

ROYAL GOVERNMENT OF BHUTAN



Bhutan: In Pursuit of Sustainable Development

**NATIONAL REPORT FOR THE UNITED NATIONS CONFERENCE ON
SUSTAINABLE DEVELOPMENT 2012**

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Royal Government of Bhutan

31 May, 2012.

Foreword

Bhutan aspires to be a country where development is holistic, inclusive and sustainable. This aspiration comes from the visionary statement “Gross National Happiness is more important than Gross National Product” first enunciated by His Majesty the Fourth King of Bhutan in the early 1970s – long before sustainable development became a global agenda. This very essence of sustainable development philosophy, is based on the principle that true development takes place when material, emotional and spiritual well-being occur side by side to complement and reinforce each other to promote equitable socio-economic development, environmental sustainability, cultural integrity, and good governance.

In Bhutan, every effort is being made to continually strengthen institutional structures and policy instruments at all levels to create better conditions for planning and implementing sustainable development through mainstreaming efforts guided by the GNH concept. While the country is committed to sustainable development and has continued to make headways in the field of environmental conservation, growing pressures on the natural world and unsustainable patterns of consumption and economic development have become an increasing concern.

This document, formulated through extensive consultation and collaboration, gives an overview of what sustainable development means to Bhutan and its people, and how it is being pursued in an extremely fragile ecology.

It is in this very context that Bhutan proposes an inclusive, equitable and balanced approach to economic development. It calls for a new global economic paradigm founded on environmental sustainability and social equity to promote happiness and wellbeing of all forms of life on earth.

(Jigmi Y. Thinley)
Prime Minister of the Kingdom of Bhutan, and
Chairman of the National Environment Commission.

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Executive Summary

Sustainable Development and Gross National Happiness

Long before sustainable development became a global agenda, His Majesty the Fourth King of Bhutan, in the early 1970s, enunciated the development philosophy of Gross National Happiness – underscoring that true development cannot be pursued on the premise of economic development alone but has to take place in conjunction with the social, spiritual and environmental wellbeing of the people. Since then, the country's development policies, plans and programmes have been guided by this overarching development philosophy.

The sustainable development concept and principles are entrenched in the GNH development philosophy. The Constitution of the Kingdom mandates a forest cover of at least 60% of the land at all times. Institutional structures and policy instruments are being continually strengthened at all levels to create better conditions for planning and implementing sustainable development along the lines of the GNH concept. While the country is committed to sustainable development, it is also increasingly concerned with the growing pressures on the natural world and unsustainable patterns of economic development. The world has in recent times witnessed some of the worst economic crises and is experiencing a growing divide between the rich and poor, with women bearing much of the brunt of poverty. Various global studies suggest that humanity is living far beyond the limits of environmental sustainability.

It is in the above context that Bhutan proposed an inclusive, equitable and balanced approach to economic development that promotes environmental sustainability, well-being, and happiness as overarching goals. The 65th Session of the United Nations General Assembly in July 2011 adopted Resolution 65/309 titled '*Happiness: towards a holistic approach to development*' initiated by Bhutan. The adoption of the resolution by the 193-member United Nations is an encouraging sign. It gives Bhutan and many other countries striving for sustainable development hope as well as great expectations that the world community will come together to learn from past lessons, build on whatever progresses have been achieved, and retrace their steps to the path of sustainable development that they had committed to twenty years ago.

Pursuant to the above Resolution, on 2nd April 2012, Bhutan convened a '*High-level Meeting on Wellbeing and Happiness: Defining a New Economic Paradigm*' at the United Nations headquarters in New York. The High-Level Meeting brought together more than 800 distinguished participants from around the world and a common thread that emerged in the discussions of the meeting was the universal recognition that development must be holistic and inclusive and anchored on wellbeing and happiness.

Furthermore, the Royal Government of Bhutan has committed to remain carbon neutral keeping in line with the country's policies and to serve as an example in combating climate change. This has been declared through the "Declaration of the Kingdom of Bhutan- The Land of Gross National Happiness to Save our Planet" made at the UNFCCC 15th Session of Conference of Parties (COP15) in Copenhagen in December 2009, wherein the government committed to maintain Bhutan's status as a net sink for Green House Gasses by ensuring that greenhouse gas emission levels do not exceed the sequestration capacity of its forests. Keeping in line with this bold declaration, the Economic Development Policy of 2010 also states that "green growth" will be encouraged in promoting industrial and private sector development.

Linking Global and National Efforts of Sustainable Development

Integral to the country's sustainable development policy is international cooperation and its commitment to global sustainable development mechanisms such as the multilateral environmental agreements and the Millennium Development Goals.

Since Rio Summit 1992, Bhutan has become a Party to eleven United Nations multilateral environmental agreements including the three Rio Conventions – Convention on Biological Diversity, United Nations Framework Convention on Climate Change, and United Nations Convention to Combat Desertification. As a Party to the various multilateral environmental agreements, the country has strengthened the policy and programmatic framework to pursue sustainable development goals and objectives. This includes the Biodiversity Action Plans, National Biosafety Framework, National Adaptation Programmes of Action for Climate Change, National Communications to the UNFCCC (which includes national greenhouse gas inventory), and National Action Programme to Combat Land Degradation.

The GNH development concept and the Millennium Development Goals fundamentally share common inspiration and the universal values of freedom, equality, tolerance, respect for nature, and shared responsibilities. Tremendous progress is being made in the pursuit of the Millennium Development Goals. Bhutan has already achieved a number of the targets well ahead of 2015 (the universal target date) and is on track to meet most of the remaining targets. Key areas of achievement include the reduction of malnutrition among children, access to safe drinking water and improved sanitation facilities, protection and management of forests and biodiversity, reduction in child and maternal mortality, and primary education enrolment with gender-parity. These goals support the government's provision of free basic health services and education throughout the country.

Green Economy: Existing Premise, Avenues and Challenges

The idea of green economy fits in very well within the framework of the GNH development philosophy. Bhutan's new Economic Development Policy, which was launched in 2010, embraces the green economy concept and principles. The country possesses several advantages in pursuit of green economy. These include: a constitutional mandate to maintain 60% of the land under forest cover; limited number of polluting industries; predominantly agrarian society; nature-based economy; a very positive state of natural environment; political stability and social harmony; a young democracy opening up new socio-economic development opportunities; and an extensive development governance structure.

Major avenues for green economy in Bhutan are:

- ❖ Development of clean energy by harnessing hydropower and renewable energy sources;
- ❖ Agriculture, forests and biodiversity resources as assets for economic development in a manner that enhances their value including through organic production practices whilst promoting their conservation and sustainable use;
- ❖ Sustainable high value and low impact tourism with focus on the country's natural and cultural endowments and engagement of local communities;
- ❖ Transportation based on replacement of fossil fuel with clean energy, improved road communication network, and efficient and affordable mass transport systems;
- ❖ Industries with strict compliance to legislated environmental standards and with access to, and capacity for, use of clean production technologies;
- ❖ Education and knowledge-based enterprises with focus on Bhutan's niche knowledge areas such as GNH and environmental management.

Other areas important for green economic development include: integrated rural-urban planning and regionally-balanced urban development; human settlement policy and planning; solid waste management; green construction industry; and entertainment industry.

While there are considerable opportunities for green economy, there are also various issues and challenges that the country needs to deal with. The country's key economic and social sectors such as hydropower, agriculture and health are highly vulnerable to the impacts of climate change. Economic development is constrained by the rugged mountainous terrain and small population size, high cost and limited in-country expertise hinder access to clean production technologies, small domestic market base has created high dependency on external markets, poverty is high especially in the rural areas, population is skewed geographically and age-wise, and women's representation in politics and decision-making bodies is limited although they play a critical role in economic development.

Institutional Development for Sustainable Development

While the overall institutional framework is in place for sustainable development, institutional strengthening will remain a continuous process as development circumstances and needs evolve and new methodologies and practices emerge. Institutional development will be pursued at all levels with particular impetus on local government institutions to enable them to bring about direct social, economic and environmental benefits at the grassroots levels. This will be to augment the Royal Government's progress in strengthening local governments and the decentralization process which was initiated in the early 1980s.

The Royal Government will continue to strengthen partnerships with the civil society organizations and the private sector to increase public outreach of its development programmes and services and expand the social and economic base for sustainable development.

Inter-agency and inter-sectoral coordination mechanisms at all levels of development governance will be enhanced. In this respect, the Royal Government aims to undertake an agencification strategy in the Eleventh FYP to improve inter-institutional coordination, separate policy-making, regulatory, administrative, and technical functions, and fine-tune and clarify the roles of various government agencies where there are overlapping mandates and functions. Also, a key area of institutional strengthening will be the development of research and information systems to collect and manage data and effectively link them to government planning and decision-making process.

Recommendations for Rio+20

Bhutan's key recommendations for the United Nations Conference on Sustainable Development to be held in Rio de Janeiro on 21-22 June, 2012, are:

- ❖ Adoption of a holistic wellbeing, happiness and sustainability-based development framework supported among other things by well-defined indicators and national accounting systems which fully considers the actual costs and values of natural and cultural resources that support economic development;
- ❖ Enhanced focus on sustainable mountain development including development and adoption of a comprehensive and well-defined global mechanism for policy, planning and technical cooperation;
- ❖ Priority in accessing international funds and technological support to least developed/ developing countries that have proactively pursued sustainable development and demonstrated visible progress and commitment;

- ✿ Enhanced access to, and transfer of, affordable clean technology, including training and cost-sharing, to poor countries;
- ✿ Enhanced access to climate change financing, which among other things considers the costs for mitigation of health risks caused by climate change;
- ✿ Strengthened international/ regional cooperation and partnerships for green economic development;
- ✿ Strengthened inter-linkages and synergies between the MEAs including common mechanisms for accessing funds and technical assistance.

1. Country Overview

1.1 Geo-physical and Political Setting

Nestled in the Eastern Himalayas and flanked by giant neighbors – China to the north and north-west and India to the south, south-west and east – Bhutan is a small country in terms of population as well as geographical size. The landlocked Himalayan kingdom of 720,680 people¹ has an area of 38,394 km², almost all of which is mountainous. The country can be distinguished into three broad physiographic zones: the southern belt made up of the Himalayan foothills adjacent to a narrow belt of flatland along the Indian border; the inner Himalayas consisting of main river valleys and steep mountains; and the high Himalayas featuring alpine meadows and snow-capped mountains.

Throughout its history, Bhutan has existed as an independent nation. The country's theocratic system, established in mid 17th century, came to an end in 1907 with the crowning of the First King of Bhutan by popular consensus and unanimous political support. After 100 years of absolute monarchy under the benign and farsighted leadership of the Wangchuck dynasty, the country became a democratic constitutional monarchy in 2008. The political transition to democracy was unique as it was the Fourth King of Bhutan who initiated and guided the democratization process in contrast to many other countries around the world where democracy was pursued as a result of popular movements.

Today, Bhutan has a democratic government elected through universal adult franchise in the country's first ever parliamentary elections on 24th March, 2008. The Constitution of the Kingdom of Bhutan, formally adopted on 18th July, 2008, is the supreme law under which the country's democratic system is to function and progress.

1.2 Social, Economic and Environmental Settings

Social Setting

Although a small country, there exists a rich mosaic of cultures molded by the country's mountainous landscapes, which in the past severely limited interactions between various communities in the absence of modern communication infrastructure. Three main ethnic groups exist: *Sharchops* (people from the east); *Ngalongs* (people from the west); and *Lhotsampas* (people from the south). In addition, there are several smaller ethnic communities mainly distinguished by their dialects. These include *Bumthaps*, *Mangdeps* and *Khengpas* in central Bhutan, *Kurtoeps* in the east, *Brokpas* and *Dakpas* in the north-east, *Layaps* and *Lunaps* in the north-west, and *Doyas* in the south.

The Bhutanese community is predominantly agrarian, with 69 percent of the country's population living in the rural areas according to the last national population census conducted in 2005. However, more and more people have been moving into urban areas. Between 1985 and 2005, urban population grew from 13.1 percent to 30.9 percent of the country's population. More than 52 percent of adult Bhutanese (above 15 years of age) are literate. On average a Bhutanese lives up to 66 years, a vast improvement since the mid 1980s when life expectancy was just 48 years – largely as a result of increased access to free health services and improved nutrition and sanitation.

¹ Projected population for 2012 according to the Dzongkhag Population Projections 2006-2015 prepared by the National Statistics Bureau, June 2008.

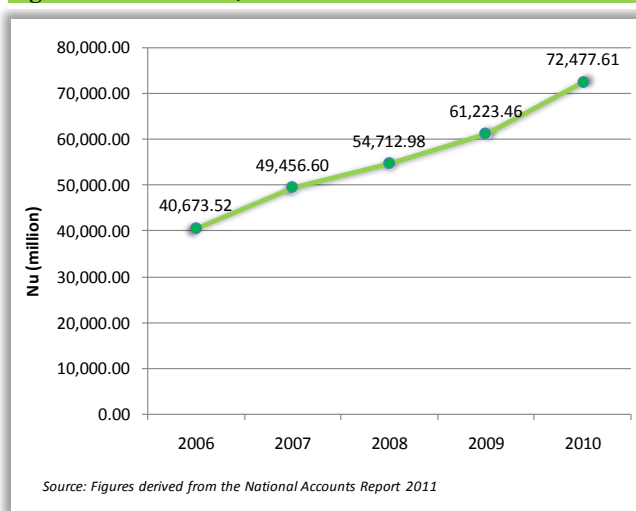
Economy

Bhutan's economy is one of the smallest in the world but one that has seen impressive growth over the years. The country's Gross Domestic Product (GDP) has grown from Nu. 40,673.52 million (US\$ 897.67 million) in 2006 to Nu. 72,477.61 million (US\$ 1,584.9 million) in 2010, up by about 78 percent (Figure 1). During the same period, per capita GDP has grown from Nu. 64,052.79 (US\$ 1,289.56) to Nu. 104,134.50 (US\$ 2,277.16)².

The key contributors to the GDP are electricity (17.61 percent) followed by renewable natural resources (comprising agriculture, livestock and forestry)(16.8 percent) and construction (14.22 percent)³.

The overall growth has been primarily stimulated by investments in the hydropower sector. In terms of employment, the renewable natural resources sector remains the most important economic sector although its relative GDP share has been falling over the years. Fueled primarily by hydropower, urban development and road projects, the construction sector has fast developed into a major economic sector. Tourism is another sector contributing significantly to the country's economy particularly in terms of foreign exchange and creation of jobs.

Figure 1: GDP Growth, 2006-2010



Natural Environment

The country is endowed with outstanding natural environment. It is dubbed as the 'crown jewel' of the Eastern Himalayas, a region recognized as a global biodiversity hotspot. Broadly speaking, the natural habitats range from the subtropical broadleaf forests and grasslands through temperate mountain forests to alpine meadows and scree interspersed with marshlands and various water bodies.

Despite a nascent conservation research capacity, the country has hitherto recorded 5,603 species of vascular plants, including 369 species of orchids and 46 species of rhododendrons⁴. Of the recorded plant species, 105 species are endemic – found nowhere else in the world. Mammal species in the wild number close to 200 and these include some of the world's most threatened species such as the Bengal tiger, snow leopard, Asian elephant, red panda, golden langur, and takin, the country's national animal. Bird fauna is also outstanding: 678 species have been recorded, including 14 that are globally threatened. To maintain the rich natural biodiversity, 42.71 percent of the country has been declared as protected areas, which include five national parks, four wildlife sanctuaries and a strict nature reserve. These protected areas are connected by biological corridors, amounting to 8.61 percent of the country, to ensure contiguousness of the natural habitats and allow wildlife movements between the protected habitats.

Forests account for more than 70 percent of the country's land cover – one of the highest in the world. The Constitution mandates that at least 60 percent of the country is maintained under forest cover at all

² National Accounts Report 2011.

³ The figures are for 2010 as cited in the National Accounts Report 2011.

⁴ All species and protected area figures are cited from the Biodiversity Action Plan of Bhutan 2009.

times. As a result of vast forest cover and limited number of polluting industries, Bhutan is among the few countries in the world with net greenhouse gas (GHG) emission in negative. The net GHG emission is estimated to be -4,750.04 Gigagram (Gg) of CO₂ equivalent based on 2000 data⁵. Furthermore, in December 2009 during the Copenhagen Climate Change Conference, the Royal Government of Bhutan issued a declaration entitled “Declaration of the Kingdom of Bhutan- The Land of Gross National Happiness to Save our Planet” wherein the government committed to maintain Bhutan’s status as a net sink for Green House Gasses by ensuring that greenhouse gas emission levels do not exceed the sequestration capacity of its forests.

Ambient air and water quality, in general, still ranges from very good to excellent but there are urban and industrial areas where air and water quality is deteriorating due to vehicular and industrial pollution, construction activities, and unsanitary waste disposal and living conditions.

1.3 Governance System

The current system of governance has been designed to represent a blend of global democratic systems and Bhutan’s own traditional structures to ensure the stability of a small and vulnerable country in a fast-changing world.

As a democratic constitutional monarchy, the *Druk Gyalpo* (King) is the hereditary head of the state while the *Lyonchhoen* (Prime Minister) is the elected head of the government. The democratic governance structure is made up of the executive, judiciary and legislative bodies.

At the central level, the government is made up of various ministries for delivering sectoral programmes and public services⁶. In addition, there are non-ministerial bodies which include the Gross National Happiness Commission (formerly Planning Commission) and National Environment Commission.

Constitutional bodies such as the Election Commission, Royal Audit Authority, Anti Corruption Commission, Royal Civil Service Commission, and Office of Attorney General have also been set up to strengthen and support democratic governance.

At the sub-national and local levels, government development programmes and public services are delivered by the *dzongkhag* administrations, *gewog* administrations, local elected bodies. There are altogether 20 *dzongkhags* and 205 *gewogs* in the country.

The judiciary system is made up of a Supreme Court, a High Court, and a network of District Courts and Sub-district Courts. As the apex judicial body, the Supreme Court is the custodian and interpreter of the Constitution.

The legislative system comprises the National Council or *Gyalyong Tshogde* (Upper House) and the National Assembly or *Gyalyong Tshogdu* (Lower House). The National Council has 20 elected representatives from the 20 *dzongkhags* and five eminent members appointed by the King. These members are not affiliated with any political party. The National Assembly consists of 47 members elected from the 47 constituencies across the country. These members belong to the ruling and opposition political parties.

⁵ Second National Communication to the UNFCCC, November 2011.

⁶ The existing government ministries are Agriculture and Forests, Economic Affairs, Education, Finance, Foreign Affairs, Health, Home and Cultural Affairs, Information and Communication, Labor and Human Resources, and Works and Human Settlement.

2. Mainstreaming Sustainable Development

2.1 Gross National Happiness and Sustainable Development

The Bhutanese Concept and Context

The concept of sustainable development is entrenched in the Bhutanese development philosophy of Gross National Happiness (GNH), first enunciated by His Majesty the Fourth King of Bhutan in the early 1970s, long before sustainable development became a global agenda. His Majesty's proclamation that "Gross National Happiness is more important than Gross National Product" echoes the traditional Bhutanese belief that there is more to life than just material development. It is based on the premise that true development takes place when social, economic, spiritual and environmental well-being occur side by side to complement and reinforce each other.

In the sphere of public policy, the GNH philosophy is based on the following four main pillars:

- ❖ equitable socio-economic development, ensuring equity between individuals and communities as well as regions to promote social harmony, stability and unity and to contribute to development of a just and compassionate society;
- ❖ conservation of the environment, ensuring development pursuits are within the limits of environmental sustainability and are carried out without impairing the biological productivity and diversity of the natural environment;
- ❖ preservation and promotion of culture, instilling appreciation of the cultural heritage and preserving spiritual and emotional values that contribute to happiness and cushion the people from the negative impacts of modernization;
- ❖ promotion of good governance, developing the country's institutions, human resources and systems of governance and enlarging opportunities for people at all levels to fully participate and effectively make development choices that are true to the circumstances and needs of their families, communities and the nation as a whole.

The GNH development philosophy is the Bhutanese version of the global concept of sustainable development. The Constitution of the Kingdom enshrines GNH as a state policy. Furthermore, the Constitution spells out the duties and rights of the parliament, the government and the people to safeguard and enhance the environment.

In 1999, the Royal Government of Bhutan produced *Bhutan 2020: A Vision for Peace, Prosperity and Happiness* articulating the GNH vision, objectives, strategies, priorities and milestones, and envisaging what the country would be like in 2020 if we are able to achieve the envisaged objectives and priorities. The country has crossed the half-way mark of the envisaged landmark with progressive transformation in the social, economic and governance landscapes to meet evolving development needs. Consequently, it has also steadily improved on the Human Development Index (HDI) scale. From being a low human development country with a HDI value of just 0.146 in 1991, the country has graduated to a middle human development country with a vastly improved HDI value of 0.522 in 2010⁷. Guided by the GNH

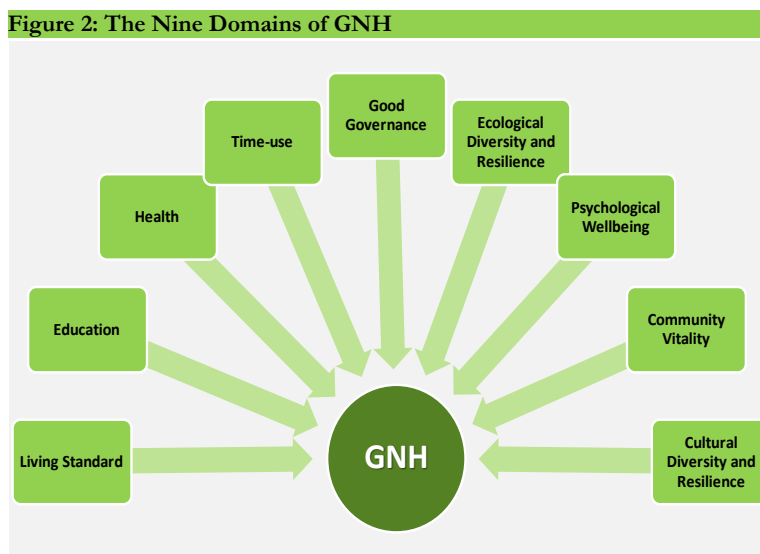
⁷ Human Development Reports 1992 and 2011.

philosophy, the country has made this improvement without unduly impairing its cultural and natural endowments.

Development Policy-making and Planning Framework

The Royal Government subjects all national and sectoral policies to the GNH policy screening tool, which currently covers 23 determinants relating to nine GNH domains (Figure 2). Policies that do not sufficiently meet GNH criteria are reverted to the proponent agencies for review and improvement.

The key programmatic vehicle for implementation of development plans, programmes and projects is the Five-Year Plan (FYPs), the first of which was launched in 1961. Nine FYPs have been implemented so far and the country is currently in the fourth year of the Tenth FYP (July 2008-June 2013). The FYPs are formulated at the central, sectoral, *dzongkhag*, and *gewog* levels and translated into annual development plans and budgets at the various levels through five-year cycles.



They have progressively ingrained sustainable development concepts and approaches. Since the Ninth FYP, poverty reduction has become an overarching development objective. The Tenth FYP reinforces the poverty reduction agenda and sets out to bring down the population living below the national poverty line from 23.1 percent before the beginning of the plan period to 15 per cent or less by the end of the plan period. It also recognizes environment and gender-equality as issues that cut across various development sectors.

The Tenth FYP preparation guidelines constituted key principles and elements of sustainable development with poverty reduction as the overarching objective. It also recommended the mainstreaming of environmental and gender issues across various development themes and sectors. A Reference Group has been established for capacity development support and guidance on environment, climate change and poverty (ECP) mainstreaming in development plans and programmes. This group has developed ECP mainstreaming guidelines, which has been subsequently incorporated in the guidelines for preparation of the Eleventh FYP. Concurrently, the sustainable use of natural resources, environmental conservation, climate change adaptation and mitigation, and gender-parity have been included in the National Key Result Areas for the Eleventh FYP.

To guide the formulation of *dzongkhag* and *gewog* development plans and programmes in a coherent and structured manner, the GNH Commission Secretariat has developed the Local Development Planning Manual. This manual explains steps and tools and provides formats and tips for the assessment, prioritization, implementation, and monitoring and evaluation of local development activities. The prioritization of the development activities is to be based on a set of GNH criteria which include: poverty reduction and advancement of disadvantaged groups; gender equality; environmental sustainability; climate change adaptation and mitigation; reduction of disaster risks; and preservation of culture.

The existing resource allocation formula for local development grants constitutes 70 percent weightage to population size, 25 percent to poverty incidence, and five percent to territorial size. The state of natural environment is being developed as a criterion for inclusion in the formula for resource allocation to the local governments in the Eleventh FYP. This is to incentivize local governments to sustainably manage their natural environments.

Globalizing Happiness for a Sustainable World

As the world prepares for the twentieth anniversary of the Rio Summit, there are some hard realities that tell us that we, as a global family, are far from what we had set out to achieve twenty years ago and that we may have in fact, inadvertently or otherwise, created more adverse conditions than ever before for sustainable development.

The United Nations (UN) Millennium Ecosystem Assessment, based on the best and most comprehensive evidences available, reveals that two-third of the world's ecosystem services is in serious decline. Ecological footprint assessments show that humanity is now using up natural resources at a rate 35 percent faster than the nature can regenerate. In other words, we are living far beyond the limits of sustainability. The past twenty years have also witnessed some of the worst economic crises and a growing divide between the rich and poor, with women bearing much of the brunt of poverty. So, we are currently in a situation where our development pursuits are by and large neither environmentally sustainable nor economically stable and socially just.

This is not to suggest in any way that the global efforts of sustainable development of the past twenty years have not benefitted Bhutan. The country has indeed benefitted in many ways and this was largely possible because of a good marriage between the global concept of sustainable development and its home-grown GNH development philosophy. But in today's highly globalized world, environmental, social and economic problems of one country affect those in the neighborhood and beyond including countries which are on the path of sustainable development. This is becoming increasingly visible since the emergence of climate change and economic globalization.

It is in the above context that Bhutan proposed an inclusive, equitable and balanced approach to economic development that promotes environmental sustainability, well-being, and happiness as overarching goals. The 65th Session of the United Nations General Assembly in July 2011 adopted by consensus the resolution 65/309 titled '*Happiness: towards a holistic approach to development*' initiated by Bhutan. This resolution states that: happiness is a fundamental human goal and universal aspiration; that GDP by its nature does not reflect that goal; that unsustainable patterns of production and consumption impede sustainable development; and that a more inclusive, equitable and balanced approach is needed to promote sustainability, eradicate poverty, and enhance wellbeing and happiness.

The adoption of the resolution by the 193-member UN is an encouraging sign. This historical first step towards globalizing GNH gives Bhutan and many other countries striving for sustainable development the hope as well as great expectations that the world community will come together to learn from past lessons, build on whatever progresses have been achieved, and retrace their steps to the path of sustainable development that they had committed to twenty years ago.

Pursuant to the above Resolution, on 2nd April 2012, Bhutan convened a '*High-level Meeting on Wellbeing and Happiness: Defining a New Economic Paradigm*' at the United Nations headquarters in New York. The High-Level Meeting brought together more than 800 distinguished participants from around the world and a common thread that emerged in the discussions of the meeting was the universal recognition that

development must be holistic and inclusive, and anchored on wellbeing and happiness linking global and national efforts.

Multilateral Environmental Agreements

Continuous engagement in global sustainable development mechanisms, particularly the multi-lateral environmental agreements (MEAs) that emanated at the Rio Summit 1992, has helped the Royal Government to consolidate its agenda for sustainable development and strengthen policy and programmatic instruments to pursue sustainable development goals and objectives within the overall framework of the GNH development philosophy.

Bhutan signed the **Convention on Biological Diversity** (CBD) and the **United Nations Framework Convention on Climate Change** (UNFCCC) on 11th June, 1992, at the Rio Summit 1992. Subsequently, the country ratified both these Conventions on 25th August, 1995. The NEC serves as the national focal agency for the two Conventions. The third of the Rio Conventions – the **United Nations Convention to Combat Desertification** (UNCCD) – was acceded to on 20th August, 2003. The Department of Agriculture, Ministry of Agriculture and Forests, is the national focal agency.

As a Party to the CBD, Bhutan has produced three Biodiversity Action Plans – the first in 1998, followed by a second in 2002, and a third in 2009 – progressively reviewing and updating them as living policy documents to address evolving biodiversity conservation circumstances and needs. A key result of the first Biodiversity Action Plan is the establishment of the National Biodiversity Centre as an implementing agency of the CBD and for coordinating programmes and projects for the conservation and sustainable use of biological resources. Bhutan also acceded to the **Cartagena Protocol on Biosafety**, which is a supplementary agreement of the CBD, on 26 August, 2002. A National Biosafety Framework has been developed in accordance with Cartagena Protocol. In addition, Bhutan signed the recently-formulated **Nagoya Protocol on Access and Benefit-sharing** on 20th September, 2011.

As a Party to the UNFCCC, Bhutan submitted its Initial National Communication in 2000. The Initial National Communication enabled the country for the very first time to establish an inventory of GHG emissions by sources and sequestration by sinks, and identify climate change vulnerabilities and adaptation measures. The Second National Communication, submitted in 2011, presents an updated GHG inventory, and describes mitigation measures, climate change vulnerabilities and a wide range of adaptation options across the various development sectors. A National Adaptation Programme of Action for Climate Change (NAPA) was produced in 2006, outlining among other things priority projects for adaptation to climate change. Based on NAPA, the Royal Government formulated and implemented a number of key climate change adaptation projects including a massive and arduous project on the reduction of climate change-induced risks and vulnerabilities from glacial lake outburst floods in Punakha-Wangdi and Chamkhar valleys.

Bhutan has also acceded to **Kyoto Protocol** on 26 August, 2002, which sets binding targets for industrialized countries and the European community for reducing GHG emissions.

In keeping with the recommendation of the Conference of Parties 13 of the UNFCCC, a Technology Needs Assessment for Climate Change is underway since December 2011 with the aim to identify priority adaptation and mitigation technologies for priority sectors and develop a Technology Action Plan for the implementation of these technologies.

In November 2011, Bhutan convened the ‘Climate Summit for a Living Himalayas,’ committing to the principles and provision of the UNFCCC. The Summit adopted a framework of cooperation aimed at implementing regional cooperative actions to build resilience to climate change in the southern watersheds of the Eastern Himalayas in Bangladesh, Bhutan, India, and Nepal. The key areas of cooperation included: ensuring energy security and enhancing alternative technologies; securing the national freshwater systems of the Himalayas; ensuring food security and securing livelihoods; and securing biodiversity and ensuring its sustainable use.

As a Party to the UNCCD, Bhutan formulated the National Action Programme (NAP) to combat land degradation in 2009. The NAP spells out a suite of multi-disciplinary activities pertaining to: conservation, rehabilitation and sustainable use of forest resources; development and promotion of sustainable agricultural practices; environmental management of development activities that pose land degradation risks; and strengthening of systemic and institutional capacity. It also includes an Integrated Financing Strategy to aid planning and mobilization of financial resources for its implementation.

For Bhutan, the various policy and programmatic work undertaken through the various mechanisms of MEAs presented valuable opportunities to review, assess, update and strengthen national policies, strategies and programmes to pursue sustainable development and maximize GNH.

Besides the three Rio Conventions, Bhutan has become party to the following UN environmental conventions over the past 20 years:

- ❁ **International Plant Protection Convention**, which aims to protect cultivated and wild plants by preventing the introduction and spread of pests. Bhutan submitted its adherence to the Convention on 20th June, 1994. The Bhutan Agriculture and Food Authority, Ministry of Agriculture and Forests, is the national focal agency.
- ❁ **UNESCO World Heritage Convention**, which aims to ensure the protection and conservation of natural and cultural heritages around the world through research, monitoring, management, and education involving international cooperation. Bhutan ratified the Convention on 22 October, 2001. The National Commission for UNESCO under the Ministry of Education is the national focal agency.
- ❁ **Basel Convention** on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, acceded to on 26 August, 2002. The NEC is the national focal agency.
- ❁ **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**, acceded to on 15 August, 2002. The Wildlife Conservation Division of the Department of Forests and Park Services, Ministry of Agriculture and Forests, functions as the national focal agency for CITES.
- ❁ Bhutan acceded to the **Vienna Convention for the Protection of Ozone Layer** and the Convention’s supplementary agreement, **Montreal Protocol on Substances that Deplete the Ozone Layer**, on 23 August, 2004. The NEC is the national focal agency for the Vienna Convention and Montreal Protocol.
- ❁ Bhutan became a member of the **International Union for Conservation of Nature (IUCN)**, the world’s first and largest global environmental organization, in November of 2011 and designated the Ministry of Agriculture and Forests as the focal agency.

Millennium Development Goals

Integral to Bhutan's sustainable development policy is its commitment to the Millennium Development Goals (MDGs), which comprise eight development goals that the 193 member states of the UN have agreed to achieve by 2015. The MDGs place poverty reduction and human wellbeing at the centre of global development objectives. They do not merely articulate general commitments but provide specific benchmarks in terms of targets to be achieved by 2015 towards realizing the vision of the Millennium Declaration made at the UN Millennium Summit in 2000.

The Millennium Declaration is guided by the universal values of freedom, equality, tolerance, respect for nature, and shared responsibilities, principles that also inspire and are profoundly integral to the GNH value system which elucidates happiness as the paramount and desirable outcome of development. As such, the vision and concept of GNH and the MDGs fundamentally share common inspiration and ideals. Bhutan recognizes the MDGs as a highly relevant development strategic framework contributing to the achievement of GNH and the nation's long term development goals, and has strategically embedded them in the recent FYPs.

Considerable progress is being made in the pursuit of the MDGs. Well ahead of the target date, Bhutan has already achieved a number of the targets and is on track to meet most of the remaining targets (refer Annex 3). Key areas of achievement include the reduction of malnutrition among children, access to safe drinking water and improved sanitation facilities, protection and management of forests and biodiversity, reduction in child and maternal mortality, and primary education enrolment with gender-parity. Further, as a result of persistent interventions of the Royal Government, the target of reducing the proportion of people living below the poverty line by half is very much within reach.

2.2 International Cooperation

In the pursuit of sustainable development, Bhutan has been able to garner the cooperation of several bilateral and multilateral development agencies as a result of its sustained commitment and its ability to demonstrate results in various spheres of development.

There exists strong consensus among development partners that international development aid has been effective in Bhutan and has been catalytic in the remarkable advancement of the country from one of the poorest in the world to a middle human development country with one of the fastest growing economies in Asia. This is largely attributed to the effective and transparent utilization of aid and other support measures.

The Round Table Meeting (RTM), held once every two-and-half years, is the most important forum for Bhutan and its development partners to discuss policy and aid coordination issues. So far, Bhutan has convened 11 RTMs – the most recent was held on 1st and 2nd September, 2011. The RTMs have been effective in creating mutual understanding of development cooperation needs and improved alignment between national development priorities and international assistance.

International cooperation has also provided the Bhutanese people with learning opportunities for sustainable development in a wide range of fields and exposure and access to knowledge networks, best practices and tools for effective development management.

3. Pursuing Green Economy for Sustainable Development

3.1 Overall Policy Premise and Consensus

Green economy has been defined by the United Nations Environment Programme as “one that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities.” Going by this definition, the idea of green economy fits in very well within the framework of the GNH development philosophy which permeates into all development policies and plans at various levels.

The new Economic Development Policy (EDP) of Bhutan, launched in 2010, has been formulated with the vision “to promote a green and self-reliant economy sustained by an IT-enabled knowledge society guided by the GNH philosophy.” Its key strategies include: diversifying the economic base with minimal ecological footprint; harnessing and adding value to natural resources in a sustainable manner; promoting Bhutan as an organic brand; and reducing dependency on fossil fuel especially in respect of transportation. The EDP 2010, in many respects, is a green economy policy and reflects national consensus for pursuing a green economy.

The National Environment Strategy titled “The Middle Path”, although produced nearly 15 years ago, is still relevant and contains strategic elements useful for green economic development. The Strategy, which is an equivalent of a National Sustainable Development Strategy, enshrines the concept of sustainable development and identifies three main avenues for such development. The three avenues are hydropower development based on integrated watershed management; agricultural development based on sustainable production practices; and industrial development based on effective pollution controls and enforcement of environmental standards. The Royal Government will be soon revising the National Environment Strategy, which among other things will incorporate strategic elements to pursue low-emission and climate-resilient development and promote inter-generational equity of natural resources.

Bhutan has committed to remain a carbon-neutral economy. This declaration was made at 15th Session of the Conference of Parties of the UNFCCC in Copenhagen in December 2009. To this end, a Carbon Neutral Strategy called “*the National Strategy and Action Plan for Low Carbon Development*” has been formulated and launched in June 2012, which will further reinforce the prospects of, and determine strategic measures for, green economic development in the country.

In sum, it can be said that there exists a well-formulated policy premise for green economic development in Bhutan.

3.2 Avenues for Green Economy

Favorable Factors and Perceived Benefits

Apart from the GNH development concept and the existence of a strong policy premise, Bhutan has the following major favorable factors for pursuing green economy:

- ❖ Limited number of polluting industries;

- ❖ A predominantly agrarian society directly dependent on farmlands and surrounding natural resources for livelihood based on traditional approaches that value the spiritual and ecological values of the nature;
- ❖ Key economic sectors are predominantly nature-based and, therefore, sustainable productivity of the natural environment is crucial for economic development;
- ❖ A very positive state of natural environment with a healthy population to natural resource ratio;
- ❖ Political stability and social harmony;
- ❖ A young democracy opening up new opportunities for participatory socio-economic development;
- ❖ A governance system rooted in traditional structures together with modern institutions that provide platforms for people's participation in the decision-making at all levels.

While there has been no survey or study to comprehensively gauge the perception of green economy and its benefits among the various groups of Bhutanese society, observation of the limited evidences suggest that there is a sound understanding of what 'green economy' is all about in general. For one, the understanding of green economy is significantly manifested in EDP 2010. Secondly, at the multi-stakeholder workshop for Rio+20 national preparation, the participants – largely made up of mid-level and high mid-level professionals in government agencies and CSOs – discussed the benefits of green economy and associated them not only with environment (as the tendency would be because of the word 'green') but also significantly with equitable socio-economic development and poverty reduction. Green economy is also expected to result in collateral health benefits as a result of better living and working conditions, improved transport systems, better nutrition enabled by increased income generation and food production, and reduction in health risks caused by poor quality of air and water.

Major Sectors

Energy

Hydropower generation potential is tremendous in Bhutan as a result of the presence of many fast-flowing rivers and well-preserved watersheds. The total hydropower generation potential of the country is estimated at 30,000 megawatt (MW). As of 2010, total installed capacity for generation of hydropower was 1,488 MW, less than five percent of the total capacity. Several hydropower projects are under construction or in pipeline to harness additional hydropower and achieve the target of total installed capacity of 10,000 MW by 2020.

To reduce the use of non-renewable and polluting sources of energy and given that hydropower is a national resource, hydropower is made available at affordable rates. The Bhutan Electricity Authority has fixed a slab pricing system whereby power tariff progressively increases with the increase in power consumption. This pricing system provides the first 100 units of electricity consumption at a significantly low price as a measure to make electricity affordable to the poor and low-income group. Concurrently, the progressive price increase is expected to deter wasteful consumption.

Apart from the impacts of climate change, the quality of Bhutan's watersheds will largely influence the sustainability of the hydropower plants. Protected areas have been designated and have become operational all along the northern belt to not only conserve the country's rich biodiversity but also to protect the watersheds that feed the hydropower plants and downstream communities within the country

as well as in neighboring India and Bangladesh. The Bhutan Sustainable Hydropower Development Policy 2008 stipulates that a minimum of one percent of the royalty of hydropower sales will be ploughed to the Ministry of Agriculture and Forests for integrated watershed management. It is a good first step in terms of the intent and the prospect it presents to progress on the lines of Payment for Ecosystem Services.

Harnessing the abundance of sunshine, biomass and wind, the Royal Government will develop solar, biomass, biogas and wind energy projects as well as mini- and micro-hydels to make electricity available to the remote and isolated communities that cannot be connected to the national or regional grids. Renewable energy development will also be pursued to address hydropower deficit during winter when river flows are low. A national assessment of renewable energy resources is under way and, once completed, it will guide the development of a detailed plan for renewable energy development.

Agriculture, Forests and Biodiversity

The sixty-nine percent of Bhutan's population who live in the rural areas primarily depend on agriculture for livelihood. It is also in the rural areas, where majority of the country's poor live. Therefore, agriculture is a critical sector for pursuing equitable socio-economic development and reducing poverty. Integrated soil and water management is being undertaken and will be scaled up in the Eleventh FYP to enhance crop productivity and reduce environmental risks as a result of soil erosion and GHG emission from poorly-managed soils. A number of farmer's cooperatives have been formed and more will be assisted to effectively manage agricultural enterprises. The prospect of organic farming is huge because of the very limited use of pesticides and chemical fertilizers and in some areas their complete absence. A national framework for organic farming (see box below – Policy Premise for Organic Farming in Bhutan) is in place and the Royal Government is promoting organic farming through marketing support, phasing out of harmful chemical fertilizers and pesticides, development of viable farming methods and inputs, and training of farmers.

Livestock rearing supplements agriculture in the rural areas. In the highlands it is the predominant economic activity, influencing local culture and way of life. The Royal Government has been promoting improved grazing and livestock management practices and will continue with it to ensure that livestock rearing is within the carrying capacity of the pastures. In addition, improved livestock breeds will continue to be promoted to enhance dairy production, lessen livestock numbers and alleviate pressure on natural forests from free-range grazing.

Forest resources and biodiversity constitute the country's most important natural resource. Forest management units have been created in various parts of the country for production forestry and commercial harvesting based on approved management plans that takes account of the growing stock and projects forest yields that can be harvested annually within the sustainable limits of the ecology and

Policy Premise for Organic Farming in Bhutan

To realize the aspiration of Bhutan as a country with environmentally clean food production systems and products as inscribed in Bhutan 2020, the country's vision document, the Ministry of Agriculture and Forests launched the National Framework for Organic Farming in 2007 – laying down the country's policy for organic farming.

Bhutan's vision is to develop organic farming as a way of life and become fully organic by 2020. It is based on the premise that:

- the country is free of any significant environmental pollution due to low usage of agro-chemicals and limited industrialization and, therefore, has a competitive advantage over most other countries in the region when it comes to organic farming;
- the current farming system is still largely supported by indigenous practices involving use of forest litter and farmyard manure;
- there is a great potential of increasing and sustaining production through organic farming which combines scientific knowledge and methods to produce safe food;
- organic farming is profoundly connected to sustainable development in terms of poverty reduction, gender equality, ensuring better health and nutrition, and sustaining the biological productivity and diversity of the natural environment;
- organic farming is well suited for small farmers of developing countries like Bhutan;
- the global movement for clean environment and natural products is increasingly creating a niche market for organic products.

Source: Adapted from Promoting Organic Farming in Bhutan: A Review of Policy, Implementation and Constraints by Sangay Dupa et al, Ministry of Agriculture and Forests, 2008.

productivity of the forests. A key forestry programme that integrates community development and forest conservation objectives is community forestry. There are about 340 community forests, involving some 14,000 rural households, in the country. It is projected that by the end of the Tenth FYP, some 400 community forests will have been established covering at least four percent of the country's forests. These community forests will have the potential to develop into community-based forestry enterprises to generate cash income for the local communities from the sale of wood and non-wood forest products based on sustainable harvesting plans thereby empowering communities to engage in sustainable development. In the Eleventh FYP, the Royal Government will further strengthen mechanisms for the sustainable management of forests to generate economic benefits and reduce poverty.

The country's biodiversity is a major source of livelihood for the country's rural communities who live in close interaction with their natural environment. Rural artisans produce bamboo and cane handicrafts, various kinds of woodwork, and textiles using natural dye for income generation. In addition, local people collect a wide range of edible, medicinal and aromatic plants for cash income.

Rural enterprises that enhance and sustain the values of agriculture, livestock, and forest products as well as cultural products (e.g. textiles, bamboo and cane handicrafts, woodwork) are being promoted. Product diversification and improvement are being persisted through skills development and products marketing is being encouraged through formation of cooperatives and improved market access. Rich biodiversity and widespread existence of traditional knowledge and practices related to biodiversity make bio-prospecting in Bhutan a potentially lucrative conservation-based enterprise. Mechanisms and protocols for bio-prospecting are being developed and biodiversity-related traditional knowledge is being assessed and inventorized.

Sustainable Tourism

The Royal Government has always been conscious that unrestricted flow of tourists can have undue impacts on the country's natural environment and cultural heritage. Through a policy of 'high value, low volume' tourism, the country has controlled the type and quantity of tourists right from its beginning in 1974.

The country is witnessing rapid growth in tourist arrivals due to the exclusivity factor associated with the country. In 2011, the country received 64,028 high-end tourists, an increase of 56.7 percent over the previous year⁸. The ITB World Travel Trends Report 2011 shows Bhutan as the fastest-growing tourism destination in the Asia-Pacific Region. Despite the relatively small volume of tourism, the high tourist tariff structure ensures that the revenue generated is substantial. The Royal Government recognizes the immense potential of tourism for overall socio-economic development.

⁸ This figure is cited from the Tourism Council of Bhutan's press release on tourist arrivals in 2011. It does not include the 36,085 regional tourists and other categories that travel into the country by land.

For sustainable development of tourism, the country is exploring new avenues, diversifying products, strengthening infrastructure, and creating opportunities in tourism deficient areas. Development of human resources is being pursued to service the tourism industry in a manner that is highly professional and enhances visitor appreciation of the country's culture and nature.

Drawing upon its cultural and natural assets, tourism in the country will have special emphasis on spiritual, wellness and nature-based tourism. Another potential area that the country is pursuing is MICE

GNH in Business: A Pilot Project

Yangphel Adventure Travel and Hotel Zhiwa Ling, sister concern enterprises of Yangphel Company, have embarked on a 'GNH in Business' project, a pioneering initiative in the country's private sector to incorporate GNH values and ways of doing business in a systematic approach. The three-year project endeavors to develop a ground-breaking business paradigm which includes everything that a Corporate Social Responsibility programme would, as well as two additional elements. One element is to enhance the propensity and creativity of all individuals that are a part of a business to experience and share happiness in their work and dealings with colleagues, customers and other people who influence the business. The other is to enhance awareness and skills for positive actions that balance profit-making and human service.

The GNH in Business project is work-in-progress, having completed only its first year. The preliminary model features the following four components:

- **Greening the business:** examples include waste reduction and recycling, energy conservation, water conservation and management, carbon management for a carbon-neutral business, biodiversity conservation, establishing green purchasing and procurement policies, and use of greener and cleaner technologies.
- **Driving community vitality:** examples include happiness surveys of communities that are affected by the business, community engagement projects (private-public partnerships), initiatives supporting vulnerable and disadvantaged communities, activities supporting local culture and traditional knowledge, and preferential employment of local people and procurement from local businesses.
- **Evolving individuals:** examples include transformational programmes to reinforce a way of life of sufficiency, awareness, empowerment, and positive action, and learning programmes to develop skills to practice GNH and improve well-being.
- **Doing business ethically and sufficiently:** examples include development of company vision, mission and core values, investing in GNH practices, integrity and transparency in communication with all business stakeholders including company staff and customers, using GNH decision-making tools in organizational and operational development, and development of GNH in Business leadership and advocacy.

The first year of the project, i.e. 2011, focused on GNH education and awareness-building within the company. Key activities have included training on GNH philosophy and conduct and on environmental awareness and monitoring to a total of 471 participants, GNH survey covering 110 staff, and implementation of environmental monitoring system for waste, water and energy consumption. While the results of the training and GNH survey are yet to be assessed, the implementation of the environmental monitoring system has resulted in modest but encouraging reductions in waste, water and energy consumption. These include 6.45 percent reduction in energy consumption, 15 percent reduction in waste produced, and 13 percent reduction in carbon footprint per guest-night at Hotel Zhiwa Ling, and 14 percent reduction in fuel consumption by Yangphel Adventure Travel. Ninety-eight percent of the waste produced at Hotel Zhiwa Ling is now recycled.

The project aims to dedicate the second year on implementing initiatives leading to transformation for GNH-infused business environment and the third year on consolidating and monitoring initiatives that demonstrate lasting transformation for conduct of GNH in business.

Source: Adapted from GNH in Business Case Study Bhutan Report 2011 (draft) by Isabel Sebastian

(meetings, incentives, conferencing, exhibition) tourism. The country's tranquil environment, political stability and improving connectivity with the outside world make MICE tourism highly prospective.

The country's vast network of protected areas, which have been primarily created for biodiversity conservation, are excellent locales for tourism and recreation. Nature trails, vantage points, camping sites, community lodges, and local festivals will be developed in these protected areas to provide enriching natural and cultural experience to the visitors and generate tourism revenue for local community development and nature conservation.

Within the private sector, the tourism industry is best placed to demonstrate the inter-connection between GNH and business because of the interactive and service-based nature of work. Some tour and hospitality enterprises are undertaking initiatives to integrate GNH values and practices in their business (see box – GNH in Business: A Pilot Project, page 14). The success of such initiatives will be pivotal to demonstrate to the private sector that profit-making and GNH are not essentially contradictory but can in effect complement one another.

Transportation

The number of motor vehicles in Bhutan has grown at an astonishing pace; from 11,916 in 1990 to 19,463 in 2000, and to 61,756 as of November 2011⁹. This translates to 88 motor vehicles per 1,000 people or one motor vehicle for every 11 people in the country, though numbers are not evenly distributed in all areas but concentrated more in the urban areas of Thimphu and Phuentsholing. As per 2000 base-year data, the National GHG Inventory in the Second National Communication projects that the transport sector emitted 118.11 Gg of CO₂ equivalent, accounting for about 45 percent of all energy-related emissions and about 7.6 percent of the total GHG emissions. The figures will have increased significantly by now even if we consider that there has been improvement in the fuel efficiency of cars and quality of fuels. This trend is neither environmentally sustainable nor economically sensible as the country is heavily dependent on import of fossil fuel. The Royal Government is formulating a sustainable transport strategy. Green modes of transportation will be implemented, wherever feasible, to replace fossil fuels with clean energy, starting with the major urban centers first. Some places such as Thimphu, Paro, Galeyphug, Phuentsholing and others have good potential to develop electric tram network for public transport given their population size and favorable terrain provided by wide valleys and gentle hill slopes. At the same time, public bus transport system in the urban centers will be improved in terms of safety, service and coverage to reduce the dependency on private cars and friendlier options such as electric buses. For remote settlements and in ecologically sensitive areas, development of cable car and ropeway systems will be explored to avoid high economic and environmental costs associated with road construction in such circumstances. Furthermore, the road communication network is being improved to shorten travel time, thereby reducing vehicular emission and cutting down the costs of transportation of public goods and services.

Industry

Industrial development plays a pivotal role in economic growth and employment generation. However, limited industrial workforce within the country and the mountain topography inhibit large-scale industrial development. Furthermore, the neighboring countries have a competitive advantage over Bhutan by virtue of their large market size, availability of cheaper labor, and generally less stringent laws. While some large industries may be viable and even necessary, the potential for future industrial development is in the

⁹ Statistical information on the website of the Road Safety and Transport Authority.

development of a network of micro, small and medium industries based on sustainable management of the country's cultural and natural endowments. In this connection, the Royal Government is in the process of developing a strategy and plan for developing and promoting micro, small and medium industries.

Clean technology will be promoted to reduce industrial pollution levels and other environmental impacts. Laws and regulations are in place for strategic environmental assessment, environmental impact assessment, environmental clearance, and environmental monitoring of industrial projects. Tools and mechanisms to implement the laws and regulations will be continually developed and progressively internalized in the industry sector. Industries that maintain higher environmental standards than legislated will be provided with additional incentives. Capacity development support will be provided to the private sector for industrial environmental management.

The Royal Government aims to de-prioritize the establishment of extractive industries, especially those that involve mining. Such industries will be permitted on evidence of substantial value addition and the availability of raw materials on a long-term basis, with limited and mitigable adverse environmental and social impacts. Comprehensive environmental impact assessments including of social impacts, final mine feasibility study, environmental management plans, and environmental restoration bonds are mandatory and monitoring measures are being strengthened for strict compliance to these requirements.

Education and Knowledge-based Enterprises

Bhutan aspires to be a knowledge-based society with a good grounding of sustainable development concept and principles. To this end, the Royal Government has embarked on "Educating for GNH", a national initiative to align and transform Bhutan's educational system according to the GNH principles. The country's entire educational system will effectively cultivate GNH values and practices, including critical and creative thinking, ecological literacy, practice of the country's profound traditional wisdom and culture, contemplative learning, a holistic understanding of the world, genuine care for nature and for others, competency to deal effectively with the modern world, preparation for the right livelihood, and informed civic engagement. Within the first three years of this initiative, all of Bhutan's teachers will have received effective education in these areas and learning tools will be developed, creating an entire school system with GNH-minded teachers and a GNH-infused learning environment.

The education sector can be developed into a viable economic sector with inherently little or no adverse environmental impact. Political stability, serene environment and hospitable culture of the country provide excellent setting for educational enterprises, attracting students and scholars from outside. Also given that considerable amount of money flows out of the country for education and training due to the limited number of higher learning institutes within the country, development of educational enterprises can help internalize monetary resources.

There is also a pool of consultants, largely made up of former government professionals, who can be nurtured to establish knowledge-based enterprises. Such enterprises can provide knowledge-based services within Bhutan but also to other countries with emphasis on niche knowledge areas that Bhutan specializes in, such as environmental management, traditional medicine and GNH.

Linking Waste Management, Entrepreneurship, Philanthropy, and Livelihoods

ShoeVival, a business venture specializing in footwear laundry and refurbishing service, has embarked on a campaign that integrates the concept of reducing, reusing and recycling waste and the art of giving and helping the poor. The campaign – Help-Shoe Bhutan – was launched in September 2011 with the simple idea of providing shoes to the poor and needy whilst reusing and recycling old shoes. In its first phase, the campaign collected some 3,000 pairs of old shoes, and refurbished and distributed 800 pairs among urban slum dwellers, road laborers, and the poor in rural areas. Another 500 refurbished pairs are ready for distribution in April 2012. The media coverage that the campaign received helped raise awareness among the general public about the concept and significance of reducing, reusing and recycling waste. It also helped inculcate environmental consciousness and the dignity of helping the poor especially among the youth, numbering around 100, who participated as volunteers. Encouraged by the positive response from charity-based organizations, environmental groups and the public in general, ShoeVival has plans to take the campaign into a second phase in June 2012 and include old clothes in the overall scheme of things.

Greener Way, a private waste management enterprise based in Thimphu, buys and recycles different types of wastes: PET bottles, papers, plastics, rubber, glasses, electronic wastes, metals, and cardboards. The company has employed 31 youth, registered 360 subscribers for door-to-door waste collection in Thimphu especially in areas where the reach of the municipality waste collection service is limited, buys waste from more than 100 rag-pickers who are largely the unemployed poor, and collected 365 metric-tons of waste since it became operational in March 2010. In environmental terms, this would have saved 3,426 adult trees, 824,100 kilowatt hours of energy, 402 barrels of oil, 786 cubic yards of landfill space, and 1,206,000 gallons of water. The figures may appear inconsequential to the outside world but for a country like Bhutan, with just over 700,000 people and one of the smallest economies in the world, it represents a significant first step towards realizing the immense potential of addressing waste problem in concert with the social and economic facets of human development.

Source: Developed from information made available by ShoeVival and Greener Way

Other Areas

Other green economic development opportunities include:

- ❖ Integrated rural-urban planning and regionally-balanced urban development: so as to create regional urban hubs, providing markets for adjoining rural areas. This will disperse urban population and economic opportunities equitably across the country whilst alleviating population pressures on ecosystems and social infrastructure resulting from high urban concentrations in the few existing cities.
- ❖ Human settlement policy and planning: including enhancement of energy-efficient housing and climate change adaptation by way of land use zoning based on the levels of vulnerability to climate-induced natural disasters.
- ❖ Solid waste management enterprises: using recycling methods and with affirmative action that creates opportunities for gainful employment and poverty reduction whilst reducing pressure on landfills and other disposal facilities. There exists encouraging examples of how some business enterprises have innovatively linked waste management, philanthropy and livelihoods (see box above – Linking Waste Management, Entrepreneurship, Philanthropy, and Livelihoods).
- ❖ Green construction industry: promoting design and production of eco-friendly housing materials for insulation, roofing, lighting, water storage, rainwater run-off management, and so on. Green architecture and landscaping also have great potential.

- ✿ Entertainment industry: is nascent as an economic sector in the country but has shown vast potential to create employment. Besides generating economic and cultural benefits, the entertainment industry – specifically music and movie production – can be an excellent avenue to disseminate, promote and popularize the Bhutanese values of GNH and sustainable development among the mass, especially among the youth. This type of industry has immense potential for development with very limited or no adverse environmental impact.

3.3 Key Issues and Challenges

Climate Change and Natural Hazards

Although not of its own making, Bhutan is highly vulnerable to climate change as a result of increasing global level of GHG emissions. Agriculture and hydropower production, which are the key economic sectors, are extremely sensitive to climate change. There are already localized impacts of climate change due to the unpredictable seasonal weather patterns. These include intense rains causing soil erosion and loss of soil nutrients, higher vulnerability to crop pests and diseases, less snowfall reducing soil moisture in high-altitude farmlands, and untimely rains disturbing planting and harvesting patterns. Seasonal variability in hydropower generation has meant that the country has surplus power in summer but power shortages in winter. This variability may worsen in the future as a result of climate change and impact the hydropower plants which are by design run-of-the-river type and dependent on natural river flows.

In addition, climate-induced natural disasters, such as flash floods and landslides, pose significant risks to the country's development infrastructure, especially roads which are the nation's lifeline, and to the social and natural capital. Major climate-induced disasters in the recent past include the glacial lake outburst flood of Luge Tsho in 1994, heavy monsoon rains and flashfloods in the southwestern region in 2000 and in the eastern region in 2004, Cyclone Aila in 2009, and heavy windstorms in 2010 and 2011. These events have killed people and livestock, destroyed numerous properties and infrastructures, degraded natural lands, and disrupted socio-economic activities.

Bhutan has also been beset with a series of earthquakes as the country is located in one of the most active seismic zones in the world. Recent experiences include a 6.1 magnitude earthquake with its epicenter in Mongar in September 2009 and a 6.9 magnitude earthquake with its epicenter in neighboring Sikkim in September 2011. Both had disastrous impacts, destroying numerous homes, government offices, schools, hospitals, and monasteries, and causing loss of human lives.

Not only do the climate disasters and natural hazards incur mammoth costs in immediate damages, they also set back development progress gained over the past many years, disrupt meticulously planned development programmes for the future, severely strain scarce financial resources, and aggravate poverty.

Impacts on health due to rising temperature are also reportedly being felt in Bhutan. Increasing temperatures are complicating control of vector-borne diseases in the country. Two types of malaria are prevalent in Bhutan: the more severe *Plasmodium falciparum* (30-60 percent of cases) and *Plasmodium vivax* with over 50 percent of the population residing in malarial areas. Dengue is an emerging infectious disease in Bhutan. Dengue was first documented in the country in 2004 and is now endemic during the monsoon period. Diarrhoeal diseases represent a significant cause of morbidity in the last one decade, and contribute to about 10-15 percent of morbidity cases. Climate change has also caused drying up of water

sources or contamination due to flooding, increasing the risk of diarrhoeal disease¹⁰. Children and poor communities generally are at greatest risk from such health hazards.

Other Key Issues and Challenges

Geophysical and Demographic Constraints

Mountainous and landlocked, the country's geography poses a major challenge for developing economic infrastructures and access to viable markets. The fragile geology and steep terrain also require the country's development programmes to be environmentally sensitive. With a projected population of 720,680 in 2012, the country's domestic market base is among the smallest in the region. This small population is highly scattered with many small rural communities located in remote mountain landscapes. These factors present a diseconomy of scale, wherein per unit production costs are too high to be competitive in a region which is characterized by large and densely-populated countries. Development costs of providing basic infrastructure and delivering socio-economic services are also exacerbated.

Lack of Access to Affordable Clean Technology

Clean technologies, in general, do not come cheap. For Bhutan, where there is already a diseconomy of scale and competitive economic disadvantages, the additional cost associated with clean technology is a major deterrent for the private and public enterprises. While the country is doing well in terms of developing and implementing technologies for production of clean energy, it has very limited expertise and financial resources to access and implement clean technology in industrial production, which generally involves high capital investments.

High Dependency on External Markets

The country's current economy is hugely dependent on external markets primarily owing to a small domestic market base. Hydropower is exported to India, tourism is very largely international with very limited potential for domestic tourism (at least in the short-term), cash crops such as orange and apple are primarily destined for export to India and Bangladesh, and major industrial companies cater to external markets in the region. The construction industry is heavily dependent on expatriate workforce, which is a major source of outflow of money.

Poverty

Despite steady improvement on the HDI scale, an impressive growth in GDP, and decline in the proportion of people living poverty line from previous years (31.7 percent in 2003 and 36.3 percent in 2000), there is still a relatively high level of poverty in the country. According to the Poverty Analysis Report 2007, an estimated 23.2 percent of the country's total population live below the national income poverty line (Nu. 1,047 per month). However, the depth of poverty is low – that is few citizens face extreme poverty.

A key poverty issue is the persistence of significant spatial disparities. The five poorest *dzongkhags* account for half of all the poor with poverty incidences twice as high as the national poverty incidence. The people in the eastern, southern and central regions are much poorer than those in the western region. Furthermore, income poverty incidence is significantly higher in the rural areas where 30.9 per cent of the population live below the total poverty line compared to 1.7 per cent of the urban population.

¹⁰ World Health Organization's Bhutan project profile on Climate Change Adaptation to Protect Human Health, 2010.

About 5.9 percent of the Bhutanese population is subsistence poor, meaning that they consume less food than indicated in the definition of the food poverty line (2,124 kilocalories per day). As in the case of income poverty, food poverty is significantly higher in the rural areas with an incidence of eight percent compared to 0.16 percent in the urban areas.

Reducing poverty comprehensively in rural areas with vastly dispersed and remote settlements is challenging, physically and fiscally. Green economic development programmes, which generally take time to generate tangible economic benefits and may involve higher costs initially, may not be attractive to the poor and the elected representatives of their constituencies.

Skewed Population Distribution

The proportion of urban population grew from 13.1 percent in 1985 to 30.9 percent in 2005. Between this period, the urban population grew annually at an average of 6.1 percent while rural population grew at 0.63 percent. Urban population growth is largely concentrated in Thimphu and Phuentsholing, the two largest urban centers. The last national population census, carried out in 2005, revealed that more than 40 percent of the country's urban population lived in Thimphu.

According to a rural-urban migration study carried out by the Ministry of Agriculture and Forests in 2006, 28 percent of the migrants moved to Thimphu while another 22 percent moved to various urban centers in the western part. Other regions receive relatively less migrants while their outmigration rates are high. This internal migration trend has given rise to severe imbalances in population distribution leading to labor shortages on farmsteads whilst aggravating population pressure in urban centers. Furthermore, this will contribute to shrinking of market base in places that are distant from the major urban centers. Skewed population distribution also has implications on resource allocation for social services such as health care and education.

In addition to the spatial imbalance, there is disparity in age-wise population distribution. The country's population structure is predominantly young with more than 40 percent of the population under 20 years of age¹¹. This implies that the population growth rate will exacerbate in the near future.

Risk of Populist Politics

As evident in many democracies, popular democracy brings with it the risk of short-term economic gains taking precedence over long-term sustainable development due to popular demand and aspiration. The political community and elected governments will be frequently challenged to make hard decisions between popular short-term socio-economic development and long-term sustainable development needs. Political awareness and political outreach to the general public of the Royal Government's sustainable development policies and the rationale of such policies, followed by demonstration of visible benefits, are being undertaken and their effectiveness will be crucial to address this risk.

Gender Imbalance in Politics and Decision-making Structures

Chapter 24 of Agenda 21, with particular reference to the Nairobi Forward-looking Strategies for the Advancement of Women, emphasizes the importance of women's participation in ecosystem management and control of environmental degradation. The chapter states that "effective implementation of gender-equality and women advancement programmes will depend on the active involvement of women in economic and political decision-making."

¹¹ Based on Bhutan's projected population figures of 2012 prepared National Statistics Bureau.

Recent national statistics reinforce women's importance in economic development in Bhutan. The National Labor Force Survey Report 2011 reveal that women dominate economic activities such as agriculture and forestry, wholesale and retail trade, manufacturing, and hospitality services (hotels and restaurants). The Poverty Analysis Report 2007 also shows that female-headed households have a much lower poverty rate of 4.8 compared to male-headed households which have a poverty rate of 17.9.

The above figures notwithstanding, women's representation in politics and decision-making bodies in Bhutan is limited. Only 8.5 percent of the National Assembly members and 24 percent of the National Council members are women. In the government leadership and senior bureaucracy, women representation is less than four percent. Even at the local level, only 4.6 percent of the elected local government functionaries are women. These imbalances will need to be addressed to bring about holistic development and pursue sustainable economic development.

4. Institutional Development for Sustainable Development

4.1 Existing Institutional Framework

Central Policy and Planning Support Institutions

Bhutan's Planning Commission, which was established in 1971, was reconstituted as the GNH Commission in January 2008. The GNHC is chaired by the Prime Minister and includes the secretaries of all government ministries and the head of National Environment Commission Secretariat as members. The Finance Minister serves as the vice-chair and the GNHC Secretary as the member secretary. The GNHC Secretariat, functions among other things as the central government agency for direction and coordination of the formulation, and subsequent review, of all national and sectoral policies, plans and programmes and to ensure that the GNH concept is fully considered in the policy-making, planning and implementation processes.

The National Environment Commission (NEC) earlier existed as a National Environmental Committee within the Planning Commission. It was delinked from the Planning Commission and established as an independent Commission in 1992 to function as an apex policy body for environmental matters. With the support of a secretariat, the NEC provides policy decisions and guidance on matters related to environmentally sustainable development and the institution of policy measures to integrate environmental management in the overall development. It is to also ensure that potentially adverse environmental impacts of development plans, programmes and projects are identified and addressed in the pre-planning, planning and implementation stages. The NEC has also been designated as the National Climate Change Committee since 2000.

The Centre for Bhutan Studies, a governmental inter-disciplinary research institute established in 1999, is engaged in GNH surveys and development of GNH index and tools to screen policies and projects against the GNH concept.

The National Statistics Bureau (NSB), earlier known as the Central Statistical Organization, conducts socio-economic surveys and analyses, produces statistics and disseminates them to various government agencies. Its works include poverty analyses, living standards surveys, population statistics, and production of national statistical yearbooks and annual national accounts reports. The NSB is collaborating with eminent economic experts to develop tools for green accounting and valuation of the environmental goods and services in the national economy.

Sectoral Development Agencies

Sector development policies, plans and programmes are formulated and implemented by the government ministries and their various agencies. The functions and fields of engagement of these ministries are well delineated as outlined below:

Ministry of Agriculture and Forests: to promote socio-economic development and wellbeing of the people, especially the rural communities, through adequate and sustainable production of food, access to natural resources, and management of forests and biodiversity.

Ministry of Economic Affairs: to pursue national economic development through sustainable development of energy, industry, tourism, and private business sectors, and diversification of economic base.

Ministry of Education: to provide primary and secondary education that will create a literate and knowledgeable society, including understanding of the GNH values, to contribute to sustainable development of the country.

Ministry of Finance: to ensure and implement prudent fiscal policies and manage the state's financial resources (domestic as well as external funds) required to pursue sustainable development.

Ministry of Foreign Affairs: to develop foreign relations, forge multilateral and bilateral partnerships, and build international collaboration to pursue sustainable development.

Ministry of Health: to deliver health care services and maintain a healthy population that can productively contribute to the socio-economic development.

Ministry of Home and Cultural Affairs: to ensure internal security (including safeguards and responses to disasters), facilitate local governance, and promote and preserve cultural heritage, which are key enabling factors to pursue holistic development.

Ministry of Information and Communication: to promote information and communication technology and enhance its accessibility to the public, and to develop safe and sustainable transport system to boost socio-economic development.

Ministry of Works and Human Settlement: to develop strategic physical infrastructure and urban settlements integrating environmental management and socio-economic development needs.

Every government ministry is served by a Policy and Planning Division (PPD), made up of professionals with policy and planning expertise in areas that their respective ministries are involved. The PPDs formulate, monitor and evaluate the sectoral policies, plans and programmes in coordination with the technical departments in their respective ministries and based on guidelines disseminated by the GNHC Secretariat.

Dzongkhag and Gewog Level Institutions

Dzongkhag development plans and programmes are formulated by the *dzongkhag* administrations based on the inputs and needs provided by the communities through the *Gewog Yargye Tshogchung*, and reviewed and approved by the *dzongkhag tshogdus* (district councils). The *dzongkhag tshogdus* are made up of the elected representatives of all the *gewogs* and *thromdes* (municipal bodies) in the *dzongkhag*. *Dzongkhag* planning officers, under the guidance of the *dzongdags* and in coordination with the *dzongkhag* sector heads for agriculture, forestry, livestock development, environment, engineering, health, and education, are responsible for the overall formulation of the *dzongkhag* development plans and programmes. The *dzongkhag tshogdus* review and approve annual development plans and budgets based on the FYP of their respective *dzongkhags*.

At the *gewog* level, FYPs are formulated by the *gewog tshogdes* (block councils), which is made up of the *gup*, *mangmi* and 5-8 *tshogpas* (elected village representatives). Every *gewog tshogde* is supported by a government-appointed *gewog* administrative officer for planning, coordination and implementation of *gewog* development plans and programmes.

Dzongkhag environmental committees (DECs), chaired by the *dzongdag* and made up of key *dzongkhag* sector heads, have been instituted since 2004. The DECs have the mandate to ensure integration of environmental concerns in *dzongkhag* plans and programmes and provide decisions on environmental assessment and clearance of *dzongkhag*- and *gewog*-level projects that are small-scale and likely to have only limited adverse environmental impacts. The *Dzongkhag* Environmental Officers coordinate the administrative and technical processes involved in environmental assessment and clearance, and guide the *dzongkhag* administration on environmental matters in general.

4.2 Strengthening Local Government Institutions and service delivery

While the overall institutional framework is in place for sustainable development, institutional strengthening will remain a continuous process as development circumstances and needs will evolve and new methodologies and practices will emerge. Institutional development will be pursued at all levels. Strengthening local government institutions has been a key programme of the Royal Government since the commencement of decentralization process in 1981. In the new democratic system, the local government institutions will have an increasingly important role as frontline agencies for sustainable development, facilitating direct participation of the local communities in the development and management of their own social, economic and environmental wellbeing. A robust system of local governance is also critical for the government's sustainable development policies and programmes to produce direct social, economic and environmental benefits for the local communities, especially the poor and vulnerable groups, and have a far-reaching impact.

The institutional strengthening of the local governments will be pursued as a top priority by the Royal Government. Programmes to enhance capacities for local governance and mainstreaming of environmental, climate change and poverty concerns by the local government institutions are under way with the collaborative support of a number of bilateral and multilateral donor agencies. Furthermore, in the ongoing FYP period, numerous initiatives are being undertaken to strengthen the systemic and institutional capacities of the local governments. These include the Annual Capital Grants System, Responsibilities Framework between Central and Local Governments, Community Contract Protocol, G2C (Government-to-Citizens) project and Local Development Planning Manual. These initiatives will be carried over to, and consolidated in, the Eleventh FYP.

4.3 Partnerships with the Civil Society and Private Sector

The advent of formal civil society groups is recent in Bhutan largely because in the past government outreach and state welfare schemes were sufficient in a subsistence-based economy and there existed strong traditional customs that espoused cohesion and collective actions among the local communities. With modernization, the socio-economic needs and aspirations of the Bhutanese have enlarged and changed, subsistence economy is rapidly transiting to market economy, and traditional customs of collective actions and cooperation are encouraged though becoming increasingly subdued.

In this new era of modernization and democracy, civil society organizations (CSOs) have an increasingly crucial role. They can effectively complement government efforts and expand development outreach to a society, which is not only growing in numbers but also in aspiration. Independent from the government and political groups, they can also provide alternative mechanisms for social mobilization to pursue sustainable development at the grassroots level and in niche areas such as empowerment of vulnerable communities and formation of self-help groups.

From just two CSOs in the 1990s, the CSO community has now grown to 16, of which 13 are public benefit organizations. To facilitate the emergence and growth of the CSOs to promote social welfare and improve the conditions and quality of life in the country, the Civil Society Organizations Act was enacted in 2007 and the Civil Society Organization Authority was established in 2009. The Bhutanese CSOs – as small and nascent as they may be – has demonstrated immense purpose and dedication in various aspects of sustainable development, be it the conservation of endangered species in the wild, improvement of the livelihoods of remote and marginalized communities, public awareness on environmental and social issues such as HIV/AIDS, or development of youth and women (see Box below – A CSO in Action: Integrating Conservation and Sustainable Livelihoods).

A CSO in Action: Integrating Conservation and Sustainable Livelihoods

For the past 25 years, the Royal Society for the Protection of Nature – more famously known by its abbreviation, RSPN – has been dedicated to the conservation of natural environment primarily through environmental education, field research and community-based projects. The conservation work of RSPN is best manifested in Phobjikha valley, a natural area renowned for its vast marshland, the globally threatened black-necked cranes (*Grus nigricollis*) which inhabit the valley in large numbers in winter, and the Gangtey Monastery, one of the main seats of Nyingmapa school of Buddhism in the country. From annual counts and monitoring of cranes in the late 1980s, RSPN's conservation work in Phobjikha has evolved into a multi-faceted programme representing a microcosm of sustainable development.

The programme is fundamentally based on the integration of nature conservation and local community development in ways that are mutually-reinforcing. Waste, water and energy issues are linked with health, women development and income-generation. Crane conservation is linked with spiritual well-being and eco-tourism, including annual crane festivals in November to reinforce the cultural, economic and ecological significance of conservation of the cranes to the local people. Renewable energy and underground electric grid connections are being developed so that the local communities can have access to electricity without overhead electric cables posing risk to the lives of cranes or blemishing the natural landscape. Conservation research and environmental education are being pursued to enhance professional and public understanding of the natural environment, including the relationship between the local communities and surrounding nature. And local community organizations are being capacitated through training and advisory support to decide and manage local environmental and development actions.

RSPN is replicating and adapting its Phobjikha model of integrated conservation and sustainable livelihoods programme in Wamrong-Kangpara area in eastern Bhutan, and plans to extend it further to conservation areas in central Bhutan.

Source: Developed from information made available by RSPN.

The Royal Government is pursuing policies and programmes for the development of the private sector with the aim to diversify the economic base, create employment and boost economic development through the promotion of Foreign Direct Investment and the Economic Development Policy. There has been a steady growth in the private sector with the key areas being industry, retail business, construction, tourism, and transport. Headway has been also made in the recent years in terms of privatization in the areas of education and training, information and communication, and banking. The activities of the private sector, because of the inherent profit-making nature, can potentially impede the progress of sustainable development strategies. However, the Royal Government recognizes the immense potential that exists in the private sector to address the challenges of sustainable development through innovation and collaboration of ideas and resources. Various avenues of public-private partnerships are being

explored and attempted to pursue sustainable development. To cite a few examples: public-private initiatives are under way in solid waste management, training and marketing support are being provided to private entrepreneurs for production of organic food, and clean technology has been introduced in selected industries on a cost-sharing basis.

Institutional arrangements for engagement and partnerships with the civil society and private sector will be developed and strengthened to develop synergy as well as broaden the outreach of sustainable development.

4.4 Inter-agency Coordination and Collaboration

The ever-widening scope of sustainable development and emergence of new social, policy and technical fields of engagement have created a plethora of development institutions. There are great risks of duplication of efforts, redundant use of limited resources, and internal policy and programmatic contradictions. It will be imperative to develop and strengthen coordination and collaboration between the various institutions to reduce these risks, and to develop synergy and optimize resource use.

The GNH policy screening process promotes coordination and synergy between policies through a systematic review by a diverse group in the institution initiating the policy as well as the GNHC Secretariat. Nonetheless, more efforts are required to address inter-sectoral issues effectively and expeditiously. The Royal Government will devise and operationalize inter-agency and inter-sectoral coordination mechanisms at all levels of development governance. In this respect, it will undertake an agencification strategy in the Eleventh FYP to improve inter-institutional coordination, separate policy-making, regulatory, administrative, and technical functions, and fine-tune and clarify the roles of various government agencies where there are overlapping mandates and functions.

The Royal Government has also launched an initiative called ‘Accelerating Bhutan’s Socioeconomic Development’, which among other things has instituted a rigorous coordination, monitoring, and problem-solving mechanism in a selected number of prioritized development programmes. The experience and good practices accrued from this initiative will be used to further develop inter-agency coordination and collaboration mechanisms to expedite and enhance the effectiveness of delivery of services and implementation of programmes leading to achievement of key development objectives in the Eleventh FYP.

4.5 Knowledge Resources and Information Development

Development plans and programmes can only be as good as the information upon which they are based. Meaningful advancement of the country on the path of sustainable development will be dependent on managing knowledge that reflects the successes, failures and lessons to constantly improve policy decisions and the designs of our plans, programmes and projects. Monitoring and evaluation methodologies will be constantly improved, and information systems will be developed and integrated in the institutional framework. In this regard, the Royal Government has developed PLaMS (Planning and Monitoring System), an online monitoring and evaluation system connecting national, sectoral and sub-national programmes and plans. The country has prepared National State of the Environment Reports (now known as Bhutan Environment Outlook Report) in 2002 and 2008, and a third is currently under formulation. These reports, which provide data and indicators on the state of environment and related social and economic attributes, will be produced at least every five years and will be used as key information products for the formulation of FYPs. The State of the Environment reporting system will be taken further down and integrated in the *dzongkhag* institutional system.

National Key Results Areas and Sectoral Key Results Areas with specific targets and indicators have been identified for the formulation of the Eleventh FYP. This strategic results framework will aid the planning and programming of the central, sectoral and local development plans and programmes for the Eleventh FYP period in a manner that is coherent, structured and focused, and shows clear linkages with the key results areas at various levels.

5. Recommendations for the Rio+20 Summit

Bhutan's key recommendations for the UN Conference on Sustainable Development to be held in Rio de Janeiro on 21-22 June, 2012, are outlined below:

Adoption of a new wellbeing, happiness and sustainability-based development framework: Bhutan recommends that the Rio+20 call for a holistic wellbeing, happiness and sustainability-based development framework supported, among other things, by well-defined indicators and national accounting systems which fully integrates the actual costs and values of natural and cultural resources that support economic development. Bhutan believes that the Rio+20 will be an excellent opportunity to galvanize international opinion and consensus for a development framework based on wellbeing and happiness. To that end, Bhutan wishes for the adoption of a strong and visionary Rio+20 Declaration for development and pursuance of a comprehensive framework for international cooperation and commitment for sustainable economy based on a holistic approach that integrates environmental, social and cultural aspects of wellbeing and happiness.

Enhanced focus on sustainable mountain development: Mountain ecosystems encompass a wide range of natural and cultural resources that contribute to local livelihoods and national economies. At the same time, they continuously face enormous environmental and development problems. They are highly susceptible to flooding, land degradation, climate change, and loss of biodiversity, and are home to some of the remotest and most impoverished communities in the world. Although sustainable mountain development features as a key programme area in Agenda 21, there has been limited progress in international efforts to address sustainable development issues and challenges in mountain ecosystems. Also the UNFCCC, under article 4.8, emphasizes that mountain ecosystems are highly vulnerable to climate change. However, subsequent Conferences of Parties of the UNFCCC failed to give attention to climate challenges in mountain ecosystems. It is recommended that the Rio+20 renew and enhance the focus on sustainable mountain development including development and adoption of a comprehensive and well-defined global mechanism for policy, planning and technical cooperation.

Incentivize sustainable behavior: Countries that have pursued economic development without destroying their natural environment should receive enhanced financing and technical support. Bhutan has been on the path of sustainable development even before it became a global agenda and has progressively strengthened policies and legislations to ensure that economic development is pursued within the sustainability of its natural and cultural resources. The country has deliberately foregone immediate economic gains that could have been accrued from indiscriminate use of natural resources. It is recommended that countries that have proactively pursued sustainable development and demonstrated visible progress and commitment be given priority in accessing international funds and technological support.

Enhance access to, and transfer of, affordable clean technology: It is recommended that the developed, industrialized nations share the burden of the extra costs to access and operate clean technology by the least developed countries, especially those committed to remaining carbon-neutral. It is also expected from the developed industrialized nations that they will share their low-carbon technology (including training) with the poorer nations that are committed to green economic development.

Enhance access to climate change financing: Bhutan's vulnerability to climate change is aggravated by its very low capacity, financially and technically, to adapt to climate change impacts. At the present,

international financial commitments for adaptation efforts which is crucial for vulnerable countries like Bhutan are limited while procedures to access the available funds are complex and time-consuming. Furthermore, incentives to encourage Nationally Appropriate Mitigation Actions in developing countries remain inadequate. The international commitment to establish a Green Climate Fund by 2020 that will raise US\$ 100 billion annually to help vulnerable countries to adapt to climate change and reduce GHG emissions is encouraging. Bhutan hopes that, at Rio+20, the international community will consolidate this commitment and provide concrete directions for the vulnerable countries to access and use international climate funds effectively. Such funds also need to consider the costs for mitigation of health risks caused by climate change, an aspect which has thus far not received adequate attention in climate change financing.

Strengthen international/ regional cooperation and partnerships: It is recommended that the Rio+20 strengthen international/ regional cooperation, south-south cooperations and other partnerships. Bhutan is keen to strengthen its relationship with existing development partners as well as form new partnerships to pursue the green economy approach for sustainable development along the lines of the country's recently formulated EDP 2010. The green economy approach opens up numerous sustainable development opportunities but also poses significant challenges for Bhutan. The cooperation and assistance of the international community will be crucial to realize the opportunities and address the challenges such as climate change, access to affordable technology, gender mainstreaming and capacity for local governance.

Strengthen inter-linkages and synergies between the MEAs: Many of the institutional and technical issues cut across various MEAs. Bhutan recommends that the Rio+20 discuss and elucidate appropriate and effective mechanisms to develop inter-linkages and synergy between the various MEAs and their mechanisms. Wherever inter-linkages and synergy exists, common mechanisms for accessing funds and technical assistance will be valuable to reduce procedures and alleviate capacity problems which exist in most of the least developed/ developing nations.

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Acronyms

CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSO	Civil Society Organization
DEC	<i>Dzongkhag</i> Environmental Committee
ECP	Environment, Climate Change and Poverty
EDP	Economic Development Policy
FYP	Five-Year Plan
GDP	Gross Domestic Product
Gg	Giga gram (1 Gg= 1,000 metric-ton)
GHG	Greenhouse Gas
GNH	Gross National Happiness
GNHC	Gross National Happiness Commission
HDI	Human Development Index
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreement
MICE	Meetings, incentives, conferences and exhibitions
MW	megawatt
NAP	National Action Plan to Combat Land Degradation
NAPA	National Adaptation Programme of Action for Climate Change
NEC	National Environment Commission
NSB	National Statistics Bureau
PPD	Policy and Planning Division
RTM	Round Table Meeting
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

Glossary of Bhutanese Terms

Druk Gyalpo	King of Bhutan
Dzongdag	District Governor
Dzongkhag	District
Dzongkhag Tshogdu	District Council
Gewog	Lowest unit of public administration, made up of a block of villages
Gewog Tshogde	Block Council
Gup	Head of a geog, elected by the local community
Gyalong Tshogde	National Council
Gyalong Tshogdu	National Assembly
Lyonchhoen	Prime Minister
Mangmi	Deputy to the Gup, elected by the local community
Tshogpa	Elected representative of a chiwog (group of one or few villages)

Annexure 1: Summary of the Multi-stakeholder Workshop

A multi-stakeholder workshop was convened by the National Environment Commission Secretariat on 11th January, 2012, at the NECS Conference Hall in Thimphu. Thirty-two participants, representing various agencies in the government, civil society, private sector, and UN system, were present at the workshop. The participants were largely mid-level and high mid-level professionals with role in planning and policy formulation.

Two sessions were convened. The first session, chaired by Dr. Ugyen Tshewang (Secretary of NECS), was a review of sustainable development in Bhutan. The NECS delivered presentations highlighting key achievements since the Rio Summit 1992 and Bhutan's progress through the participation in the multi-lateral environmental agreements. The presentations were followed with open discussions, questions and answers.

The discussions during the first session highlighted that:

- Significant developments have taken place, particularly in terms of institutional development and policy work for sustainable development, over the past 20 years. These include the creation and subsequent upgradation of the National Environment Commission, the reconstitution of the erstwhile Planning Commission to GNH Commission, and formulation of various national and sectoral policies and policy tools (e.g. GNH policy and project screening tool, environmental impact assessment, strategic assessment, and environment-climate change-poverty mainstreaming guidelines) to operationalize GNH development philosophy.
- Decentralized environmental governance structures have been created at the *dzongkhag* level with the formation of *Dzongkhag* Environmental Committees and appointment of *Dzongkhag* Environmental Committees.
- The role of civil society organizations needs to be acknowledged and given due importance for advancement of sustainable development plans and programmes in the new democratic system.
- The goodwill and support of international development partners have had a catalytic impact in the socio-economic transformation of Bhutan from a low human development country to a middle human development country;
- The MEAs and MDGs fit in within the strategic framework of the GNH development philosophy and, therefore, have contributed to the socio-economic progress on the lines of sustainable development.

The second session focused on green economy and institutional development for sustainable development. It was co-chaired by Ms. Karma Hamu (Chief Programme Officer of GNHCS) and Ms. Dorji Choden (Assistant Resident Representative of the Poverty and MDG Unit in UNDP Bhutan).

To start with and set the context, the national consultant presented an overview of the Rio+20 stock-taking and the conceptual framework of green economic development. Following the presentations, participatory sessions (using a partial version of Delphi technique) was conducted in relation to green economy and institutional development for sustainable development in the context of Bhutan.

The key outcomes of the second session are highlighted below:

- Bhutan will be hugely benefitted by a green economy approach because it aligns well with the GNH development philosophy, will add value to the natural and cultural resources that the country is richly endowed with, and will reinforce existing policies and programmes of the country to pursue low-carbon socio-economic development;
- The benefits of green economy for Bhutan are not associated with improvement in environmental conditions alone. Green economy is also intended to significantly improve social and economic conditions and reduce poverty among the Bhutanese;
- Since there is very limited industrialization in Bhutan, especially in terms of polluting industries, the country holds a unique advantage for green economy compared to most other countries. Other factors that favor green economy in Bhutan include political stability, social harmony, strong policies and legislations for environmentally sustainable development, and governance structures that effectively link central, sectoral and local institutions;
- Climate change presents the biggest challenge to sustainable development in Bhutan. Hydropower and agriculture, two of the country's economic mainstays, are highly vulnerable to the impacts of climate change. In addition, health issues as a result of climate change are also emerging;
- The country's landlocked mountainous geography and small population size make development plans and programmes cost-intensive in terms of money, manpower and material;
- There is apparent gap between policies and implementation and this is largely because of limited implementation capacity at the *dzongkhag* and *genog* levels. Strengthening of local development institutions will be crucial to bridge the gap;
- Urban development issues have become prominent with the growing shift from agrarian economy to urban economy. Development programmes are skewed in favor of urban areas, resulting in rural-urban migration and concentration of population pressures;
- Although mountain ecosystem is a special programme area for sustainable development (Agenda 21), it has received limited focus in the past 20 years in terms of international cooperation and support. Bhutan, as a mountainous country with unique conditions and issues, needs to call for increased international cooperation and support for sustainable mountain development.

Annexure 2: List of People Consulted

National Coordination Committee for Rio+20 National Preparations

Ms. *Peldon Tshering*, Chief, Policy and Planning Services, National Environment Commission Secretariat

Ms. *Karma Hamu*, Chief Planning Officer, Plan Monitoring and Coordination Division, Gross National Happiness Commission Secretariat

Mr. *Karma Choeda*, Multilateral Division, Ministry of Foreign Affairs

Mr. *Tshering Phuntsbo*, Centre for Bhutan Studies

Individuals met for stock-taking

Mr. *Ngawang Choeda*, Deputy Executive Engineer, Planning and Coordination Division, Department of Hydropower and Power Systems

Ms. *Sangay Dem*, Deputy Chief Biodiversity Officer, National Biodiversity Centre

Ms. *Karma Dema Dorji*, Programme Director, National Soil Services Centre, Department of Agriculture

Dr. *Lam Dorji*, Executive Director, Royal Society for the Protection of Nature

Mr. *Singay Dorji*, Deputy Chief Biodiversity Officer, National Biodiversity Centre

Mr. *Wangchuk Namgay*, Senior Planning Officer, Gross National Happiness Commission Secretariat

Mr. *Thinley Namgyel*, Head, Environment Monitoring Division, National Environment Commission Secretariat

Mr. *Chencho Norbu*, Director, Department of Agriculture

Mr. *Karma C. Nyedrup*, Environmental Specialist, National Environment Commission Secretariat

Mr. *Karma Loday Raptan*, Assistant Resident Representative, Energy, Environment and Disaster Management Unit, UNDP Bhutan

Mr. *Sonam Tashi*, Chief, Policy and Planning Division, Ministry of Economic Affairs

Ms. *Peldon Tshering*, Head, Policy and Programming Services, National Environment Commission Secretariat

Ms. *Tshewang Zangmo*, Programme Officer, National Environment Commission Secretariat

Ms. *Chime P. Wangdi*, Secretary General, Tarayana Foundation

Ms. *Rinchen Yangzom*, Biodiversity Curator, National Biodiversity Center

Participants of the multi-stakeholder workshop

Mr. *Sangye Chewang*, Officiating Director, Multilateral Department, Ministry of Foreign Affairs

Ms. *Dorji Choden*, Assistant Resident Representative, Poverty and MDG Unit, United Nations Development Programme Bhutan Country Office

Mr. *Ngawang Choeda*, Deputy Executive Engineer, Planning and Coordination Division, Department of Hydropower and Power Systems

Ms. *Tshering Choki*, Field Coordinator, Royal Society for Protection of Nature

Mr. *GK Chhophel*, Head, Water Resources Conservation Division, National Environment Commission Secretariat

Dasho Paljor Jigme Dorji, Advisor to the National Environment Commission

Mr. *Tashi Dorji*, Programme Officer, Environment, Energy and Disaster Unit, United Nations Development Programme Bhutan Country Office

Mr. *Tsheten Dorji*, Senior Soil Survey and Land Evaluation Officer, National Soil Services Center, Ministry of Agriculture and Forests

Mr. *Kusang Drukpa*, Head of Marketing, Greener Way

Mr. *Karma Galleg*, Senior Analyst, Druk Holding and Investment

Ms. *Karma Hamu*, Chief Programme Officer, Gross National Happiness Commission Secretariat

Mr. *Tashi Jamtsho*, Senior Planning Officer, Policy and Planning Division, Ministry of Agriculture and Forests

Ms. *Syelden Namgyel*, Programme Officer, Youth Development Fund

Mr. *Thinley Namgyel*, Head, Environment Monitoring Division, National Environment Commission Secretariat

Mr. *Ugen P. Norbu*, Consultant, Norbu Samyul Consulting

Mr. *Karma C. Nyedrup*, Environmental Specialist, National Environment Commission Secretariat

Mr. *Sonam Penjor*, Senior Programme Officer, National Commission for Women and Children

Mr. *Tashi Penjor*, Ministry of Economic Affairs

Mr. *Yeshey Penjor*, Climate Change Policy Specialist, United Nations Development Programme Bhutan Country Office

Mr. *Tshering Phintsbo*, Research Officer, Centre for Bhutan Studies

Mr. *Pema*, Programme Officer, Tarayana Foundation

Mr. *Phurba*, Assistant Planning Officer, Policy and Planning Division, Ministry of Education

Mr. *Chbimi Rinzin*, Chief Agriculture Officer, Department of Agriculture, Ministry of Agriculture and Forests

Mr. *Sonam Tashi*, Acting Chief Planning Officer, Policy and Planning Division, Ministry of Economic Affairs

Mr. *Karma Tenzin*, Livestock Officer, Department of Livestock, Ministry of Agriculture and Forests

Mr. *Pema Thinley*, Senior Planning Officer, Policy and Planning Division, Ministry of Agriculture and Forests

Mr. *Karma Tshering*, Programme Officer, Policy and Programming Services, National Environment Commission Secretariat

Ms. *Peldon Tshering*, Head, Policy and Programming Services, National Environment Commission Secretariat

Ms. *Tshewang Zangmo*, Programme Officer, National Environment Commission Secretariat

Dr. *Ugyen Tshewang*, Secretary, National Environment Commission Secretariat

Mr. *Chukey Wangchuk*, Chief Programme Officer, Bhutan Trust Fund for Environmental Conservation

Mr. *Kinley Wangdi*, Senior Tourism Officer, Tourism Council of Bhutan

Ms. *Rinchen Yangzom*, Biodiversity Curator, National Biodiversity Center

Annexure 3: Sustainability and Happiness – The Vital Link

Thirty years ago, the Fourth King of Bhutan famously proclaimed that “Gross National Happiness is more important than Gross National Product,” thereby setting Bhutan on a holistic development path that seeks to integrate sustainable and equitable socio-economic development with environmental conservation, cultural promotion, and good governance.

This “happiness” has nothing to do with the common use of that word to denote an ephemeral, passing mood — happy today or unhappy tomorrow due to some temporary external condition like praise or blame, gain or loss. Rather, it refers to the deep, abiding happiness that comes from living life in full harmony with the natural world, with our communities and fellow beings, and with our culture and spiritual heritage, — in short from feeling totally connected with our world.

And yet our modern world, and particularly its economic system, promote precisely the reverse — a profound sense of alienation from the natural world and from each other. Cherishing self-interest and material gain, we destroy nature, degrade our natural and cultural heritage, disrespect indigenous knowledge, overwork, get stressed out, and no longer have time to enjoy each other’s company, let alone to contemplate and meditate on life’s deeper meaning. A myriad of scholarly studies now show that massive gains in GDP and income have not made us happier. On the contrary, respected economists have demonstrated empirically that deep social networks are a far better predictor of satisfaction and wellbeing than income and material gain.

It is significant that the term Gross National Happiness was first coined in direct contrast with Gross National Product — literally as a sharp critique of our current materialist obsession and growth-based economic system. And it is even more significant that the statement was not made in relation to Bhutan alone, but as a universal proclamation — true for the world and for all beings. The universal chord it struck explains why 68 nations joined Bhutan in co-sponsoring its UN General Assembly resolution in July 2011 on “Happiness: Towards a Holistic Approach to Development” that was passed by consensus, without dissenting vote, by the 193-member United Nations.

To the best of its capacity, the Kingdom of Bhutan is trying to put Gross National Happiness into practice at home. We have a long way to go. But we do try to place the natural environment at the centre of all our development policies. Our Constitution mandates that at least 60% of the Kingdom of Bhutan remain under forest cover in perpetuity. More than 50% of our country is under full environmental protection in national parks and wilderness areas. We vowed at Copenhagen always to remain a net carbon sink. Our stated policy and intention is to go 100% organic in our agricultural production.

And we don’t view these policies as coming at the expense of human and social development. On the contrary, they have supported our increased wellbeing. Life expectancy has literally doubled in the last two generations. Health care and education are free, and rural health clinics and schools are sprouting throughout the country, with 99% of primary-aged children now in school. The core focus of our Tenth Five-Year Plan is to reduce poverty.

And in the midst of this rapid development, we are doing our best to maintain the values, principles, and practices of our dynamic, evolving culture and ancient wisdom traditions, which reflect in our deep respect for all life and in our strong family and community bonds. And the good governance pillar of Gross National Happiness could not be better demonstrated than in our Fourth King’s effort to build constitutional democracy, including his own voluntary abdication from the Throne.

In all this, we are acutely aware that what we measure is what gets policy attention, and that what we count signifies what we value. And so, we now assess progress in the Kingdom of Bhutan according to nine domains — living standards, health, education, culture, ecological integrity, community vitality, time use, good governance, and psychological wellbeing. From those results, we create a GNH Index, and we use these indicators actively as a policy screening tool. Indeed, no major policy is implemented in Bhutan if it fails the GNH indicator test. Since 2007, we have administered two national GNH surveys, and these measures now guide our policy.

But we have also learned that, to measure progress accurately and properly, indicators are not enough. GDP, after all, is not an indicator, but an accounting system. To challenge the continued dominance of narrow GDP-based measures, we are therefore building a new holistic accounting system that properly accounts for the value of our nation's natural, human, social, and cultural capital — and not only the manufactured and financial capital currently counted.

Globally, most of our true wealth as nations is currently invisible and ignored, and that is a dangerous illusion that leads to dangerous policies. So in February this year we released the first natural, human, and social capital results of our new National Accounts, which will be the foundation of the new economy we need to build. We found, for example, that our forests provide more than 14 billion dollars a year worth of ecosystem services – four times more than our whole GDP. And here our little country performs a huge service to the world, because 53% of that value accrues to those beyond our borders. Why? Because our forests regulate the climate, store carbon, and protect watersheds from which others benefit.

And yet, despite all our best efforts, there are major limits to what Bhutan can do alone. After all, we are not separate from the world around us. We are connected to the internet, television, global trade, and all the consumerist temptations they bring. And greenhouse gas emissions in Chicago, London, and Sydney are melting glaciers in our own Himalayan mountains. We are more than willing to be on the front lines in adopting the new wellbeing and sustainability-based economic paradigm, but we are now intimately connected with the world, and so we need to take this leap as a global community.

The time has come to build a new global economic system that is no longer based on the illusion that limitless growth is possible on our precious and finite planet or that endless material gain promotes wellbeing. Instead, it will be a system that promotes harmony and respect for nature and for each other, that respects our ancient wisdom traditions and protects our most vulnerable people as our own family, and that gives us time to live and enjoy our lives and to appreciate rather than destroy our world. It will be an economic system, in short, that is fully sustainable and that is rooted in true, abiding wellbeing and happiness.

Sustainability is the essential basis and pre-condition of such a sane economic system. But an economy exists not for mere survival but to provide the enabling conditions for human happiness and the wellbeing of all life forms. The new economy will be an economy based on a genuine vision of life's ultimate meaning and purpose — an economy that does not cut us off from nature and community but fosters true human potential, fulfillment, and satisfaction.

Note: This write-up formed a part of the preparatory materials for the High-level Meeting on Wellbeing and Happiness: Defining a New Economic Paradigm, hosted by the Royal Government of Bhutan at the United Nations Headquarters, New York, on 2nd April, 2012.

Annexure 4: Ten-Yearly Progress Towards the MDGs

MDG 1: Eradicate extreme poverty and hunger					
Targets	Indicators	1990	2000	2010	2015
Target 1: Halve, between 1990 and 2015, the proportion of people living below the poverty line	Proportion of population below the national poverty line (%)	-	36.3	23.2 (2007)	20
Target 2: Halve by 2015 the proportion of people who suffer from hunger	Proportion of population below the minimum level of dietary energy consumption (%)	-	-	-	1.9
	Percentage of underweight under-five children	38 (1989)	19	-	19
	Percentage of under-height under-five children	56 (1989)	40	-	28
MDG 2: Achieve universal primary education					
Targets	Indicators	1990	2000	2010	2015
Target 3: Ensure that by 2015 children will be able to complete a full course of primary education	Gross primary enrolment ratio (%)	55	72	117	100
	Net primary enrolment ratio (%)	-	-	93.1	100
	Proportion of pupils starting grade 1 who reach grade 5 (%)	73	91	93.6	100
	Proportion of pupils starting grade 1 who reach grade 7 (%)	35	81	86.9	100
MDG 3: Promote gender equality					
Targets	Indicators	1990	2000	2010	2015
Target 4: Eliminate gender disparity in primary and secondary education, preferably by 2005 and to all levels of education by 2015	Ratio of girls to boys in primary education (%)	69 (1991)	82	99.4	100
	Ratio of girls to boys in secondary education (%)	43 (1991)	78	103.5	100
	Ratio of females to males in tertiary education (%)	12 (1991)	41	61	100
MDG 4: Reduce child mortality					
Targets	Indicators	1990	2000	2010	2015
Target 5: Reduce by two-third, between 1990 and 2015, the under-five mortality rate	Under-five mortality rate (per 1000 live births)	123	84	61.5	41
	Infant mortality rate (per 1000 live births)	90	60.5	40.1	30
	Proportion of children covered under immunization programme (%)	84	85	90	>95
MDG 5: Improve maternal health					
Targets	Indicators	1990	2000	2010	2015
Target 6: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio	Maternal mortality rate (per 100,000 live births)	560	255	-	140
	Births attended by skilled health personnel (%)	15	24	67.4	100
MDG 6: Combat HIV/AIDS, malaria and other diseases					
Targets	Indicators	1990	2000	2010	2015
Target 7: Halt and begin to reverse the spread of HIV/AIDS	HIV cases detected	0	38	217	-
	Contraception prevalence rate (%)	-	30.7	35	60
Target 8: Halt and begin to reverse the spread of	Number of malaria cases and incidences (per 100,000 people)	22,126 (1991)	5,935	142 (2009)	-

malaria and other major diseases	Number of tuberculosis cases and incidences (per 100,000 people)	4,232	1,140	171 (2009)	-
MDG 7: Ensure environmental sustainability					
Targets	Indicators	1990	2000	2010	2015
Target 9: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	Proportion of land area covered by forest (%)	72.5	72.5	72.5	-
	Ratio of protected area to surface area for maintaining biological diversity (%)	23	26	42.7	-
	CO ₂ (per capita) emissions (MT)	-5.89	-	-	-
	Proportion of population using solid fuels (e.g. wood, charcoal, dung) (%)	-	75	70 (2007)	-
Target 10: Halve, between 1990 and 2015, the proportion of people without sustainable access to safe drinking water and sanitation	Proportion of population without access to improved drinking source (%)	55	22	19 (2007)	27.5
	Proportion of population without access to improved sanitation (%)	33	12	17.5 (2009)	17.5
MDG 8: Develop a global partnership for development					
Targets	Indicators	1990	2000	2010	2015
Target 11: In cooperation with developing countries, develop and implement strategies for decent and productive work for youth	Youth unemployment rate (%)	-	2.6	-	-
Target 12: In cooperation with the private sector, make available the benefits of new technologies especially information and communication technology	Fixed lines in service	4,052	16,580	-	-
	Telephone density (per 100 persons)	0.68	2.4	-	-
	Computers in use (per 100 persons)	-	0.58 (2001)	-	-
	Internet users (per 100 persons)	-	0.43 (2001)	-	-

Sources: MDG Progress Report 2002 and 2005, Poverty Analysis Report 2007, UNDP Annual Report 2010, Biodiversity Action Plan 2009, and Second National Communication 2011.

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