



Royal Government of Bhutan
Ministry of Agriculture
National Soil Services Center

NATIONAL REPORT

Implementation of the United Nations Convention to
Combat Desertification in Bhutan

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Implementation of the Convention (CRIC5)

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Acronyms and Glossary of Bhutanese Terms

Acronyms

AAC	Annual Allowable Cut
BTF	Bhutan Trust Fund for Environmental Conservation
CBD	Convention on Biological Diversity
DANIDA	Danish International Development Agency
DoA	Department of Agriculture
DYT	Dzongkhag Yargye Tshogdu
EA	Environmental Assessment
EC	Environmental Clearance
ECOP	Environmental Codes of Practice
EFRC	Environment Friendly Road Construction
EIA	Environmental Impact Assessment
FMU	Forest Management Unit
FRDD	Forest Resources Development Division
FYP	Five Year Plan
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
GTZ	German Technical Cooperation
GYT	Geog Yargye Tshogchung
ICDP	Integrated Conservation and Development Programme
LDC	Least Developed Country
masl	meters above sea level
MoA	Ministry of Agriculture
MTAC	Multi-disciplinary Technical Advisory Committee
NAP	National Action Programme
NEC	National Environment Commission
NECS	National Environment Commission Secretariat
NSSC	National Soil Services Center
RAP	Regional Action Programme
RGoB	Royal Government of Bhutan
RNR	Renewable Natural Resources
SIDS	Small Island Developing States
SLM	Sustainable Land Management
SLMP	Sustainable Land Management Project

SNV	Netherlands Development Organization
SRAP	Sub Regional Action Programme
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WWF	World Wildlife Fund

Glossary of Bhutanese Terms

Chathrim	Act, statute
Chhuzhing	Wetland cultivation
Dzongkhag	District
Dzongkhag Yargye Tshogdu	District Development Committee
Geog	Administrative Block
Geog Yargye Tshogchung	Block Development Committee
Gup	Elected head of a geog
Kamzhing	Dryland cultivation
Lhengye Zungtshog	National Cabinet
Sokshing	Tract of forest, usually of oak or pine trees, maintained for collection of leaf litter required in the production of farmyard manure
Thrimzhung Chenmo (1957)	Mother Law, enacted before the advent of modern laws in the country
Tsamdo	Pasture land with customary grazing rights owned by individuals, communities or institutions
Tseri	Slash-and-burn cultivation

SUMMARY

Country Overview

Bhutan is a small country both in size and population. It has a total area of 38,394 km² and a population of 634,982 people. Landlocked and mountainous, the country lies in the Eastern Himalayas with the Indian states of Arunachal Pradesh to its east, Assam and West Bengal to its south, Sikkim to its west and the Tibetan Autonomous Region of China to its north. The Bhutanese population is largely agrarian with 69 percent living in rural areas. However, the proportion of urban population has been growing rapidly in the recent years. Between 1997 and 2005, the urban population is estimated to have grown from 15 to 31 percent. The people in the rural areas subsist largely on an integrated livelihood system of crop agriculture, livestock rearing and use of forest products – collectively known as the renewable natural resources (RNR) sector.

Land Use and Cover

Forest is by far the most dominant land cover, with 72.5 percent (including 8.1 percent scrub forest) of the country under forest cover – one of the highest in the world. Almost all of the forests are natural, with plantation forest being just about 0.2 per cent. The country's forests are presently managed as government reserved forests under the legal framework provided by the Forest and Nature Conservation Act 1995. Agricultural land makes up only 7.7 percent, mostly located in the central valleys and southern foothills. The main land uses for agriculture are kamzhing (dryland cultivation), chhuzhing (wetland cultivation) and mixed cultivation. Much of the northern part of the country is snow and glaciers, which account for 7.5 per cent of the country's land cover. Barren rocks cover 5 per cent and pastures 3.9 per cent of the country. Urban area is presently negligible but expanding rapidly especially in Thimphu and Phuentsholing.

Key Land Degradation Issues

Despite environment being at the center of development policies and plans, Bhutan face several land degradation issues – some are longstanding and others emerging. **Grazing** is one of the key issues. Livestock is maintained by the rural Bhutanese mainly for dairy and meat production, draught power and production of dung for farmyard manure. Despite consistent government efforts to reduce livestock population through introduction of improved breeds, artificial insemination and sterilization, livestock population has remained high. Cattle population has increased albeit slightly following a rather erratic trend from 308,273 in 1990 to 320,509 in 2000. Similarly, yak population has increased from about 33,035 to 34,928 during the same period. High livestock population has led to overgrazing in many instances. Over-grazing of pastures and forests, mainly in broadleaf forests, may lead to attrition or loss of species, reduction of land productivity and soil erosion.

Forest fires are a recurrent and widespread phenomenon despite strict penalties posed by the Forest and Nature Conservation Act 1995. Records maintained by the Department of Forestry reveal that from 1992/93 to 2004/05, 870 incidents of forest fires have occurred, affecting more than 128,000 hectares of forest land. All forest fires in the country are man-made; either set deliberately to invigorate the growth of pastures or commercially valuable grasses such as lemon grass, or occur due to general public carelessness.

Unsustainable use of forest resources is also a major concern. A report of the Forest Resources Development Division mentions that the annual total consumption of timber at 190,000 m³ in the recent years exceeded the total annual allowable cut (AAC) of about 149,000 m³ from all Forest Management Units (FMUs). The excess demand was met from ad

hoc sources, which is a cause for concern as these sources are not operated based on sustainable forest management planning. Fuelwood consumption is even higher at 1.27 tonnes or 1.8 m³ per person per annum. This works out to nearly 1.2 million m³ per annum. As a result of excessive forest use, localized deforestation has occurred in several places especially where population density is high, for example in parts of eastern and southern Bhutan.

Concomitant with modernization, the need for **infrastructure development** has grown. Socio-economic development objectives necessitate construction of roads and electrification among other things. Development of these infrastructure, when not carried out in an environmentally sensitive manner, can have serious adverse impacts especially in terms of slope destabilization and vegetation loss.

While 69 percent of the population depend primarily on agriculture, arable agriculture land is less than 8 percent mostly located in the central valleys and southern foothills. This limited area has also to support other development activities of a population, which is currently growing at 1.3 percent each year. As a consequence, there is **intensive and competitive land use**, impacting on the productivity and stability of the land.

Pollution of land is emerging as an environmental problem in and around urban areas and industrial sites. Over the recent years, generation of solid waste has increased significantly in urban centers. According to data collected by the Royal Society for the Protection of Nature, Thimphu's solid waste generation has increased from eight metric tons (MT) a day in 1994 to 22 MT in 2003-04, and to 37 MT as of August 2005.

There is **rapid urbanization** taking place in the country. The urban population has grown from 15 percent of the country's total population in the Eighth Five Year Plan (July 1997-June 2002) to 31 percent by 2005. Thimphu alone has more than 40 percent of the total urban population while Phuentsholing has more than 10 percent. In order to accommodate surplus population, these urban centers have consumed prime agricultural lands in the valleys and encroached on hill slopes which were once forested. Extraction of sand and stones from the river banks and harvesting of timber from adjacent forests have increased in frequency and volume in the recent years to cater to the growing construction demands in the urban centers.

Multi-lateral Environmental Agreements, UNCCD and Bhutan

Bhutan's attendance at the United Nations Conference on Environment and Development in 1992 marked the nation's increasing participation in global environmental management efforts. Subsequently, the country became Party to the Convention on Biological Diversity and United Nations Framework Convention on Climate Change, when its National Assembly ratified them in August 1995. It acceded to the United Nations Convention to Combat Desertification in August 2003. In addition to these three Conventions, the country is Party to nine other environment-related international conventions.

National Sustainable Development Policies and Plans

Environmental sustainability occupies a pivotal place in Bhutan's development policies and plans. **Bhutan 2020** provides overarching policy for development based on the concept of "Gross National Happiness", underscoring that economic, spiritual and environmental well-being are all equally important. It provides a 20-year perspective of development goals and objectives and features environmental conservation as one of the five main development objectives

The **National Environment Strategy** titled "The Middle Path" – launched in 1998 – was derived through an inter-sectoral and consultative process. The Strategy, which is equivalent to a National Sustainable Development Strategy in essence, enshrines the concept of

sustainable development and identifies three main avenues for such development: hydropower development based on integrated watershed management; agricultural development based on sustainable practices; and industrial development based on effective pollution control measures and environmental legislation.

The **National Forest Policy 1974** places priority on conservation of forests and associated resources for their ecological values. Economic benefit from forest resources is considered secondary and is to be derived within sustainable limits. One of the guiding principles pertain to protection of forests to prevent or reduce land degradation.

Agricultural development is guided by the overall **Renewable Natural Resources (RNR) sector policy** which operates on the objectives of: people-centered development; economic development with prospects for long-term sustainability; balanced and equitable development of the country's renewable natural resources; and development that is environment friendly and ensures the integrity of the country's fragile ecosystem.

The **Five Year Plans** are the main implementation instrument for achievement of national policy objectives. The Five-Year Plans, which spell out programmes, activities and budget outlay, are formulated and implemented at three levels: central level, made up of sectoral plans; dzongkhag level; and geog level. The ongoing Ninth Five Year Plan, with a Cover Note on poverty reduction added to it, serves as the country's **Poverty Reduction Strategy Paper**. The Ninth Five Year Plan incorporates environmental objectives including those contributing to combating land degradation.

Even though Bhutan became a Party to the UNCCD only recently, it is not new to UNCCD principles such as people's participation, consultation and programme approach. The existing environment policy framework incorporates these principles to a great extent. It is anticipated that Bhutan's increasing involvement in the implementation of UNCCD and other international environment treaties over the years will further strengthen the employment of the principles of people's participation, consultation, programme approach, awareness and education and so forth in the planning and implementation of environmental policies.

Institutional Setting for the Implementation of UNCCD

The **National Environment Commission** acts as an inter-ministerial body for coordinating all cross-sectoral environmental matters, including those pertaining to international environmental agreements and treaties.

The NEC was first established in 1989 by Royal Decree as a National Environment Committee under the Planning Commission. Subsequently, in 1992, the NEC was delinked from the Planning Commission to serve as a more vigorous, autonomous government body. It was reconstituted in 1998 to serve as a high level body with inter-ministerial representation for policy decisions and guidance on matters related to environmentally sustainable development and institution of measures to integrate environmental management in overall development process. The Commission is currently chaired by the Honorable Minister of Agriculture and is served by an independent Secretariat, headed by the Honorable Deputy Minister of Environment.

The **Ministry of Agriculture** is the national focal agency for the UNCCD. Within the Ministry of Agriculture, the **National Soil Services Center** has been specifically assigned to coordinate the implementation of activities related to UNCCD with the Programme Director of the NSSC as the point person.

The Ministry of Agriculture was formed in 1985 and brought together the agriculture, livestock development and forestry sub-sectors, which are now collectively known as the

renewable natural resources (RNR) sector. Apart from the Departments of Agriculture, Livestock and Forestry, the Ministry includes the Department of Survey and Land Records, National Biodiversity Center, Information and Communication Services, and Bhutan Agriculture and Food Regulatory Authority. The Ministry is directly supported by a Planning and Policy Division and an Administration and Finance Division. It has also instituted a Council for RNR Research in Bhutan to guide and coordinate the research programmes and activities implemented by the regional RNR Research Centers.

The National Soil Services Center, which is the **national focal agency** for UNCCD, is a part of the Department of Agriculture. The Center functions as a resource and referral facility dealing with soil survey, soil analysis and soil fertility management and is mandated to coordinate soil management research activities of the RNR sector and to provide analytical services. Of late, besides becoming the UNCCD focal agency, the Center has assumed two major responsibilities in the context of combating land degradation: one, of management of the Global Environment Facility-funded/ World Bank-assisted Sustainable Land Management Project through a multi-sectoral approach involving stakeholders at the central, dzongkhag and geog levels; and, two, of providing core technical advisory services to the Land Management Campaign launched in 2005. The Center has a team of some 23 researchers and technicians, who function with oversight and guidance from the Programme Director and administrative support of eight general staff.

The implementation of programmes and activities to combat land degradation go beyond the realms of the National Environment Commission and Ministry of Agriculture. The following table lists various **key partner agencies** and their area of work in relation to combating land degradation.

Key Partner Agencies in the Context of Combating Land Degradation

Agency	Area of work
<i>Government Agencies</i>	
Department of Geology and Mines, Ministry of Trade and Industry	Geological mapping, geologic hazard and risk assessments, geotechnical advisory service, mineral exploration, enforcement of Mines and Minerals Management Act 1995 and Mines and Minerals Management Act 2002.
Department of Roads, Ministry of Works and Human Settlement	Promotion of environment-friendly road construction concept and techniques including the enforcement of environmental assessment guidelines and environmental codes of practice for roads.
Department of Urban Development and Engineering Services, Ministry of Works and Human Settlement	Enforcement of environmental assessment guidelines and environmental codes of practice for roads, planning and ensuring establishment of environmental management infrastructure such as storm water drainage, sewerage and municipal solid waste disposal systems.
<i>Autonomous Agencies</i>	
City Corporations	Implementing urban development plans entailing effective use of land for development of urban infrastructure and management of urban lands
<i>Dzongkhag/ Geog Institutions</i>	
Dzongkhag Administrations (Ministry of Home and Cultural Affairs)	Through the Dzongkhag Environmental Committees (DECs), the Dzongkhag Administrations have the responsibility to ensure integration of environmental concerns in dzongkhag plans and to implement environmental assessment and clearance procedures for dzongkhag and geog level projects and activities that are small-scale and unlikely to have any major adverse environmental

Agency	Area of work
	impacts.
Dzongkhag Yargye Tshogdu	Implementation of Dzongkhag Yargye Tshogdu Chathrim 2002, which among other things provides for environmental management at the dzongkhag level
Geog Yargye Tshogchung	Implementation of Geog Yargye Tshogchung Chathrim 2002, which among other things provides for environmental management at the geog level
<i>Non-Governmental Organizations</i>	
Royal Society for the Protection of Nature	Environmental education and public awareness, conservation management of designated natural habitats outside the national protected areas system
Tarayana Foundation	Upliftment of poor communities in the remote areas, including through development of local capacity for sustainable use of natural resources

International/ Regional Cooperation

The international community has been very supportive of Bhutan's environmental work. Specifically in the area of combating land degradation, the following international agencies are involved or have been involved in the last five years: United Nations Development Programme; United Nations Environment Programme; World Bank; Asian Development Bank; DANIDA; Netherlands Development Organization (SNV); Helvetas and Swiss Development Cooperation; German Technical Cooperation (GTZ); European Community; World Wildlife Fund (WWF); MacArthur Foundation; and Global Environment Facility.

By virtue of being a Party to the UNCCD, Bhutan is a member of the Sub-Regional and Regional Action Programmes. A Concept Note on common issues and areas of synergy between Bhutan and Nepal has been developed under SRAP framework with assistance from the UNCCD Secretariat. This initiative is in a preliminary stage, with both the countries at the present reviewing the Concept Note. As Bhutan is a relatively new entrant to the UNCCD and the national focal agency was assigned only in 2005, its participation in the SRAP or RAP has been limited so far.

The NSSC works directly with two GEF Implementing Agencies, namely the UNDP and World Bank. The UNDP, apart from partial financing to the pipeline GEF medium sized Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan project, will coordinate the delivery of GEF funds and external technical assistance to the project. The World Bank provided financial support and technical assistance to the NSSC for the preparation of the GEF-funded Sustainable Land Management Project and will guide and monitor project activities on behalf of the GEF.

Legal Framework for the Implementation of UNCCD

Existing laws and regulations provide a good legal framework for the implementation of activities pertaining to UNCCD obligations. The following are the key laws with specific provisions for land use, management and protection:

- Land Act 1979
- Environmental Assessment Act 2000, supported by Regulation for the Environmental Clearance of Projects and Regulation for Strategic Environmental Assessment 2002

- Forest and Nature Conservation Act 1995, supported by Forest and Nature Conservation Rules 2000
- Mines and Mineral Management Act 1995, supported by Mines and Mineral Management Regulations 2000
- Road Act 2004
- Dzongkhag Yargye Tshogdu Chathrim 2002
- Geog Yargye Tshogchung Chathrim 2002

However, a few gaps exist. One pertains to the absence of grazing policy and legislation which among other things would provide for sustainable management of grazing lands. Currently, in absence of grazing policy and legislation, activities on grazing land are governed by the Land Act 1979 and the Forest and Nature Conservation Act 1995. Both these legislations do not specify any provisions for management of grazing lands. Secondly, land use policy is presently lacking. There is very little coordination among various sectors and land use in several situations is not consistent with the local land capability in the absence of a good policy. Therefore, there is a need to develop land use policy to guide inter-sectoral coordination and to ensure that land use and management practices are in consistent with land capabilities.

Major Initiatives to Combat Land Degradation

While there are numerous programmes and activities of the RGoB that directly or indirectly contribute to combating land degradation even if they are not specifically or inherently aimed to do so, there are two major initiatives that stand out for their exclusive focus on land degradation problems in the country. These are:

- National Land Management Campaign;
- Sustainable Land Management Project funded by the Global Environment Facility through the World Bank;
- Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan (pipeline GEF/UNDP project).

The **National Land Management Campaign** was launched in July 2005 by Lyonpo Sangay Ngedup, Honorable Minister of Agriculture, in response to the need to proactively address land degradation problems which had become increasingly visible and profound in terms of impacts on the local people and their livelihoods. The Campaign has been embarked upon as a continuous programme of the Ministry of Agriculture to instill in people the awareness and understanding of various land management techniques based on site-specific land degradation problems. It focuses on on-the-ground demonstrations using a broad-based participatory approach bringing together local communities, dzongkhag staff as well as professionals from various disciplines.

In the first year, i.e. 2005, the Campaign was implemented in Trashigang dzongkhag. It covered eight locations in eight different geogs. The campaign established about 115 acres of demonstration sites, involving interventions such as contour hedgerows, bush layering, check dams, log dams, land terracing, edge trimming, and boundary plantings based on site-specific land degradation problems. Altogether, more than 3,100 people – farmers, local public volunteers, dzongkhag officials, RNR staff, school teachers, students and local community leaders took part in the Campaign in its first year. In 2006, the Campaign will cover additional areas in other dzongkhags as well as carry out follow-up activities and rectification where necessary in the locations covered during 2005.

The Royal Government of Bhutan embarked on the **Sustainable Land Management Project** in 2006 with grant from the GEF through its Operational Programme 15 and co-financing from Danish International Development Assistance (DANIDA). Facilitation and technical

support for the project has been available from the World Bank. The project has been conceived with the development objective to strengthen institutional and community capacity in terms of human resource, policies, incentives, technologies and knowledge for anticipating and managing land degradation in the country. The Project has four complementary, mutually-reinforcing components: (i) Component One– Pilot projects to demonstrate effective application of land degradation prevention approaches; (ii) Component Two– Mainstreaming of practices for protection against land degradation; (iii) Component Three– Policy support and guidance for mainstreaming land degradation prevention practices; and (iv) Component Four– National level support for coordination of implementation of land degradation prevention practices.

In addition to the aforesaid ongoing initiatives, a project titled **Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan** is in the pipeline for GEF funding under its Medium Sized Project grant. The project is a part of the UNDP/GEF LDC and SIDS Targeted Portfolio Approach for Capacity Development and Mainstreaming of Sustainable Land Management and relates to GEF Operational Programme 15. The proposed project will have three components: (i) formulation of National Action Programme (NAP) to combat land degradation; (ii) capacity development for sustainable land management; and (iii) mainstreaming of sustainable land management in national development policy and planning framework.

Status of National Action Programme to Combat Land Degradation

Bhutan has yet to develop a National Action Programme (NAP) to combat land degradation. A proposal has been prepared to formulate a NAP using a consultative, participatory process involving stakeholders at the national, regional, dzongkhag and geog levels. The proposed NAP will be a key part of the proposed medium-sized GEF project titled “Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan”. The formulation of the NAP is expected to start in July 2006 and will be carried over period of one year.

Basic Information related to UNCCD Implementation

1. Focal Point Institution

Name of focal point	Mr. Chencho Norbu
Address including e-mail address	National Soil Services Center Department of Agriculture Ministry of Agriculture Post Box 907, Semtokha Thimphu, BHUTAN E-mail: cnorbu@gmail.com or nssc@druknet.bt
Country-specific websites relating to desertification	www.moa.gov.bt (Ministry of Agriculture) www.nec.gov.bt (National Environment Commission) www.dor.gov.bt (Department of Roads) www.mti.gov.bt (Ministry of Trade and Industry, of which the Department of Geology and Mines is a part)

2. Status of NAP

Date of validation	NAP formulation process has yet to be undertaken.
Body/institution/Government level which validated the NAP	Not answerable due to the above reason
NAP review(s)	Not answerable due to the above reason
NAP has been integrated into poverty reduction strategy (PRSP)	NAP formulation process has yet to be undertaken. When the process gets underway, mainstreaming of NAP in

	national sustainable development policies and plans, including the PRSP, will be pursued through multi-stakeholder consultations and inter-agency coordination.
NAP has been integrated into the national development strategy	NAP formulation process has yet to be undertaken. When the process gets underway, mainstreaming of NAP in national sustainable development policies and plans, including the five-year development plans and national strategy for sustainable development, will be pursued through multi-stakeholder consultations and inter-agency coordination.
NAP implementation has started with or without the conclusions of partnership agreements	NAP formulation process yet to be undertaken. When the process gets underway, partnerships will be established to develop synergy of efforts and resources to combat land degradation and to augment knowledge sharing.
Expected NAP validation	NAP formulation process yet to be undertaken
Final draft of a NAP exists	NAP formulation process yet to be undertaken
Formulation of a draft NAP is under way	NAP formulation process yet to be undertaken
Basic guidelines for a NAP have been established	NAP formulation process yet to be undertaken
Process has only been initiated	NAP formulation process yet to be undertaken. The process is expected to commence from July 2006.
Process has not yet started	NAP formulation process yet to be undertaken. The process is expected to commence from July 2006. The formulation of NAP has been submitted as a key part of the proposed medium-sized GEF project.

3. Member of SRAP/ RAP

Name of subregional and/or regional cooperation framework	Involvement specifically in topics such as water harvesting techniques, soil erosion, etc.
Concept Note on Common Issues and Synergy between Bhutan and Nepal under SRAP framework is being reviewed for possible cooperation in the future.	

4. Composition of the National Coordinating Body

There is no UNCCD-specific National Coordinating Body. However, the National Environment Commission (NEC) functions as an inter-ministerial body to coordinate and make decisions on cross-sectoral environmental matters and issues including international environmental policy and legislation. The NEC's composition is as below:

Name of institution	Government	NGO	Male/female
Ministry of Works and Human Settlement	✓		
Ministry of Trade and Industry	✓		
Ministry of Information and Communication	✓		
Ministry of Agriculture	✓		
Planning Commission	✓		
Department of Education	✓		
Department of Survey and Land Records	✓		
National Environment Commission Secretariat	✓		

5. Total Number of NGOs Accredited to the Process: None yet

Has an NGO National Coordinating Committee on desertification been established; if yes, how many NGOs or civil society organizations participated in it?	No
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6. Total Number of Acts and laws passed relating to UNCCD: 11

Five most relevant laws/ regulations:

Title of the law	Date of adoption
Environment Assessment Act 2000 (supported by the Regulations for Environmental Clearance of Projects and Strategic Environmental Assessment 2002)	The law was adopted on 14 th July, 2000, and the regulations were adopted on 4 th April, 2002.
Forest and Nature Conservation Act of Bhutan, 1995 (supported by Forest and Nature Conservation Rules of Bhutan, 2000)	The law was adopted on 1 st September, 1995.
Mines and Mineral Management Act (supported by Mines and Mineral Management Regulations, 2002)	The law was adopted on 1 st September, 1995, and the regulations were adopted on 1 st April, 2002
Dzongkhag Yargye Tshogdu and Geog Yargye Tshogchung Chathrim, 2002	The Dzongkhag Yargye Tshogdu Chathrim was adopted on 23 rd July, 2002, and Geog Yargye Tshogchung Chathrim was adopted on 22 nd July, 2002
Land Act 1979	The law was adopted on 28 th December, 1979

7. The Consultative Process

Number of partnership agreements that have been concluded and/or are being initiated within the framework of the UNCCD:

Official title of partnership	Donor(s), international organization(s), and/or agencies of the UN system involved	Date of (expected) conclusion
No partnership within the UNCCD framework established yet		

List of consultative meetings on UNCCD implementation:

Name of consultative meeting	Date/year	Donor countries involved	International organizations or agencies of the UN system involved
No consultative meeting yet held specifically for UNCCD implementation. However, several multi-disciplinary working group and consultative meeting have been held for the planning and operationalization of Sustainable Land Management Project which falls under GEF Operational Programme 15.			

Name of the country which has taken over the role of *Chef de file*: -

8. Name up to 10 projects currently under implementation which are directly or indirectly related to the UNCCD

Project Title	Implemented within NAP/ SRAP/ RAP framework? (Yes/No)	Timeframe	Partners Involved	Overall Budget
Sustainable Land Management Project	No	2006-2011	GEF, World Bank, DANIDA, various RNR sector agencies, Dzongkhag Administrations	US\$ 15.89 million
National Land Management Campaign	No	2005 -	Various RNR sector agencies, Dzongkhag Administrations	Nu. 6.7 million (first year)
Wang Watershed Management Project	No	2001-2007	European Community, various RNR sector agencies, Dzongkhag Administrations	Euro 13.3 million
Environment and Urban Sector Support Programme	No	2004-2008	DANIDA, NEC, various RNR sector agencies, City Corporations, MTI	DKK 110 million
East Central Region Agriculture Development Programme	No	2002-2007	Helvetas, various RNR sector agencies	CHF 2.5 million
Participatory Forest Management Project	No	2002-2007	Swiss Development Cooperation, Department of Forestry, Dzongkhag Administrations	CHF 3.8 million
Community-based Biodiversity Conservation and Ecosystem Management	No	2004-2008	Sustainable Development Secretariat, Department of Forestry, Dzongkhag Administrations	Nu. 102 million
Conservation Management Planning for Sakten Wildlife Sanctuary	No	2003-2006	MacArthur Foundation, Department of Forestry, Dzongkhag Administrations	Nu. 26.3 million
Linking and Enhancing Protected Areas in the Temperate Broadleaf Forest Ecoregion of Bhutan	No	2003-2007	UNDP, WWF, GEF, Department of Forestry, Dzongkhag Administrations	US\$ 1.855 million

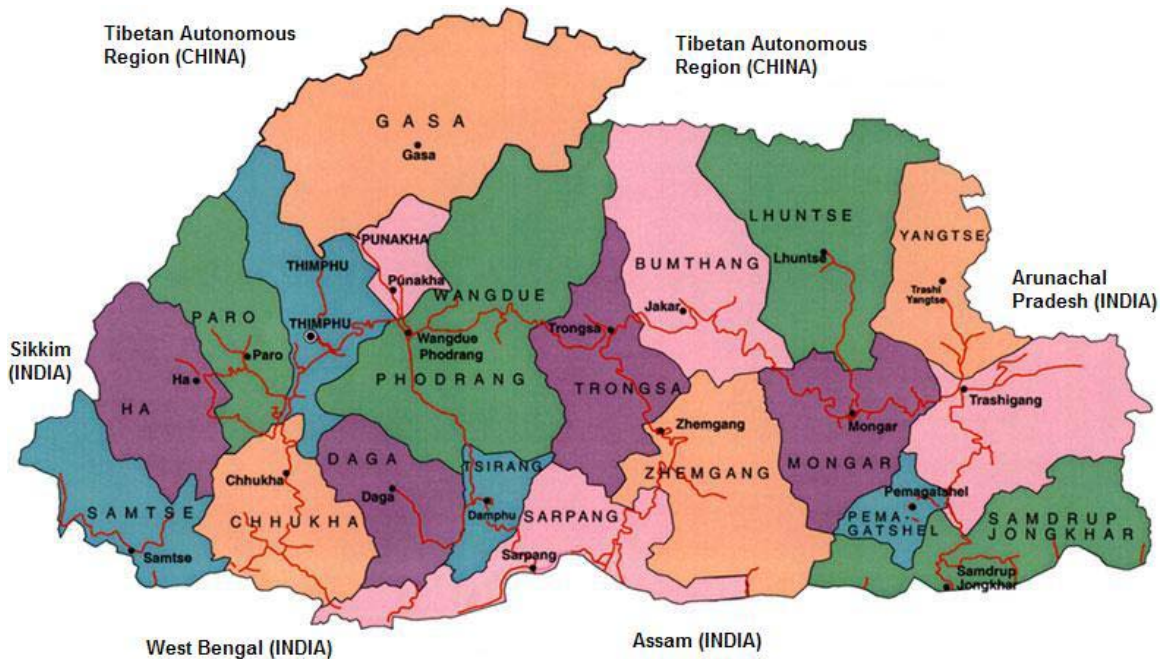
1. INTRODUCTION

1.1 Country Background

Bhutan is a small country both in size and population. It has a total area of 38,394 km² and a population of 634,982 people. Landlocked and mountainous, the country lies in the Eastern Himalayas with the Indian states of Arunachal Pradesh to its east, Assam and West Bengal to its south, Sikkim to its west and the Tibetan Autonomous Region of China to its north.

Administratively, the country is divided into 20 dzongkhags (districts). The dzongkhags are further divided into several geogs, i.e. an administrative block made up of few to several villages. At the present, there are altogether 201 geogs in the country. Some of the dzongkhags, namely Chhukha, Samdrup Jongkhar, Samtse, Sarpang, Trashigang, and Zhemgang, have sub-districts, known as dungkhags.

Administrative Map of Bhutan



The Bhutanese population is largely agrarian with 69 percent living in the rural areas. However, the proportion of urban population has been growing rapidly in the recent years. Between 1997 and 2005, the urban population is estimated to have grown from 15 to 31 percent of the country's total population. More than half of the urban population is concentrated in Thimphu, the capital city with some 79,000 people, and Phuentsholing, the main trading center with some 20,000 people¹.

The people in the rural areas subsist largely on an integrated livelihood system of crop agriculture, livestock rearing and use of forest products – collectively known as the renewable natural resources (RNR) sector. The RNR sector is the largest contributor to the Gross Domestic Product (GDP) in the country. It accounted for nearly one-third of the GDP in 2003.

¹ All population figures cited in this report are from the Population and Housing Census of Bhutan 2005 fact sheet.

Other major GDP contributors are construction, electricity, transport, storage and communications, community, social and personal services, and manufacturing.

Bhutan's terrain is almost entirely mountainous with nearly 95 per cent of the country being above 600 meters above sea level (masl). The terrain is rugged and steep, with altitudes declining from above 7,500 masl to under 200 masl within a short north-south distance of 170 km. The country can be divided into three broad physiographic zones: one, the southern belt consisting of the Himalayan foothills adjacent to a narrow belt of flatland (Duars) along the Indian border with altitude ranging from under 200 masl to about 2,000 masl; two, the inner Himalayas made up of the main river valleys and steep mountains with altitude ranging from about 2,000 masl to 4,000 masl; and, three, the great Himalayas in the north along the Tibetan border consisting of snow-capped peaks and alpine meadows above 4,000 masl.

1.2 Land Use and Cover

1.2.1 Forests

Forest is by far the most dominant land cover, with 72.5 percent (including 8.1 percent scrub forest) of the country under forest cover – one of the highest in the world. Almost all of the forests are natural, with plantation forest being just about 0.2 per cent. The country's forests are presently managed as government reserved forests and protected under the legal framework of the Forest and Nature Conservation Act 1995. The Bhutanese society, especially those living in the rural areas, is heavily forest-dependent. Many areas of forests extensively function as tsamdo (pasture land). People also maintain certain tracts of forest as sokshing, i.e. woodlot for production of leaf litter used in farmyard manure. These woodlots are usually made up of oak or pine trees. In addition, rural communities extract timber, fuelwood, roofing shingles and many edible, medicinal and aromatic plants from the forests. Broadleaf forests and mixed conifers are the main forest types. Other forest types include fir, broadleaf with conifers, blue pine and chir pine.

1.2.2 Agriculture

Agricultural land makes up only 7.7 percent, mostly located in the central valleys and southern foothills. The main land uses for agriculture are kamzhing (dryland cultivation) and chhuzhing (wetland cultivation), and mixed cultivation.

Kamzhing

Kamzhing is either terraced or unterraced rainfed agricultural land. It is found throughout the country, mainly on mountain slopes. It is the most dominant agricultural land use type. Maize and potato are the main crops grown on kamzhing. Besides these crops, other annual crops such as mustard, buckwheat, turnips and vegetables are grown in the temperate areas. In the subtropical areas, millet is grown as a secondary crop.

Under kamzhing, there also exists the practice of tseri, i.e. slash-and-burn agricultural production. Tseri areas are cultivated on a rotational basis with an average fallow period of 5 to 6 years, with periods being shorter in the subtropical areas and longer in the temperate areas. The land is left fallow to allow regeneration of vegetative cover and soil nutrients. Common crops are maize, millet, wheat, barley, and buckwheat. Other crops such as chilli, beans and leafy vegetables are grown as inter-crops. Since tseris are generally located inside or adjacent to forests, crop depredation by wildlife is high. The practice of tseri is being discouraged in the country for environmental and economic reasons, and suitable alternatives are being explored and promoted.

Chhuzhing

Chhuzhing is irrigated, bench terraced paddy cultivation. While rice is the primary crop, other crops such as wheat, potatoes and vegetables are also grown as secondary crops in some places. In the subtropical areas, paddy can also be grown twice in a year. Chhuzhing is mainly found in the fertile valleys of Paro, Wangdue and Punakha. In other parts of the country such as Trashigang, Mongar, Lhuentse and Trongsa, chhuzhing is found scattered on steep slopes. In southern foothills, it can be found in long and extensive stretches.

1.2.3 Others

Much of the northern part of the country is snow and glaciers, which account for 7.5 per cent of the country's land cover. Barren rocks cover 5 per cent and pastures 3.9 per cent of the country. Urban area is presently negligible but expanding rapidly especially in Thimphu and Phuentsholing.

Table 1: Land Use and Cover

Land Use/ Cover	% of the Total Area
Forests	72.5
<i>Conifer forest</i>	26.5
<i>Broadleaf forest</i>	34.3
<i>Mixed broadleaf and conifer forest</i>	3.4
<i>Plantation forest</i>	0.2
<i>Scrub forest</i>	8.1
Pasture	3.9
Agriculture	7.7
<i>Wetland cultivation</i>	1.0
<i>Dryland cultivation</i>	4.6
<i>Mixed cultivation</i>	2.1
Horticulture	0.1
Settlement	0.1
Others (snow/ glaciers, rock outcrops, water spreads, etc)	15.7

Source: Ministry of Agriculture, 1997

1.3 Key Land Degradation Issues and Concerns

1.3.1 Overgrazing

Livestock is maintained by the rural Bhutanese mainly for dairy and meat production, draught power and production of dung for farmyard manure. Despite consistent government efforts to reduce livestock population through introduction of improved breeds, artificial insemination and sterilization, livestock population has remained high. Cattle population has increased albeit slightly following a rather erratic trend from 308,273 in 1990 to 320,509 in 2000. Similarly, yak population has increased from about 33,035 to 34,928 during the same period. High livestock population has led to overgrazing in many instances. Over-grazing of pastures and forests, mainly in broadleaf forests, may lead to attrition or loss of species, reduction of

land productivity and soil erosion. Forest regeneration is also hampered and change in vegetation is induced where grazing is rampant.

While in general the impacts of grazing are said to be negative, it must be recognized that livestock rearing is integral to rural livelihood and forms a part of the fabric that links other elements of the socio-economic structure of individual households and communities. Cattle are owned by almost all of the rural households in the country and it dominates the temperate and subtropical regions of the country. In the alpine region of the country, such as Laya and Lingshi, yak is predominant and the economy is solely based on yak products. Individuals, households and communities have grazing rights over pastures, legitimated by the Thrimzhung Chenmo 1957, Land Act 1979 and Forest and Nature Conservation Act 1995. The National Assembly has also passed resolutions relating to ownership and management of grazing land/ pastures from time to time. Livestock rearing and forest grazing are therefore to stay both from socio-economic and legal perspectives. In this context, it is important to recognize that grazing is an environmental problem when it is excessive and not managed but when it occurs at low or moderate level and is managed it can have environmental benefits, e.g. dispersal of seeds aiding natural regeneration.

1.3.2 Forest Fire

Depending on the local site conditions, the negative impact of forest fires may be immediate or on a longer term. In steep areas the negative impact may be immediate, especially if heavy rains follow forest fire. The rainwater washes away topsoil and ash, depriving the exposed area of nutrient to support natural regeneration. If such a process is repeated several times, a succession process starts whereby the site completely degenerates into a barren area. Some species such as Chir pine *Pinus roxburghii* can withstand few forest fires. However, there is gradual degeneration of the site, and the associate species would be completely destroyed rendering the site to soil erosion and degradation of the ecosystem. This may also result in a change of the ecosystem if it is repeatedly subjected to forest fires.

Forest and Nature Conservation Act 1995 prohibits setting of forest on fires and imposes fines and penalties including imprisonment. In spite of such stringent legislation, forest fires are a recurrent and widespread phenomenon. Records maintained by the Department of Forestry reveal that from 1992/93 to 2004/05, 870 incidents of forest fires have occurred, affecting more than 128,000 hectares of forest land. All forest fires in the country are man-made; either set deliberately to invigorate the growth of pastures or commercially valuable grasses such as lemon grass, or occur due to general public carelessness.

While strict penalties to deter occurrence of forest fires are necessary, proactive approaches such as educating the local communities on the negative effects of forest fires and legal implications of setting forest fires, and involving them in forest fire management through training and stewardship may have more lasting impact in reducing forest fires.

1.3.3 Excessive Forest Utilization

A report of the Forest Resources Development Division (FRDD) mentions that the annual total consumption of timber at 190,000 m³ in the recent years exceeded the total annual allowable cut (AAC) of about 149,000 m³ from all Forest Management Units (FMUs). The excess demand was met from ad hoc sources, which is a cause for concern as these sources are not operated based on sustainable forest management planning. Fuelwood consumption is even higher at 1.27 tonnes or 1.8 m³ per person per annum. This works out to nearly 1.2 million m³ per annum. Although collection of dry fuelwood in the form of fallen twigs and driftwood is common, bulk of the fuelwood needs is met from natural forests. As a result of

excessive forest use, localized deforestation has occurred in several places especially where population density is high, for example in parts of eastern and southern Bhutan.

During the Ninth Five Year Plan period (July 2002 – June 2007), a total of 214,267 hectares of forests has been earmarked for logging operations, primarily to harvest timber. An AAC of 208,088 m³ has been projected from these forest areas, nearly 40 per cent increase over the previous AAC. This entails creation of five FMUs in addition to the existing 10 FMUs. Additional FMUs will mean more roads into forest areas and laying of cable cranes, which will have concomitant environmental consequences, the degree of which will depend on the quality and design of road construction and logging operations. Environmental monitoring of FMUs is critical but this has been hitherto far from adequate and is likely to remain so in the future too due to lack of trained personnel, funds and equipment.

1.3.4 Infrastructure Development

Concomitant with modernization, the need for infrastructure development has grown. Socio-economic development objectives necessitate construction of roads and electrification among other things. During the Ninth Five Year Plan (2002-07), the Ministry of Works and Human Settlement has envisaged construction of 77 km of national highway, 123 km of feeder roads and 32 km of bypass roads, widening of the 179 km Thimphu-Phuntsholing highway, and realignment of 25 km of existing road. In addition, the MoA plans to construct more than 100 km of farm roads across the country to connect agricultural production areas to markets during the ongoing Plan period. In the Ninth Five Year Plan, power transmission grids are planned for Tingtingbi-Trongsa/ Bumthang line and Basochhu-Tsirang/ Dagana-Gelephu line, and grid power supply extensions for Gasa dzongkhag headquarters, and for Bhangtar and Lamoizingkha dungkhag headquarters. Furthermore, the rural electrification programme which is targeted to cover 15,000 additional households across the 20 dzongkhags by the end of the Ninth Five Year Plan will entail construction of an extension network of power distribution lines. Where environmental safeguards are not adequately planned and applied, development of physical infrastructure leave adverse impacts such as loss of vegetation, slope instability and geologic disturbances.

1.3.5 Land Use Intensification and Competition

The Bhutanese population must make its living within fragile and inherently unstable ecosystems. Bhutan's usable land resource is limited due to difficult and high mountain terrain, vast areas of snows and barren rocks, and large forest coverage which is mandated to be maintained at least at 60 per cent in perpetuity. While 69 percent of the population depend primarily on agriculture, arable agriculture land is less than 8 percent mostly located in the mid-altitude valleys and hill slopes, and southern foothills. This limited area has also to support other development activities of a population, which is currently growing at 1.3 percent each year. While conservation of the natural environment is an overriding national priority, economic activities and support systems can only intensify or expand onto steeper and less suitable terrain, where the inherently unstable geologic conditions and climatic factors increase the land's susceptibility to degradation. There is also competitive land use between various sectors, especially between agriculture and urban development. Between 1996 and 2001, about 630 acres of prime agricultural land have been converted to other forms of land use. Townships and urban housing projects alone accounted for more than 496 acres (78.7 percent) of the total conversion.

1.3.6 Unsustainable Agricultural Practices

Unsustainable agricultural practices, for example increased and unmanaged irrigation of paddy lands on steep slopes or practice of tseri with shortening of fallow period, have caused land degradation in several areas. Also, agricultural production is becoming increasingly intensive as farmers transit from traditional subsistence farming to market-based, high yield production practices requiring increased inputs especially of pesticides and fertilizers.

1.3.7 Pollution

Pollution of land is emerging as an environmental problem in and around urban areas and industrial sites. Over the recent years, generation of solid waste has increased significantly in urban centers. According to data collected by the Royal Society for the Protection of Nature, Thimphu's solid waste generation has increased from eight metric tons (MT) a day in 1994 to 22 MT in 2003-04, and to 37 MT as of August 2005. Existing solid waste management is basically limited to waste collection and disposal at landfill sites, which are being filled up much quicker than expected due to excessive waste generation and lack of waste segregation at source. Recycling of waste was initiated only in late 2005 and that too is currently limited to recycling of plastic bottles and paper boards on a very small scale in Thimphu.

1.3.8 Rapid Urbanization

During the Eighth Five-Year Plan (July 1997-June 2002), the urban population was estimated to be only 15 percent of the country's total. By the onset of the Ninth Five Year Plan (July 2002-June 2007), it had grown to 21 percent. The Population and Housing Census of Bhutan 2005 revealed that the urban population has now grown to 31 percent. These figures indicate a very rapid growth of the urban population. What is even more alarming is that more than half of the urban population is concentrated in just two towns – Thimphu and Phuentsholing. Thimphu alone has more than 40 percent of the total urban population while Phuentsholing has more than 10 percent. In order to accommodate surplus population, these urban centers have consumed prime agricultural lands in the valleys and encroached on hill slopes which were once forested. Extraction of sand and stones from the river banks and harvesting of timber from adjacent forests have increased in frequency and volume in the recent years to cater to the growing construction demands in the urban centers.

1.4 Multi-Lateral Environmental Agreements and UNCCD

Bhutan's attendance at the United Nations Conference on Environment and Development in 1992 marked the nation's increasing participation in global environmental management efforts. Subsequently, the country became Party to the Convention on Biological Diversity (CBD) and United Nations Framework Convention on Climate Change (UNFCCC), when its National Assembly ratified them in August 1995. It acceded to the United Nations Convention to Combat Desertification (UNCCD) in August 2003. In addition to these three Conventions – often collectively known as the “Rio Conventions” – the country is Party to nine other environment related international conventions. The following is a complete list of environment related international conventions to which Bhutan is Party:

- UN Convention on the Law of the Sea, signed in 1982
- International Plant Protection Convention (IPPC), instrument of adherence submitted in June 1994
- CBD, ratified in 1995, and instrument of accession to the Cartagena Protocol on Biosafety submitted in 2002
- UNFCCC, ratified in 1995, and instrument of accession to the Kyoto Protocol submitted in 2002
- World Heritage Convention (WHC), acceded to in 2001

- Basel Convention on Transboundary Movements of Hazardous Wastes and their Disposal, acceded to in 2002
- Convention on International Trade in Endangered Species of Fauna and Flora (CITES), acceded to in 2002
- UNCCD, acceded to 2003
- Vienna Convention for Protection of Ozone Layer, acceded to in 2004
- Montreal Protocol on Substances that Deplete Ozone Layer, acceded to in 2004

2. NATIONAL SUSTAINABLE DEVELOPMENT POLICIES AND PLANS

Along with the promotion of culture, good governance and equitable socio-economic development, environmental sustainability occupies a pivotal place in Bhutan’s development policies and plans.

2.1 Existing Sustainable Development Policy Framework

2.1.1 Bhutan 2020

Bhutan 2020 provides overarching policy for development based on the concept of “Gross National Happiness”, underscoring that economic, spiritual and environmental well-being are all equally important and that we need to balance these aspects for overall development. Bhutan 2020: A Vision for Peace, Prosperity and Happiness”, provides a 20-year perspective of development goals and objectives. The Vision Statement features environmental conservation as one of the five main development objectives and emphasizes the need to “*ensure that choices made in response to the many challenges that confront the nation embody the principle of environmental sustainability and do not impair the biological productivity and diversity of the natural environment*”.

2.1.2 National Environment Strategy

The National Environment Strategy titled “The Middle Path” – launched in 1998 – was derived through an inter-sectoral and consultative process. The Strategy, which is equivalent to a National Sustainable Development Strategy in essence, enshrines the concept of sustainable development and identifies three main avenues for such development: hydropower development based on integrated watershed management; agricultural development based on sustainable practices; and industrial development based on effective pollution control measures and environmental legislation. It also examines a number of areas of special importance for environmentally and culturally responsive economic development. These include tourism, roads, financing mechanisms for sustainable development, public health, urbanization, gender and natural resource management, environmental impact assessments, and population. Finally, it goes on to outline five key cross-sectoral needs that the country must effectively address to integrate environmental considerations into economic development planning and policy-making. These needs pertain to information systems and research, institutional development and popular participation, policies and legislation, training and education, and monitoring, evaluation and enforcement.

2.1.3 National Forest Policy

The National Forest Policy 1974 places priority on conservation of forests and associated resources for their ecological values. Economic benefit from forest resources is considered

secondary and is to be derived within sustainable limits. It hinges on the following four guiding principles:

- Protection of the land, its forest, soil, water resources and biological diversity against degradation, such as loss of soil fertility, soil erosion, landslides, floods and other ecological devastation and the improvement of all degraded forest land areas, through proper management systems and practices;
- Contribution to the production of food, water, energy and other commodities by effectively coordinating the interaction between forestry and farming systems;
- Meeting the long-term needs of Bhutanese people for wood and other forest products by placing all production forest resources under sustainable management;
- Contribution to the growth of national and local economies, including exploitation of export opportunities, through fully developed forest based industries, and to contribute to balanced human resources development through training and creation of employment opportunities.

2.1.4 Agriculture Policy

Agricultural development is guided by the overall Renewable Natural Resources (RNR) sector policy which outlines the following objectives:

- To pursue a people-centered development path that would lead to the realization of their aspirations for a better life through active public participation in the development process;
- To pursue economic development that has prospects for long-term sustainability based on the country's resource situation, comparative advantages, and community based self-help institutions;
- To pursue a balanced and equitable development of the country's renewable natural resources and distribution of benefits accruing from them across society and regions;
- To adopt development strategies that are environment friendly and ensure the integrity of the country's fragile ecosystem; and
- To be sensitive and responsive to the rich cultural heritage of the country and ensure its preservation.

2.1.5 Five-Year Plans

National development based on Five-Year Plans started in 1961, when the first Five-Year Plan was launched. Since then, the country has implemented eight Five-Year Plans and is nearing the completion of the Ninth Five-Year Plan (July 2002-June 2007).

The Five Year Plans are the main implementation instrument for achievement of national policy objectives. The Five-Year Plans, which spell out programmes, activities and budget outlay, are formulated and implemented at three levels: central level, made up of sectoral plans; dzongkhag level; and geog level.

The Ninth Five Year Plan is unique especially from two aspects: one, it is the first Five Year Plan to have been formulated after the conception of Bhutan 2020; and, two, it takes a departure from the conventional central-based planning approach to a geog-based participatory planning approach in keeping with the national policy on decentralization and the increased powers and responsibilities rendered to locally elected community bodies through the re-enactment of the Geog Yargye Tshogchung (GYT) and Dzongkhag Yargye Tshogdu (DYT) Chathrim in 2002.

The Ninth Five Year Plan, with a Cover Note on poverty reduction added to it, also presently serves as the country's **Poverty Reduction Strategy Paper**. The Ninth Five Year Plan incorporates environmental objectives including those contributing to combating land degradation as an inherent development strategy in keeping with the aspirations of Bhutan 2020.

2.2 Integration of UNCCD Principles in Environment Policy Framework

Even though Bhutan became a Party to the UNCCD only recently, it is not new to UNCCD principles such as people's participation, consultation and programme approach. The National Environment Strategy was derived from a multi-sectoral approach and broad-based consultations capturing knowledge, insights, perceptions and aspirations of a wide range of stakeholders from the central level to the grassroots community level. The concept of people's participation is embedded in forest policies and laws, which provide for community management of forest resources using participatory strategies. The environmental assessment policy requires that the circumstances, views and consent of local communities and other potential affected parties are fully taken into account when assessing environmental impacts and designing mitigatory measures. In the management of protected areas, a key component is the integrated conservation and development programme (ICDP), which provides for the implementation of nature conservation and community development activities in a mutually reinforcing manner using participatory assessment and planning methods. Awareness and education is an inherent part of the environmental policy. Nature clubs have been established in many schools and environmental science is a mandatory part of school curriculum up to the primary level.

It is anticipated that Bhutan's increasing involvement in the implementation of UNCCD and other international treaties will further strengthen employment of the principles of people's participation, consultation, programme approach, awareness and education and so forth in the planning and implementation of the environmental policies.

3. INSTITUTIONAL SETTING FOR THE IMPLEMENTATION OF UNCCD

3.1 National Coordinating Body

At this in point in time, there is no UNCCD-specific national coordinating body in place as the country is a relatively new entrant to the UNCCD. However, in matters related to cross-sectoral environmental issues and international environmental policy, the National Environment Commission (NEC) has the overall coordinating and facilitating role.

3.1.1 National Environment Commission

The National Environment Commission acts as an inter-ministerial body for coordinating all cross-sectoral environmental matters, including those pertaining to international environmental agreements and treaties.

The NEC was first established in 1989 by Royal Decree as a National Environment Committee under the Planning Commission. Subsequently, in September 1992, the NEC was delinked from the Planning Commission to serve as a more vigorous, autonomous government body. It was reconstituted on 29 September 1998 and serves as high level body

with inter-ministerial representation for policy decisions and guidance on matters related to environmentally sustainable development and institution of measures to integrate environmental management in overall development process. The Commission is currently chaired by the Honorable Minister of Agriculture and is served by an independent Secretariat, headed by the Honorable Deputy Minister of Environment.

The NEC Secretariat (NECS) is organized into the Technical Division and the Policy and Coordination Division. The Technical Division is responsible for research, monitoring, statistics, environmental assessment, information, communication and outreach. The Policy and Coordination Division deals with matters related to environmental policy, legislation and programme coordination. At the present, the NECS is the national focal agency for the CBD and UNFCCC.

3.2 UNCCD National Focal Agency

3.2.1 Ministry of Agriculture

The Ministry of Agriculture (MoA) is the national focal agency for the UNCCD. Within the MoA, the National Soil Services Center (NSSC) has been specifically assigned to coordinate the implementation of activities related to UNCCD with the Programme Director of the NSSC as the focal person.

The MoA was formed in 1985 and brought together the agriculture, livestock development and forestry sub-sectors, which are now collectively known as the renewable natural resources (RNR) sector. Apart from the Departments of Agriculture, Livestock and Forestry, the MoA includes the Department of Survey and Land Records, National Biodiversity Center, Information and Communication Services (ICS), and Bhutan Agriculture and Food Regulatory Authority. The Ministry is directly supported by a Planning and Policy Division (PPD) and an Administration and Finance Division (AFD). It has also instituted a Council for RNR Research in Bhutan (CoRRB) to guide and coordinate the research programmes and activities implemented by the regional RNR Research Centers.

The key functions of the MoA are to: develop agriculture, livestock and forests for the benefit of the Bhutanese people through continuous research and development process; raise the living standard of rural people through promotion of agro-based income generating activities, reduction of farming drudgery, improvement of nutrition and health, and access to services, market and information; protect the natural environment through sustainable and judicious use and management of its land, water, forest and biological resources; and ensure food safety through preventive and mitigation measures.

3.2.2 National Soil Services Center, MoA

The NSSC, which is the national focal agency for UNCCD, is a part of the Department of Agriculture. The Center functions as a resource and referral facility for soil survey, soil analysis and soil fertility management, and is mandated to coordinate soil management research activities of the RNR sector and to provide analytical services. Of late, besides becoming the UNCCD focal agency, NSSC has assumed two major responsibilities in the context of combating land degradation: one, of management of the Global Environment Facility (GEF)-funded/ World Bank (WB)-assisted Sustainable Land Management Project (SLMP) through a multi-sectoral approach involving stakeholders at the central, dzongkhag and geog levels; and, two, of providing core technical advisory services to the Land Management Campaign launched about a year ago.

The NSSC is made up of a Soil and Plant Analytical laboratory, a Soil Survey unit, a Soil Fertility unit, and a Soil Microbiology unit. These facilities are run by a team of some 23 researchers and technicians with oversight and guidance from the Programme Director and administrative support of eight general staff.

For the management of the SLMP, the Center has a project manager, two administrative and finance staff, and three field coordinators. For this project, a Multi-Sectoral Technical Advisory Committee (MTAC) representing key sector ministries has also been formed. The NSSC coordinates with the MTAC to enlist advisory and operational technical support for the implementation of the project.

3.3 Key National Partner Agencies

The implementation of programmes and activities to combat land degradation go beyond the realms of the NEC and MoA. The following table lists various key agencies and their area of work in relation to combating land degradation.

Table 2: Key Partner Agencies in the Context of Combating Land Degradation

Agency	Area of work
<i>Government Agencies</i>	
Department of Geology and Mines, Ministry of Trade and Industry	Geological mapping, geologic hazard and risk assessments, geotechnical advisory service, mineral exploration, enforcement of Mines and Minerals Management Act 1995 and Mines and Minerals Management Act 2002.
Department of Roads, Ministry of Works and Human Settlement	Promotion of environment-friendly road construction concept and techniques including the enforcement of environmental assessment guidelines and environmental codes of practice for roads.
Department of Urban Development and Engineering Services, Ministry of Works and Human Settlement	Enforcement of environmental assessment guidelines and environmental codes of practice for roads, planning and ensuring establishment of environmental management infrastructure such as storm water drainage, sewerage and municipal solid waste disposal systems.
<i>Autonomous Agencies</i>	
City Corporations	Implementing urban development plans entailing effective use of land for development of urban infrastructure and management of urban lands
<i>Dzongkhag/ Geog Institutions</i>	
Dzongkhag Administrations (Ministry of Home and Cultural Affairs)	Through the Dzongkhag Environmental Committees (DECs), the Dzongkhag Administrations have the responsibility to ensure integration of environmental concerns in dzongkhag plans and to implement environmental assessment and clearance procedures for dzongkhag and geog level projects and activities that are small-scale and unlikely to have any major adverse environmental impacts.
Dzongkhag Yargye Tshogdu	Implementation of Dzongkhag Yargye Tshogdu Chathrim 2002, which among other things provides for environmental management at the dzongkhag level
Geog Yargye Tshogchung	Implementation of Geog Yargye Tshogchung Chathrim 2002, which among other things provides for environmental management at the geog level
<i>Non-Governmental Organizations</i>	

Agency	Area of work
Royal Society for the Protection of Nature	Environmental education and public awareness, conservation management of designated natural habitats outside the national protected areas system
Tarayana Foundation	Upliftment of poor communities in the remote areas, including through development of local capacity for sustainable use of natural resources

3.4 Key International Partner Agencies

The international community has been very supportive of Bhutan's environmental work. Specifically in the area of combating land degradation, the following international agencies are involved or have been involved in the last five years:

- United Nations Development Programme in the areas of environmental policy, sustainable energy, natural disaster, and community-based nature conservation
- United Nations Environment Programme in the areas of environmental policy, monitoring and reporting
- World Bank in the areas of sustainable land management, sustainable forest harvesting, reforestation, community forestry and environment-friendly rural access
- Asian Development Bank in the areas of environmental assessment capacity development
- DANIDA in the areas of land use and management policy, environmental legislation and regulation, protected area management, urban environment, industrial environment and environmental management capacity development
- Netherlands Development Organization (SNV) in the areas of ecotourism, biodiversity conservation and environment-friendly rural access
- Helvetas and Swiss Development Cooperation in the areas of natural resources management training, RNR research and extension, and participatory forest management
- German Technical Cooperation (GTZ) in the area of sustainable renewable natural resources management
- European Community in the areas of integrated watershed management and sustainable management of medicinal plants
- World Wildlife Fund (WWF) in the areas of protected area management, wildlife protection and ICDP
- MacArthur Foundation in the areas of environment and forest resources management training and protected area management
- Global Environment Facility (GEF) in the areas of environmental trust fund, sustainable land management, protected area management, environment policy and strategy development, environmental management capacity development, and information development.

3.5 Linkage with Sub-Regional and Regional Action Programmes

By virtue of being a Party to the UNCCD, Bhutan is a member of the Sub-Regional and Regional Action Programmes (SRAP and RAP). A Concept Note on common issues and areas of synergy between Bhutan and Nepal has been developed under the SRAP framework with assistance from the UNCCD Secretariat. This initiative is in a preliminary stage, with both the countries at the present undertaking a review of the Concept Note.

Prior to NSSC becoming the UNCCD national focal agency, representatives from NECS participated in SRAP/ RAP consultative meetings on an interim basis. The NSSC has not yet participated in the SRAP/ RAP consultative meetings.

3.6 Linkage with GEF Implementing Agencies

The NSSC works directly with two GEF Implementing Agencies, namely the UNDP and World Bank. The UNDP, apart from partial financing to the pipeline GEF medium sized Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan project, will coordinate the delivery of GEF funds and external technical assistance to the project. The World Bank provided financial support and technical assistance to the NSSC for the preparation of the GEF-funded Sustainable Land Management Project and will guide and monitor project activities on behalf of the GEF.

4. LEGAL FRAMEWORK FOR THE IMPLEMENTATION OF UNCCD

There is already a good legal framework providing for implementation of activities pertaining to UNCCD obligations. The following are the key laws with specific provisions for land use, management and protection:

- Land Act 1979
- Environmental Assessment Act 2000, supported by Regulation for the Environmental Clearance of Projects and Regulation for Strategic Environmental Assessment 2002
- Forest and Nature Conservation Act 1995, supported by Forest and Nature Conservation Rules 2000
- Mines and Mineral Management Act 1995, supported by Mines and Mineral Management Regulations 2000
- Road Act 2004
- Dzongkhag Yargye Tshogdu Chathrim 2002
- Geog Yargye Tshogchung Chathrim 2002

4.1 Existing Laws

4.1.1 Land Act 1979

The Land Act 1979 derives many of its provisions from the Thrimzhung Chenmo 1957, which served as the mother law before any modern legislation came into effect. The Act also incorporates Royal Decrees and resolutions of the Lhengye Zungtshog (National Cabinet) and National Assembly both of the past and subsequent years. It stipulates procedures and requirements for registration of land, entitlement to land, right of possession of land, land valuation and taxation, land transaction, allotment of government land, construction or renovation of social infrastructure such as irrigation channels and roads on landed property and sharing of benefits from such infrastructure, use of grazing land, land tenancy, and land conversion and encroachment.

At the present, a national task force has been commissioned to review and revise the Land Act 1979 to make it more suitable for new and emerging development circumstances and needs. The revised Land Act once ready will be presented and discussed by the National Assembly before ratification.

4.1.2 Environmental Assessment Act 2000

The Environmental Assessment Act 2000 is an overarching environmental legislation in that it relates to environment in a holistic manner and applies to a wide range of activities across a number of sectors. The Act establishes procedures for the assessment of potential effects of strategic plans, policies, programs, and projects on the environment, and for the determination of policies and measures to reduce potential adverse effects and to promote environmental benefits. The Act requires the RGoB to ensure that environmental concerns are fully taken into account when formulating, renewing, modifying and implementing any policy, plan or program as per regulations that may be adopted within the appropriate provision of the Act. It makes environmental clearance (EC)² mandatory for any project or activity that may have adverse impact on the environment, especially infrastructure development projects that entail change in land use.

To implement the Environmental Assessment Act 2000, regulations were promulgated in 2002 for the environmental clearance of projects and for strategic environmental assessment. **The Regulation for the Environmental Clearance of Projects 2002** defines responsibilities and procedures for the implementation of the Environmental Assessment Act 2000 concerning the issuance and enforcement of EC for individual projects and to:

- provide meaningful opportunities for public review of potential environmental impacts of projects;
- ensure that all projects are implemented in line with the sustainable development policy of the RGoB;
- ensure that all foreseeable impacts on the environment, including cumulative effects are fully considered prior to any irrevocable commitments of resources or funds;
- ensure that all feasible alternatives are fully considered; ensure that all feasible means to avoid or mitigate damage to the environment are implemented;
- encourage the use of renewable resources, clean technologies and methods; ensure that concerned people benefit from projects in terms of social facilities;
- help strengthen local institutions in environmental decision making; and
- help create a uniform, comprehensive data base on the environmental and cultural conditions and assets in the country.

To support the implementation of the EA Act and Regulation, sectoral EC application guidelines have been prepared for highways and roads, forestry, hydropower, industrial projects, mines, power transmission and distribution lines, urban development, and tourism projects. In addition, environmental codes of practice (ECOP) have been formulated for storm water drainage system, installation of underground and overhead utilities, tourism activities, and roads, and environmental discharge standards have been set to control pollution.

The **Regulation for Strategic Environmental Assessment 2002** was promulgated with the specific purpose to:

- ensure that environmental concerns are fully taken into account by all government agencies when formulating, renewing, modifying or implementing any policy, plan or programme, including FYPs;

² Article 6.11 of the EAA defines Environmental Clearance as the decision, issued in writing by the NECS or the relevant Competent Authority, to let a project proceed, which includes terms (and conditions) to ensure that the project is managed in an environmentally sound and sustainable way.

- ensure that the cumulative and large scale environmental effects are taken into consideration while formulating, renewing, modifying or implementing any policy, plan or programme;
- complement project-specific environmental reviews and to encourage early identification of environmental objectives and impacts of all government proposals at appropriate planning levels;
- promote the design of environmentally sustainable proposals that encourage the use of renewable resources and clean technologies and practices; and
- promote and encourage the development of comprehensive natural resource and land use plans at the local, dzongkhag and national levels.

It outlines the duties of government agencies formulating, renewing, modifying, or implementing any policy, plan, or programme, the principles of strategic environmental assessment, and essential contents of the environmental statement.

4.1.3 Forest and Nature Conservation Act 1995

Bhutan Forest Act 1969 was the first modern legislation to be enacted in the country. Its enactment brought all forest resources under government custody with the intent to regulate forest utilization and control excessive forest exploitation. This law was repealed with the enactment of the Forest and Nature Conservation Act 1995 in keeping with evolving conservation needs and to allow for community stewardship of forest resources. The objective of the 1995 Act is to “provide for the protection and sustainable use of forests, wildlife and related natural resources of Bhutan for the benefit of present and future generations”. It covers forest management, prohibitions and concessions in government reserved forests, forestry leases, social and community forestry, transport and trade of forestry produce, protected areas, wildlife conservation, soil and water conservation, and forest fire prevention.

To support the implementation of the Forest and Nature Conservation Act 1995 and in accordance with the powers and duties conferred under that Act, the Ministry of Agriculture (MoA) promulgated the **Forest and Nature Conservation Rules 2000**. The Rules establishes regulations for forest management, private and community forestry, establishment and management of protected areas, wildlife protection, and prevention of forest fires, land clearance, and other activities potentially impacting soil, water and wildlife resources, among other things. The existing Rules have been reviewed to make the provisions more relevant and applicable to new and emerging circumstances and needs of forest and nature conservation. The revised Rules are expected to be promulgated soon.

4.1.4 Mines and Mineral Management Act 1995

The Act recognizes the preservation, protection and setting of environmental standards and conservation of natural resources consistent with the provision of the Act and other environmental legislation as a critical feature of mining practices. It requires that restoration of areas that are mined is carried out in a proper manner with the objective of creating a suitable and acceptable environment as approved by the National Environment Commission. Prior to granting a mining lease, a final mine feasibility study based on an assessment of technical, financial, environmental and social parameters, is required. Among other things, the feasibility study needs to contain a Mine Plan, Environment Management Plan and Restoration Plan.

In exercise of the powers conferred by Article 50 of the Mines and Mineral Management Act 1995, the Ministry of Trade and Industry promulgated the **Mines and Mineral Management Regulations 2002**. The Regulations stipulate the requirement of environmental clearance

(Articles 32-34), conditions for environmental restoration bond (Articles 56-61), maintenance of records on mining operation including environmental protection measures (Article 86 clause 86.8), compliance with all emission limits and ambient air quality standards adopted by the National Environment Commission (Article 154 and 155), water, dust and noise pollution management needs (Articles 159-170), monitoring of environmental quality in and around the mine lease area and reporting of the area's environmental state (Articles 182-184).

4.1.5 Road Act 2004

The Road Act 2004 establishes powers and responsibilities of various agencies for road planning, design, construction and maintenance at the central, dzongkhag, geog and municipal levels. The Act also provides the framework for setting technical standards and requirements. In relation to environmental management, Section 4(1)(h) gives the Department of Roads the power and function to adopt and promote environment friendly techniques in the implementation of road activities. Section 7(2) requires that all road construction and maintenance works conform to environmental considerations, geological stability considerations and preservation of agricultural land. The DoR has formulated ECOP for road projects in keeping with its objective to promote environment-friendly road construction.

4.1.6 Dzongkhag Yargye Tshogdu and Geog Yargye Tshogchung Chathrim

In order to give impetus to the national decentralization policy and to enhance decision-making and ownership of development activities at the local community level, the Dzongkhag Yargye Tshogdu (DYT) and Geog Yargye Tshogdu (GYT) Chathrim were re-enacted in 2002, giving greater authority and responsibility to DYT and GYT to decide, plan and implement development programmes and activities, including those concerning environmental management, at the local community level.

Powers and functions vested in the DYT and GYT that bear relevance to combating land degradation are specified below.

Dzongkhag Yargye Tshogdu Chathrim 2002

Article 8 of the DYT Chathrim 2002 gives the DYT the power and function to:

- promote awareness and dissemination of national objectives (section 3);
- adopt procedures and rules to implement national laws, wherever relevant (section 10);
- make recommendations on activities with major environmental impacts such as construction of roads, extraction and conservation of forests, mining and quarrying (section 13).

Article 9 of the DYT Chathrim 2002 gives the DYT the power and function to adopt and enforce regulations with respect to:

- establishment of quarries and mines in accordance with Mines and Mineral Management Act 1995.

Article 10 of the DYT Chathrim, 2002, gives the DYT broad administrative power and function to give direction and approval on:

- forest management plan including extraction, conservation and forest road construction in accordance with the FNCA (section 8);

- protection of forests, tsamdo and all types of government and community lands from illegal house and similar construction and other encroachments (section 19);
- control of construction of structures, whether on national, communal or private lands, within 50 feet of highways, including enforcement of measures such as cessation of construction and demolition of the structures (section 20);
- mobilization of voluntary actions in times of natural catastrophes and emergencies (section 26).

Article 13 of the DYT Chathrim 2002 gives the Dzongkhag Administration the powers and functions to:

- construct farm and feeder roads, in conjunction with the NEC (section 5);
- determine the choice of design, construction methods and building materials for forms, which do not have to follow standard designs in conformity with acceptable technical and structural norms (section 12);
- approve allocation of timber permits as per the rules and regulations issued by the MoA from time to time (section 16).

Geog Yargye Tshogchung Chathrim 2002

Article 8 of the GYT Chathrim 2002 gives the GYT the power and function to adopt and enforce regulations at the geog level with respect to:

- safe disposal of waste (section 1);
- control and prevention of pollution of air, soil and water (section 2).

Article 9 of the GYT Chathrim, 2002, gives the GYT broad administrative power and function at the geog level with respect to:

- administration, monitoring and review of all activities that are part of the geog plan, including the maintenance of community properties such as... water supply schemes, irrigation channels, footpaths, mule tracks, farm and feeder roads, suspension and cantilever bridges, micro-hydels, basic health units and outreach clinics, lower secondary school and community schools, and extension centers of the RNR sector (section 2);
- conservation and protection of water resources, lakes, springs, streams, and rivers (section 7);
- custody and care of communal lands, community forests, including sokshing and tsamdo, medicinal herbs and accordingly prevention of illegal house construction and all other types of encroachments on land and forests (section 8);
- prevention of construction of structures, whether on national, communal or private lands, within 50 feet of highways falling in local area (section 9).

4.2 Key Land Use Policy and Legislation Issues

As things stand presently, there are two key needs with respect to policy and legislation. Firstly, policy and legislation related to grazing are conspicuously missing. Attempts have been ongoing for several years to formulate a grazing policy. However, complexities in

grazing rights and overlap between grazing land and forest land have hindered discussions between the livestock and forestry personnel to come up with an agreeable grazing policy. Furthermore, research and case studies on the grazing issue are too limited to aid objective decision making. Currently, in absence of a grazing policy and legislation, activities on grazing land are governed by the Land Act 1979 and the Forest and Nature Conservation Act 1995. Both these legislations do not specify any provisions for management of grazing lands. As per the definition provided by the Forest and Nature Conservation Act 1995, forests include lands registered as tsamdo (grazing land). Therefore, the same set of prohibitions and restrictions that apply to forests also apply to tsamdo, which deters tsamdo rights holders and users from carrying out activities to improve grazing lands. There is a need to develop grazing policy and legislation which among other things provides for sustainable management of grazing lands.

Secondly, land use policy is presently lacking. In absence of a proper land use policy and revised legal frameworks, there is lack of coordination between various sectors. Also, land use in several situations is not consistent with the local geologic and terrain conditions. For instance, in Radhi geog, irrigation of increased areas of wetland on slopes with phyllitic underlying rocks has contributed to sliding of land. Similarly, development of townships, establishment of industrial estates, construction of roads and so forth are being planned and carried out without proper inter-sectoral coordination and with little or no knowledge of the land capability.

It is anticipated that during the course of the preparation of the National Action Programme (NAP) to combat land degradation, policy gaps and legal issues among other things will be reviewed in detail and specific recommendations made to address them and to combat land degradation using an integrated and participatory approach.

5. MAJOR INITIATIVES TO COMBAT LAND DEGRADATION

While there are numerous programmes and activities of the RGoB that directly or indirectly contribute to combating land degradation even if they are not specifically or inherently aimed to do so, there are two major initiatives that stand out for their exclusive focus on land degradation problems in the country. These are:

- National Land Management Campaign;
- Sustainable Land Management Project funded by the Global Environment Facility through the World Bank;
- Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan (pipeline GEF/UNDP project)

5.1 National Land Management Campaign

5.1.1 Overview

The Land Management Campaign was launched in July 2005 by Lyonpo Sangay Ngedup, Honorable Minister of Agriculture, in response to the need to proactively address land

degradation problems which had become increasingly visible and profound in terms of impacts on the local people and their livelihoods, especially in many parts of eastern Bhutan. The monsoon in the summer of 2004 had caused heavy floods and land slides in eastern Bhutan, resulting in the loss of nine human lives, destruction of 29 houses, washing away of 664 acres of agricultural land, and damage to some 39 irrigation channels and 22 bridges. Under the command of His Majesty the King, the Honorable Minister of Agriculture visited the affected areas to assess the scale of the damage. During the visit, the Honorable Minister observed that one of the key factors leading to land degradation was the lack of proper land management practices.

The Land Management Campaign is not a one-off activity but a continuous programme of the MoA to instill in people the awareness and understanding of various land management techniques based on site-specific land degradation problems. It focuses on on-the-ground demonstrations using a broad-based participatory approach bringing together local communities, dzongkhag staff as well as professionals from various disciplines.

5.1.2 Implementing Arrangement

The Department of Agriculture (DoA) is responsible for overall coordination and organization of the Campaign. To facilitate inter-agency coordination in planning and implementation, an organizing committee with representation from various departments and agencies has been formed. In addition, a technical team led by the NSSC has been formed to provide core technical advisory services and backstopping to the Campaign.

5.1.3 Activities Implemented

In the first year, i.e. 2005, the Campaign was implemented in Trashigang dzongkhag. The technical team selected eight locations in eight geogs after having conducted an intensive field survey covering 42 locations in 13 geogs in Trashigang. The selection was based on a set of criteria such as impact of land degradation, demonstration value and geographic distribution. Campaign staff were divided into four groups with each group facilitating campaign activities in two locations. The NSSC took the lead role to train and coordinate a team of technical personnel to provide technical guidance to each group. Table 3 (on page 20) lists the selected locations, the geogs where they are located, their climatic zone, altitudinal range and average annual rainfall.

The Campaign received immense impetus from the participation and leadership of the Honorable Minister of Agriculture, who led a mobile group to all the locations, interacted with farmers, volunteers and campaign staff, and physically participated in the establishment of the land management demonstration sites. In addition, the Honorable Secretary of Agriculture, heads of the Departments of Agriculture, Livestock and Forestry, and Dzongdags of the six eastern dzongkhags participated in the campaign. Altogether, more than 3,100 people – farmers, local public volunteers, dzongkhag officials, RNR staff, school teachers, students and local community leaders – took part in this landmark event.

The campaign established about 115 acres of demonstration sites, involving some 57 test farmers. Table 4 (on page 20) provides an overview of the land degradation problems at each location, key interventions that were implemented, the size of the demonstration area and number of test farmers taking up the demonstration sites.

Table 3: Locations and Geogs covered by the Land Management Campaign, 2005

Locations	Geog	Climatic Zone	Altitudinal Range (masl)	Average Annual Rainfall (mm)
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Locations	Geog	Climatic Zone	Altitudinal Range (masl)	Average Annual Rainfall (mm)
Woongchilu	Nanong geog	Warm temperate	1,900 – 1,946	1,500
Cheya	Udzorong geog	Sub-tropical	1,696 – 1,754	1,500
Moshi	Lumang geog	Sub-tropical	1,589 – 1,600	1,500
Gongthung	Yangneer geog	Sub-tropical/ warm temperate	1,690 – 1,800	1,300
Tsangpo and Manung	Thrimshing geog	Sub-tropical/ warm temperate	?	1,210
Tokshingmang	Phongme geog	Warm temperate	1,878 – 1,937	940
Munangkholola	Khaling geog	Warm temperate	2,100 – 2,200	1,500
Danglingjab	Bidung geog	Sub-tropical	1,747 – 1,776	940

Table 4: Land Degradation Problems and Implemented Interventions in the Campaign Locations

Locations	Key Land Degradation Problems	Key Interventions Implemented	Size of Demonstration Area (acre)	Number of Test Farmers
Woongchilu, Nanong geog	Surface erosion (sheet and rills)	Hedgerows along contour lines	5.6	3
Cheya, Udzorong geog	Surface erosion (sheet and rills), land slides	Establishment of hedgerows, planting of soil-binding tree species in land slide threatened areas	11	7
Moshi, Lumang geog	Surface erosion (sheet and rills), gully formation, land slides	Contour hedgerows, brush layering, edge trimming and vegetative propagation	11	1
Gongthung, Yangneer geog	Surface erosion (sheet and rills)	Contour hedgerows, live stump planting along field edges, planting of soil-binding tree species	4.78	5
Tsangpo and Manung, Thrimshing geog	Gully formation and land slides	Construction of stone and log check dams	21.97	2
Tokshingmang, Phongme geog	Surface erosion (sheet and rills)	Contour hedgerows, planting of soil-binding forest species	5.78	9
Munangkholola, Khaling geog	Surface erosion (sheet and rills), gully formation, land slides	Contour hedgerows, gully edge trimming, construction of stone and log check dams, headwater catch drains, physical terracing	50.0	23
Danglingjab, Bidung geog	Surface erosion (sheet and rills)	Contour hedgerows, headwater catch drains, physical terracing, planting of soil-binding forest species	4.59	7

A video programme on the Campaign has been produced and broadcasted several times on the national television, Bhutan Broadcasting Service, to educate the general public about land degradation problems in eastern Bhutan and land management interventions that have been tried to combat land degradation. In addition, brochures on sustainable land management practices have been produced and distributed to people interested in the subject.

In 2006, the Campaign will cover additional areas in other dzongkhags as well as carry out follow-up activities and rectification where necessary in the locations covered during 2005. A field review of the implemented activities has been carried out by the NSSC and DoA and such assessment will be carried out every year to elicit community feedback, provide guidance to the test farmers and RNR staff in the field, and enlist lessons for future activities.

5.2 Sustainable Land Management Project

5.2.1 Project Concept and Objective

The RGoB embarked on this project in 2006 with grant from the GEF through its Operational Programme 15 and co-financing from Danish International Development Agency (DANIDA). Financial and technical support for project development was provided by the World Bank. The project has been conceived with the development objective to strengthen institutional and community capacity in terms of human resource, policies, incentives, technologies and knowledge for anticipating and managing land degradation in the country. It has been designed with the following guiding principles:

- Support to **bottom-up planning approach** that focuses on community priorities and decisions;
- **Phased implementation**, starting initially in three geogs and later extending to additional geogs as adequate capacity is built in the pilot geogs;
- Support to **decentralization** by strengthening the role of local communities, geogs and dzongkhags in planning and implementation, and increasing their potential of becoming sustainable agents of natural resource management change;
- Ensure that community decisions on sustainable land use options are guided by **appropriate knowledge and information** about farmer incentives;
- Adoption of an **integrated multi-sectoral approach** as a strategy for improving the management of natural resources.

5.2.2 Project Components

The SLMP, as the project is known in short, has the following four complementary, mutually-reinforcing components:

Component One – Pilot projects to demonstrate effective application of land degradation prevention approaches. The pilots will be implemented in three geogs. The three pilot geogs were selected to represent a range of land degradation pressures in Bhutan. The geogs are Nangkor in Zhemgang dzongkhag (east central part of the country), Phuentsholing in Chhukha dzongkhag (south western part) and Radhi in Trashigang (eastern part). This part of the project has three sub-components. First, it will support a Geographic Information System (GIS)-based biophysical and socio-economic mapping exercise to identify the causes and incidence of land degradation. Second, information generated through the mapping exercise will be used to identify “hot-spots” and to assess the presence or absence of incentives that currently guide farming practices and inform community decisions. Third, it will support community decision-making and prioritization of sustainable land management (SLM) investments at the chiog level. The project will finance a range of activities including: capacity building for community decision-making and planning, training of geog staff to plan and implement SLM activities in a multi-sectoral manner, investments at the community and

farm levels to strengthen the adoption of SLM practices, monitoring to validate SLM investments, and national and regional level workshops to discuss results and scaling-up options. Physical investments at the farm and community level may include vegetative conservation measures, terracing, forest and rangeland regeneration, reforestation, agro-forestry, etc as necessary.

Component Two – Mainstreaming of practices for protection against land degradation.

This component will support the scaling up of the pilots to six additional geogs (two in each of the pilot dzongkhags) based on the lessons learned from Component One. Support to additional geogs will be phased, starting in geogs where there is substantial potential for success of SLM interventions and where existing capacity is adequate. In addition, it will facilitate coordinated and participatory planning at the dzongkhag level which integrates the cross-sectoral impacts of development (e.g. infrastructure, roads, irrigation, power, agriculture and industrial development). Inter-dzongkhag conflicts (particularly over grazing) and inter-sectoral conflicts over land use and planning will be resolved at this level. Capacity building efforts will precede replication to the new geogs. Under this component, the project will support on-the-ground investments, technical assistance, community cross-site visits, training, research and awareness programmes, new analytical tools, GIS and databases.

Component Three – Policy support and guidance for mainstreaming land degradation prevention practices.

This component will bring lessons from Components 1 and 2 to inform national legislation and policy pertaining to watershed management, upland agriculture and livestock production, forestry, urban planning and infrastructure. It will provide technical assistance to develop guidelines for mainstreaming SLM principles into RGoB’s Five Year Plans, and geog and dzongkhag five-year and annual plans. This would be undertaken through compilation and dissemination of lessons learned from pilot sites, policy guidance notes, capacity building and awareness workshops.

Component Four – National level support for coordination of implementation of land degradation prevention practices.

This component would further support RGoB’s support to strengthen and build capacity within the Ministry of Agriculture to systematically and effectively coordinate a programme of activities in order to help anticipate and manage land degradation in the country. It will provide overarching support across different sectors and different levels of the government for supporting SLM activities. This would be achieved through project support for technical assistance, training, equipment, and management information systems.

5.2.3 Project Costs

The project has a total cost of US\$ 15.89 million as given in the project financing plan below:

Table 5: SLMP Financing Plan

Source	Total US\$ million
Global Environment Facility	7.66
Royal Government of Bhutan	1.51
Local Communities	0.95
DANIDA (co-financing)	5.77
Total	15.89

5.3 Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan (pipeline GEF/UNDP project)

5.3.1 Overview

This is a pipeline project being considered for GEF funding under its Medium Sized Project grant. The project objective is to “strengthen the enabling environment for sustainable land management while ensuring broad-based political and participatory support for the process”. The project is part of the UNDP/GEF LDC and SIDS Targeted Portfolio Approach for Capacity Development and Mainstreaming of Sustainable Land Management and relates to GEF Operational Programme 15.

5.3.2 Project Components

The proposed project will have three components: (i) formulation of National Action Programme (NAP) to combat land degradation; (ii) capacity development for sustainable land management; and (iii) mainstreaming of sustainable land management in national development policy and planning framework.

The formulation of the NAP will include extensive stakeholder consultations and validation of priorities and needs using a multi-disciplinary approach and linking knowledge, perceptions and insights at central, dzongkhag and geog levels. Capacity development for sustainable land management will be pursued through human resources capacity assessment and development, strengthening of institutional capacity for assessment, documentation and dissemination of sustainable land management practices, development of project proposals and concepts including those identified through NAP, and establishment of linkages with UNCCD-related organizations such as the Global Mechanism. The mainstreaming of sustainable land management in the national development policy and planning framework will be pursued through incorporation of sustainable land management strategies in the oncoming 10th Five-Year Plan, preparation of policy and legal reform recommendations related to sustainable land management, incorporation of sustainable land management in other environmental policies, and development of financing mechanisms for sustainable land management including incentives for private sector involvement.

5.4 List of Projects/ Initiatives Contributing to UNCCD

Following is the complete list of projects/ initiatives currently under implementation which are directly or indirectly related to the UNCCD:

Table 6: List of Projects/ Initiatives Contributing to UNCCD

Project Title	Implemented within NAP/ SRAP/ RAP framework? (Yes/No)	Timeframe	Partners Involved	Overall Budget
Sustainable Land Management Project	No	2006-2011	GEF, World Bank, DANIDA, various RNR sector agencies, Dzongkhag Administrations	US\$ 15.89 million
National Land Management Campaign	No	2005 -	Various RNR sector agencies, Dzongkhag Administrations	Nu. 6.7 million (first year)
Wang Watershed Management Project	No	2001-2007	European Community, various RNR sector agencies, Dzongkhag Administrations	Euro 13.3 million
Environment and Urban Sector Support Programme	No	2004-2008	DANIDA, NEC, various RNR sector agencies, City Corporations, MTI	DKK 110 million

Project Title	Implemented within NAP/ SRAP/ RAP framework? (Yes/No)	Timeframe	Partners Involved	Overall Budget
East Central Region Agriculture Development Programme	No	2002-2007	Helvetas, various RNR sector agencies	CHF 2.5 million
Participatory Forest Management Project	No	2002-2007	Swiss Development Cooperation, Department of Forestry, Dzongkhag Administrations	CHF 3.8 million
Community-based Biodiversity Conservation and Ecosystem Management	No	2004-2008	Sustainable Development Secretariat, Department of Forestry, Dzongkhag Administrations	Nu. 102 million
Conservation Management Planning for Sakten Wildlife Sanctuary	No	2003-2006	MacArthur Foundation, Department of Forestry, Dzongkhag Administrations	Nu. 26.3 million
Linking and Enhancing Protected Areas in the Temperate Broadleaf Forest Ecoregion of Bhutan	No	2003-2007	UNDP, WWF, GEF, Department of Forestry, Dzongkhag Administrations	US\$ 1.855 million

6. STATUS OF NATIONAL ACTION PROGRAMME TO COMBAT LAND DEGRADATION

6.1 Overview

Bhutan has yet to develop a National Action Programme (NAP) to combat land degradation. A proposal has been prepared to formulate a NAP using a consultative, participatory process involving stakeholders at the national, regional, dzongkhag and geog levels. The proposed NAP will be a key part of the proposed medium-sized GEF project titled “Capacity Building in and Mainstreaming of Sustainable Land Management in Bhutan”.

6.2 Proposed NAP Process

The formulation of the NAP will take over a year. It will entail the following approach and activities:

- The NSSC will lead and coordinate the preparation of the NAP. The Multi-disciplinary Technical Advisory Committee (MTAC) formed for the SLMP, which comprises of representatives from the Ministry of Works and Human Settlement, Ministry of Trade and Industry, National Environment Commission, and various departments under the Ministry of Agriculture, will be used as a resource body for the preparation of the NAP. The use of MTAC, which was actively involved in the formulation of the SLMP, will mean that the knowledge and experience accrued during the formulation of SLMP will be carried forward into the NAP process.
- At the outset, a national inception workshop will be held to introduce the conceptual and methodological frameworks of NAP and to discuss and agree on responsibilities and specific timetables for delivery of the outputs.

- The NSSC, with the support of the MTAC, will review existing documents to: fully understand convention obligations and related issues relevant to Bhutan; draw national baseline situation with respect to land degradation in Bhutan; identify gaps, needs and priorities to address land degradation issues.
- The NSSC, with the support of the MTAC, will carry out stakeholder consultations at the regional and dzongkhag levels to elicit additional information, insights and perceptions in complement to the information gathered from literature review. The consultations will also give the NSSC and MTAC the opportunity to clarify issues and update information.
- The NSSC will analyze the information collected from literature review and stakeholder consultations and consolidate the results into a draft NAP document. The draft NAP document will be presented to the MTAC for review and feedback. The NSSC will revise the draft NAP document, incorporating comments from the MTAC.
- National and regional consultative workshops will be held to present and validate the NAP document.
- The NAP document will be finalized, incorporating comments from the national and regional consultative workshops. The NSSC will submit the final document to the MoA Secretariat for review and onward submission to the Council of Cabinet Ministers (CCM) for approval.
- Once approved by the CCM, several hundred copies of the NAP will be produced and distributed to all the stakeholder institutions. The approved NAP will be implemented as a guiding action framework for national policies, programmes and projects pertaining to combating land degradation.
- The NSSC may engage the services of a national consultant to assist in the preparation of the NAP, which may include review of existing documents, facilitation of stakeholder consultations, analysis of information collected from literature review and stakeholder consultations, and writing of the NAP document.
- Lessons drawn from the National Land Management Campaign and SLMP will be used as a key input to the NAP formulation process.

Annexure 1: Bhutan UNCCD Country Profile

UNCCD Country Profile

(BHUTAN)

This UNCCD country profile has been provided by:

National Soil Services Center

Department of Agriculture

Ministry of Agriculture

8th June, 2006

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Biophysical indicators relating to desertification and drought

1. Climate

- 1.1 Index of aridity: -
1.2 Normal rainfall: 500 – 5,500 mm per year
1.3 Rainfall standard deviation:

Sub-national areas (Agro-ecological zones)	mm per year
Alpine (3,600 – 4,600 masl)	<650
Cool Temperate (2,600 – 3,600 masl)	650 – 850
Warm Temperate (1,800 – 2,600 masl)	650 – 850
Dry Sub-tropical (1,200 – 1,800 masl)	850 – 1,200
Humid Sub-tropical (600 – 1,200 masl)	1,200 – 2,500
Wet Sub-tropical (150 – 600 masl)	2,500 – 5,500

2. Vegetation and land use

- 2.1 NDVI (normalized difference vegetation index): -
2.2 Vegetation cover (% of total land area): 72.5
2.3 Land use (percent of total land)

Land use	1990 – 1999	2000 – 2003
Arable crop land	Irrigated wetland cultivation	1.0
	Rainfed wetland cultivation	0.0
	Dry land cultivation	4.6
	Mixed cultivation	2.1
Pasture	3.9	
Forest and woodland	72.5	
Other land	15.9	

- 2.4 Surface albedo: -

3. Water resources

3.1	Fresh water availability (m ³):	73,000 million per year
3.2	Fresh water resources per capita (m ³):	109,000 per year
3.3	Agricultural water use (m ³):	393 million per year
3.4	Industrial water use (m ³):	600,000 per year

4. Energy

Consumption

4.1	Energy use per capita (kg oil equivalent):	-
4.2	Agricultural energy use per hectare (millions of BTU):	-

Production

4.3	Energy from renewables excluding combustible renewables and waste (% of total supply):	-
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Renewables – Consumption by sector

4.4	Industry (% of total renewable consumption):	-
4.5	Residential (% of total renewable consumption):	-
4.6	Agriculture (% of total renewable consumption):	-

5. Types of land degradation

Type of degradation	1990 – 1999		2000 – 2003	
	hectare	% of total area	Hectare	% of total area
Soil erosion/ land slides	95,430	2.5	-	-
Degraded forest	32,356	0.8	-	-

6. Rehabilitation

Lands under rehabilitation	1990 – 1999	2000 – 2003
Rehabilitation of degraded crop land (km ²)	-	-
Rehabilitation of degraded rangeland (km ²)	-	-
Rehabilitation of degraded forest (km ²)	44.4	23.2

7. People and economy

7.1	Population (total):	634,982
	● Population: urban (percent of total):	30.9
	● Population: rural (percent of total):	69.1
7.2	Population growth rate (annual %):	1.3
7.3	Life expectancy (years):	66.1
7.4	Infant mortality rate (per 1,000 births):	40.1
7.5	GDP (current US\$):	612 million
7.6	GNI per capita (current US\$):	760
7.7	National poverty rate (%):	31.7
7.8	Crop production rate (metric tons):	158,638
7.9	Livestock production rate (liters):	24,837,386

8. Human development

8.1	Primary education completion rate (% age group):	86
8.2	Number of women in rural development (total number):	-
8.3	Unemployment (%):	3.1 (15 years >) 2.3 (18 years >)
8.4	Youth employment range (age 15-24):	-
8.5	Illiteracy total (%):	40.5 (6 years >)
8.6	Illiteracy male (%):	30.9 (6 years >)
8.7	Illiteracy female (%):	51.3 (6 years >)

9. Science and technology

9.1	Number of scientific institutions engaged in desertification-related work (total number):	6
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Data sources:

Indicators	Source	Remarks
1. Climate		
1.2 and 1.3	RNR Research Strategy and Plan Document, 1992	
2. Vegetation and Land Use		
2.2 and 2.3	Land Cover and Area Statistics, Ministry of Agriculture, 1997	
3. Water Resources		
3.1, 3.2, 3.3 and 3.4	Water Resources Management Plan Volume A, Department of Energy, 2003	
4. Energy		
-	-	
5. Types of Land Degradation	<ul style="list-style-type: none"> Ministry of Agriculture, 1990, for the figures on soil erosion/ landslides Forest Resources Development Division, Department of Forestry, MoA, 2004, for the figure on degraded forest 	All forests with a crown density of less than 10 percent in a contiguous area not less than 0.5 ha have been considered degraded.
6. Rehabilitation	Social Forestry Division, Department of Forestry, MoA, 2006, for the figure on rehabilitation of degraded forest	Since the figures are available on Five Year Plan basis, the 1990-99 figure is made up of the figures for 7 th and 8 th Five Year Plans (1992-97 and 1997-2002) and the 2000-03 figure is for the ongoing 9 th Five Year Plan, until 2005.
7. Population and Economy		
7.1, 7.2, and 7.4	Population and Housing Census of Bhutan, 2005	
7.3	National Health Survey, 2000	
7.5	National Statistical Bureau, 2003	
7.6	World Bank, 2004	
7.8 and 7.9	RNR Statistics, 2000	
8. Human Development		
8.1	Department of Education, 2004	
8.3, 8.5, 8.6 and 8.7	Population and Housing Census of Bhutan, 2005	
9. Science and Technology		
9.1	Personal estimate	The estimate includes NSSC, the four Regional RNR Research Centers, and the Department of Geology and Mines