desired' level of happiness. However, a majority of Bhutanese (73.23%) reported that their current level of subjective happiness is lower than their 'desired' level of happiness.

Table 120: *Distribution of people by current level of subjective happiness compared against the level of desired happiness*

	Frequency	Percent
Current subjective happiness is greater than desired happiness	668	9.34
Current subjective happiness is equal to desired happiness	1,246	17.43
Current subjective happiness is lower than desired happiness	5,235	73.23
Total	7,149	100

People were also asked to report their expected level of subjective happiness, which they think they would experience, within about five years. Although, about 73 percent of people reported that their current level of subjective happiness is lower than their ‘desired’ level of happiness, it is quite encouraging to see that majority (68.24%) of people reported that they expect their subjective happiness level to increase within five years’ time. It is more encouraging to find out that about 68.85 percent of those whose current level of happiness is lower than their ‘desired’ level of subjective happiness expect their happiness to increase within five years’ time (Table 121).

Table 121: *Distribution of population by the expected change in level of happiness within five years from now*

	Decrease	Stay same	Increase	Total
Current subjective happiness is greater than desired happiness	9.08	25.36	65.56	100
Current subjective happiness is equal to desired happiness	7.01	25.97	67.01	100
Current subjective happiness is lower than desired happiness	9.38	21.77	68.85	100
Total	8.94	22.84	68.22	100

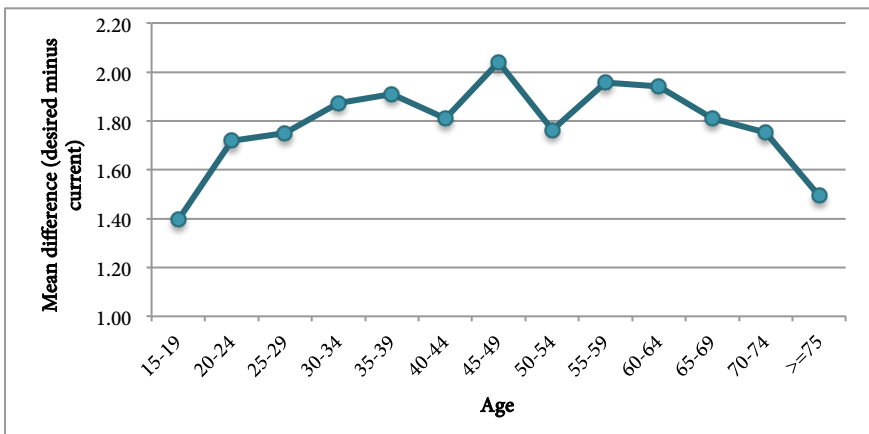
The gap between desired and current subjective happiness constantly reduces with the increase in formal educational qualification. The mean difference in the level of desired and current subjective happiness is the widest for those with no or little formal education (Table 122) and the gap is the closest for those with a postgraduate degree.

Table 122: Mean difference (desired minus current level of subjective happiness) in subjective happiness, by education level

Mean difference (desired minus current level of subjective happiness)	
No formal education	1.97
Primary education	1.77
LS education (VI)	1.71
MS education (X)	1.63
HS education (till degree 2nd yr.)/Diploma	1.44
Bachelors Degree	1.23
Post Graduate	1.14
Total	1.81

By age, the gap between desired and current level of subjective happiness is inverse U-shaped. The gap between desired and current subjective happiness is comparatively smaller amongst younger and older people as compared to the people in middle age groups (Fig. 116). This indicates that people in the middle age categories desire comparatively greater happiness than what they currently enjoy as compared to the younger and older population groups.

Figure 116: Mean difference (desired minus current level of subjective happiness) in subjective happiness, by age

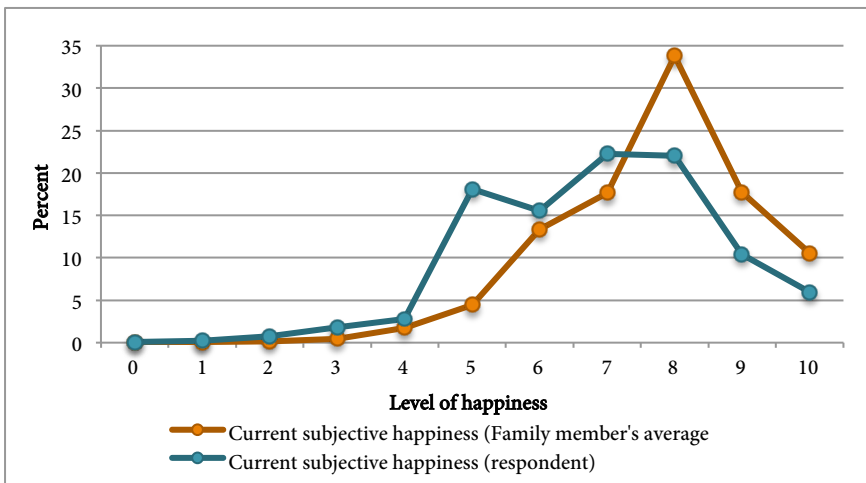


5.1.6. Current subjective happiness of other family members

In addition to the respondent's own current subjective happiness, they were also asked to rate the current subjective happiness that they think each of their other household members experience on a 0-10 scale. The subjective happiness levels of other family members were averaged out to form a single number. A mean of the average family members' (excluding respondent's own) current subjective happiness level is 7.69 ($SD=1.43$). This shows that the respondent's current subjective happiness level is lower by 0.81 points compared to their other household members' average current subjective happiness level.

The distribution trend of current subjective happiness of respondents themselves and those of other family members too is different (Fig. 117). As against twin-peak distribution trend for respondents, the distribution trend for other family members is negatively skewed.

Figure 117: *Distribution of population by level of current subjective happiness*



5.2. Changes in current subjective happiness 2010-2015

The question on subjective happiness was asked with precisely the same wording and response structure in 2010 and 2015, making strict comparisons possible.

An independent-samples t-test was conducted to compare the difference in the level of current subjective happiness score between 2010 and 2015 surveys. There is a small, but statistically significant, difference in the mean current subjective happiness level between 2010 ($M = 6.06$, $SD = 1.60$) and 2015 ($M = 6.88$, $SD = 1.70$); $t(14,279) = -28.78$, $p < .001$.

The mean current subjective happiness among Dzongkhags also underwent changes (Fig. 118). Although all 20 Dzongkhags recorded an increase in current subjective happiness in 2015 compared to 2010, the rate of increase differs. While Dzongkhags such as Dagana (25.2%), Samdrup Jongkhar (22.5%), and Mongar (20.8%) registered over 20 percent increases in the current subjective happiness in 2015 compared to 2010, Dzongkhags like Haa (3.6%), Zhemgang (5.8%), and Trongsa (6.4%) only managed less than seven percent increases in current subjective happiness.

The current subjective happiness distribution in 2010 was normally distributed, peaking at the 5th point. The shift in the peak of distribution of the current subjective happiness to a higher point also once again indicates an increase in the level of current subjective happiness experienced by Bhutanese in 2015.

The distribution of the people across the 0-10 current subjective happiness level has changed statistically significantly in 2015 compared to 2010, $\chi^2(10)=1000$, $p < 0.001$ (Fig. 119). While the proportion of people who reported a rating from 2-6 has dropped, there has been a significant rise in the proportion of people who rated their current subjective happiness level from 7-10.

Figure 118: Mean current subjective happiness, by Dzongkhag, 2010 and 2015

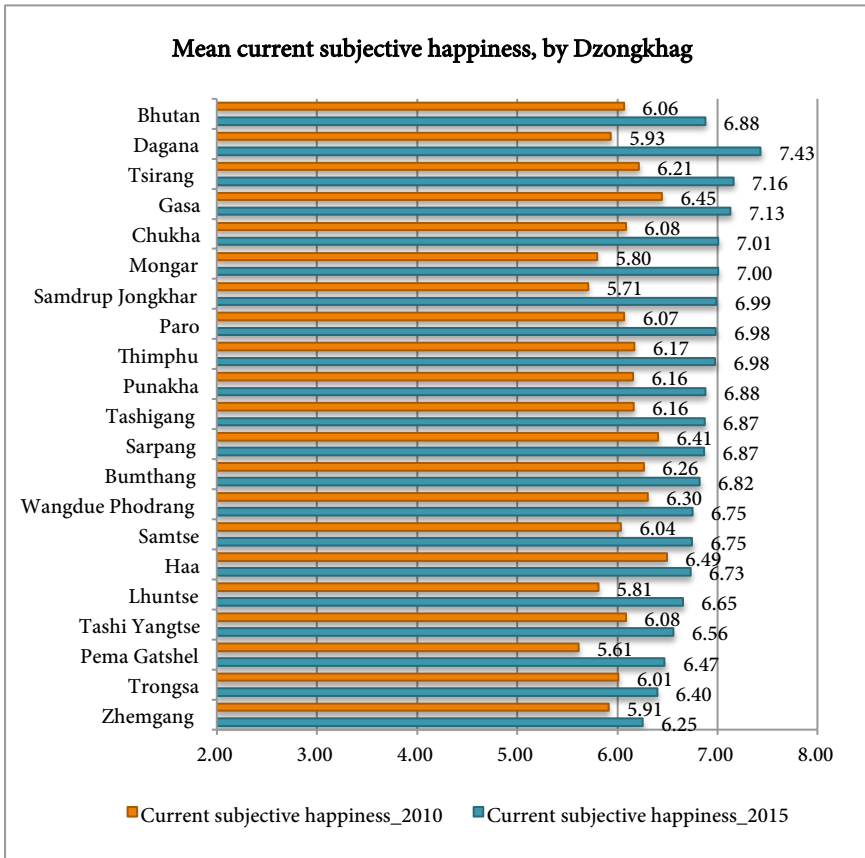
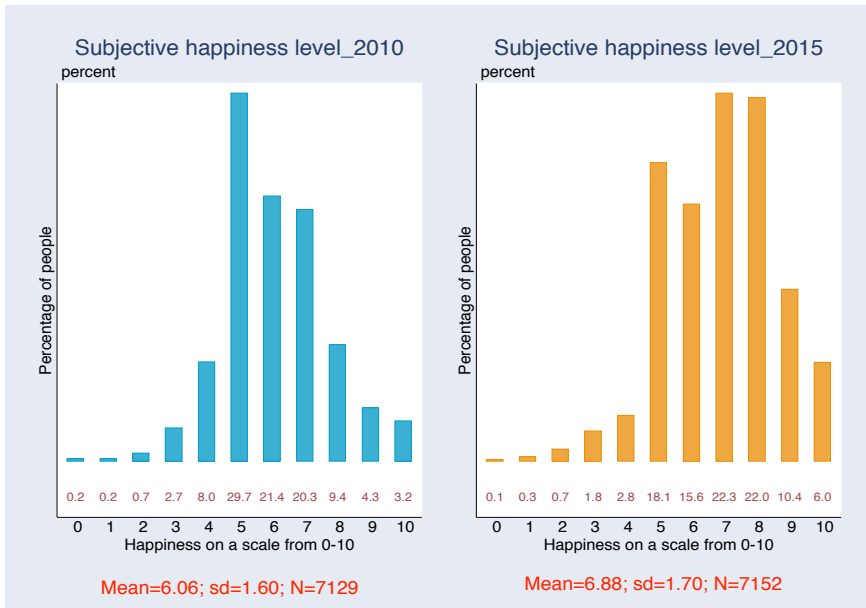


Figure 119: *Distribution of current subjective happiness, 2010 and 2015*



The mean current subjective happiness level among females increased by a slightly higher margin (increased by 0.88 points) than males (which increased by 0.73 points). The mean current subjective happiness among males in 2010 was 6.19 ($SD = 1.65$) and in 2015 it is 6.92 ($SD = 1.73$), and the difference is statistically significant; $t(6,385) = -17.07$, $p < .001$. Similarly, among females, the mean current subjective happiness in 2010 was 5.92 ($SD = 1.54$) and in 2015 it is 6.80 ($SD = 1.67$), and the difference, once again, is statistically significant; $t(7,881) = -24.11$, $p < .001$. Yet, the mean current subjective happiness continues to be statistically significantly higher for males (6.93) compared to the females (6.84); $t(7,147) = 2.79$, $p = 0.005$.

The mean current subjective happiness has increased by a higher margin in rural areas (0.79 points) as compared to urban areas (0.74 points), but it is statistically significantly higher for urban compared to rural people for both years. The mean current subjective happiness in 2010 for urban residents was 6.33 ($SD = 1.59$) and for rural residents was 5.97 ($SD = 1.59$); $t(7,127) = -7.80$, $p < 0.001$. In 2015, mean current

subjective happiness for urban residents is 7.07 ($SD = 1.68$) and for rural residents is 6.76 ($SD = 1.71$), $t(7150) = -6.97$, $p < .001$.

Figure 120: Mean current subjective happiness, by gender, 2010 and 2015

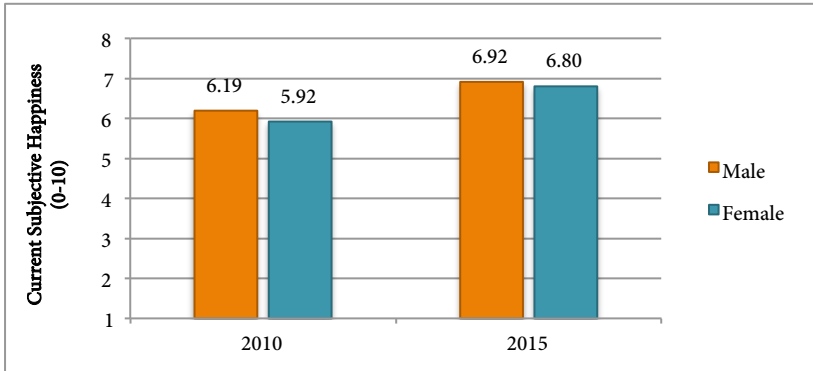
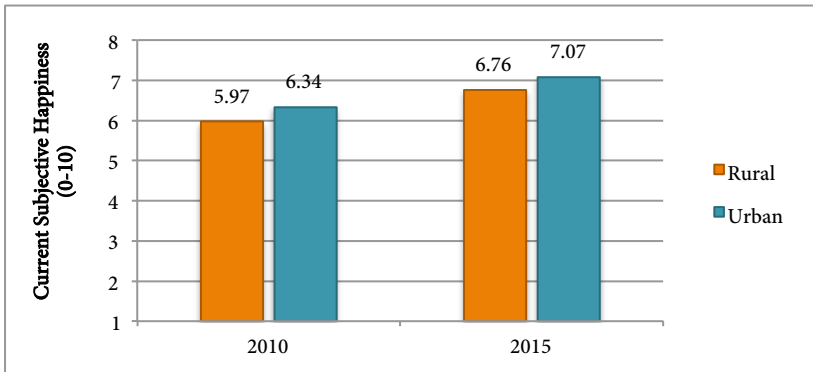


Figure 121: Mean current subjective happiness, by area of residence, 2010 and 2015



5.3. Relationships to other indicators

5.3.1. Subjective happiness experienced yesterday and the reference day (previous day of the interview)

A one-way between subjects ANOVA was conducted to compare the effect of the day on the subjective happiness level experienced yesterday (measured on a 0-10 scale). The results showed that there is no

significant effect of the day on subjective happiness level experienced yesterday at a 95% significance level, $F(6, 7145)=1.17, p = 0.32$.

5.3.2. Current subjective happiness and mental health status

There is a significant difference in subjective happiness level between persons falling under different mental health categories, $F(2, 7042)=126.22, p<0.001$. There are three ordinal categories of mental health, namely, normal mental health, some distress, and severe psychological distress. Post hoc comparisons using a Scheffe multiple-comparison test indicated that the mean subjective happiness of persons experiencing 'normal mental wellbeing' ($M=6.98, SD=1.64$) is significantly higher than those experiencing 'severe distress' ($M=5.88, SD=2.13$) and 'some distress' ($M=5.98, SD=1.84$). There is no significant difference in the mean subjective happiness score between persons having 'some distress' and 'severe psychological distress'.

Figure 122: Current subjective happiness, by mental health status

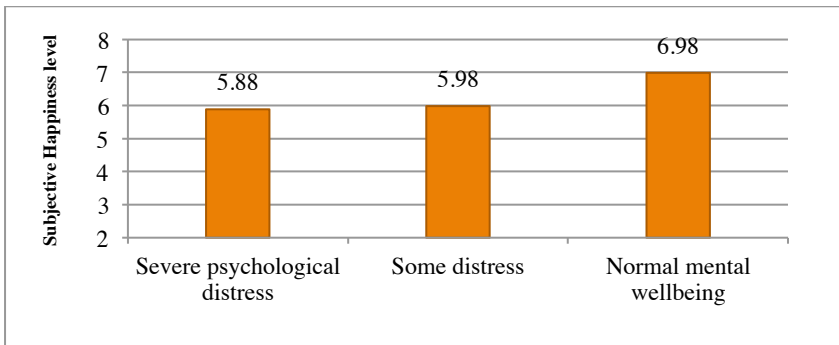
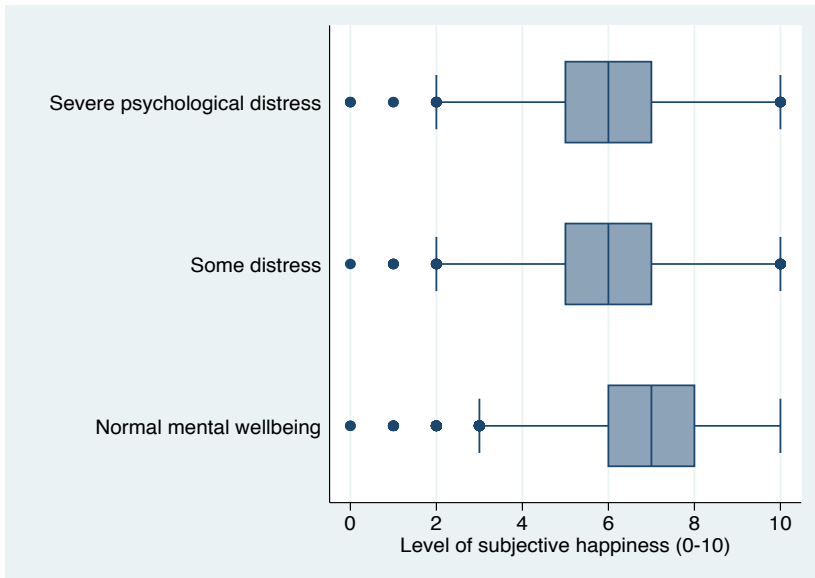


Figure 123: *Current subjective happiness, by mental health status*



5.3.3. Current subjective happiness and social support

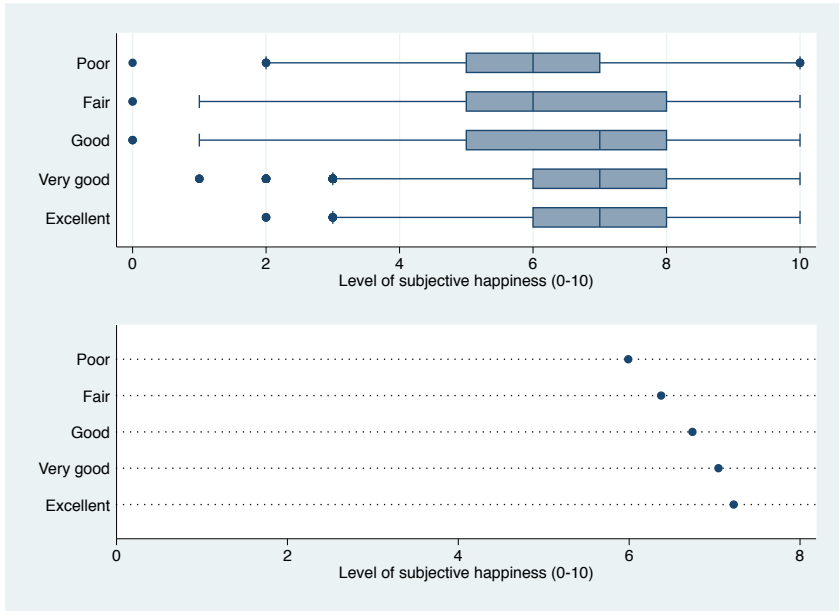
Pearson's product-moment correlation showed a very weak positive correlation between subjective happiness level and the number of people very close to them during times of sickness, financial problems, emotional problems, and important personal events, $r(7150)=0.064$, $p<0.001$.

5.3.4. Current subjective happiness and self-reported health status

Current subjective happiness level has a significant relationship with self-reported health status [$F(4, 7147)=39.71$, $p < .001$]. Post hoc Scheffe tests reveal that the mean score of current subjective happiness level for persons reporting 'good' health ($M = 6.74$, $SD = 1.73$) is significantly higher than for those who reported 'poor' ($M = 5.98$, $SD = 2.01$) and 'fair' ($M = 6.37$, $SD = 1.80$) health; the mean score for those who reported 'very good' health ($M = 7.05$, $SD = 1.60$) is significantly higher than for those who reported 'poor', 'fair', and 'good' health; and the mean score for those who reported 'excellent' ($M = 7.22$, $SD = 1.64$) health is significantly higher than for those who reported 'poor', 'fair',

and 'good' health conditions. No statistically significant difference was found between those who reported 'fair' and 'poor' health or between those who reported 'excellent' and 'very good' health.

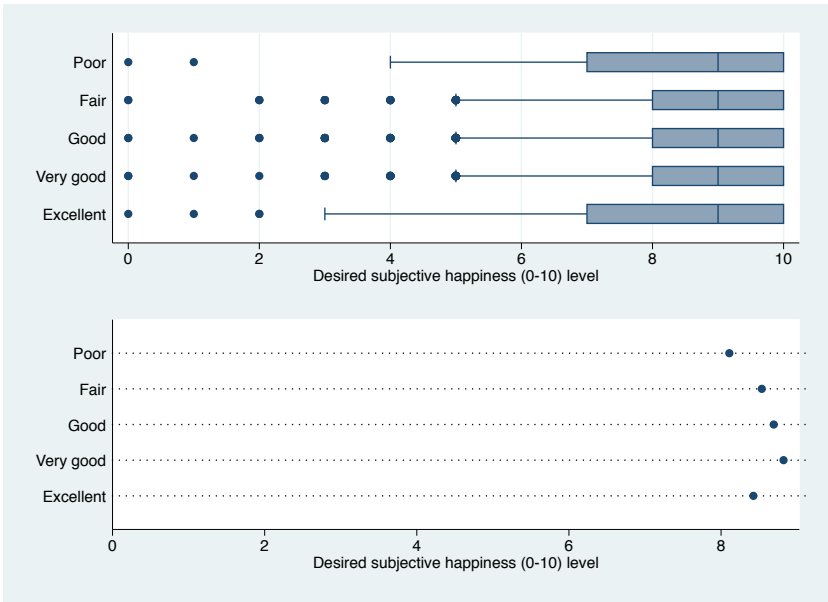
Figure 124: *Current subjective happiness, by self-rated health status*



5.3.5. Desired subjective happiness and health

A one-way between subjects ANOVA confirms a significant relationship between desired subjective happiness and self-reported health status, $F(4, 7145)=15.24$, $p<0.001$. To find out where significant differences lie, a Scheffe multiple-comparison test was conducted. Results showed that the mean desired happiness of persons who rated their health condition as 'very good' ($M = 8.82$, $SD = 1.49$) is significantly higher than of those who rated 'poor' ($M = 8.11$, $SD = 2.17$) or 'fair' ($M = 8.54$, $SD = 1.79$) health conditions. Persons who rated their health as 'excellent' ($M = 8.43$, $SD = 1.71$) were found to have rated their desired happiness level significantly lower than those who rated 'good' ($M = 8.69$, $SD = 1.57$) and 'very good' health conditions at a 5 percent significance level. No significant differences in the mean desired happiness between other groups was found.

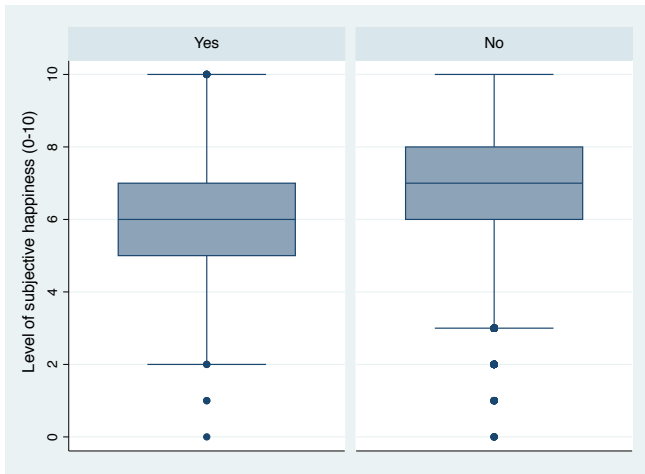
Figure 125: *Desired subjective happiness, by self-rated health status*



5.3.6. Current subjective happiness and suicide intention

An independent-samples t-test was run to determine if there were differences in mean subjective happiness levels based on whether a person has or has not ever seriously thought of committing suicide in their life. The results showed that persons who never thought of committing suicide had statistically significantly higher subjective happiness ($M = 6.89$, $SD = 1.69$) than those who had thought of committing suicide ($M = 6.01$, $SD = 1.80$), $t(7150) = -9.187$, $p < .001$.

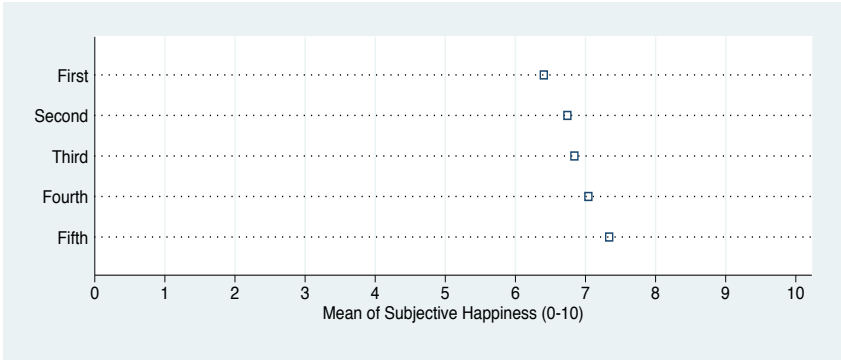
Figure 126: *Current subjective happiness, by suicidal ideation*



5.3.7.. Current subjective happiness level and income quintile

Results of a one-way ANOVA indicated that there is a statistically significant relationship between annual household income quintile and overall subjective happiness level, $F(4, 7114)=62.58$, $p<0.001$. The mean subjective happiness of persons in the second income quintile ($M=6.74$, $SD=1.69$) is statistically significantly higher than that of the poorest 20 percent ($M=6.41$, $SD=1.74$); that of those in the third income quintile ($M=6.84$, $SD=1.68$) is higher than that of those in the first income quintile; that of those in the fourth income quintile ($M=7.04$, $SD=1.65$) is higher than that of those in the first, second and third income quintile, and that of the richest 20 percent ($M=7.33$, $SD=1.61$) is higher than that of those in the first, second, third, and fourth income quintile.

Figure 127: *Mean current subjective happiness, by income quintiles*



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Appendix 1: Statistical Tables

Table A1.1: Satisfaction with different aspects of life (% of people who rated either 'Satisfied' or 'Very satisfied') by Dzongkhag

Dzongkhag	Satisfaction with health	Satisfaction with standard of living	Satisfaction with major occupation	Satisfaction with immediate family members	Satisfaction with relation with members	Satisfaction with work-life balance
Bumthang	83.77	89.6	86.32		95.38	86.21
Chukha	82.76	83.15	75.1		93.54	77.09
Dagana	80.12	84.1	83.48		92.6	82.04
Gasa	88.22	90.43	91.23		98.41	79.63
Haa	85.89	89.78	91.96		97.43	92.62
Lhuntse	71.14	84.14	87.39		95.29	87.78
Mongar	84.31	86.65	86.01		95.49	76.4
Paro	83.97	91.41	87.97		97.71	87.69
Pema Gatshel	73.28	80.57	85.08		95.15	83.1
Punakha	78.22	89.24	86.04		94.4	85.98
Samdrup Jongkhar	75.02	85.96	86.83		95.88	82.88
Samtse	79.09	78.02	77.32		93.64	82.28
Sarpang	77.33	84.76	86.22		95.32	83.95
Thimphu	83.63	89.23	83.83		97.23	86.51
Tashigang	82.11	86.52	88.97		94.81	84.21
Tashi Yangtse	80.57	79.15	76.3		92.4	74.38
Trongsa	70.46	78.01	83.72		93.76	86.74
Tsirang	84.19	89.22	86.55		98.31	88.88
Wangdue Phodrang	81.04	87.77	89.24		95.34	90.36
Zhemgang	70.31	76.24	86.27		96.34	83.75
Bhutan	80.45	85.27	83.9		95.3	83.62

Table A1.2: Projected population 15 years and over, sampled population and response rate by Dzongkhag and area of residence, 2015

Dzongkhag	Projected Pop. >=15 years	Sampled			Respondents			Response rate		
		Rural sample size	Urban sample size	Total sample size	Rural	Urban	Total	Rural	Urban	Total
Bumthang	12,775	228	72	300	185	55	240	81.1%	76.4%	80.0%
Chukha	59,453	480	447	927	413	292	705	86.0%	65.3%	76.1%
Dagana	18,407	263	37	300	194	23	217	73.8%	62.2%	72.3%
Gasa	2,482	169	31	200	106	25	131	62.7%	80.6%	65.5%
Haa	9,123	224	76	300	206	64	270	92.0%	84.2%	90.0%
Lhuntse	11,922	273	27	300	232	20	252	85.0%	74.1%	84.0%
Mongar	29,696	384	79	463	335	56	391	87.2%	70.9%	84.4%
Paro	29,029	406	46	452	314	35	349	77.3%	76.1%	77.2%
Pema Gatshel	17,079	262	38	300	215	33	248	82.1%	86.8%	82.7%
Punakha	18,706	246	54	300	186	48	234	75.6%	88.9%	78.0%
Samdrup Jongkhari	27,323	306	120	426	234	64	298	76.5%	53.3%	70.0%
Samtse	47,555	609	132	741	519	73	592	85.2%	55.3%	79.9%
Sarpang	30,456	334	141	475	299	107	406	89.5%	75.9%	85.5%
Thimphu	77,239	175	1,028	1,203	126	865	991	72.0%	84.1%	82.4%
Tashigang	37,968	522	70	592	404	39	443	77.4%	55.7%	74.8%
Tashi Yangtse	14,043	256	44	300	227	35	262	88.7%	79.5%	87.3%
Trongsa	10,748	251	49	300	230	39	269	91.6%	79.6%	89.7%
Tsirang	14,703	276	24	300	274	23	297	99.3%	95.8%	99.0%
Wangdue Phodrang	25,155	286	106	392	209	99	308	73.1%	93.4%	78.6%
Zhemgang	14,528	257	43	300	219	31	250	85.2%	72.1%	83.3%
Total	508,390	6,207	2,664	8,871	5,127	2,026	7,153	82.6%	76.1%	80.6%

Table A1.3: Classification of GNH time use activities

2 digit code	Major group	4 digit code	Sub-group	Definition
01	Work and employment			Working time in main job Short breaks and interruptions from work Training and studies in relation to first job or employment
		0101	Working time in first job	
		0102	Working time in second, third and other jobs	Working time in other jobs (eg., contractual works, part-time teachings, etc.)
		0103	Internships/apprenticeships	Working time as apprentice, intern and related positions (both paid and for free)
		0104	Seeking employment and related activities	Seeking employment and related activities such as attending selection interviews
		0105	Other breaks	Unspecified idle time before/after work Unspecified lunch break from work and other breaks
		0106	Own business	Tending to own business like shops, construction businesses, travel businesses, trade, supply, catering services, etc.
		0107	Religious related activities	Lama, <i>Choep</i> , Pastor, Imam, Pandit, Priest or other persons who perform such activities as their occupation/work. Do not include it under religious activity.
		0109	<i>Travel related to work and employment</i>	<i>Travel to/from work</i>
02	Primary production activities			Land preparation such as clearing, digging, ploughing, etc. Collecting and preparing manure, carrying and applying manure Sowing, planting and weeding Field, orchard, kitchen garden upkeep (do not include flower gardening) Harvesting and threshings Post-harvest activities like sorting, storing, drying, and transporting from
		0201	Agriculture related activities	

2 digit code	Major group	4 digit code	Sub-group	Definition
				fields
		0202	Crop guarding	Guarding crops from wild animals including physical guarding and installing scarecrows, setting traps, etc.
		0209	<i>Travel related to agriculture</i>	<i>Travel to fields. However carrying grains from field in the evening should not be included under "Travel related to agriculture" but should be under "Agriculture related activities"</i>
				Preparation of feed, feeding, grazing, etc. Grooming, shoeing, cleaning (animals) and veterinary care Dung-gathering, washing shed and coop cleaning Work related to breeding and hatching Milking Collecting, storing and grading of eggs Shearing, producing hides and skins Putting up tents/makeshifts for herders Moving animals from one pasture to another
		0219	<i>Travel related to livestock</i>	<i>Taking cows to grazing should be included under "Livestock related activities", while coming back after dropping animals in grazing field should be considered as "Livestock related travels"</i>
		0221	Forestry related activities	Gathering forest products such as wood, bamboo, cane, leaf litter, fodder, etc. Gathering wild fruits, berries or other uncultivated crops and other edibles Woodcutting/sawing and gathering firewood, timber, etc.
		0229	<i>Travel related to forestry</i>	<i>Travelling to forest to fetch firewood should be included under "Travel related to forestry" while coming back with a load of firewood should be included under "Forestry related activities"</i>
		0231	Fishery and related activities	Catching fish and gathering other aquatic forms such as sponges, algae, etc.

2 digit code	Major group	4 digit code	Sub-group	Definition
				Fish/aquatic farming such as breeding, rearing, cleaning ponds and feeding Repair and maintenance of fishing boats and equipment
		0239	<i>Travel related to fishing</i>	<i>Going to riverbank should be recorded as "Travel related to fishing" while coming back with aquatic products should be recorded as "Fishery and related activities"</i>
		0241	Mining and quarrying	Mining/extraction of lime/salt Drilling well, boring holes, etc. Quarrying of stone slabs, crushing and breaking of stones Digging out clay, gravel and sand Transporting, storing and stocking (Do not include the work done for paid employment)
		0249	<i>Travel related to mining and quarrying</i>	<i>Going to riverbank should be recorded as "Travel related to mining and quarrying" while coming back with a load of sand should be recorded as "Mining and quarrying"</i>
03	Non-primary production activities			Production, processing and preserving of meat and meat products Making dairy products such as churning milk, extracting butter and cheese, producing <i>chugus</i> , etc. Processing and preserving of fish and fish products such as <i>Nya-do-tshem</i> (smoked fish) Processing and preserving of fruits and vegetables Processing grains like pounding, husking, grinding, milling, etc. Baking bread, cakes, rice cakes (<i>maekhus</i>), pastries, biscuits (<i>khabyezs</i>) Making noodles (dried <i>puta</i>), pasta and similar products Roasting seeds, zaws, nuts, etc.
		0301	Processing of food products	
		0302	Production of beverages	Brewing beverages such as <i>aara</i> , <i>bangchang</i> , <i>singchang</i> , <i>tongba</i> , <i>changkay</i> , etc.

2 digit code	Major group	4 digit code	Sub-group	Definition
		0303	Weaving and related activities	Spinning, weaving, dyeing, knitting, preparation of yarns and threads, etc.
		0304	Tailoring and related activities	Producing articles from textile Making apparel
		0305	Wood crafts and carpentry works	Making wood products including furniture, fixtures or furnishings, <i>dapa</i> , <i>phob</i> , etc.
		0306	Bamboo and cane related works	Making mats, baskets, <i>bangchungs</i> , etc.
		0307	Craft-making using all other types of materials	Painting <i>thangka/debri</i> Making statues and other ornaments Fabricating utensils, cutlery, hand tools and other metal products Pottery, making ovens and cooking stoves, ornaments etc., from clay, plaster or cement Making paper and paper products, paper crafts Making bricks, concrete slabs, hollow blocks, tiles, etc.
04	Work for household in construction activities	0309	<i>Travel related to non-primary production</i>	<i>Travel related to non-primary production</i>
		0401	Construction and repair for own capital formation	Building of own house Major home improvements and repairs Building and repair of animal and poultry sheds/shelter, business place, field walls/fences, storage facilities for farm produce, irrigation, etc.
		0409	<i>Travel related to construction activities of households</i>	<i>Travel related to construction activities of households</i>
05	Informal work for household income	0501	Selling food, beverage and other goods	Selling/delivering food and beverage preparations Selling vegetables, other farm produce and homemade items Door-to-door vending (eg., selling <i>momo</i> , <i>doma</i> , etc.), street vending, hawking and other itinerant trading at occasions/functions/archery

2 digit code	Major group	4 digit code	Sub-group	Definition
				matches, etc.
				Fitting, installing, maintaining and repairing tools and machineries
				Repair of personal/household goods
		0502	Providing repair, installation, maintenance, transport and other professional services for pay/fees	Drafting letters, applications, <i>zhutshi</i> , etc. for fees (not done through established firms like legal consultancy firms)
				Tutoring school children for fee/payments
				Transporting goods and passengers (part-time taxi driving after office hours, porter services, etc.)
		0509	<i>Travel related to providing informal works</i>	<i>Travel related to providing informal works</i>
		0601	Cooking	Cooking meals, preparing tea, etc. for household consumption
		0602	Dish washing	Clearing and cleaning dishes
		0603	Fetching water	Fetching water for household consumption
				Indoor/outdoor cleaning and disposal of garbage
				Care of outdoor garden (flower garden), landscaping, trimming yard/lawn maintenance
		0604	Cleaning and upkeep of dwelling and surroundings, decoration, maintenance and small repairs	Making various household arrangements (folding of clothes after laundry should be included under "Laundry and related works")
				Minor maintenance and repair of dwellings, installation, servicing and repair of personal and household goods
				Washing and servicing vehicles and other household machineries
		0605	Laundry and related works	Manual or machine washing including loading/unloading washing machine, drying, collecting and folding after washing
				Ironing/pressing, sorting, folding, storing, etc. of clothes after washing
		0606	Pet care	Daily care including feeding, cleaning, grooming, walking, and taking pets
06	Household maintenance and management			

2 digit code	Major group	4 digit code	Sub-group	Definition
				for veterinary care
		0607	Shopping of goods and related activities	Shopping of consumer goods for household consumption and not for immediate resale
		0608	Availing of commercial and administrative services	Shopping of durable/capital goods for household consumption and not for immediate resale Availing repair and maintenance services (taking cars to workshops) Availing administrative services (getting forestry permits, admission for children, etc.) Availing medical and health-care services (not for oneself) Paying household bills (utilities bills like electricity and water)
		0609	<i>Travel related to household maintenance and management</i>	<i>Travel related to household maintenance and management</i>
		0701	Caring for children/physical care	General childcare Putting children to bed Getting children ready for school Giving personal care to children Giving medical/health-care to children Minding children (passive care)
		0702	Teaching, training, helping children	Teaching children Reading, playing and talking with children
		0703	Accompanying children to places	Accompanying children to receive personal services Accompanying children to receive medical/health services Accompanying children to school, day-care centres Accompanying children to sports, lessons, etc. Taking children on excursions, museum visits and similar outings; coordinating or facilitating children's social or non-school activities
07	Providing unpaid caregiving services to household members			

2 digit code	Major group	4 digit code	Sub-group	Definition
08	Providing community services and help to other households	0704	Caring for adults/physical care (Old, sick and disabled)	Giving personal care to adults Giving medical/health-care to adults Caring for adults/emotional support
		0705	Accompanying adults to places	Accompanying adults to receive personal services Accompanying adults to receive medical/health services Accompanying adults for shopping Accompanying adults to social activities Accompanying adults to cultural, sports, entertainment venues and spiritual sites
		0709	<i>Travel related to unpaid caregiving services to household members</i>	<i>Travel related to unpaid caregiving services to household members</i>
		0801	Unpaid help to other institutions/households/individuals	Preparing and serving meals as help to other households Household management as help to other households Shopping for/purchasing of goods and services as help Construction, renovation and repairs of dwellings and other structures as help
				Repairs of consumer and household goods as help Unpaid help in business/farm and employment as help Childcare as help Adult care as help Taking care of neighbour/friend's domestic animal Transportation assistance Drafting letters, applications, <i>zhutshi</i> , etc., for free
		0802	Community-organized services	Community organized work such as helping for collective celebrations including religious functions (<i>mangi rimdro</i>) Organizing and work on community-based assistance to villages (eg.,

2 digit code	Major group	4 digit code	Sub-group	Definition
				Planting trees, clean-up campaign, fund-raising activities, etc.)
		0803	<i>Woola</i>	Either for free or compensated, usually enforced by local government offices (e-g., community water services, repair of schools and local government offices and structures)
		0804	Attendance in meetings	Community meetings related to community issues
		0809	<i>Travel related to community services and help to other households</i>	Any other meetings conducted by LG officials, government officials and <i>thromdey</i> officials.
		0901	Formal monastic/school/university attendance	<i>Travel related to community services and help to other households</i> Attending class/lecture including taking examinations
		0902	Breaks at place of general education	Engaging in co-curricular and extra-curricular activities Breaks/waiting at place of general education (unspecified breaks like intervals, lunch break, etc.)
		0903	Homework, course review, research and activities related to general education	Homework, course review, research and activities related to general education
		0904	Self-study for distance and continuing education courses	Self-study for distance and continuing education course work (video, audio, online, etc.)
		0905	Non-formal/informal education	Additional study, non-formal education (structured NFE courses offered by MoE) and courses during free time (including receiving teaching from private teachers like lama and seniors)
		0909	<i>Travel related to learning</i>	<i>Travel related to learning</i>
10	Social and cultural activities	1001	Socialising	Talking/conversing face to face Talking/conversing by telephone, texting, short-wave radio, etc. Interaction using social media (Facebook, Wechat, Viber, etc.) Reading and writing mails (not related to work and employment)

2 digit code	Major group	4 digit code	Sub-group	Definition
				Accompanying friends/relatives to places or events together (e.g., accompanying a friend for shopping) Receiving visitors, visiting friends and relatives Hosting parties, receptions, similar gatherings (not related to work or employment) Attending parties, receptions, similar gatherings Socializing at bars, clubs, <i>drayangs</i> , etc. Picnicking with friends or families
		1002	Unsocial/antisocial/negative social activities	Enmity and fight, quarrels within household members or community
		1003	Participating in community cultural/social events	Participating in community celebrations of cultural, religious, and historic events Participating in community rites/events such as weddings, births, funerals, and similar rites-of-passage
		1009	<i>Travel related to socializing and community participation</i>	<i>Travel related to socializing and community participation</i>
11	Attending/visiting entertainment and sports events/venues	1101	Entertainment and recreation	Watching movies in cinema halls Attendance at theatre, concerts Participating in school concerts Attendance at sport events Sightseeing and pleasure rides
		1109	<i>Travel related to attending/visiting entertainment and sports events/venues</i>	<i>Travel related to attending/visiting cultural, entertainment and sports events/venues</i>
12	Sports, leisure and mass media use	1201	Indoor and outdoor games and sports	Playing football, volleyball, tennis, archery, etc.
		1202	Gambling/playing card games	Including dice games, gambling at fairs, etc.

2 digit code	Major group	4 digit code	Sub-group	Definition
		1203	Computer/video/mobile games	Whether played at home or at video game parlour
		1204	Travel related to indoor/outdoor, gambling, electronic games	Travel related to indoor and outdoor sports participation and related trainings
		1205	Reading	Reading books, periodicals, news papers (not related to work or study) including reading on computers, mobile phones and tablets
		1206	Watching/listening to television and video	Watching/listening to television, video programmes including watching at neighbour's or friend's place (using TV, Computer, mobile phones and tablet)
		1207	Listening to radio and audio devices	Listening to radio programmes, other audio media (using music players, computer, mobile phones and tablets)
		1208	Surfing nets	Surfing the Internet, downloading, uploading using computer, mobile phones and tablets
		1209	<i>Travel related to mass media</i>	<i>Travel related to mass media</i>
		1301	Sleep and related activities	Sleep (including sleeping during day time), incidental sleep, naps, sleeplessness
		1302	Eating and drinking	Eating meals (including drinks taken with meal) Eating snacks (including drinks taken with snack)
13	Personal care and maintenance	1303	Personal hygiene and care	Personal hygiene and care Health/medical care for oneself Manicure, pedicure, haircuts, etc.
		1304	Physical fitness	Washing/dressing/undressing/changing/grooming/using restrooms Running, jogging, walking, yoga, gym, cycling (not for commuting), zumba, skipping, swimming (not for entertainment), etc.
		1305	Receiving personal and health/medical care from others	Receiving personal care from others Receiving health/medical care from others

2 digit code	Major group	4 digit code	Sub-group	Definition
		1306	Activities associated with resting, relaxing	Doing nothing, resting, relaxing, smoking
		1309	<i>Travel related to personal care and maintenance activities</i>	<i>Travel related to personal care and maintenance activities</i>
		1401	Reciting prayers/mantras/counting beads	
		1402	Offering water/food/ incense /butter lamp	
		1403	Meditating	
		1404	Prostrating	
14	Religious activities	1405	Circumambulating choetens and lhakhangs	
		1406	Hoisting prayer flags	
		1407	Attending of religious teachings	
		1408	Pilgrimage	
		1409	<i>Travels related to religious activities</i>	<i>Travels related to religious activities</i>
15	Waiting	1501	Waiting	Waiting for services such as at <i>Gup's</i> office, hospitals, banks, etc. (waiting for your friends or family members to go to market should be considered as "doing nothing, relaxing, resting" if you are not doing anything)
16	n.e.c.	0000	Not elsewhere classified	Activities the are not classified elsewhere

Table A1.4: Time spent on different activities and participation rate by sub-categories of time use activity

	Activities	Avg. time (Populatio n)	Avg. time (Participati on)	Participati on rate	Avg. time (Populatio n) ~ Male	Avg. time (Populatio n) ~ Female	Avg. time (Populatio n) ~ Rural	Avg. time (Populatio n) ~ Urban
Broad categories of time use activities	Work	7:56	8:13	97%	7:40	8:08	8:10	7:27
	Non-work	7:16	7:16	100%	7:36	7:02	6:59	7:53
	Sleep	8:46	8:47	100%	8:42	8:49	8:50	8:38
Major categories of time use activities								
	Work and employment	1:32	7:33	20%	2:22	0:57	0:53	2:57
	Primary production activities	2:13	4:55	47%	2:26	2:04	3:08	0:14
	Non-primary production activities	0:35	3:47	16%	0:11	0:52	0:31	0:44
	Work for household in construction activities	0:12	5:43	4%	0:25	0:04	0:18	0:00
	Informal work for household income	0:03	3:43	1%	0:03	0:02	0:03	0:01
	Household maintenance and management	2:15	2:47	81%	1:11	2:59	2:09	2:27
	Unpaid caregiving services to household members	0:28	1:58	24%	0:14	0:37	0:24	0:36
	Community services and helps to other households	0:27	5:03	9%	0:37	0:19	0:35	0:08
	Education and learning	0:08	4:59	3%	0:07	0:08	0:04	0:16
	Social and cultural activities	1:30	2:28	61%	1:35	1:26	1:31	1:27
	Attending/visiting entertainment or sports events	0:03	2:41	2%	0:03	0:03	0:03	0:03
	Sports, leisure and mass media use	1:54	3:06	60%	1:57	1:51	1:26	2:54
	Personal care and maintenance (excluding sleep)	2:52	2:52	100%	3:01	2:46	2:59	2:36
	Religious activities	0:51	1:41	51%	0:53	0:49	0:53	0:46
	Waiting	0:02	1:24	3%	0:02	0:02	0:02	0:02
	Not elsewhere classified	0:02	4:54	1%	0:02	0:02	0:02	0:01
	Sleep and related activities	8:46	8:47	100%	8:42	8:49	8:50	8:38

	Activities	Avg. time (Populatio n)	Avg. time (Participati on)	Participati on rate	Avg. time (Populatio n)~Male	Avg. time (Populatio n)~Female	Avg. time (Populatio n)~Rural	Avg. time (Populatio n)~Urban
Sub-categories of time use activities	Working time in first job	0:43	6:27	11%	1:19	0:18	0:24	1:24
	Working time in second, third and other jobs	0:00	3:39	0%	0:00	0:00	0:00	0:00
	Internships/apprenticeships	0:03	5:47	1%	0:07	0:00	0:04	0:01
	Seeking employment and related activities	0:00	1:38	0%	0:00	0:00	0:00	0:00
	Unspecified breaks at workplaces	0:00	0:45	1%	0:00	0:00	0:00	0:00
	Own business	0:32	7:36	7%	0:32	0:32	0:13	1:13
	Religious related activities done as a part of one's occupation	0:02	6:23	1%	0:06	0:00	0:03	0:00
	Travel related to work and employment	0:09	1:02	14%	0:15	0:04	0:05	0:15
	Agriculture related activities	0:41	3:44	19%	0:38	0:43	0:57	0:07
	Crop guarding	0:01	3:03	1%	0:02	0:00	0:01	0:00
	Travel related to agriculture	0:01	3:03	1%	0:02	0:00	0:01	0:00
	Livestock related activities	0:53	2:36	35%	0:57	0:50	1:15	0:04
	Travel related to livestock	0:03	0:44	9%	0:04	0:03	0:05	0:00
	Forestry related activities	0:24	2:21	18%	0:30	0:19	0:34	0:02
	Travel related to forestry	0:04	0:49	10%	0:06	0:03	0:06	0:00
	Fishery and related activities	0:00	1:13	0%	0:00	0:00	0:00	0:00
	Travel related to fishing	0:00	0:00	0%	0:00	0:00	0:00	0:00
	Mining and quarrying	0:01	4:46	1%	0:02	0:00	0:02	0:00
	Travel related to mining and quarrying	0:00	0:59	0%	0:00	0:00	0:00	0:00
	Processing of food products	0:05	1:56	4%	0:02	0:06	0:06	0:02
Production of beverages	0:02	2:12	2%	0:00	0:03	0:03	0:00	
Weaving and related activities	0:24	4:34	9%	0:00	0:41	0:17	0:38	
Tailoring and related activities	0:00	1:36	0%	0:00	0:00	0:00	0:00	
Wood crafts and carpentry works	0:01	5:50	1%	0:04	0:00	0:02	0:01	
Bamboo and cane related works	0:00	3:38	0%	0:01	0:00	0:01	0:00	
Craft-making using all other types of materials	0:00	3:47	0%	0:00	0:00	0:00	0:00	

Activities	Avg. time (Populatio n)	Avg. time (Participati on)	Participati on rate	Avg. time (Populatio n)~Male	Avg. time (Populatio n)~Female	Avg. time (Populatio n)~Rural	Avg. time (Populatio n)~Urban
Travel related to non-primary production	0:00	0:37	0%	0:00	0:00	0:00	0:00
Construction and repair for own capital formation	0:12	5:28	4%	0:23	0:04	0:17	0:00
Travel related to construction activities of households	0:00	1:04	1%	0:01	0:00	0:01	0:00
Selling food, beverage and other goods	0:01	2:46	1%	0:01	0:01	0:01	0:01
Providing repair, installation, maintenance, transport and other professional services for pay/fees	0:00	4:55	0%	0:01	0:00	0:00	0:00
Travel related to providing informal works	0:00	1:21	1%	0:01	0:00	0:01	0:00
Cooking	1:07	1:35	71%	0:27	1:35	1:07	1:07
Dish washing	0:11	0:30	38%	0:02	0:17	0:10	0:12
Fetching water	0:01	0:34	4%	0:00	0:01	0:01	0:01
Cleaning and upkeep of dwelling	0:22	0:57	39%	0:14	0:27	0:20	0:25
Laundry and related works	0:13	1:02	21%	0:03	0:20	0:11	0:17
Pet care	0:00	0:29	0%	0:00	0:00	0:00	0:00
Shopping of goods and related activities	0:06	1:15	9%	0:06	0:07	0:04	0:11
Availing of commercial and administrative services	0:02	1:30	2%	0:03	0:01	0:02	0:02
Travel related to household maintenance and management	0:10	1:25	11%	0:13	0:07	0:10	0:08
Caring for children/physical care	0:18	1:44	18%	0:06	0:27	0:16	0:22
Teaching, training, helping children	0:04	1:09	6%	0:03	0:05	0:03	0:07
Accompanying children to places	0:01	0:50	3%	0:01	0:01	0:01	0:02
Caring for adults/physical care (Old, sick and disabled)	0:01	2:14	1%	0:01	0:01	0:01	0:01
Accompanying adults to places	0:00	0:47	0%	0:00	0:00	0:00	0:00
Travel related to unpaid caregiving services to household members	0:01	0:49	3%	0:01	0:02	0:01	0:02
Unpaid help to other institutions/households/individuals	0:13	4:22	5%	0:18	0:09	0:17	0:04
Community-organized services	0:03	4:06	2%	0:05	0:01	0:04	0:01
Woola	0:02	6:32	1%	0:03	0:02	0:04	0:00
Attendance in meetings	0:03	2:52	2%	0:03	0:02	0:04	0:00

Activities	Avg. time (Populatio n)	Avg. time (Participati on)	Participati on rate	Avg. time (Populatio n)~Male	Avg. time (Populatio n)~Female	Avg. time (Populatio n)~Rural	Avg. time (Populatio n)~Urban
Travel related to community services and helps to other households	0:04	1:05	7%	0:05	0:03	0:05	0:01
Formal monastic/school/university attendance	0:03	4:37	1%	0:03	0:03	0:01	0:07
Breaks at place of general education	0:00	0:23	1%	0:00	0:00	0:00	0:00
Homework, course review, research related to general education	0:02	2:25	1%	0:02	0:02	0:01	0:04
Self-study for distance and continuing education	0:00	3:54	0%	0:00	0:00	0:00	0:01
Non-formal/informal education	0:00	2:20	1%	0:00	0:01	0:00	0:00
Travel related to learning	0:01	0:56	2%	0:00	0:01	0:00	0:02
Socialising	1:11	2:02	58%	1:14	1:09	1:11	1:11
Unsocial/antisocial/negative social activities	0:00	1:00	0%	0:00	0:00	0:00	0:00
Participating in community cultural/social events	0:09	4:01	4%	0:11	0:07	0:09	0:07
Travel related to socializing and community participation	0:09	0:53	18%	0:10	0:09	0:10	0:08
Entertainment and recreation	0:02	2:24	2%	0:02	0:02	0:02	0:02
Travel related to attending/visiting entertainment and sports events/venues	0:00	0:44	2%	0:00	0:00	0:00	0:00
Indoor and outdoor games and sports	0:06	2:58	4%	0:14	0:01	0:05	0:08
Gambling/playing card games	0:01	3:10	1%	0:02	0:00	0:00	0:02
Computer/video/mobile games	0:00	1:47	1%	0:01	0:00	0:00	0:01
Travel related to indoor/outdoor, gambling, electronic games	0:00	0:42	2%	0:01	0:00	0:00	0:01
Reading	0:01	1:43	2%	0:02	0:01	0:01	0:03
Watching/listening to television and video	1:38	2:48	57%	1:28	1:44	1:13	2:31
Listening to radio and audio devices	0:01	1:17	2%	0:02	0:01	0:02	0:01
Surfing nets	0:02	1:46	2%	0:02	0:02	0:01	0:04
Travel related to mass media	0:00	0:37	2%	0:01	0:00	0:00	0:00
Sleep and related activities	8:46	8:47	100%	8:42	8:49	8:50	8:38
Eating and drinking	1:22	1:22	100%	1:25	1:19	1:24	1:16
Personal hygiene and care	0:24	0:25	96%	0:26	0:22	0:23	0:26

	Activities	Avg. time (Populatio n)	Avg. time (Participati on)	Participati on rate	Avg. time (Populatio n)~Male	Avg. time (Populatio n)~Female	Avg. time (Populatio n)~Rural	Avg. time (Populatio n)~Urban
	Physical fitness	0:03	1:12	4%	0:04	0:02	0:01	0:07
	Receiving personal and health/medical care from others	0:00	0:47	1%	0:00	0:00	0:00	0:00
	Activities associated with resting, relaxing	1:00	1:35	64%	1:02	0:59	1:08	0:44
	Travel related to personal care and maintenance activities	0:01	0:54	3%	0:02	0:01	0:01	0:02
	Reciting prayers/mantras/counting beads	0:36	1:43	36%	0:41	0:32	0:40	0:27
	Offering water/food/ incense /butter lamp	0:04	0:17	28%	0:04	0:05	0:04	0:05
	Meditating	0:00	0:37	1%	0:00	0:00	0:00	0:00
	Prostrating	0:00	0:51	1%	0:00	0:00	0:00	0:00
	Circumambulating <i>choetens</i> and <i>lhakhangs</i>	0:02	2:08	2%	0:01	0:03	0:01	0:04
	Hoisting prayer flags	0:00	2:17	0%	0:00	0:00	0:00	0:00
	Attending of religious teachings	0:02	3:03	1%	0:02	0:02	0:02	0:02
	Pilgrimage	0:00	3:08	0%	0:00	0:00	0:00	0:00
	Travels related to religious activities	0:03	1:24	4%	0:02	0:04	0:02	0:05
	Waiting	0:02	1:24	3%	0:02	0:02	0:02	0:02
	Not elsewhere classified	0:02	4:54	1%	0:02	0:02	0:02	0:01

Table A1.5: Distribution of Dzongkhag population by mother tongue

	Dzongkha	Cho-cha nga-chakha (kurmedkha)	Tshangla (sharchop)	Bumthangkha	Khenkha	Kurtop (variant of Bumthangkha)	Nyenkha (Henkha or Mangdebikha)	Dzala	Dakpa	Chali kha	Monpakha	Brokpa	Lakha	Bokha (Tibetan)	Nepali (Lhotsamkha)	Lhopku	Gongduk	Lepcha	Layap	English	Others	Total
Bumthang	2.11	1.26	6.34	77.13	2.49	2.16	0.87	0.00	0.00	0.00	0.00	2.05	0.00	2.16	2.16	0.00	0.00	0.00	0.00	0.00	1.28	100
Chukha	26.50	0.00	23.32	0.79	3.27	2.15	0.71	0.00	0.00	0.17	0.00	0.00	0.00	0.00	38.74	0.00	0.17	0.17	0.00	0.00	4.02	100
Dagana	15.53	1.36	8.89	0.54	15.53	0.99	0.90	0.00	0.45	0.00	0.45	0.90	0.00	0.00	34.23	0.00	0.45	0.00	0.00	0.00	19.77	100
Gasa	26.48	0.62	7.71	1.24	1.24	2.04	2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.63	0.00	0.00	0.00	52.44	0.00	2.21	100
Haa	52.14	2.60	25.18	0.40	6.26	4.09	0.00	0.36	0.00	0.76	0.00	0.36	0.36	0.00	4.52	0.00	0.76	0.00	0.00	0.00	2.21	100
Lhuntse	3.44	33.98	5.35	0.45	0.85	38.15	0.79	16.15	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.00	0.00	0.00	0.00	0.00	100
Mongar	0.86	10.93	74.46	0.55	4.82	0.00	0.00	0.00	0.00	2.53	0.00	0.00	0.00	0.00	2.38	0.00	3.47	0.00	0.00	0.00	0.00	100
Paro	79.02	0.57	9.48	0.00	0.86	1.14	1.15	0.00	0.00	0.00	0.00	0.00	0.29	0.86	5.47	0.00	0.00	0.00	0.00	0.00	1.15	100
Pema Gatsel	0.00	0.38	96.86	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00	0.00	100
Punakha	79.23	1.19	6.02	0.38	0.88	1.70	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.44	9.72	0.00	0.00	0.00	0.00	0.00	0.00	100
Samdrup Jongkhar	2.97	2.08	77.14	0.00	4.91	1.95	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.00	0.31	0.00	0.00	0.00	5.08	100
Samtse	7.19	1.11	19.71	0.63	4.63	1.60	0.48	0.16	0.00	0.00	0.16	0.00	0.00	0.00	56.25	1.27	0.48	1.04	0.00	0.00	5.31	100
Sarpang	7.00	0.75	20.26	1.58	10.31	1.86	1.18	0.00	0.24	0.71	0.24	0.24	0.00	0.28	39.80	0.24	0.00	0.00	0.00	0.00	15.32	100
Thimphu	26.22	2.59	35.92	2.82	7.83	3.99	1.58	0.69	0.33	0.49	0.10	0.10	0.00	0.40	14.03	0.00	0.20	0.20	0.00	0.10	2.42	100
Tashigang	0.52	2.27	85.52	0.00	0.87	1.56	0.00	0.22	5.89	0.00	0.87	0.44	0.00	0.65	0.96	0.00	0.00	0.00	0.00	0.00	0.22	100
Tashi Yangtse	0.00	13.05	47.22	1.22	0.00	9.94	0.38	22.61	1.97	0.00	0.75	0.42	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	1.60	100
Trongsa	5.06	0.36	6.26	3.08	42.73	0.42	29.43	0.42	0.00	0.00	2.18	0.00	0.00	0.42	6.32	0.00	0.00	0.00	0.00	0.00	3.33	100
Tsirang	4.40	0.00	15.53	0.67	9.44	1.01	0.67	0.67	0.00	0.00	0.00	0.00	0.00	0.00	43.75	0.00	0.00	0.00	0.00	0.00	23.86	100

	Dzongkha	Cho-cha nga-cha (kurmedkha)	Tshangla (sharchop)	Bumthangkha	Khengkha	Kurtop (variant of Bumthangkha)	Nyenkha (Henkha or Mangdebikha)	Dzala	Dakpa	Chali kha	Monpakha	Brokpa	Lakha	Bokha (Tibetan)	Nepali (Lhotshamkha)	Lhokpu	Gongduk	Lepcha	Layap	English	Others	Total
Wangdue Phodrang	65.78	2.22	10.16	0.55	2.34	1.45	8.75	0.62	0.27	0.00	0.00	0.00	0.00	0.00	6.25	0.00	0.27	0.00	0.00	0.00	1.32	100
Zhemgang	0.78	0.00	3.56	1.56	92.25	0.46	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	100
Bhutan	21.13	2.95	33.72	2.89	8.05	2.93	1.70	1.22	0.61	0.30	0.19	0.16	0.02	0.25	18.69	0.13	0.36	0.15	0.26	0.02	4.28	100

Appendix 2: Survey Questionnaire

དཔལ་འབྲུག་ཞིབ་འཇུག་ལྟེ་བ།

Centre for Bhutan Studies and GNH Research
Royal Government of Bhutan



Confidential

The Third Gross National Happiness Survey Questionnaire December 2014

<i>Int</i>	Interviewer	<input type="text"/>	<input type="text"/>	◀Enter Name & Code						
<i>Stime</i>	Start time	<input type="text"/>	:	<input type="text"/> ▶Enter time (hh:mm)						
<i>Intdate</i>	Interview date	<input type="text"/>	/	<input type="text"/> / <input type="text"/> ▶Enter date (dd/mm/yy)						
<i>Intday</i>	Interview day	<input type="text"/>		<input type="text"/> ▶Enter Day & Code						
<i>Dzcode</i>	Dzongkhag	<input type="text"/>	<input type="text"/>	▶Enter Dzongkhag & Code						
<i>Gcode</i>	Gewog/Town	<input type="text"/>	<input type="text"/>	▶Enter Gewog/Town & Code						
<i>Ccode</i>	Chiwog/Block	<input type="text"/>	<input type="text"/>	▶Enter Chiwog/Block & Code						
<i>Vcode</i>	Village	<input type="text"/>	<input type="text"/>	▶Enter Village						
<i>Eacode</i>	Enumeration area	<input type="text"/>	<input type="text"/>	▶Enter EA name & Code						
<i>Ilang</i>	Interview language	<input type="text"/>	<input type="text"/>	▶Enter language & Code						
<i>Outcome</i>	Interview Outcome	(Enter code from below) <input type="text"/>		▶Enter code						
<table border="1"> <tbody> <tr> <td>1 = Complete</td> <td>3 = Absent</td> <td>5 = Moved</td> </tr> <tr> <td>2 = Incomplete</td> <td>4 = Refused</td> <td>6 = Could not locate</td> </tr> </tbody> </table>					1 = Complete	3 = Absent	5 = Moved	2 = Incomplete	4 = Refused	6 = Could not locate
1 = Complete	3 = Absent	5 = Moved								
2 = Incomplete	4 = Refused	6 = Could not locate								

<i>Rrefuse</i>	Reason of refusal	<input style="width: 80%;" type="text"/>	<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>	◀ Enter reasons & Code
To be filled in by supervisor upon receiving the form from enumerators				
<i>Superv</i>	Supervisor	<input style="width: 40%;" type="text"/>	<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>	◀ Enter Name & Code
	Signature	<input style="width: 40%;" type="text"/>		◀ Signature

Household Member Listing Form

Please list all household members who currently live in this household, starting with the oldest member first. Also write the relationship of each household member to the oldest member, their sex and age. Remember that household members mean all persons who **currently** live and eat together in this household.

<i>hl1</i>		<i>hl3</i>	<i>hl4</i>	<i>hl5</i>
Sl no.		Relationship to sl. no. 1	Sex	Age
<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>	<input style="width: 80%;" type="text"/>	<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>	<input style="width: 20%;" type="text"/>	<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>
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<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>	<input style="width: 80%;" type="text"/>	<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>	<input style="width: 20%;" type="text"/>	<input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/> <input style="width: 20%;" type="text"/>
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Codes for relationship to the head/interviewee

01 = Self (Oldest member)	08 = Nephew/Niece
02 = Spouse/Partner	09 = Son-in-law/Daughter-in-law
03 = Son/Daughter	10 = Brother-in-law/Sister-in-law
04 = Father/Mother	11 = Father-in-law/Mother-in-law
05 = Brother/Sister	12 = Other family relatives
06 = Grandfather/grandmother	13 = Live-in-servant
7 = Grandchild	14 = Other non-relative

Household size

<i>HHSize</i>	□	◀ <i>Record total number of members currently living in the household from the above table. The last serial number is the household size.</i>
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1.0 – DEMOGRAPHICS

Q1. Note sex of the respondent. [*Please circle appropriate number below*]

<i>Sex</i>	Male	Female	Other
	1	2	3

Q2. What is your age?

<i>Age</i>	□ □ □ □ □	◀ <i>Please record age in completed years</i>
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Q3. What is your current marital status? (*Please circle appropriate number below*)

<i>Marital</i>	Never married	Married	Divorced	Separated	Widowed
	1	2	3	4	5
<i>If not 'Married', Go to Q5</i>					

Q4. If married, is this your...? (*Please circle appropriate number below*)

<i>Marital1</i>	First marriage	Second marriage	Third marriage	More than third marriage
	1	2	3	4

Q5. How many years of formal schooling, if any, have you completed?

<i>PostSec</i>	□ □	◀ <i>Record number of years [enter "99" for not applicable]</i>
<i>If '99', Go to Q7</i>		

Q6. Are you still attending school?

<i>Ednow</i>	Yes	No
	1	2

Q7. Have you had any non-formal education? If so, how many years?

<i>NFE</i>		◀ Record number of years [enter “0” if less than a year and “99” for not applicable]
If ‘99’, Go to Q9		

Q8. Are you still attending NFE?

<i>nfenow</i>	Yes	No
	1	2

Q9. Have you had monastic education? If so, how many years?

<i>MonEd</i>		◀ Record number of years [enter “0” if less than a year and “99” for not applicable]
If ‘99’, Go to Q11		

Q10. Are you still attending Monastic education?

<i>nfenow</i>	Yes	No
	1	2

Q11. Which of the following languages can you read and write?

		Read		Write	
		Yes	No	Yes	No
<i>Lit1</i>	Dzongkha	1	2	1	2
<i>Lit2</i>	Nepali	1	2	1	2
<i>Lit3</i>	English	1	2	1	2
<i>Lit4</i>	Others (specify.....)	1	2	1	2

Q12. What is your religion?

<i>Religion</i>	Buddhism	Hinduism	Christianity	Others	None
	1	2	3	4	9
Others (specify:)					

Q13. What is your current occupational status? [Enter appropriate code from below]

<i>Occap</i>		◀ Record appropriate code from below
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> 1 = Unemployed 2 = Farmer 3 = Trader/shopkeeper/businessman 4 = School student/trainees/university students 5 = Civil servants 6 = GYT/DYT member (LG officials) 7 = RBA/RBP/RBG 8 = Monk/Anim </div> <div style="width: 48%;"> 9 = Gomchen 10 = Corporate employee 11 = Private employee 12 = Housewife/husband (Homemaker) 13 = No need to work 14 = Given up looking for job 15 = Others (specify.....) </div> </div>		

1.1 – PSYCHOLOGICAL WELLBEING

Sense of happiness and satisfaction

Q14. Taking all things together, how happy would you say you are?

<i>Hap</i>	Not at all											Very happy
	0	1	2	3	4	5	6	7	8	9	10	

- Q15. Please think deeply and tell me, what are the most important things (sources) that will make you lead a truly happy life?

	Record Answer Below	Code
HapSc1		
HapSc2		
HapSc3		
HapSc4		
HapSc5		

- Q16. How happy did you feel yesterday?

yhap	Not at all										Very happy
	0	1	2	3	4	5	6	7	8	9	10

- Q17. What is your desired happiness condition?

dhap	Not at all										Very happy
	0	1	2	3	4	5	6	7	8	9	10

- Q18. Taking all things together, how happy would you say you will be in the future, say within five years from now?

fhap	Less happier than now					Same happy as now					More happier than now				
	-5	-4	-3	-2	-1	0					1	2	3	4	5

- Q19. This is a question about your family members' current happiness. How happy do you think your family members are at the moment? [Circle 88 for Don't Know and 99 for Not Applicable (do not have family members living together)].

	Not at all										Very happy	Don't know	Not applicable
Fm1	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm2	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm3	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm4	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm5	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm6	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm7	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm8	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm9	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm10	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm11	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm12	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm13	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm14	0	1	2	3	4	5	6	7	8	9	10	88	99
Fm15	0	1	2	3	4	5	6	7	8	9	10	88	99

- Q20. All things considered, how satisfied are you with your life as a whole these days? Please mark 10 if you are "very satisfied" and 0 "not at all".

sat	Not at all										Very satisfied
	0	1	2	3	4	5	6	7	8	9	10

Q21. How satisfied are you with the following aspects of your life?

		Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied	Don't know
Sat1	Your health	5	4	3	2	1	8
Sat2	Your standard of living (livelihood)	5	4	3	2	1	8
Sat3	The major occupations in your daily life (could be your job if formally employed, farm work, housework, schoolwork)	5	4	3	2	1	8
Sat4	The relationship you have with your immediate family members.	5	4	3	2	1	8
Sat7	Work-life balance	5	4	3	2	1	8

Social support

Q22. How many people are very close to you that you can count on them if you....[Enter "888" for Don't know]

		Record number of people
SS1	Are sick	
SS2	Have financial problems	
SS3	Have emotional problems	
SS4	Have to attend to important personal events (childbirth, funeral, wedding, etc.)	

Mental wellbeing

Please consider the last four weeks and circle one of the four response options for the following 12 questions.

Q23. Been able to concentrate on what you're doing

GHQ1	More than usual	Same as usual	Less than usual	Much less than usual	Don't know
	1	2	3	4	8

Q24. Lost much sleep over worry

GHQ2	Not at all	No more than usual	Rather more than usual	Much more than usual	Don't know
	1	2	3	4	8

Q25. Felt you were playing a useful part in things

GHQ3	More than usual	Same as usual	Less than usual	Much less than usual	Don't know
	1	2	3	4	8

Q26. Felt capable of making decisions about things

<i>GHQ4</i>	More than usual	Same as usual	Less than usual	Much less than usual	Don't know
	1	2	3	4	8

Q27. Felt constantly under strain

<i>GHQ5</i>	Not at all	No more than usual	Rather more than usual	Much more than usual	Don't know
	1	2	3	4	8

Q28. Felt you couldn't overcome your difficulties

<i>GHQ6</i>	Not at all	No more than usual	Rather more than usual	Much more than usual	Don't know
	1	2	3	4	8

Q29. Been able to enjoy your normal day-to-day activities

<i>GHQ7</i>	More than usual	Same as usual	Less than usual	Much less than usual	Don't know
	1	2	3	4	8

Q30. Been able to face up to your problems

<i>GHQ8</i>	More than usual	Same as usual	Less than usual	Much less than usual	Don't know
	1	2	3	4	8

Q31. Been feeling unhappy and depressed

<i>GHQ9</i>	Not at all	No more than usual	Rather more than usual	Much more than usual	Don't know
	1	2	3	4	8

Q32. Been losing confidence in yourself

<i>GHQ10</i>	Not at all	No more than usual	Rather more than usual	Much more than usual	Don't know
	1	2	3	4	8

Q33. Been thinking of yourself as a worthless person

<i>GHQ11</i>	Not at all	No more than usual	Rather more than usual	Much more than usual	Don't know
	1	2	3	4	8

Q34. Been feeling reasonably happy, all things considered

<i>GHQ12</i>	More than usual	Same as usual	Less than usual	Much less than usual	Don't know
	1	2	3	4	8

Spirituality

Q35. How spiritual do you consider yourself to be?

<i>Spirit1</i>	Very	Moderately	Somewhat	Not at all
	4	3	2	1

Q36. How often do you recite prayers?

<i>Spirit4</i>	Several times a day	Once a day	A few times a week	Only on certain occasions	Never
	1	2	3	4	5

Q37. How often do you practice meditation?

<i>Spirit5</i>	Several times a day	Once a day	A few times a week	Only on certain occasions	Never
	1	2	3	4	5

Q38. How often do you visit local temples and other places of spiritual significance within your community?

<i>Spirit6</i>	Several times a day	Once a day	A few times a week	Only on certain occasions	Never
	1	2	3	4	5

Q39. Do you consider Karma in the course of your daily life?

<i>Spirit11</i>	Regularly	Occasionally	Rarely	Not at all
	4	3	2	1

Q40. In the past one year, how many days did you attend/receive religious teaching?

<i>rdays</i>	◀ Record number of days [enter "0" if less than a day and "999" for not at all/Not applicable]

Emotional Experience

Q41. During the past four weeks, how often have you felt the following moods/emotions?

		Few times a day	Once a day	Few times a week	Once a week	Once or twice in the last month	Not in the last month	Never
<i>Emot1</i>	Anger	1	2	3	4	5	6	7
<i>Emot5</i>	Selfishness	1	2	3	4	5	6	7
<i>Emot6</i>	Jealousy	1	2	3	4	5	6	7
<i>Emot16</i>	Fear	1	2	3	4	5	6	7
<i>Emot17</i>	Worry	1	2	3	4	5	6	7
<i>Emot14</i>	Sadness	1	2	3	4	5	6	7
<i>Emot8</i>	Calmness	1	2	3	4	5	6	7
<i>Emot9</i>	Compassion	1	2	3	4	5	6	7
<i>Emot10</i>	Forgiveness	1	2	3	4	5	6	7
<i>Emot11</i>	Contentment	1	2	3	4	5	6	7
<i>Emot12</i>	Generosity	1	2	3	4	5	6	7

Q42. How anxious are you for the following issues?

		Always anxious	Sometime anxious	Neither anxious nor unconcerned	Normally do not feel anxious	Do not feel anxious at all	Not applicable
<i>Anx2</i>	Old age abandonment	1	2	3	4	5	9
<i>Anx3</i>	Unemployment	1	2	3	4	5	9
<i>Anx4</i>	Food security	1	2	3	4	5	9
<i>Anx5</i>	Children's future	1	2	3	4	5	9
<i>Anx8</i>	Living expenses for later in life (after retirement)	1	2	3	4	5	9

1.2 – HEALTH

Q43. In general, would you say your health is:

<i>HStatus</i>	Excellent	Very good	Good	Fair	Poor
	5	4	3	2	1

Disability & Activity Limitations

Q44. Do you have any of the following serious conditions, impairments or disabilities? Circle all that apply.

	Condition	Yes	No	Don't know
<i>Disab1</i>	Visual (e.g., blind or almost blind)	1	2	8
<i>Disab2</i>	Hearing (e.g., deaf or almost deaf)	1	2	8
<i>Disab3</i>	Speech (muteness or important speech problems)	1	2	8
<i>Disab4</i>	No use of arm(s) or leg(s)	1	2	8
<i>Disab5</i>	Difficulty using arms or legs (partial)	1	2	8
<i>Disab6</i>	Missing body part (e.g., arm, leg)	1	2	8
<i>Disab7</i>	Cardiovascular (e.g., heart condition)	1	2	8
<i>Disab8</i>	Respiratory (e.g., severe breathing problems, asthma)	1	2	8
<i>Disab9</i>	Mental/psycho-social (e.g., schizophrenia, severe depression)	1	2	8
<i>Disab10</i>	Other (specify _____)	1	2	8
If 'No' or 'Don't know' to all, Go to Q47				

Q45. How long has the most severe condition lasted?

<i>DisMos</i>	◀ Record number of months. [Enter "0" if less than a month and '8888' if don't know]
---------------	--

Q46. Does this or any long-term disability restrict your activities significantly?

<i>RestHome</i>	All the time	Sometimes	Rarely	Never
	4	3	2	1

Q47. Do you have any difficulties in performing the following activities because of a health problem? By 'health problem' we mean any long-term physical, mental or emotional problem of illness [not including pregnancy].

		No difficulty	Some difficulty	Much difficulty	Unable to do	Don't know
<i>Acti1</i>	Dressing, including tying shoes, working zippers, and doing buttons	1	2	3	4	8
<i>Acti3</i>	Walking about half a kilometre	1	2	3	4	8
<i>Acti4</i>	Bathing or showering	1	2	3	4	8
<i>Acti5</i>	Eating, like holding a spoon, cutting food or drinking from a glass	1	2	3	4	8

<i>Acti6</i>	Using your fingers to grasp or handle small objects	1	2	3	4	8
<i>Acti7</i>	Getting in or out of bed	1	2	3	4	8
<i>Acti8</i>	Using toilet, including up or down	1	2	3	4	8

Healthy days & short-term activity limitation

Now, we need information about your health over the **past 30 days**.

- Q48.** Thinking about your physical health, which includes physical illness and injury, how many days during the past 30 days was your **physical health not good**?

<i>SickDays</i>		◀Record number of days [Not more than 30]
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- Q49.** Now thinking about your mental health, which includes stress, depression, and problems with emotions, how many days during the past 30 days was your **mental health not good**?

<i>MHDays</i>		◀Record number of days [Not more than 30]
---------------	--	---

If '0' days for both Q48 and Q49, Go to Q51.

- Q50.** During the past 30 days, about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work or recreation?

<i>ResDays</i>		◀Record number of days [Not more than 30]
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Suicidal thoughts and attempts

- Q51.** Have you ever seriously thought of committing suicide?

<i>Suic1</i>	Yes	No
	1	2
<i>If 'No', Go to Q58</i>		

- Q52.** If yes, has it happened in the past 12 months?

<i>Suic2</i>	Yes	No
	1	2
<i>If 'No', Go to Q54</i>		

- Q53.** If yes, how many times did you think about committing suicide in the past 12 months?

<i>Suic5</i>		◀Record number of times suicidal thought occurred in the past 12 months]
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- Q54.** Have you ever attempted to commit suicide?

<i>Suic3</i>	Yes	No
	1	2
<i>If 'No', Go to Q58</i>		

- Q55.** If yes, has this happened in the past 12 months?

<i>Suic4</i>	Yes	No
	1	2
<i>If 'No', Go to Q57</i>		

Q56. If yes, how many times did you attempt to commit suicide in the past 12 months?

<i>Suic6</i>		◀ <i>Record number of times attempted to commit suicide in the past 12 months]</i>
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Q57. Please tell us the reasons why you have attempted to commit suicide?

	Record Answer Below	Code
<i>sres1</i>		
<i>sres2</i>		
<i>sres3</i>		
<i>sres4</i>		
<i>sres5</i>		

Barriers

Q58. On the last occasion you or your family visited a health care centre within the past 12 months, how long did you have to wait before receiving the health care service?

<i>Barrier7</i>		◀ <i>Record approximate number of minutes. [Enter "9999" for not applicable]</i>
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Q59. How long would it usually take you to walk to the nearest health care centre?

<i>Barrier6</i>		◀ <i>Record approximate number of minutes</i>
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1.3 – TIME USE AND BALANCE

Q60. We would like to know how you spent your time yesterday. Starting at 4:00 am yesterday, can you please recount various activities you performed and how long they took?

		What were you doing? (Enter one main activity on each line)		Code (for official use only)		What else were you doing? (Record the most important secondary activity if more than one secondary activities were performed)		Code (for official use only)	
	04:00 a.m.								
04:00 a.m. - 05:00 a.m.	:10								
	:20								
	:30								
	:40								
	:50								
05:00 a.m. - 06:00 a.m.	05:00								
	:10								
	:20								
	:30								
	:40								
06:00 a.m. - 07:00 a.m.	:50								
	06:00								
	:10								
	:20								

		What were you doing? (Enter one main activity on each line)		Code (for official use only)	What else were you doing? (Record the most important secondary activity if more than one secondary activities were performed)		Code (for official use only)
m.	- 02	:30					
		:40					
		:50					
	07:00						
		:10					
		:20					
		:30					
		:40					
		:50					
	08:00						
		:10					
		:20					
		:30					
		:40					
		:50					
	09:00						
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		:40					
		:50					
	12:00						
		:10					
		:20					
		:30					
		:40					
		:50					
	01:00						
		:10					

		What were you doing? (Enter one main activity on each line)		Code (for official use only)		What else were you doing? (Record the most important secondary activity if more than one secondary activities were performed)		Code (for official use only)	
07:00 p.m. - 08:00 p.m.	p.m.	:20							
		:30							
		:40							
		:50							
		02:00							
	02:00 p.m. - 03:00 p.m.	:10							
		:20							
		:30							
		:40							
		:50							
	03:00 p.m. - 04:00 p.m.	03:00							
		:10							
		:20							
		:30							
		:40							
	04:00 p.m. - 05:00 p.m.	:50							
		04:00							
		:10							
		:20							
		:30							
05:00 p.m. - 06:00 p.m.	:40								
	:50								
	05:00								
	:10								
	:20								
06:00 p.m. - 07:00 p.m.	:30								
	:40								
	:50								
	06:00								
	:10								
07:00 p.m. - 08:00 p.m.	:20								
	:30								
	:40								
	:50								
	07:00								
08:00	:10								
	:20								
	:30								
	:40								
	:50								

		What were you doing? (Enter one main activity on each line)		Code (for official use only)		What else were you doing? (Record the most important secondary activity if more than one secondary activities were performed)		Code (for official use only)	
02:00 a.m. - 03:00 a.m.		:10							
		:20							
		:30							
		:40							
		:50							
01:00 a.m. - 02:00 a.m.		02:00							
		:10							
		:20							
		:30							
		:40							
01:00 a.m. - 02:00 a.m.		:50							
		02:00							
		:10							
		:20							
		:30							
12:00 midnight - 01:00 a.m.		:40							
		:50							
		01:00							
		:10							
		:20							
12:00 midnight - 01:00 a.m.		:30							
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		01:00							
		:10							
11:00 p.m. - 12:00 midnight		:20							
		:30							
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		12:00							
10:00 p.m. - 11:00 p.m.		:10							
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09:00 p.m. - 10:00 p.m.		10:00							
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		:20							
		:30							
		:40							
08:00 p.m. - 09:00 p.m.		:50							
		09:00							
		:10							
		:20							
		:30							

		What were you doing? (Enter one main activity on each line)	Code (for official use only)	What else were you doing? (Record the most important secondary activity if more than one secondary activities were performed)	Code (for official use only)
03:00 a.m. - 04:00 a.m.	03:00				
	:10				
	:20				
	:30				
	:40				
	:50				
	04:00				

Q61. What type of day was yesterday?

	Tus2
A usual day	1
It was a holiday (e.g., public holiday, weekend, day off)	2
I was sick or injured	3
I was on leave from work	4
I took time off from normal activities:	
to do extra work paid/unpaid	5
to arrange personal/family matters	6
to look after a sick/injured person	7
for a special leisure/educational/ religious/community/family activity (e.g. sports event, course, conference, festival, wedding, etc.)	8
Cared for children during school holiday (not weekend)	9
Other (specify)	10

Q62. Last night did you sleep

TUact7	More hours than usual	About the same as usual	Less hours than usual
	1	2	3

1.4 – EDUCATION

Historical literacy

Q63. How would you rate your knowledge and understanding of the following?

		Very good	Good	Average	Poor	Very poor
Legend1	Local legends and folktales	5	4	3	2	1
Legend2	Historical events of our kings	5	4	3	2	1
Legend3	National Day (Gyalong Duechhen)	5	4	3	2	1

<i>Legend</i> ⁹	Names of the five Kings of Bhutan	5	4	3	2	1
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Q64. How aware are you about Gross National Happiness (*Gyalyong Gakid Palzom*)?

<i>gnh1</i>	Yes, I have heard of it and have a good understanding of what it is	Yes, I have heard of it and have some understanding about what it is	Yes, I have heard of it but I'm unsure what it is	Not at all
	4	3	2	1

Cultural literacy

Q65. How would you rate your knowledge and understanding of the following?

		Very good	Good	Average	Poor	Very poor
<i>Fest1</i>	Local <i>tshechu</i> /festivals conducted every year (e.g., <i>lomba</i> , <i>kharam</i> , <i>lha</i> , <i>roop</i> , <i>kharphe</i> , <i>chodpa</i> , etc.)	5	4	3	2	1
<i>Fest3</i>	Traditional Bhutanese songs (<i>zhungdra</i> and <i>boedra</i>). (Do you know the lyrics to some of the traditional songs?)	5	4	3	2	1

Civic literacy

Q66. Do you know the minimum age to be eligible to vote in elections?

<i>PtNm</i>		◀ Record age in years. [Enter "888" for Don't know]
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Q67. Do you know the names of the four political parties who contested in the primary round in 2013?

<i>PdNm1</i>	None	One party	Two parties	Three parties	Four parties
	0	1	2	3	4

Q68. How would you rate your knowledge and understanding of the constitution?

<i>Const1</i>	Very good	Good	Average	Poor	Very poor
	5	4	3	2	1

Ecological literacy

Q69. What is your knowledge of names of plants and wild animals in your area?

		Very good	Good	Average	Poor	Very poor
<i>TspNm1</i>	Plants	5	4	3	2	1
<i>TspNm11</i>	Wild animals	5	4	3	2	1

Health literacy

Q70. Do you know how HIV/AIDS is transmitted?

<i>Aids1</i>	Yes, I have heard of it and have a clear understanding of how it is transmitted	Yes, I have heard of it and have some understanding of how it is transmitted	Yes, I have heard of it but I am not sure of how it is transmitted	Not at all
	4	3	2	1

Q71. How long should a child be breastfed exclusively?

<i>Exbreast</i>		◀ Record number of months. [Enter “0” for less than a month and “888” for Don’t know]
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Indigenous knowledge literacy

Q72. Do you have the following skills?

		Yes, very well	Yes, a little	No
<i>Arts1</i>	Weaving (<i>Thag-zo</i>)	3	2	1
<i>Arts2</i>	Embroidery (<i>Tshem-zo</i>)	3	2	1
<i>Arts3</i>	Painting (<i>Lha-zo</i>)	3	2	1
<i>Arts4</i>	Carpentry (<i>Shing-zo</i>)	3	2	1
<i>Arts5</i>	Carving (<i>Par-zo</i>)	3	2	1
<i>Arts6</i>	Sculpture (<i>Jin-zo</i>)	3	2	1
<i>Arts7</i>	Casting (<i>Lug-zo</i>)	3	2	1
<i>Arts8</i>	Black-smithing (<i>Gar-zo</i>)	3	2	1
<i>Arts9</i>	Bamboo works (<i>Tszha-zo</i>)	3	2	1
<i>Arts10</i>	Gold/silversmithing (<i>Ser-zo</i> and <i>Nguel-zo</i>)	3	2	1
<i>Arts11</i>	Masonry (<i>Do-zo</i>)	3	2	1
<i>Arts12</i>	Leather works (<i>Ko-zo</i>)	3	2	1
<i>Arts13</i>	Papermaking (<i>De-zo</i>)	3	2	1

1.5 – CULTURAL DIVERSITY & RESILIENCE

Language

Q73. What is your mother tongue?

<i>PrimLa1</i>	◀ Please record appropriate code from below
1 = Dzongkha	12 = Brokpa
2 = Cho-cha nga-chakha (Kurmedkha)	13 = Brokkat
3 = Tshangla (Sharchop)	14 = Lakha
4 = Bumthangkha	15 = B'okha (Tibetan)
5 = Khengkha	16 = Nepali (Lhotshamkha)
6 = Kurtop (variant of Bumthangkha)	17 = Lhopku
7 = Nyenkha (Henkha or Mangdebikha)	18 = Gongduk
8 = Dzala	19 = Lepcha
9 = Dakpa	20 = Layap
10 = Chali kha	21 = English
11 = Monpakha	22 = Others (Specify:)

Q74. How well can you speak your mother tongue now?

<i>PrimLa3</i>	Very well	Quite well	Only a little	Not at all
	4	3	2	1

Q75. What are the two most commonly spoken languages in your home? [Please record them in the order of frequency of usage]

<i>Ispoken</i>	◀ Insert code from Q73
<i>Ispoken1</i>	◀ Insert code from Q73

Core Values

Q76. Please tell me, whether you think each of the following statements can be justified:

		Can always be justified	Can sometimes be justified	Can never be justified	Don't know
<i>CValue21</i>	Killing	1	2	3	8
<i>CValue25</i>	Stealing	1	2	3	8
<i>CValue26</i>	Lying	1	2	3	8
<i>CValue27</i>	Creating disharmony in human relations	1	2	3	8
<i>CValue60</i>	Sexual misconduct	1	2	3	8

Participation in Community Events

Q77. On an average, how many days did you spend in the past 12 months attending social and cultural activities, such as community festivals or *choku* of neighbours?

<i>Local29</i>	◀ Record number of days [Enter "888" for Don't Know]
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Traditional Bhutanese Values, Etiquette and Conduct

Q78. How important is Bhutanese code of etiquette and conduct (*Driglam Namzha*)?

<i>Namzha1</i>	Not important	Important	Very important	Don't know
	1	2	3	8

- Q79. How do you perceive the change in practice of Bhutanese code of etiquette and conduct (*Driglam Namzha*) during the last few years?

Namzha2	Getting weaker	Stayed the same	Getting stronger	Don't know
	1	2	3	8

1.6 – GOOD GOVERNANCE

Participation in *zomdue*

- Q80. In the past 12 months, have you attended a *zomdue*?

Zom1	Yes	No	Not applicable
	2	1	9
If 'No' or 'Not applicable', Go To Q84			

- Q81. How many times, in the past 12 months, have you attended *zomdue* at...

Zom2	Village/ <i>chiwog</i> level		◀ Record number of times (If not applicable enter 99)
Zom3	Gewog level		◀ Record number of times (If not applicable enter 99)
Zom6	Thromdey level		◀ Record number of times (If not applicable enter 99)

- Q82. Did you speak at the *zomdue*?

Zom4	Yes	No
	2	1
If 'No', Go to Q84		

- Q83. How often did you speak?

Zom5	Every time	Most of the times	Sometimes
	3	2	1

Performances of government

- Q84. For each of the following, please rate the performances of the government in the past 12 months.

		Very good	Good	Average	Poor	Very poor	Don't know
Centra1	Creating jobs	5	4	3	2	1	8
Centra2	Reducing gap between rich & poor	5	4	3	2	1	8
Centra3	Providing educational facilities/services	5	4	3	2	1	8
Centra4	Providing health facilities/services	5	4	3	2	1	8
Centra6	Fighting corruption	5	4	3	2	1	8
Centra8	Protecting natural environment	5	4	3	2	1	8
Centra11	Preserving culture and traditions	5	4	3	2	1	8

Perception of electoral process

- Q85. Did you vote for *Gup/Mangaap/Tshogpa*, MP or *Thromdey* representative in the last election?

		Yes	No	Not applicable
<i>Elect1</i>	NA	1	2	9
<i>Elect2</i>	NC	1	2	9
<i>Elect3</i>	LG/ <i>Thromday</i>	1	2	9

- Q86. Will you participate in the next general election (through voting)?

<i>Elect5</i>	Yes	No	Don't know	I can't vote
	1	2	8	9
If 'Yes' or 'Don't know', or 'I can't vote', Go to Q88				

- Q87. If no, why won't you vote in the next election:

<i>Elect8</i>	I don't think my vote matters	I don't trust politicians	I am not interested in politics	I am fed up with voting	Polling stations are too far	Others
	1	2	3	4	5	6
	If Others (specify _____)					

Respect for fundamental rights

- Q88. Do you feel that if you wanted, you:

		Yes, definitely	Yes, maybe	No	Don't know
<i>Rights2</i>	Would have right to freedom of speech and opinion	3	2	1	8
<i>Rights3</i>	Would have right who to vote	3	2	1	8
<i>Rights4</i>	Would have right to join political party of your choice	3	2	1	8
<i>Rights6</i>	Would have right to form <i>tshogpa</i> or be a member of <i>tshogpa</i>	3	2	1	8
<i>Rights7</i>	Would have right to equal access and opportunity to join public service	3	2	1	8
<i>Rights8</i>	Would have right to equal pay for work of equal value	3	2	1	8
<i>Rights10</i>	Are free from discrimination based on gender	3	2	1	8
<i>Rights11</i>	Are free from discrimination based on religion	3	2	1	8
<i>Rights12</i>	Are free from discrimination based on language	3	2	1	8
<i>Rights13</i>	Are free from discrimination based on political affiliation	3	2	1	8

1.7 – COMMUNITY VITALITY

Length of stay

- Q89. How long have you lived in this village/town?

Mobil1		◀ Record number of years [Enter 0 if less than a year]
If 'Mobil1' equals the age of the respondent, Go to Q91		

- Q90. Where did you live before moving to this village/town?

			Code
Mobil2		◀ Record name of Dzongkhag	
Mobil3		◀ Record name of Gewog/Town	
Mobil4		◀ Record name of Country if outside Bhutan	

Volunteering

- Q91. During the past 12 months, how many days did you volunteer for the following? [Enter "0" if less than a day, enter "999" if none and enter '888' if Don't Know]

Volunteerism		Record number of days
Vol2	Labour contribution towards construction/renovation of religious establishments (e.g., goendey, shedra, lhakhang and chorten)	
Ritual	Labour during rituals	
Refig	Labour contribution for religious figures	
Vol3	Labour for house construction/repair	
Vol9	Labour contribution during times of death in a community	
Vol14	Clean-up campaign	
Vol15	Fund-raising	
Vol18	Others	
Vol19	If "Others" please specify_____.	

Donations

- Q92. In the past 12 months, how much did you donate in cash/kind to the following? [Enter "0" if none, enter "9" if Not Applicable and enter '8' if Don't Know]

Activities		Cash Amount (Nu)	Kind Amount (Approx. cash value in Nu)
Don1	Religious establishments		
Don	Religious figures		
Don2	Religious rituals		
Don3	To other families (e.g., during times of death, etc.)		
Don4	Individuals (other than your relatives)		
Don7	Others		
Don8	If "Others" please specify_____.		

Woola

- Q93. In the past 12 months, how many days did you contribute towards the following as a “woola”? [Enter “0” if less than a day, enter “999” if none and enter ‘888’ if Don’t Know]

Woola		Record number of days	Are you compensated		If Yes, record amount (Nu)
			Yes	No	
Woo1	Thungchhu		1	2	
Woo2	Farm road		1	2	
Woo3	Lhakhang construction/repair/renovation		1	2	
Woo4	Mule track or footpath construction/repair		1	2	
Woo5	Schools		1	2	
Woo6	BHUs/health centre		1	2	
Woo7	Irrigation channels		1	2	
Woo8	Gup office maintenance		1	2	
Woo9	Bridge constructions		1	2	
Woo10	Animal husbandry centres		1	2	
Woo11	Agriculture centres		1	2	
Woo12	Carrying baggage for officials		1	2	
Woo13	Carrying messages between villages		1	2	
Woo14	Chadri preparations for official visits		1	2	
Woo15	If Others (specify _____)		1	2	

Sense of Belonging

- Q94. How would you describe your sense of belonging to your local community?

Belong1	Very strong	Somewhat strong	Weak	Don’t know
	3	2	1	8

- Q95. Would you say this is a neighbourhood where neighbours help one another?

Comm7	Always	Sometimes	Rarely	Never	Don’t know
	4	3	2	1	8

- Q96. In the last month, how often did you socialise with your neighbours?

Tusoc2	Few times per week	Few times a month	Once a month	Not in the last month	Don’t know
	4	3	2	1	8

Sense of Trust

Q97. How much do you trust your neighbours?

<i>Trust4</i>	Trust most of them	Trust some of them	Trust a few of them	Trust none of them	Not applicable
	4	3	2	1	9

Q98. How much do you trust Bhutanese people in general?

<i>Tgene</i>	Trust most of them	Trust some of them	Trust a few of them	Trust none of them	Don't know
	4	3	2	1	8

Family Relationships

Q99. Do you agree with the following statements? *[Ask this question in absence of other family members]*

		Disagree	Neutral	Agree	Not applicable
<i>Fam1</i>	The members of your family really care about each other	1	2	3	9
<i>Fam3</i>	You wish you were not part of your family	3	2	1	9
<i>Fam4</i>	Members of your family argue too much	3	2	1	9
<i>Fam6</i>	You feel like a stranger in your family	3	2	1	9
<i>Fam7</i>	You have enough time to spend with your family	1	2	3	9
<i>Fam8</i>	There is a lot of understanding in your family	1	2	3	9
<i>Fam10</i>	Your family is a real source of comfort to you	1	2	3	9

Crime and Safety

Q100. Have you been a victim of the following crimes in the last 12 months? *[Ask this question in absence of other family members or other people]*

	Nature of crime	Record number of incidences <i>[Enter "0" for none]</i>	Who was the perpetrator/suspected perpetrator of the crime? <i>[Enter codes from below]</i>
<i>Theft1</i>	Theft		
<i>Robbery1</i>	Robbery		
<i>Crime7</i>	Fraud		
<i>Crime3</i>	Vandalism		
<i>Crime8</i>	Physical Assault		
<i>Crime5</i>	Sexual Assault		
<i>Crime10</i>	Cyber bullying		
<i>Crime4</i>	Family Violence		
<i>Crime11</i>	Others (specify _____)		
<i>If 'none' to all, need not fill the last column</i>			

1 = Spouse/intimate partner 2 = Other family members 3 = Close relative 4 = Friend/colleague	5 = Community member/neighbour 6 = Your supervisor 7 = Acquaintance	8 = An ex-convict 9 = Unknown person 10 = Others (specify.....)
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Q101. How safe do you feel when walking alone in your neighbourhood or village **after dark** from....?

		Completely safe	Safe	Neither safe nor unsafe	Unsafe	Completely unsafe
<i>Safety1</i>	Human harm	5	4	3	2	1
<i>Safety2</i>	Wild animals	5	4	3	2	1
<i>Safety3</i>	Ghost/Spirits	5	4	3	2	1

Q102. How safe do you feel when walking alone in your neighbourhood or village **during daytime** from....?

		Completely safe	Safe	Neither safe nor unsafe	Unsafe	Completely unsafe
<i>hharm</i>	Human harm	5	4	3	2	1
<i>wharm</i>	Wild animals	5	4	3	2	1

Q103. Did enmity arise between you and any other person in the community during the last 12 months?

<i>Enmity1</i>	Yes	No	Don't know
	1	2	8
<i>If No, Go To Q105</i>			

Q104. If yes, state the reason/reasons.

	Reasons	Yes	No
<i>Enmity2</i>	Land disputes	1	2
<i>Enmity3</i>	Disputes over irrigation water	1	2
<i>Enmity4</i>	Damage to crops by domestic animals	1	2
<i>Enmity5</i>	Parents quarrelling over children's fight	1	2
<i>Enmity6</i>	Illicit affairs	1	2
<i>Enmity7</i>	Theft	1	2
<i>Enmity8</i>	Alcohol	1	2
<i>Enmity9</i>	Drugs	1	2
<i>Enmity10</i>	Sexual assault	1	2
<i>Enmity11</i>	Family violence	1	2
<i>Enmity12</i>	Other (specify_____)	1	2

1.8 – ECOLOGICAL DIVERSITY AND RESILIENCE

Connection to nature

Q105. Do you agree with the statement: “Nature is the domain of spirits and deities”?

<i>EcolVal1</i>	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
	5	4	3	2	1	8

Q106. Do you feel responsible for conserving the natural environment?

<i>Enres1</i>	Highly responsible	Somewhat responsible	A little responsible	Not at all responsible
	4	3	2	1

Environmental issues

Q107. Please tell us how contented or discontented you are with the following in your living environment?

		Very discontented	Discontented	Neither discontented nor contented	Do not have a complaint	No complain at all
<i>Env1</i>	Noise	1	2	3	4	5
<i>Env2</i>	Air pollution	1	2	3	4	5
<i>Env3</i>	River and stream pollution	1	2	3	4	5
<i>Env4</i>	Crime and violence	1	2	3	4	5
<i>Env5</i>	Litter	1	2	3	4	5
<i>Env6</i>	Pedestrian footpaths	1	2	3	4	5
<i>Env7</i>	Street lights	1	2	3	4	5

Q108. Did **forest fire** significantly affect you or your family or property in the past 12 months?

<i>Fire0</i>	Yes	No	Don't know
	1	2	8
If 'No' or 'Don't know', Go to Q110			

Q109. How did **forest fire** affect your life?

		Yes	No	Don't know
<i>Fire1</i>	Loss of life in my village	1	2	8
<i>Fire2</i>	Damaged my house	1	2	8
<i>Fire3</i>	Loss of my livestock	1	2	8
<i>Fire4</i>	Damaged my crops	1	2	8
<i>Fire5</i>	Severe service disruption – to water supply line, mobile networks, electricity supply, etc.	1	2	8
<i>Fire6</i>	I or my family was injured	1	2	8
<i>Fire7</i>	Loss of life in my family	1	2	8

<i>Fire9</i>	Others (specify.....)	1	2	8
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Q110. Did **river pollution** significantly affect you or your family or property in the past 12 months?

<i>RiverP0</i>	Yes	No	Don't know
	1	2	8

If 'No' or 'Don't know', Go to Q112

Q111. How did **river pollution** affect your life?

		Yes	No	Don't know
<i>RiverP1</i>	Affected my crop	1	2	8
<i>RiverP2</i>	Affected my livestock	1	2	8
<i>RiverP3</i>	Water became unfit for consumption	1	2	8
<i>RiverP9</i>	Others (specify.....)	1	2	8

Q112. Did **soil erosion or landslide** significantly affect you or your family or property in the past 12 months?

<i>SoilE0</i>	Yes	No	Don't know
	1	2	8

If 'No' or 'Don't know', Go to Q114

Q113. How did **soil erosion or landslide** affect your life?

		Yes	No	Don't know
<i>SoilE1</i>	Damaged my house	1	2	8
<i>SoilE2</i>	Loss of my livestock	1	2	8
<i>SoilE3</i>	Damaged my crops	1	2	8
<i>SoilE4</i>	Severe service disruption – to water supply line, mobile networks, electricity supply, etc.	1	2	8
<i>SoilE5</i>	I or my family was injured	1	2	8
<i>SoilE6</i>	Loss of life in my family	1	2	8
<i>SoilE9</i>	Others (specify.....)	1	2	8

Q114. Did **flood** significantly affect you or your family or property in the past 12 months?

<i>Flood0</i>	Yes	No	Don't know
	1	2	8

If 'No' or 'Don't know', Go to Q116

Q115. How did **flood** affect your life?

		Yes	No	Don't know
<i>Flood1</i>	Damaged my house	1	2	8
<i>Flood2</i>	Loss of my livestock	1	2	8
<i>Flood3</i>	Damaged my crops	1	2	8
<i>Flood4</i>	Severe service disruption – to water supply line, mobile networks, electricity supply, etc.	1	2	8
<i>Flood5</i>	I or my family was injured	1	2	8

<i>Flood6</i>	Loss of life in my family	1	2	8
<i>Flood9</i>	Others (specify.....)	1	2	8

Q116. Did **inadequate waste disposal sites or littering** significantly affect you or your family or property in the past 12 months?

<i>Disp0</i>	Yes	No	Don't know
	1	2	8
<i>If 'No' or 'Don't know', Go to Q118</i>			

Q117. How did the **inadequate waste disposal sites or littering** affect your life?

		Yes	No	Don't know
<i>Disp1</i>	It is unpleasant – because of the eyesore and smell	1	2	8
<i>Disp2</i>	My or my family's health has been affected by a hazard I think is related to waste disposal.	1	2	8
<i>Disp3</i>	Issues of waste disposal have caused significant quarrels among my community members	1	2	8
<i>Disp9</i>	Others (specify.....)	1	2	8

Q118. Did **inadequate pedestrian paths and facilities** significantly affect you or your family or property in the past 12 months?

<i>Pedest0</i>	Yes	No	Don't know
	1	2	8
<i>If 'No' or 'Don't know', Go to Q120</i>			

Q119. How did the **inadequate pedestrian paths and facilities** affect your life?

		Yes	No	Don't know
<i>Pedest1</i>	I or someone in my family has been hit by a vehicle	1	2	8
<i>Pedest2</i>	I do not walk because I am afraid or uncomfortable walking in the street/along motor roads	1	2	8
<i>Pedest3</i>	Loss of life in my family	1	2	8
<i>Pedest9</i>	Others (specify.....)	1	2	8

Q120. Did **air pollution** significantly affect you or your family or property in the past 12 months?

<i>Air0</i>	Yes	No	Don't know
	1	2	8
<i>If 'No' or 'Don't know', Go to Q122</i>			

Q121. How did **air pollution** affect your life?

		Yes	No	Don't know
<i>Air1</i>	I or someone in my family has a health condition due to air pollution (cough, asthma)	1	2	8
<i>Air2</i>	I feel that the air is not clear and fresh; that it is very polluted	1	2	8

<i>Air9</i>	Others (specify.....)	1	2	8
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Q122. Did **wild animals** significantly affect you or your family or property in the past 12 months?

<i>WildL0</i>	Yes	No	Don't know
	1	2	8
<i>If 'No' or 'Don't know', Go to Q124</i>			

Q123. How did wild animals affect your life?

		Yes	No	Don't know
<i>WildL1</i>	Loss of my livestock	1	2	8
<i>WildL2</i>	Damaged my crops	1	2	8
<i>WildL3</i>	I have to spend time guarding the crops	1	2	8
<i>WildL4</i>	Damaged my house	1	2	8
<i>WildL5</i>	I or my family was injured	1	2	8
<i>WildL6</i>	Loss of life in my family	1	2	8
<i>WildL9</i>	Others (specify.....)	1	2	8

Q124. Did an **earthquake** significantly affect you or your family or property in the past 12 months?

<i>Earth0</i>	Yes	No	Don't know
	1	2	8
<i>If 'No' or 'Don't know', Go to Q126</i>			

Q125. How did **earthquake** affect your life?

		Yes	No	Don't know
<i>Earth1</i>	Damaged my house	1	2	8
<i>Earth2</i>	Loss of my livestock	1	2	8
<i>Earth3</i>	Damaged my crops	1	2	8
<i>Earth4</i>	Severe service disruption – to water supply line, mobile networks, electricity supply, etc.	1	2	8
<i>Earth5</i>	I or my family was injured	1	2	8
<i>Earth6</i>	Loss of life in my family	1	2	8
<i>Earth9</i>	Others (specify.....)	1	2	8

Energy

Q126. What fuel do you use most often for cooking your food?

<i>Energy1</i>		◀ Please record appropriate code from below
0 = Don't cook		5 = Dung
1 = Others (specify.....)		6 = Charcoal
2 = Solar		7 = Wood
3 = Kerosene		8 = LPG
4 = Straw		9 = Electricity

Q127. How do you usually heat your dwelling?

<i>Energy7</i>		◀ Please record appropriate code from below
0 = Don't heat		5 = Dung
1 = Others (specify.....)		6 = Charcoal
2 = Solar		7 = Wood

3 = Kerosene
4 = Straw

8 = Electricity

Household Waste

Q128. How do you mostly dispose your household waste?

Waste4	Compost- ing	Burning	Municipal garbage pick-up	Dump in rivers/ streams	Dump in forest	Dump on open land	Others
	7	6	5	4	3	2	1
	If Others (specify _____)						

Human-wildlife conflict [Mark not applicable for non-farming respondents]

Q129. Do you have any land that is not cultivated ***specifically because of the wildlife threats*** in the past one year?

HumanWild2	Yes	No	Not applicable
	1	2	9
HumanWild4	If yes, please record acreage (in decimals)_____.		

Q130. How many livestock do you own? In the past one year, have you lost any of these livestock to predators, and if so how many?

	Animals	Record number of animals owned		Record number of animals lost to wildlife depredation
Livest1	Yak/ Zow/ Zom		Llost1	
Livest2	Cow		Llost2	
Livest3	Bull		Llost3	
Livest4	Goat		Llost4	
Livest5	Sheep		Llost5	
Livest6	Horse		Llost6	
Livest7	Donkey		Llost7	
Livest8	Mule		Llost8	
Livest9	Chicken		Llost9	
Livest10	Pig		Llost10	
Livest11	Buffalo		Llost11	
Livest12	Others (specify _____)		Llost12	

1.9 – LIVING STANDARDS

Q131. How much income did your household earn/receive during the past 12 months from each of the following sources? [If no income is received from a source, enter 0. Leave blank only if the respondent refuses to answer.]

Sources of Income		What is the amount earned in cash during the past 12 months? (Nu)	What is the amount earned in kind during the past 12 months? [Estimated cash value in Nu]	
Cinc1	Gross Salary/Wages (including religious fees)		Kinc1	
From sale of agricultural/livestock/forestry products				
Cinc2	Rice		Kinc2	
Cinc3	Processed rice (zaw, sip, mekhu, etc.)		Kinc3	
Cinc4	Maize/kharang		Kinc4	
Cinc5	Processed maize (Tengma, popcorn)		Kinc5	
Cinc6	Wheat		Kinc6	
Cinc7	Buckwheat		Kinc7	
Cinc8	Other cereals		Kinc8	
Cinc9	Khabzey (biscuits)		Kinc9	
Cinc10	Potato		Kinc10	
Cinc11	Chilli		Kinc11	
Cinc12	Other vegetables		Kinc12	
Cinc13	Apple		Kinc13	
Cinc14	Orange		Kinc14	
Cinc15	Doma (areca nut)		Kinc25	
Cinc16	Other fruits		Kinc16	
Cinc17	Meat (beef, yak meat, pork, mutton, chicken, fish, etc.)		Kinc17	
Cinc18	Milk		Kinc18	
Cinc19	Milk products (cheese, butter, yogurt, daw, chugo)		Kinc19	
Cinc20	Egg		Kinc20	
Cinc21	Sale of animals (Jatsha, Jatsham, Mules, etc.)		Kinc21	
Cinc22	Hiring of animals (Mules, Oxen, etc.)		Kinc22	
Cinc23	Cooking oil		Kinc23	
Cinc24	Locally brewed alcoholic drinks (ara, singchang, bangchang, tongpa)		Kinc24	
Cinc25	Mushroom		Kinc25	
Cinc26	Yartsa Goenbub (cordyceps sinensis)		Kinc26	
Cinc27	Forest wood products including bamboo and cane products (Dapa, Phob, Bangchung, etc.)		Kinc27	
Cinc28	Forest non-wood products (Dambru, ferns, etc.)		Kinc28	

Sources of Income		What is the amount earned in cash during the past 12 months? (Nu)	What is the amount earned in kind during the past 12 months? [Estimated cash value in Nu]	
From non-agricultural activities				
Cinc29	Net income from business		Kinc29	
Cinc30	Weaving		Kinc30	
Cinc31	Other crafts		Kinc31	
Cinc32	Remittances received		Kinc32	
Cinc33	Pension		Kinc33	
Cinc34	Rental of house		Kinc34	
Cinc35	Lease of land		Kinc35	
Cinc36	Rental of vehicles		Kinc36	
Cinc37	Rental of other machinery		Kinc37	
Cinc38	Profits from real estate deals including commissions		Kinc38	
Cinc39	Inheritance		Kinc39	
Cinc40	Profit from sale of land		Kinc40	
Cinc41	Profit from sale of shares		Kinc41	
Cinc42	Profit from sale of other assets		Kinc42	
Cinc43	Donations received		Kinc43	
Cinc44	Scholarships		Kinc44	
Cinc45	Income received as interests on savings, dividends from shares, etc.		Kinc45	
Cinc46	Others (Specify.....)		Kinc46	
Cinc47	Others (Specify.....)		Kinc47	
Cinc48	Others (Specify.....)		Kinc48	
Cinc49	Others (Specify.....)		Kinc49	
Cinc50	Others (Specify.....)		Kinc50	

Q132. During the past 12 months, did you receive any free labour contributions from people outside your household?

<i>Inkind5</i>	Yes	No
	1	2
If 'No', Go to Q134		

Q133. If yes, what was the approximate value of these contributions?

<i>Inkind6</i>		◀ Please enter approximate cash value in Nu
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Financial security

Q134. With your current total household income, how difficult or easy is it for you to manage your daily necessary expenses such as for food, shelter and clothing?

<i>Finsec</i>	Very difficult	Difficult	No problem	Easy	Very easy
	1	2	3	4	5

Household debt

Q135. What is your current household **outstanding** debt? [*If there is no debt from a source, enter 0. Leave blank only if the respondent refuses to answer.*]

Sources of Debt		Amount in Nu (Outstanding loan balance)		When did you avail the loan? [Enter month and year – mm/yyyy]		From whom did you borrow? [Enter code from below]
<i>Debt1</i>	Housing loan		<i>Ldate1</i>		<i>Lsou1</i>	
<i>Debt2</i>	Vehicles loan		<i>Ldate2</i>		<i>Lsou2</i>	
<i>Debt4</i>	Agricultural loan		<i>Ldate4</i>		<i>Lsou4</i>	
<i>Debt5</i>	Business/commercial loan		<i>Ldate5</i>		<i>Lsou5</i>	
<i>Debt6</i>	Educational loan		<i>Ldate6</i>		<i>Lsou6</i>	
<i>Debt7</i>	Personal/consumer/employee loan		<i>Ldate7</i>		<i>Lsou7</i>	
<i>Debt8</i>	Other loan		<i>Ldate8</i>		<i>Lsou8</i>	
<i>Debt9</i>	Total				<i>Lsou9</i>	

1 = BNB	5 = BDBL	9 = BOiC	12 = Cooperatives
2 = BoB	6 = NPPF	10 = Relatives (other than HH members)	13 = Informal money lenders
3 = T-Bank	7 = RICB	11 = Friends	14 = Others
4 = Druk PNB	8 = BIL		(Specify.....)

Housing

Q136. Is the dwelling in which you live rented or owned?

<i>HTenure</i>	Rented	Rent-free	Owned
	1	2	3
<i>If 'Rent-free' or 'Owned', Go to Q138</i>			

Q137. If rented, what is the current monthly rent? [*if payment is made in kind, assess the cash value*].

<i>HRent</i>		◀ Record amount in Nu
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Q138. If the dwelling is rent-free or owned, how much do you think you would pay if you had to rent this dwelling?

<i>ORent</i>		◀ Record amount in Nu
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Q139. Do you have electricity in your household?

<i>Elec</i>	Yes, from the grid	Yes, from solar panel	No
	3	2	1
	If other source (specify_____)		

Q140. What type of roof-material is mainly used for your dwelling? [*The enumerator can fill this space from observation after confirming with the respondent*]

<i>Roof</i>	Concrete/ brick/tiles	CGI sheet /Metal	Mud	Wood	Straw/ Leaves	Bam- boo	Slate	Others
	8	7	6	5	4	3	2	1
	If other (specify_____)							

Q141. How many rooms are there in the dwelling? (*Exclude bathrooms and toilets, also exclude kitchen if it cannot be used for sleeping*)

<i>HRooms</i>		◀ Record number of rooms
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Q142. Do you have **adequate** drinking water supply?

<i>Water</i>	Yes	No
	1	2

Q143. What is the main source of water for your household for drinking?

<i>Floor</i>	Piped-in dwelling	Piped water outside house	Piped to neighbour	Public outdoor tap	Protected well	Unprotected well	Protected spring	Unprotected spring	Rainwater	Other source
	9	8	7	6	5	4	3	2	1	0
	If other source (specify_____)									
	<i>If '9', Go to Q145</i>									

Q144. If not piped into dwelling, how long does it take to get to the water source, get water and come back?

<i>Fetch</i>		◀ Record number of minutes [<i>Enter 999 for Don't know</i>]
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Q145. How would you rate the quality of your drinking water (discolouration, odour, sediment, taste etc.)?

	Very good	Good	Neither good nor poor	Poor	Very poor	Don't know
<i>WatQual</i>	5	4	3	2	1	8

Q146. What kind of toilet facility does your household use?

<i>Toilet</i>	Flush toilet	Ventilated improved pit latrine	Pit latrine (with slab)	A composting toilet	Flush to somewhere else	Pit latrine (without slab)	No toilet facility (use open spaces)	Others
	8	7	6	5	4	3	2	1
	If others (specify _____)							

Asset Ownership

Q147. How many acres of land does your household own? [*Record acreage in decimal. If don't know, enter '8888'. Don't leave it blank*].

	Type of land	Acreage (in decimal)
<i>Land1</i>	<i>Kamzhing</i>	
<i>Land4</i>	<i>Chhuzhing</i>	
<i>Land5</i>	<i>Ngueltho dumra</i> (Orchard)	
<i>Land6</i>	<i>Tshoesa</i>	
<i>Land7</i>	<i>Khimsa</i>	

Q148. Which of the following equipment does your household own? Could you kindly give the total number? [*Enter 0 for none and '888' for 'don't know'. Don't leave it blank*]

	Equipment	Number
<i>Equip1</i>	Tractor	
<i>Equip2</i>	Power tiller	
<i>Equip3</i>	Power thresher	
<i>Equip4</i>	Paddle thresher	
<i>Equip6</i>	Rice/maize mill set	
<i>Equip7</i>	Oil mill set	
<i>Equip8</i>	Power reaper	
<i>Equip9</i>	Mobile telephone	
<i>Equip10</i>	Fixed line telephone	
<i>Equip11</i>	Personal computer/Laptop	
<i>Equip12</i>	iPad	
<i>Equip13</i>	Camera	
<i>Equip14</i>	Sewing machine	
<i>Equip15</i>	Refrigerator	
<i>Equip16</i>	Washing machine	
<i>Equip17</i>	Radio or transistor	
<i>Equip18</i>	Television	
<i>Equip19</i>	VCR/VCD/DVD	
<i>Equip20</i>	Family car	
<i>Equip21</i>	Other vehicles (trucks, buses, DCMs, etc.)	
<i>Equip22</i>	Two-wheel vehicles	
<i>Equip23</i>	Compound bow	
<i>Equip24</i>	Power chain saw	
<i>Equip25</i>	<i>Choesham</i>	

	Equipment	Number
<i>Equip26</i>	Sofa set	
<i>Equip27</i>	Others (Specify_____)	

Please note the condition in which the interview was conducted

<i>intcondn</i>	In the crowd	In the presence of other HH members	In isolation	Others (Specify..... ...)
	4	3	2	1

Please enter the interview end time

<i>etime</i> End time	<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	◀ Enter time (hh:mm) format
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Enumerator's observation <i>Please note down any unusual observation/situation</i>

Field supervisor's observation <i>Please note down any unusual observation/situation</i>

