

**RECOMMENDATIONS ON HOW TO MAINSTREAM ENVIRONMENT, CLIMATE CHANGE & POVERTY
INTO POLICIES, PLANS & PROGRAMMES**

Final Draft

12 August 2009

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Environment and Poverty are two key-elements which have been integrated into the planning undertaken by the RGoB and into its overall strategy of development for numerous years. Numerous legal instruments have been put in place to ensure that the environmental impacts of industrial and development projects are properly taken into consideration. The principle of an equitable development is one of the four foundation pillars of the Gross National Happiness. However, if sectoral strategies have been put in place, there is still room for a better integration and a better consideration of the linkages between environment and poverty, and for an increased collaboration and coordination between the various sectors, both at the central and at the local level.

1.1 - Purposes & audience

This document is intended to provide practical and technical advice and guidance on how to mainstream poverty-environment issues into plans. Through selected examples, it demonstrates that it is possible to meet both the social and economic needs of the people - and alleviate poverty - and at the same time to conserve the natural environment.

The document is written primarily for officials in planning and finance departments who are involved, at the national and dzongkhags levels, with the preparation of plans. It will also be of interest to other sector officials in national and local governments, Civil Society Organisations and to the private sector.

Ideally the poverty-environment mainstreaming document, in conjunction with the other thematic guidelines, should be annexed to the guidelines issued for the preparation of the Five-Year Plans. The specific role of the poverty-environment mainstreaming guidelines is to promote the development of an holistic view when issues related to poverty, environment and economic development have to be addressed, and for planners to realize that there might be alternatives to what each sector usually considers as the universe of possibilities, maximizing the overall results.

1.2 - How this document relates to other guidelines & manuals

The document mainly put into perspective poverty and environment issues in the context of economic development. It is not a policy document, nor a technical document explaining how environment and poverty matters have to be dealt with. There are other documents for that, for example the Local Development Planning Manual, the Rural Economy Advancement Programme Strategic Framework and its operational documents (Village participatory planning guidelines, Village Development Plan framework, ...) dealing with the operationalisation of the targeted poverty interventions programme of the 10FYP, and the various regulations, codes of practice, sectoral environmental assessment guidelines dealing with environmental issues.

1.3 - How to use this document

Part A sets the overall context, in terms of challenges of development and the strategies of the Royal Government. What is meant by poverty and environment in this document is briefly discussed. The particular linkages existing between the environment and the Bhutanese economy are then summarized. The various linkages existing between poverty and environment are then presented following the categories usually used in the poverty-environment literature: livelihoods and the environment, health and the environment, vulnerability and the environment, and economic growth and the environment.

Part B starts by defining what is meant by poverty-environment mainstreaming, looks at its importance and present various tools and techniques for mainstreaming.

Part C looks into poverty-environment linkages in planning, budgeting and monitoring, coming in particular with recommendations regarding poverty-environment indicators.

Part D portrays ways to mainstream poverty-environment issues for the following sectors: natural resources; trade, industry, tourism & mines; energy; health; infrastructure, urban development and transport.

1 – National Context, Challenges of Development & Strategies of the Royal Government.

1.1 - National Context

Bhutan is undeniably a country dominated by its rural dimensions and will continue to be so in the decades to come: not less than 69%¹ of its population live in rural areas, practising subsistence farming and relying on a range of natural resources to sustain their livelihoods. The share of the agriculture sector in the GDP has declined from the over 50% levels in 1986 to 22% in 2006², with the increase of the secondary sector (manufacturing, electricity and construction) and the tertiary sector (services). Development interventions in the last five decades have been successful in bringing basic services and facilities to the people³ and the average rate of growth over the period of the ninth Plan has been at 9%, largely due to the development of the hydropower sector. However the latest Poverty Analysis Report⁴ reported that in 2007 close to 31% and 8% of rural Bhutanese continue to live, respectively, under the poverty line and extreme poverty line, with a consumption of Nu. 1,097 or less, and Nu. 689 per person per month.

1.2 - Challenges of Development

The challenges of development faced by Bhutan are presented in details in various documents, including in particular the Vision 2020 and the 10FYP. They are based on numerous factors. The ones that are relevant to the Poverty-Environment approach are:

- **Limited available agricultural land**, consequence of a difficult topography: virtually all land suitable for intensive forms of cultivation is already in use, which some being now even converted to non-agricultural uses, with the rural-urban migration and industrialisation.
- **Population growth**: Despite having the lowest population density in the region and the significant reduction of the rate of population growth in the last decade, the population growth is still one of the biggest challenges faced by the country, having impacts in turn on the environment, food security, nutrition, employment, balance of payments; and ability to continue to provide services to a growing population.
- **Population migration**: Rural-urban migration, putting pressure on land, infrastructure, urban services, natural resources (directly or indirectly through pollution, degradation of forest cover, ...), limited job market.
- **Population distribution**: The population is largely scattered, with lives in remote and isolated areas still characterized by vulnerability and uncertainty. Ensuring that disadvantages and vulnerable groups are able to benefit more fully from the process of social and economic development is a challenge that must be met.
- **Infrastructure** incomplete and costly to establish and maintain.
- **A nascent private sector**. The contribution of the private sector to the economic development of the country and as a source of employment is still minimal. The private sector is still at an early stage of development and is not yet well organized.

The MDG Needs Assessment and Costing exercise⁵ identifies the following challenges at the level of the various sectors (Table 1). Most of the proposed interventions have direct linkages between, on the one hand, pro-poor growth and poverty reduction, and, on the other hand, good environmental management. These are presented in more details in section A-4 of the document.

Table 1 – Challenges by Sector

<u>Agriculture and rural development</u>
<ul style="list-style-type: none"> • Slow growth of the agricultural sector and declining investments • Low agricultural productivity and crop depredation by wildlife • Underemployment and lack of off-farm employment in the rural sector • Inaccessibility • Environmental degradation risks • Rural-urban migration • Urban poverty and youth unemployment
<u>Education</u>
<ul style="list-style-type: none"> • Low levels of adult literacy, particularly among women and in rural areas • Quality and relevance of education • Difficulties of continuing to expand enrolment levels notably in hard to reach communities and isolated areas • Strengthening the secondary and post-secondary levels both in terms of teacher strength and educational infrastructure • Improve educational access for those with physical disabilities and learning impediments.
<u>Gender</u>
<ul style="list-style-type: none"> • Greater effort towards attaining gender parity at the tertiary education levels. • Promoting greater female enrolment into technical, professional and vocational institutions. • Increase female participation in national parliament, public office and civil service. • Domestic violence against women.
<u>Health</u>

¹ Population and Housing Census of Bhutan 2005.

² Poverty Analysis Report 2007.

³ Rapid Assessment of Rural Development, 2007.

⁴ Poverty Analysis Report 2007.

⁵ Bhutan Millenium Development Goals. Needs Assessment and Costing Report (2006-2015).

<ul style="list-style-type: none"> • Child health (including control of diarrhoeal diseases, acute respiratory infection, ...) • Maternal health • Communicable diseases: HIV/AIDS, Malaria and TB
<p>Environment</p> <ul style="list-style-type: none"> • Lack of coordination in environmental mainstreaming • Need for a comprehensive environmental legal and policy framework • Weak compliance and enforcement of environmental regulations • Inadequate capacities of relevant environment agencies such as the National Environment Commission, Environment Units within Ministries, Dzongkhag Environment Committees, Dzongkhag Environment Officers, Disaster Management Division within MoHCA, and line ministries • Lack of proper scientific environmental data and information, and environmental monitoring systems
<p>Water and Sanitation</p> <ul style="list-style-type: none"> • Acute shortage of specialized manpower • Data problems and unplanned growth • Poor linkages and lack of capacity in Dzongkhags and municipalities • Technical and financial sustainability • Lack of training opportunities • Coordination with stakeholders (for rural areas) • Ensuring quality levels for water and sanitation in rural areas • Distance from water source

Socio-economic progress achieved during the last FYP, the implementation of the 10FYP, the acceleration of the economic development - through various means -, and the increase of the population are likely to increase pressure on the natural resources of the country, by creating demand for new land for settlement, expansion and modernisation of agriculture, infrastructure development, hydropower development, urbanisation, tourism, industrial development and overall change of consumption patterns. As stated in the 10FYP, it is also likely that environmental conservation imperatives, that have been the perceived trade mark of Bhutan, will be more and more challenged by the desire to accelerate economic development and the urgency to respond to poverty. The linkages between a sustainable pro-poor economic growth and good environmental stewardship are the focus of this document.

1.3 - Strategies of the RGoB

The 10FYP is to be realized through a number of strategies, such as:

- Vitalizing economic and industrial development (encompassing hydropower, tourism and cultural industries, ICT);
- Implementing national spatial planning, with the intent to promote a balanced regional development consistent with the maximization of the economic potential and opportunities while conserving environmental resources;
- Synergizing rural-urban linkages for socio-economic development and poverty reduction, in particular using urban and external market demand and consumption as important drivers for rural growth, income generation and enhanced productivity;
- Expanding strategic infrastructure;
- Investing in human capital and fostering an enabling environment through good governance.

The overall strategy of the 10FYP for poverty reduction is to promote economic opportunities through broad-based growth and to boost critical sectors such as agriculture and rural industries/enterprises that are important for the poor. This strategy is being translated into a targeted poverty reduction programme - the Rural Economy Advancement Programme - aiming at providing benefits directly to the poor on the basis of a good understanding of localized poverty and development conditions in the various Gewogs⁶

The approach taken in the 10FYP with regard to the environment is to consider that the sustainable use and management of natural resources constitutes an integral and critical aspect of national spatial planning. This approach is considered to integrate the environmental issues within the overall national development framework for the full realization of sustainable development.

2 - Poverty, Environment - Definitions

2.1 - Poverty

2.1.1 - Poverty - a few definitions

There are several approaches and definitions of what is poverty. In the report⁷ titled "*Linking Poverty Reduction & Environmental Management*" prepared by DFID, EC, UNDP and the World Bank poverty is viewed as encompassing income and non-income dimensions of deprivation, including:

- Lack of income and other material means;
- Lack of access to basic social services (education, health, safe water, ...);
- Lack of personal security;
- Lack of empowerment to participate in the political process and in decisions that influence someone's life.

Similarly, the UNEP & IISD publication, *Exploring the Links. Human Well-Being, Poverty & Ecosystem Services*, on the basis of an extensive and global survey of the literature on the various linkages between poverty and ecosystems defines poverty linked to ecosystems as the deprivation of the 10 following constituents/determinants of well-being, as follows:

1. Ability to be adequately nourished;

⁶ See REAP Strategic Framework.

⁷ Linking Poverty Reduction & Environmental Management. Policy Challenges & Opportunities. DFID, EC, UNDP, WB. July 2002.

2. Ability to be free from avoidable disease;
3. Ability to live in an environmentally clean & safe shelter;
4. Ability to have adequate & clean drinking water;
5. Ability to have clean air;
6. Ability to have energy to keep warm & to cook;
7. Ability to use traditional medicine;
8. Ability to continue to use natural elements found in ecosystems for traditional cultural & spiritual practices;
9. Ability to cope with extreme natural events (floods, tropical storms, landslides);
10. Ability to make sustainable management decisions that respect natural resources & enable the achievement of a sustainable income stream.

As further developed in this report, there is a large degree of synergies among the 10 constituents of well-being. For example, access to clean water and clean air will permit the avoidance of a number of diseases and pathologies, and similarly living in a clean & safe shelter will require access to clean air, adequate & clean drinking water.

Human well-being is considered as the extent to which individuals have the ability and the opportunity to live the kinds of lives they have reasons to value. Human well-being encompasses personal and environmental security, access to materials for a good life, good health and good social relations, all of which are closely related to each other, and underlie the freedom to make choices and take actions.

Poverty is usually measured in three ways:

- (1) a single indicator, such as income or consumption;
- (2) a multidimensional-indexed approach where several indicators are combined in a single index of poverty; and
- (3) a vector multi-dimension where several indicators are used to classify people as poor on each indicator.

The latter method has the benefit of taking into consideration the multiple dimensions of poverty, which is usually seen as broad, multidimensional, partly subjective, variable over time, comprising capabilities as well as welfare, and in part relative to local norms, comparisons and expectations⁸.

The Poverty Analysis Report 2007 prepared by Bhutan NSB states that "*Poverty [...] is a multi-dimensional phenomenon. This deprivation includes not just insufficient consumption (and income) but also lack of opportunities and assets, inadequate education, poor health and nutrition, lack of sanitation, insecurity and powerlessness.*"

2.1.2 - Poverty in Bhutan

The National Statistics Bureau considers, at this point in time, that poverty is best measured by the per-capita consumption expenditure, assumed to give a good representation of the well-being of households. A minimum acceptable standard of that welfare indicator is used to separate the poor from the non-poor, and was calculated at Nu.688.96 per person per month as the food or extreme poverty line and Nu.1.096.94 per person per month as the total poverty line, defining, respectively, the thresholds for the subsistence poor and the poor⁹.

The PAR 2007 estimates the proportion of poor people in Bhutan at 23.2 % (146,100 persons) and of subsistence poor people at 5.9% (37,200 persons). With 98.1% and 99.3% of the poor and of the subsistence/extreme poor, respectively, who reside in rural areas, poverty in Bhutan is mainly a rural phenomenon. Therefore poverty reduction efforts have to be largely focused toward rural poverty, which is the focus of these guidelines. A particular attention needs, however, to be given to urban poverty, especially in the context of a rapid growth of urban centers fueled by rural-urban migrations.

The existing state of poverty is usually attributed to the country's rugged and harsh terrain, limited infrastructure - providing inadequate access to markets, economic opportunities, resources, assets and social services - and limited availability of land for economic activities, shortage of labour and markets due to a small and scattered population, largely subsistence-based way of life in the rural areas, low levels of agricultural productivity and a private sector still under development¹⁰. Many farmers are considered to be trapped in subsistence farming with little surpluses, a situation exacerbated by their inherent vulnerability to weather fluctuations, chronic crop depredation by wildlife and the rapid emergence of a cash economy.¹¹

2.1.3 - Poverty reduction strategies

As it is stated in the *Challenge of Ending Rural Poverty* report, prepared by IFAD in 2001, having human beings condemned to short lives plagued by malnutrition, ill health and illiteracy is unacceptable neither from a moral point nor from an economic standpoint, as it leads to wasting talents and energies of men and women, diverted from socially productive activities that could create wealth for the entire society instead of merely struggling for their survival. In addition poverty poses a threat to social stability, social order and acts as a reservoir for communicable diseases and triggers for crime and conflicts¹².

⁸ IFAD. The Challenge of Ending Rural Poverty. 2001.

⁹ PAR 2007.

¹⁰ 10 FYP.

¹¹ *Ibidem*.

¹² IFAD. The challenge of ending rural poverty. 2001.

The analysis of the situation is not different in Bhutan, which joins the pledge by many nations to attain the Millenium Development Goals and is well on track to achieve the MGDs by 2015¹³.

Poverty reduction is indeed the main objective and theme of the Tenth Plan, and the various strategies to realize this constitute the overall Tenth Plan's strategic framework for achieving Gross National Happiness, while the Rural Economy Advancement Programme operationalises the concept of targeted poverty reduction interventions (see section 1.3 above).

The RoGB aims to reduce the poverty proportion to 20% by the end of the 10th FYP through rural development, balanced regional development, integrated rural-urban development, private-sector growth and infrastructure development (BLSS, 2007).

Four key factors need to be addressed in any poverty reduction strategy:

- **Enhanced livelihood security:** the ability of the poor to use fully the potential of their assets¹⁴, to have legally secure entitlements to these assets (especially land and water) and capabilities to make living conditions of greater security and sustainability;
- **Reduced health risks:** the mitigation of factors that put the poor and most vulnerable (especially women and children) at risk from different diseases, disabilities, poor nutrition, and ultimately death;
- **Reduced vulnerability:** the reduction of threats from environmental, economic, and political hazards, including the impact of both sudden chocks and long-term adverse trends;
- **Pro-poor economic growth:** enhanced economic growth is essential for poverty reduction, and the quality of growth, and in particular the extent to which it creates new opportunities for the poor, also matters.

2.2 - Environment

2.2.1 - Environment - definition.

Environment refers to the living (biodiversity) and non-living components of the natural world, and to the interactions between them, that together support life on earth. The environment provides goods (natural resources) and services (ecosystem functions) used for food production, the harvesting of wild products, energy, and raw materials. The environment is also a recipient and partial recycler of waste products from the economy and an important source of recreation, beauty, cultural, spiritual values, and other amenities¹⁵.

In the literature on poverty and environment, the term "*ecosystem*" is sometimes used to refer to this natural environment. These terms are exchangeable in this document.

Box 1 - Biodiversity & Ecosystem Services

Ecosystems – such as forests, agro-ecosystems, grasslands, and freshwater ecosystems and the biodiversity contained within them – **provide essential services that contribute in numerous ways to productive activities**. Ecosystem services include **provisioning services**, such as food and water; **regulating services**, such as flood and disease control; **cultural services**, such as spiritual, recreational and cultural benefits; and **supporting services**, such as nutrient cycling that maintain the conditions for life on Earth.

Some example of ecosystem services that support livelihoods include provision of natural habitat for wild pollinators that are essential to food crops; natural predators that control pests and soil organisms important to agricultural productivity; watershed protection and hydrological stability, including recharging of water tables and buffering of extreme hydrological conditions; maintenance of soil fertility through storage and cycling of essential nutrients, and breakdown of waste and pollutants.

These services are "public good", providing indirect values that are only partially traded in the market place but that are vital to the livelihoods of the poor, especially in more marginal environments or where the poor have limited access to external technology and other inputs (Koziell and Saunders, 2001). By maintaining productivity and a healthy and stable environment, ecosystem services also contribute to maintaining livelihood options and the potential for livelihood diversification. When ecosystem functions are impaired, this inevitably leads to a narrowing of livelihood choices and an increase in the vulnerability of the poor (BDP, 2001; Koziell, 2001; Koziell and Saunders, 2001). While biologically diverse ecosystems can be highly resilient to human disturbances, certain ecosystem types are at particularly risk of a sudden collapse. For example freshwater systems may go from a functioning to a nonfunctioning state in a very short time due to pollution, overuse, or other perturbations that reduce biodiversity or that exceed a certain threshold of tolerance. The consequence is that people who depend on these ecosystems may find themselves deprived of essential goods and services in a relatively short time span and unable to cope or adapt (Folke, 2002).

2.2.2 - The Environment in Bhutan, Status and Challenges

Bhutan has entered the 21st century with relatively little damage done to its environment, a result of a long isolation, a low human population, inaccessibility of much of the country, and conservation ethics underpinned by the traditional values and way of life that revere nature. The conservation of the environment is one of the four foundation pillars of Gross National Happiness, with sustainable and equitable socio-economic development, preservation and promotion of culture, and good governance.

The country is considered a conservation showpiece of the Eastern Himalayas, a region recognized as one of the global biodiversity hotspots. The country's large tracts of sub-tropical and temperate forests, the alpine scrub, meadows in the northern mountains,

¹³ RGoB, Ministry of Finance, MDG. Progress report 2008.

¹⁴ In particular through technology to increase the output and yield of food staples.

¹⁵ Linking Poverty Reduction & Environmental Management. Policy Challenges & Opportunities. DFID, EC, UNDP, WB. July 2002.

and the many rivers, lakes and marshlands harbor several species of wild fauna and flora which are known to be globally threatened.¹⁶

Land use. In 1995, forests¹⁷ occupied 72% of the total land, while 8% of the land is agricultural land, 4% is made of pasture lands and the remaining 16% is made of other land uses (snow/glaciers, rock outcrops, water bodies, settlement). The forest lands were distributed as shown on the figure below, and the national policy is to maintain at least 60% of forest cover for all times to come and is a constitutional requirement.

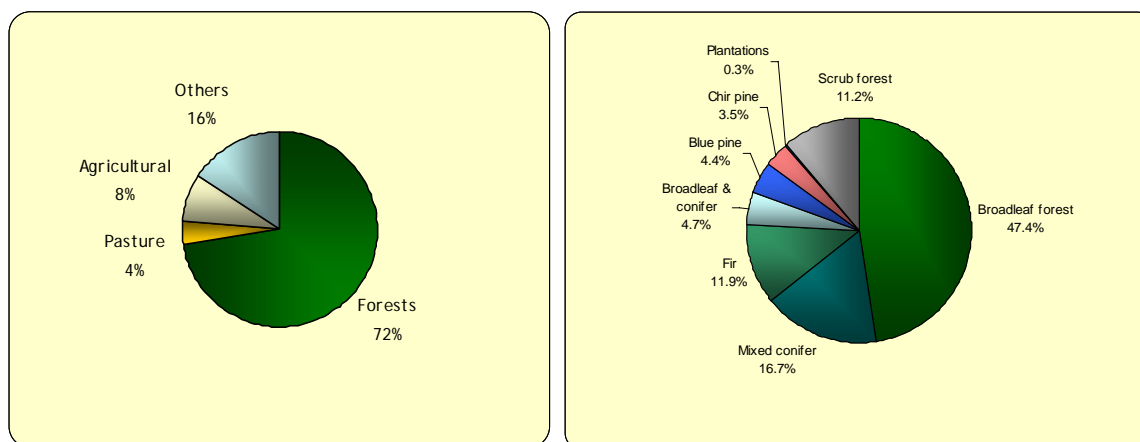


Figure 1 - Land Use, all categories & forests

Overgrazing, forest harvesting, forest fire, conversion of agricultural and forest lands for infrastructure development and urbanization, and unsustainable agricultural production practices have led to land degradation in a number of places, especially in eastern and southern Bhutan. Land degradation problems are compounded by the country's inherent fragile geology and extreme climatic conditions characterized by heavy monsoon rains. In and around population centers land resources are also being impacted by improper disposal of solid waste.

The country is endowed with abundant **water resources** resulting from the many glaciers and glacial lakes, the large forest cover and the high precipitation. There are, however, localized water shortages resulting from an increased demand, the rugged terrain making water tapping difficult and poor maintenance of tanks and distribution lines. Although the sediment load of rivers is usually low¹⁸, improper infrastructure development and erosion in watershed can lead to localized increase of sediment load. Water pollution is an issue in urban centers where surface drainage, uncontrolled seepage or overflow of septic tanks and pipes, enter the water courses.

Emissions from vehicles, industries and domestic activities are the main sources of localized pollution of the **air**, which is otherwise of a good quality¹⁹. Although a significant proportion of the population uses electricity, liquefied petroleum gas, fuelwood, is still used by 37%²⁰ of the households for cooking, a source of respiratory disease in some places.

As indicated above Bhutan is certainly a conservation jewel of the Eastern Himalayas and one of the **biodiversity** hot spots in the region. The various habitats are believed to contain more than 5,600 species of vascular plants, 600 species of birds and 190 species of mammals²¹, of which 26 species of mammals and 14 species of birds are listed in the IUCN's red list of threatened species. Some 20 crop species and 10 livestock species are known in the country, with 350 varieties of rice, 47 of maize, 24 of wheat and 30 of barley, and 4 native breeds and 16 native sub-breeds of cattle, and 12 native sub-breed of yaks²².

The national protected area system covers more than 26% of the country's total area²³. These various protected areas are linked by a network of biological corridors to facilitate the movement of wildlife and provide a contiguity of habitats between the various protected areas.

2.2.4. - Environment Management Strategy

Aware of the problems that uncontrolled economic progress can cause, while opening it to the rest of the World, the Royal Government of Bhutan has chosen the "middle path" of sustainable development, in order to raise the living standards of the present population without compromising the country's cultural integrity, historical heritage or the quality of life for future generations²⁴. The overall objective of the National Environment Strategy is to minimize and mitigate the impacts resulting from the development process. Environmental conservation, in the context of Bhutan, is understood in its dynamic form, with natural resources considered as an asset to be sustainably and wisely utilized for socio-economic development, for the current and for the future generations. It is

¹⁶ NEC. Bhutan Environment Outlook 2008.

¹⁷ Including scrub forest.

¹⁸ NEC. Bhutan State of the Environment 2008.

¹⁹ *Ibidem*.

²⁰ Population and Housing Census of Bhutan, 2005.

²¹ NEC. Bhutan State of the Environment, 2008.

²² *Ibidem*.

²³ MoA, website.

²⁴ NEC. The Middle Path. National Environment Strategy for Bhutan. 1998.

one of the four foundation pillars of Gross National Happiness, with sustainable and equitable socio-economic development being another one.

The National Environment Strategy outlined in 1998 three main avenues of sustainable economic development: expanding hydropower, increasing agricultural self-sufficiency and expanding the industrial base, each of them being major themes in the 10FYP. The strategy is looking at the impacts of these avenues in an holistic way, integrating the various environmental, social, cultural and economic aspects of these developments.

It is expected that the development of the hydropower sector will improve the living standards for Bhutan's own population, reduce high levels of domestic fuelwood consumption, and raise revenues. It is however recognised that the expansion of this sector will depend on maintaining the integrity of the watersheds, minimizing illegal cutting, unsustainable rangeland practices, agricultural expansion and road development.

Increasing food sufficiency does face constraints, such as a limited amount of arable land, hindering extensification, unless it is done at the cost of land conversion; the rough nature of the terrain, making intensification through mechanization difficult; the population increase, although its growth has reduced recently; loss of arable land to urbanization. Similarly, land conversion can threaten watershed maintenance and intensification of agriculture could impact on soil fertility.

The industrial development of Bhutan is based on four main resources: hydropower, wood, agriculture and minerals. The National Environmental Strategy insists on the constraints to the industrial development, including competition for land use, the difficult topography making transport, communication, and access to and supply of raw materials costly, and unsustainable migration of rural populations to industrial complexes. The Strategy emphasizes the need to incorporate environmental criteria into industrial development planning processes, including setting environmental quality standards, establishing a legal basis to enforce environmental regulations and using environmental impact assessment to screen out potentially damaging projects.

The National Environment Strategy also looks, in an integrated way, into the development of tourism and its effect on culture and the environment, the impacts of roads on the environment, resource-based mechanisms for financing sustainability, interactions between the environment and public health, the impacts of the rapid urbanization.

3 - Environment - Economy Linkages

3.1 - Natural capital: the main contributor to Bhutan's wealth

In a study undertaken by the World Bank in 2006 identifying where is the wealth of Nations²⁵, Bhutan stands out the rest of the World by the importance of its natural capital. The figure on the left shows the shares of the total wealth between natural capital (mainly natural resources), produced capital (buildings, machinery, equipment and infrastructure) and intangible capital (raw labor, human capital, social capital, quality of institutions, ...), and the figure on the right shows the shares of natural wealth.

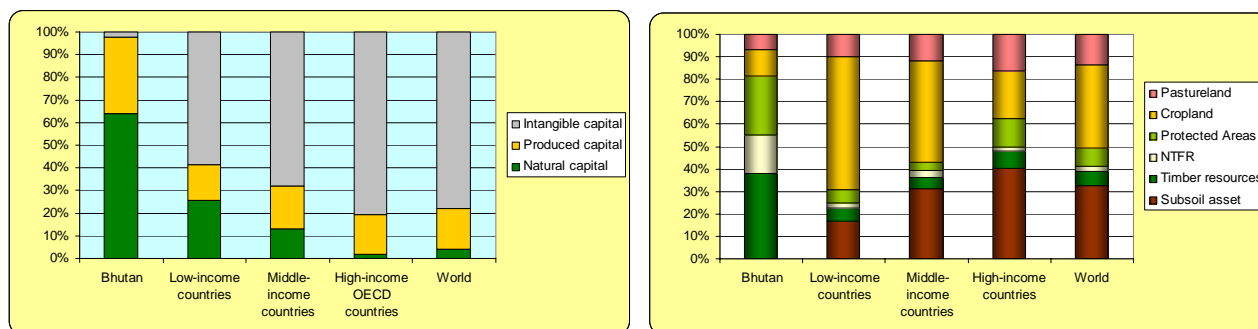


Figure 2 - Shares of Natural Wealth amongst Nations and in Bhutan

With 64% of the wealth of Bhutan coming from its natural capital, which is far above the share of the natural capital for any other group of countries, it is clear that a very diligent attention has to be given to this sector, while a lot of efforts have to be made in raising the intangible capital of the country, made of human capital and the quality of formal and informal institutions.

Natural resources are special economic goods because they are not produced, and therefore will only yield long term economic profits - rents - if they are properly managed. These rents can be in turn an important source of development finance, and some countries have successfully used natural resources in this way, saving this wealth and transforming and investing it into produced and human capitals. Achieving this transition from natural-resource dependence to a sustained and balanced growth requires institutions that are capable of managing the natural resource, collecting resource rents, and directing these rents into profitable investments.

Even if in Bhutan environmental conservation is one of the 4 pillars of Gross National Happiness, it is also obvious that the increased pace of economic growth is putting and is going to put the environment and the natural resources under increased pressure²⁶. The objective of this section is to provide economic evidences for persuading economic and development decision-makers to fully acknowledge the contribution of the environment to growth - and pro-poor growth in particular -, to buy into policies which encourage its sustainable use and management, and to ensure that adequate resources are invested in environmental goals. In other words, it aims at convincing decision makers that environmental sustainability is not a luxury that a government cannot afford but a necessity that they cannot afford not to invest in.

²⁵ World Bank, Where is the Wealth of Nations?

²⁶ 10 FYP.

Before presenting, in general terms, evidence of the actual links between the environment and pro-poor economic growth, we will briefly present here the linkages between the environment and the economy. Numerous studies have been prepared on this topic and this section is built, in particular on the World Bank publication *Where is the Wealth of Nations?* and the UNDP-UNEP PEI publication *Making the Economic Case*.

3.2 - The significance of the environment for economic development

The section below presents overall evidence about the economic, development and poverty reduction benefits of the environment to public sector decision-makers, so as to justify and promote environmental investment.²⁷

Environmental investment is taken to mean the effort, attention and material support accorded to environmental sustainability in public budgets, policies and planning. This includes ensuring (1) that sufficient government funds are allocated to the agencies responsible for environmental management and conservation; (2) that environmental goals are prioritized and incorporated into macroeconomic and sectoral policies and the instruments that are used to achieve them; and (3) that economic and development projects and programmes factor environmental costs and benefits into their calculations, and do not impact negatively on the environment.

The environment has to be considered on an equal footing with other stocks of productive capital and sources of wealth (assets) in economic, statistical, policy and budgetary terms²⁸, generating important benefits for economies, such as economically important goods (timber, minerals, NTFP, water - and in particular water for hydropower generation and sale - , agricultural products, ...) and services (maintenance of water flow and quality, climate regulation, support to agricultural productivity, protection against disasters, ...). These goods and services are a **source of livelihoods**, and therefore of **revenues** and **employment** for the many people directly dependent on natural resources, which in the case of Bhutan makes up to 69%²⁹ of the population. These environmental goods and services make a significant contribution to the indicators used to measure progress towards economic growth, development and poverty reduction. Decision makers have to fully realize that there are trade-offs between investing in sustaining this natural capital and converting it to other uses.

In the case of Bhutan, the "natural capital" represented in 2000 not less than 64% of the wealth of the country. A good management of ecosystems and natural resources is and will be therefore **key** to sustaining development for all the Bhutanese people while infrastructure, human and institutional capitals are progressively being built. It is therefore essential for the country to put a strong focus on maintaining the quality of this natural capital and to keep its specificities, such as a large share of timber resources, non-timber forest resources and protected areas (totaling more than 80% of the natural wealth), while improving the quality of the agricultural and pasture assets, constrained by the topography of the country.

The large share of natural resources in total wealth and the composition of these resources make a very strong argument for the role of environmental resources in reducing poverty and, to a certain extent, in guaranteeing food security. It also stresses on the importance for the Finance Ministry in developing a comprehensive agenda that looks at natural resources as an integral part of its policy domain.

The World Bank research³⁰ finds that the value of natural capital per person actually tends to rise with income when we look across countries, which contradicts the perception that development necessarily entails the depletion of the environment. It is also interesting to note, from figure 3 that Bhutan has the second highest level of natural capital per capita after the high-income countries and above the middle-income and low-incomes countries.

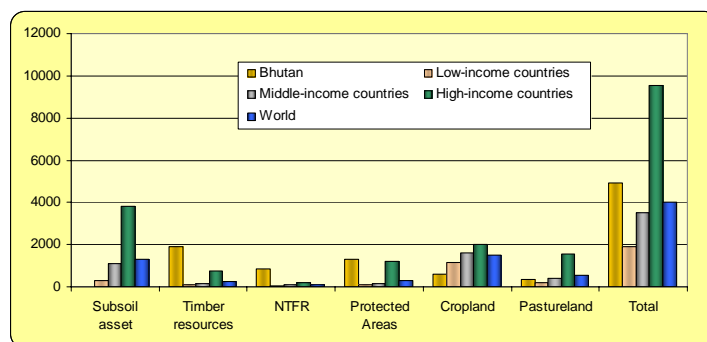


Figure 3 - Distribution of natural capital per capita (in US\$)

If growth is essential to meet the MDG by 2015 and to contribute to the reduction of poverty, it will be illusory, and short-sighted, if such a growth is based on depleting the natural capital, as land and other natural resources are in fact key in sustaining income generation.

3.3 - How environmental investments translate into pro-poor growth?

This section provides concrete evidences about the contribution of environmental investment to pro-poor economic growth, and is looking in particular at the contribution of the environment sector (environmental goods and services) to economic growth,

²⁷ This section will have to be strengthened with the results of the PER.

²⁸ See above on environmental expenditures.

²⁹ Statistical Year Book of Bhutan 2008.

³⁰ WB. *Where is the wealth of Nations?*

employment, generating public revenues, generating foreign exchange earnings, reducing expenditures, trade balance, reducing poverty, and meeting the MDGs.

3.3.1 - Achieving national economic growth

- Agriculture, livestock, forestry accounted for 18.6 percent³¹ (Nu.9.6 billions) of the GDP in 2007;
- Hydropower contributed 23.4 percent³² (Nu. 12 billions) of the GDP in 2007;
- Tourism, based on culture and environment, probably accounts for a significant part of the GDP, although the figure is not immediately available;
- All together, agriculture, livestock, forestry, quarrying and hydropower represented nearly 44 percent³³ (Nu. 22.5 billions) of the GDP in 2007;

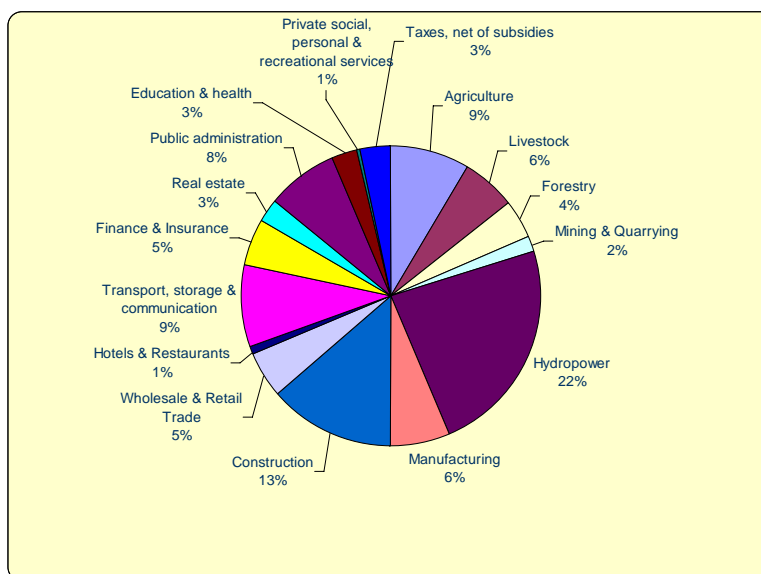


Figure 4 - Distribution of GDP per sector (2007)

In addition to the importance of the recorded environmental output and income to the national economy and to keys sectors, it is important to keep in mind their multiplier effects across the economy.

Subsistence-level benefits are one category of economic values which are often excluded from estimates of sectoral output and income, even though they tend to be particularly important in terms of pro-poor growth. Taking the example of the forest sector, non-timber forest products often generate considerable economic output at the local level, although they are rarely incorporated into formal estimates of output. Fuel wood that comprises the primary source of household energy is a good example.

Another category of economic benefits which remains hidden in national and sectoral statistics is the contribution made by the environmental services provided by specific ecosystems (for example, waterflow and quality, biological productivity, soil condition and land productivity, landscape qualities). These services are often critical to sectoral output and income. For example the present value of sustainable upland forest management to hydroelectric scheme, as reflected in regular supply of water, in increased power revenues, lower dredging costs and an extension to the dam's lifespan, all factors of considerable importance for run-of-river projects as are most hydropower projects in Bhutan, can represent several tenths of millions of US\$, making the point that upper watershed management is in the direct economic interests of the power sector. Spending on nature tourism is also reflected in income, employment and earnings in the hotel, transport and handicraft industries.

3.3.2 - Providing employment

The environmental sector makes also a substantial and very visible contribution to the Bhutanese economy through the employment that it generates.

- The agriculture sector alone provided not less than 66.6%³⁴ (183,000 jobs) of all employment in 2007; with 83.5% (178,800) in the rural areas and 6.9% (4,200) in urban areas;
- Considering that a significant proportion of the industries are agro-based, forestry-based, mineral-based, water-based, the "natural resources" sector altogether provided, directly and indirectly, more than 75% of the employment in 2007 or around 205,000 jobs.
- In addition to the cash income provided, the tourism sector generates employment for many rural communities through trekking and nature tourism. It has a strong potential to be significantly enhanced.

³¹ Statistical Year Book of Bhutan 2008.

³² *Ibidem*.

³³ *Ibidem*.

³⁴ *Ibidem*.

An improved incorporation of environmental concerns into large infrastructure projects, and especially hydropower projects, will also undeniably generate further challenging employment, in the design, implementation, and monitoring of measures to be taken to minimize and mitigate the impacts of such projects.

3.3.3 - Generating revenues

Public revenues. Maintaining healthy public budgets and sustainable revenues generation are a major concern for economic and development decision-makers. As a key earning sector, sustainable environmental management is essential in terms of good public financial management.

Improved revenue generation, and the capture of environmental benefits, can be achieved by rationalizing and improving existing environmental charges, fees and taxes and by introducing new payment systems for environmental goods and services³⁵. Environmental fiscal reforms, payments for environmental services and carbon finance (in particular in relation to the development of the hydropower sector) could also be seen as mechanisms for assisting the government to raise revenues, while simultaneously furthering poverty reduction and environmental goals.

Box 2 - Direct sources of revenues

Many sources of government income are raised from the activities which depend on environmental goods and services, and can be presented as evidence of the contribution of the environment to public revenues, including:

- taxes (e.g. on income and profits from environment-based industries and enterprises, taxes on inputs used in environment-based industries and enterprises, retail, sales and value-added taxes on environmental products, airport taxes on nature tourists, etc.);
- other levies (e.g. bednight levies on hotels which serve nature tourism destinations, import and export levies for environmental inputs or products, etc.); earnings of state-owned enterprises (e.g. those based on forestry, mining, etc.); earnings of public utilities which depend on environmental services (e.g. water, energy, sanitation, etc.); royalties and earnings from the rental, lease or sale of state-owned products and land areas (e.g. wild product export revenues, sales of minerals, concession fees for nature tourism destinations, timber royalties, bioprospecting fees, forest concession fees);
- fees and charges on resource use (e.g. prospecting licences; firewood collection charges, timber felling fees, non-timber forest product harvesting permits, protected area entry charges, fees for the use of protected area facilities, etc.);
- payments for environmental services (e.g. watershed fees, catchment protection charges, levies on water use, sales of carbon credits, etc.).

Source: Making the Economic Case: A Primer on the Economic Arguments for Mainstreaming Poverty-Environment Linkages into National Development Planning. UNDP-UNEP Poverty Environment Initiative.

Revenues and cash incomes

- In 2007, revenues generated by the tourism sector amounted to US\$29M.
- Environmental goods and services contribute probably to a large part of the government revenues, although this figure was not immediately available.

3.3.3 - Contribution to a favorable trade balance and generating foreign exchange earnings

Export of hydropower represented in 2007 the top commodity export, valued at Nu.10 billions, and nearly 44.5% of all exports; while vegetable fats and oils cement, represented respectively 5.4% and 2.2% of the exports, valued at Nu.1.2 billions and Nu.0.49 billions. Environmental goods and services and the tourism sector contribute significantly to the foreign exchange earnings³⁶.

3.3.3 - Reducing expenditures

The continued provision of environmental goods and services saves costs for the government, the private sector, and at the household level.

Natural resources provide a cheap, reliable, sustainable and accessible source of income and basic needs (thus reducing the need to make cash expenditures on purchased alternatives), and also reduce the likelihood of broader economic losses and damages (for example health costs, loss of income, reduced production and public expenditures on mitigating the effects of disasters).

Sustainable environmental management and natural resource extraction ensure that long-term economic costs and losses are avoided. In most cases the costs of environmental degradation are immense when calculated at the national level, and the long-term losses of unsustainable land use and resource exploitation are huge.

Maintaining natural ecosystems for the provision of important goods and services is also often a more cost-effective option than providing these goods and services through artificial technologies. Conserving an upstream forest, for instance, typically costs far less than investing in water filtration and treatment plants downstream. Protection of water catchments to secure reliable water supplies costs also far less than having to provide water or having to relocate households.

A wide range of costs are associated with environmental degradation:

- Health damages arising from pollution and poor water supplies incur both private and public medical expenditures, as well as result in decreased production and income through work days lost;
- Reduction in cultivable area and decreased crop yields due to soil erosion compounded by poor land use management, leading to food insecurity and migrations;
- Deforestation leads to losses, including from sustainable logging, non-timber forest products, tourism and recreation, jeopardizing livelihoods;

³⁵ For example a user charge for forest watershed services providing resources for watershed conservation.

³⁶ The figures were not immediately available.

- Reduced resilience to natural and human-induced disasters, including climate change and variability, translating into huge human and financial costs, diverting resources from development activities.

Box 3 - Reducing expenditures through good environmental management

Key sources of environmental costs to the economy

- Depletion of economically valuable resources, species and products (for example through over-exploitation or the use of destructive harvesting techniques),
- Degradation of habitats and ecosystems which provide economically valuable environmental services: either directly (for example through pollution, unsustainable land and resource management or conversion to other uses) or indirectly (for example through interfering with the hydrological regime or water quality of rivers and streams feeding a particular site, reducing the biological diversity of a given area, or introducing alien invasive species which interfere with habitat composition and functioning),
- Other sources of air, land, water, noise and visual pollution which incur costs to humans and to the economy through compromising environmental quality.

Maintaining future streams of economic benefits

- One element of cost avoidance is the maintenance of the flows of income, employment, earnings and economic activity. Environmental degradation will be reflected in a decline or loss of some or all of these indicators

Avoiding other costs, losses and expenditures

Environmental degradation – or insufficient environmental investment – is manifested as costs and losses to the economy, including:

- Production losses – reduced employment, output and earnings that occur when production is affected by the loss of important environmental inputs or services. Examples include the decrease in the lifespan of a hydropower scheme (and thus its output and income) as a result of sedimentation and siltation, reductions in agricultural output as a result of the loss of irrigation water or soil fertility, reduced non-timber forest products harvesting occurring through the conversion of forest habitat or loss of biodiversity, reduced livestock yield resulting from land and water pollution, etc.
- Physical damage costs – loss of infrastructure, production and other assets as a result of poor environmental quality or environmental disasters. Examples include the value of roads, bridges, buildings and crops washed away as a result of flooding arising from the loss of upstream wetlands, the losses incurred to rural communities through landslides caused by upland deforestation, etc.
- The necessity of making expenditures to mitigate or avert the effects of environmental degradation – cash outlays that government, private sector or the general public must make to cope with the effects of environmental damage. Examples include the costs of resettling affected populations, medical expenditures to cope with the human health problems arising from environmental pollution, purchasing bottled water when other sources become polluted, establishing flood control measures, etc.
- Costs of replacing lost or degraded environmental goods and services – purchased technologies and products people must use as replacements or substitutes for environmental goods and services. Examples include purchasing foods to replace wild food sources for humans or livestock, utilising kerosene instead of firewood or thermal power plants instead of hydro schemes, putting in artificial water reservoirs and purification plants instead of relying wetland water storage treatment services, installing on-farm measures to check sedimentation and siltation rather than relying on forest catchment protection, etc.
- Knock-on impacts on other prices – prices of other goods and services that are affected by a decline in environmental quality. Examples include lower house prices in areas which have become affected by landslides or where landscape quality has declined, increased food prices arising from a decline in production caused by environmental degradation, rising costs of raw materials due to over-exploitation and reduced availability.

Source: Making the Economic Case: A Primer on the Economic Arguments for Mainstreaming Poverty-Environment Linkages into National Development Planning. UNDP-UNEP Poverty Environment Initiative.

3.3.4 - Alleviating and reducing poverty

Poverty reduction lies at the root of macroeconomic and sectoral development goals in Bhutan. Being able to provide evidence that environmental investment is a key strategy for alleviating and reducing poverty is therefore critical when making a case for mainstreaming the environment into national and sectoral development processes.

Because the poor tend to rely much more heavily on environmental goods and services than other sectors of the population, and as they are less able to deal with the effects of environmental degradation and loss, including the effects of natural disasters and changes induced by climate change, the maintenance of good environmental status is essential to meeting their basic needs and alleviating poverty over the short and medium-term. Natural resource degradation and over-exploitation is often carried out to the primary benefit of richer groups, leading to both on-site and off-site costs to the poor (for example their marginalization and alienation from productive lands and resources, reduced water supplies and soil erosion).

In terms of long-term poverty reduction, environmental resources provide a stock of wealth which can enhance economic resilience and offer opportunities for economic growth for the poor, as well as being converted into broader development benefits. If sustainably managed, natural capital or environmental assets provide a means of generating wealth and income which can both directly benefit the poor through strengthening and expanding their livelihood base as well as providing an important source of development finance, hydropower revenues for example, that governments can reinvest in poverty-focused growth.

For example, small and medium-scale enterprises owned and managed by primary producers and processors of natural resources can make substantial contributions to reducing the incidence of poverty and assisting households to escape the poverty trap. Likewise, investments which reduce or reverse environmental damage have potentially huge benefits in poverty reduction terms.

The RNR sector contributes in a significant manner towards enhancing rural household food security, consumption, income, employment and poverty reduction. Growth in agriculture and rural based activities, through a transformation of subsistence agriculture and development of a rural economy, has been demonstrated in many developing countries as the best and the most efficient way to address poverty. This sector has also a strong potential of growth.

Box 4 - Environmental Investment & Alleviation of Poverty

Accessing economic data on economic aspects of poverty-environment linkages

Detailed studies carried out on a specific topic or in a particular location (for example the role of forest products in the livelihoods of the poor, the relative contribution of different income and expenditure items for different socio-economic groups, the economic significance of environmental goods and services in times of emergency or stress, etc.), if they do provide economics data relating to poverty, tend to contain qualitative information more than quantitative data.

- For these reasons, accessing quantitative figures on the contribution of environmental investment to alleviating and reducing poverty often requires that primary data collection is carried out, and new studies commissioned (see section on PE indicators and the REAP).
- When attempting to extrapolate the findings of studies carried out in one place to another situation, it is necessary to be even more cautious than would usually be the case. Economics data relating to poverty are particularly hard to generalise, and are usually context-specific.

The reliance of the poor on environmental goods and services

Household socio-economic surveys or income and expenditure surveys which identify the main components of household production and consumption tend to be good sources of evidence about the reliance of the poor on environmental goods and services, and the ways that they are affected by environmental degradation and loss.

They are particularly useful when they also contain information which permits stratification according to relative wealth status, and an analysis as to determine relative reliance on environmental goods and services, and their role in livelihoods, for different socio-economic groups.

Environmental investment as a mechanism for poverty reduction

- Data to provide evidence on the opportunities for environmental investment to reduce poverty (either through generating income, employment and other benefits or through reversing environmental degradation) usually rely on case studies of particular development efforts (for example environmental enterprise development, natural resource value-added and processing activities, introduction of new resource-based income and employment generating endeavours, replanting of forest cover, wetland restoration etc.).
- Project, enterprise and investment feasibility studies and appraisals provide a particularly good source of data on the potential for converting environmental resources in to poverty reduction benefits. In most cases they contain both projections of potential income and benefits to be gained from undertaking the activity, as well as a detailed identification of stakeholder groups and beneficiaries.
- Evaluation studies of projects which have already been carried out can also yield important, and convincing, data about the actual poverty gains from generating income and other benefits from the environment, and the impact of activities on the status of the poor and the incidence of poverty.
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- Evaluation studies of projects which have already been carried out can also yield important, and convincing, data about the actual poverty gains from generating income and other benefits from the environment, and the impact of activities on the status of the poor and the incidence of poverty.

Source: Making the Economic Case: A Primer on the Economic Arguments for Mainstreaming Poverty-Environment Linkages into National Development Planning. UNDP-UNEP Poverty Environment Initiative.

3.3.5 - Meeting the MDGs

The environment makes an important contribution to meeting the MDGs. Environmental goods and services link not only to MDG 7, but also to the MDGs concerned with hunger, education, gender, child mortality, health, disease, water and sanitation. Conversely, environmental degradation poses a significant barrier to achieving MDG targets, and may ultimately undermine any progress that is made towards meeting them.

Table 2: Key links between the environment and the MDGs (Source: Making the Economic Case, UNDP-UNEP Poverty-Environment Initiative).

MDG1 - Eradicate extreme poverty and hunger	Livelihood strategies and food security of the poor often depend directly on healthy ecosystems and the diversity of goods and ecological services they provide.
MDG 2 - Achieve universal primary education	Time spent collecting water and fuel-wood by children, especially girls, can reduce time at school.
MDG 3 - Promote gender equality and empower women	Poor women are especially exposed to indoor air pollution and the burden of collecting water and fuel-wood, and have unequal access to land and other natural resources.
MDG 4 - Reduce child mortality	Water-related diseases kill and weaken children, making them more susceptible to other diseases.
MDG 5 - Improve maternal health	Indoor air pollution and carrying heavy loads of water and fuel-wood adversely affect women's health and can make women less fit for childbirth and at greater risk of complications during pregnancy.

MDG 6 - Combat major diseases	Up to one-fifth of the total burden of diseases in developing may be associated with environmental risk factors— and preventive environmental health measures are as important and at times more cost-effective than health treatments
MDG 7 - Ensure environmental sustainability	Current trends in environmental degradation must be reversed in order to sustain the health and productivity of the world's ecosystem

The human health benefits of clean water and air, and their economic importance, are of particular significance when making the economic case for investing in the environment. Air and water pollution both have a major impact on human health in both rural and urban areas. As the causes of air and water pollution are largely environmental in nature (from agricultural contamination, poor sewerage and sanitation facilities, upstream deforestation, siltation and sedimentation), an important point to make concerns the economic importance of the environment in helping to minimize or avert such health risks and costs, and to provide essential air and water quality services.

The economic significance of natural resource-based medicines and healthcare is in most cases substantial, both in terms of market values and savings on purchases of bought drugs, but also in relation to the benefits of health improvements and diseases avoidance. A similar situation holds for the case of foods, and their role in avoiding hunger and upholding household nutrition and food security, as a source of nutrition and a means of survival.

3.4 - The challenges of environmental conservation in difficult economic times

In the face of pressing needs for quick economic growth and poverty reduction, and on the grounds of scarcity of public funds, the environment has long been, and tends to remain, a low priority in public investment and policy formulation. In many cases “environmental sustainability” goals are still seen as being distinct from, or even as conflicting with - “development” goals. This is even more the case in difficult economic times. Environmental conservation, in the context of Bhutan, is understood in its dynamic form, with natural resources considered as an asset to be sustainably and wisely utilized for socio-economic development, of the current and the future generations.

We have seen above how the renewable natural resources sector plays a vital role in the growth, balance and stability of the country's economy, if not in the very culture of the country. The 10FYP mentions, however, how traditional values that once were the basis of the sound environmental conservation practices are eroding with economical and materialistic values gradually overshadowing considerations for the natural environment. There are also voices expressing that the environmental conservation policies are very strong and have affected the pace of implementation of energy projects due to lengthy procedures such as EIA and securing road clearances. We will see in the section of this document presenting the issues per sector that this is a wrong perception, and that, if environmental issues are properly taken into consideration in the planning of the project from the very beginning of the development, environmental plans prepared and converted into obligations, proper monitoring undertaken, the possible slowing down of project development has more to do with poor planning and insufficient resources than too much importance given to environmental consideration.

4 - Poverty - Environment Linkages

4.1 - Overall presentation of poverty - environment linkages

Before the 1987 Brundtland Commission, development progress was associated with industrialization, and measured solely by economic activity and increases in wealth. Environmental protection was perceived by many as an obstacle to development. *Our Common Future*³⁷ recognized environment or development as a false dichotomy. Focus shifted to “environment and development” and then to “environment for development”.

There have been numerous examples of:

- How environmental degradation is undermining development and threatens all aspects of human well-being and future development progress;
- How poverty is exacerbated by environmental degradation and unsustainable management of natural resources;
- How improving management of the environment benefits the poor and their well-being and improves the overall economic growth and well-being.

More than ever before, it is widely acknowledged that long-term development can only be achieved through sustainable management of various assets: financial, material, human, social and natural. Natural assets, including water, soils, plants and animals, underpin people's livelihoods.

When His Majesty the King Jigme Singye Wangchuck declared, not long after His coronation in 1974, that Bhutan's growth and progress will be guided by its Gross National Happiness instead of its gross domestic product He was more than ten years in advance of the international development forum, strongly believing that material wealth alone does not bring happiness, satisfaction and well-being; and that the economic growth and modernization should not be at the expense of the quality of life and traditional values of the Bhutanese people, including the conservation of the environment.

Poverty-environment linkages are dynamic and context specific - reflecting both geographic location and scale and the economic, social, and cultural characteristics of individuals, households, and social groups. Different social groups usually give priority to different environmental issues. Globally, in rural areas, poor people are particularly concerned with secure access to and the quality of natural resources - arable land and water, crop and livestock diversity, forest products and biomass for fuel. Poor women regard

³⁷ WCED, *Our Common Future*. World Commission on Environment and Development. 1987.

safe and physically close access to potable water, sanitation facilities, and abundant energy supplies as crucial aspects of well-being.³⁸

The figure below illustrates the links between ecosystem services and human well-being.

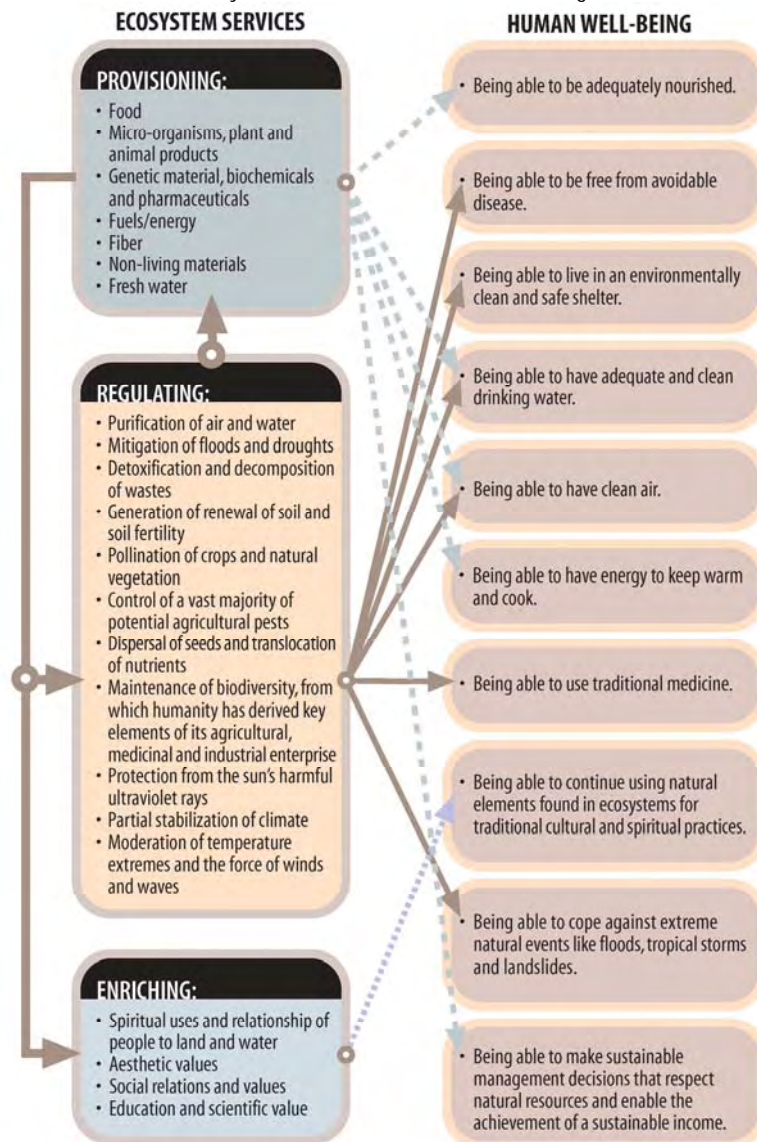


Figure 5. Links between ecosystem services and human well-being (from Duraiappah, 2002, cited in UNEP, Exploring the Links)

Environmental management needs to reflect the multidimensional and dynamic nature of poverty-environment linkages and should extend beyond the activities of environmental institutions in order to meet two fundamental and inter-related challenges: the need to manage and sustain the long-term capacity of the environment to provide the goods and services on which human development depends, and the need to ensure secure and equitable access by the poor to environmental assets and the benefits that they can provide in order to expand people' livelihood opportunities, protect their health and capacity to work, and reduce their vulnerability to environment related risks.³⁹

PE linkages are classically presented in this report under 4 categories: environment & livelihood, environment & health and environment & vulnerability, and environment & economic growth, as these aspects - sustainable livelihood, health, vulnerability and economic growth - are considered as inherent characteristics of poverty.

4.2 - Livelihoods and the environment

4.2.1 - Importance of natural resources for the poor

For the rural poor in Bhutan, natural resources and ecosystem services are their direct and only sources of livelihood. With only 8 per cent of the land arable, and very little potential - if any - to expand further because of the topographic conditions and loss of land to

³⁸ IISD & UNEP - Exploring the links. Poverty & Ecosystems services. 2004.

³⁹ DFID, EC, UNDP, WB. Linking Poverty reduction & environment management.

urbanization, a proportion of rural poor have landholdings too small to guarantee food security, let alone provide an adequate income, and some are landless.

Surveys undertaken in 2008 and 2009 under the Rural Economy Advancement Programme in ten different districts show the following distribution of agricultural land owned by poor households. 6.6 per cent of the households interviewed had no land at all, and 29.4 per cent had less than one acre of land. In some of the villages consulted, such as Samchoeling in Trongsa District, most of the poor households are sharecroppers who have to give up to 50 per cent of the harvest to the owners of the land, residents of other districts. Some households also lose their land when they are not able to reimburse money lenders. For all households interviewed access to natural resources is considered vital.

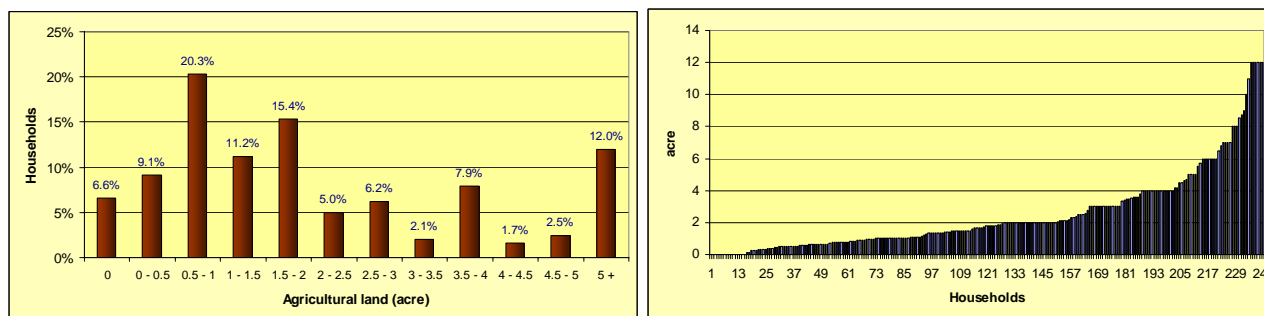


Figure 6 - Distribution of households per class of total agricultural land

In addition of having land in areas of relatively low levels of biological and resource productivity, land degradation (due to erosion, loss of fertility, ... in part because of overgrazing, restriction on cattle rearing, ...), limited irrigation and limited mechanization (partly due to the topography and access to finance services) obviously leads to a poor agricultural productivity and production.

Similarly people, interviewed during the REAP surveys, continue to rely heavily on biomass fuels and traditional technologies for cooking and heating, and most villages visited had no access to electricity, and no alternative fuels options. Shortage of wood fuel imposes time and financial costs on poor households, putting a particular burden on those who are short of labor and making it harder for children to attend school.

Thus both environmental conditions and access to a variety of natural resources are crucial to the ability of poor people to sustain their livelihoods. Variety is important since the poor need to have options so that they can continually diversify and differentiate their use of available natural resources as environmental conditions change. This is something recognized globally⁴⁰. Natural resources and ecosystem services are a primary source of livelihood for the rural poor and can supplement households daily needs and income. Poor households derive a significant share of their incomes from natural resources. The poorest are most dependent on environmental income in relative terms, but the somewhat better off could make more use of natural resources in absolute terms.

4.2.2 - Impacts of degradation of natural resources, biodiversity loss, loss & restriction of access, insecure land tenure on the poor

Natural resource degradation (through soil erosion and land degradation due to deforestation, overgrazing, ... but also through an increase of the use of natural resources linked to rising incomes, and to a certain extent due to the impacts of climate change) and biodiversity loss (agro-biodiversity, pest-resistant crops, livestock varieties, ...) are undermining the current livelihoods (reduced food production, reduction of alternatives) and future livelihood opportunities (through the loss of crop and livestock varieties for example). As detailed above the poor are usually the most affected, as they are left with little or no substitute. In some cases, the degradation of natural resources creates "poverty traps" when a vicious circle makes poor people even poorer, for example soil erosion, resulting from poor management of farm lands on steep slopes, increased deforestation and intensive farming, leads to a reduction in agricultural productivity, land lost to money lenders where they become unable to reimburse the loans contracted during the periods of food shortages, insufficient water renders the maintenance of livestock more difficult or impossible, resulting in reducing amount of manure for the fields, which in turn reduces further the agricultural productivity, ...

As indicated in the previous section, rising income could also tend to increase the use of natural resources, usually by outsiders, in particular if the access has improved; growth will not automatically alleviate environmental pressure in this context.

Poor people are affected by natural resource degradation and biodiversity loss much more than the better off because of their limited assets and their greater dependence on common property resources for their livelihoods. In particular poor women are disproportionately affected by natural resource degradation and biodiversity loss. As they might have to travel greater distance to collect fuel, fodder, litter, ... due to growing resource scarcity or more restricted access to common property areas. This reduces the time spent on income-generating activities, crop production, and household and child-rearing responsibilities⁴¹.

⁴⁰ BDP, 2001; Koziell, 2001; Koziell and Saunders, 2001.

⁴¹ This is widely recognised in many developing countries. See Brocklesby and Hinshelwood, 2001; Dasgupta and Das, 1998.

Restriction on access to common property resources and unclear tenure restricts and in some cases suppresses income from natural based livelihoods and can lead to degradation of resources. Insecurity of land tenure (for example sharecropping) almost always leads to farmers not investing in soil conservation measures (overgrazing and soil erosion, reduction of biodiversity, ...).

4.2.3 - Reducing poverty by improving natural resources management

Working on the positive linkages between environment and poverty can demonstrate (1) that poverty and population growth do not fatally lead to environmental degradation, and (2) that the poor can be the agents of management of the natural resources they rely on. A lot of experience and lessons are available from the Integrated Conservation and Development Programmes implemented the National Parks on improving livelihoods of people in and around parks, and also from the other technical programmes of the Ministry of Agriculture and of other sectors.

There are a number of ways to address this in a way beneficial for both the environment and pro-poor growth:

- Improving agricultural (crops and livestock) productivity & diversifying agricultural production;
- Reducing soil erosion and land degradation;
- Securing a sustainable access to land and clarifying land tenures arrangements;
- Securing access, under certain conditions, to natural resources;
- Providing alternatives to natural resources;
- Securing access to markets; and more generally by
- Developing sustainable livelihoods, which is what REAP is trying to do.

4.3 - Health and the environment

4.3.1 - Importance of environmental health in poverty reduction

Environmental degradation has been demonstrably linked to human health problems, including some types of cancers, vector-borne diseases, emerging animal to human disease transfer, gastro-intestinal diseases, nutritional deficits and respiratory illnesses.

A significant proportion of diseases (ARI, diarrhea, malaria and dengue, ...) may be associated with environmental risk factors. The most obvious and easy to tackle are diarrhea, lower respiratory infections, other unintentional injuries, and malaria and dengue.

Major environmental health risk factors are: poor water quality and quantity, inadequate sanitation and waste disposal, indoor air pollution (caused by the burning of traditional biomass fuels for cooking and heating), outdoor air pollution (industrial and urban), exposure to disease vector (malaria, dengue, ...), and agro-industrial chemicals.

It is widely believed that important health burdens are likely to be worsened by climate change⁴².

Inadequate access to safe drinking water and sanitation, combined with poor hygiene practices, are major causes of ill health and life-threatening diseases (malaria, dengue, typhoid, ...). Some rural poor rely on natural water sources such as streams for their washing and drinking water.

Indoor air pollution caused by the burning of traditional biomass fuels for cooking and heating continue to affect people, resulting in premature death of women and children each year. Women and children are more exposed to indoor air pollution, since they traditionally spend more time indoors and near the stove.

Outdoor air pollution, associated with industrial development, quarrying, mining, can also be a significant health issue outside of urban areas, leading to respiratory infections and increasing the prevalence of tuberculosis.

Pesticide poisoning and exposure that can result in either acute illness or chronic health impacts.

These diseases and death can be prevented through environmental modifications (such as provision of safe water, improved sanitation, and adequate hygiene).

Box 5 - Environmental Health

Health outcomes that are a result of environmental conditions are classified under the category of "environmental health". The World Health Organisation has defined environmental health as those "aspects of human health, including quality of life, that are determined by chemical, physical, biological, social and psychosocial factors in the environment".

In general, environmental health risks are grouped into two broad categories: **Traditional hazards** are closely linked with poverty. They refer to health risks that are a consequence of lack of access to clean water, inadequate sanitation, poor waste disposal, indoor air pollution and vector-borne diseases such as malaria. **Modern hazards** include urban air pollution and problems arising from industrial chemicals and wastes.

Source: Poverty, Health & Environment. Placing Environmental Health on Countries' Development Agendas. Poverty-Environment Partnership. 2008.

Better environmental health conditions go beyond direct health outcomes for current and future generation and can contribute to the reduction of several dimensions of poverty. The main benefits include:

- (a) saving time;
- (b) lowering cost of living;
- (c) increasing gender equality;

⁴² Campbell-Lendrum & al, 2007

- (d) increasing convenience through service provision (recycling, building latrines, etc);
- (e) reducing the burden of daily life (for example, through improved water and sanitation facilities easing water collection, replacement of fuelwood by alternative fuels);
- (f) reducing the part of malnutrition that is a consequence of bad sanitation and repeated infections;
- (g) improved cognitive learning and achievement of satisfactory educational levels that will then impact future work productivity and stop the intergenerational transmission of poverty;
- (h) improved productivity, performance and economic growth.

Cairncross & Kolsky (2003) highlight several reasons why environmental health is important to the poor and can have an impact on poverty reduction. They include the following:

- Poor people can live in areas with difficult environmental conditions and more difficult access to medical services;
- The poor are more vulnerable and exposed to environmental disease and have lower resistance to infection;
- Diseases contribute to poverty: When poor fall ill, they lose their income. Children with intestinal worms may be stunted in their growth or impaired in their intellectual performance. Improving environmental health would also reduce vulnerability to other opportunistic infections and diseases.

4.3.2 - Linkages between poverty and environmental health

The table below presents examples of linkages between environmental health and poverty linkages.

Table 3 - Examples of Environmental Health and Poverty Linkages

Themes	Linkages
Water supply & sanitation	Lack or inadequate water supply & sewage treatment infrastructures leads to increased risk of water-related disease; early childhood diarrhea leads to lower education & cumulative earnings. Poor people spend more of their resources for drinkable water (not only in financial terms, but time spent for example for firewood collection, ...).
Indoor air pollution	Burning biomass in poor households for cooking and heating purposes leads to increased risk of acute respiratory infections.
Industrial & municipal waste	Uncollected household waste increases rodent infestation and provides a breeding ground for flies, which leads to environmental health problems. Contamination of surface water, groundwater, and soil results in health risks. Leaching from unsanitary landfill sites contaminates water resources and causes health risks.
Malaria and dengue	Vector-borne diseases such as malaria and dengue are linked to a wide range of environmental conditions related to mosquito breeding, including irrigation, poor drainage, and stagnant water.
Air pollution	Emissions from transport and industrial sources are contributors to respiratory disease burden and premature deaths.
Institutional development	Inadequate institutional capacity and legal frameworks underlie the specific environmental health and poverty issues described above.

Source: From Dale, 2005, presented in Pov Env CRA.

4.3.3 - Addressing environmental health issues important to the poor

Once the linkages are identified, addressing the environmental health issues important to the poor, in a way which is beneficial for both the environment and the poor, is - in theory - relatively simple. The following table presents the various options available.

Table 4 - Possible interventions to address environmental health issues important to the poor.

Themes & Issues	Possible interventions
Water supply & sanitation: Inadequate, leading to water-related disease & waste of resources (time, fuelwood, ...)	<ul style="list-style-type: none"> • Ensure proper watershed management and proper practices • Ensure proper maintenance of existing water supply & sewage treatment infrastructures • Ensure proper design of new water supply infrastructures, including rain harvesting • Better sanitation facilities at school for boys and girls • Provide filtering systems enabling consumption of water, without having to boil it (at household and school levels) • Promote better waste management techniques.
Indoor air pollution: increased risk of acute respiratory infections	<ul style="list-style-type: none"> • Promote further the use of improved stoves and restrict fuel wood collection to dedicated community forests, and if they do not exist, create them. • Promote the use of alternative fuels, ensuring that these alternatives are readily available, convenient to transport and provided at an affordable price.
Outdoor air pollution: increased risk of respiratory infections and impacts on crop production	<ul style="list-style-type: none"> • Ensure that measures which should be part of the environmental management plan of the industrial activities are properly implemented and that compensation measures are provided to the impacted households if these are not, in addition to possible fines and request of corrective measures to be taken. Resettlement could also be considered as an option.
Malaria and dengue	Control mosquito breeding grounds (including irrigation, poor drainage, stagnant water, ...) through regular awareness campaign.

What is equally important is to integrate the environmental health issues important to the poor in national and local strategies and plans. This is further developed under the sector section.

4.4 - Vulnerability and the environment

4.4.1 - Vulnerability to unpredictable events and Poverty

Insecurity and vulnerability to unpredictable events are important concerns of poor people, directly as they are left without safety nets to cushion them against such unpredictable events, and indirectly because reconstruction costs could divert limited resources

from poverty reduction programmes. Insecurity relates to people's risk of exposure, susceptibility to loss, and capacity to recover. Insecurity and vulnerability to unpredictable events originate, in Bhutan, from environmental stress and shocks. These stresses and shocks will be exacerbated by climate change. They can take the form of landslides, flash floods, forest fires, ...

Box 6. "Natural disasters are a risk factor, which affect the pace of economic growth and destroy the assets of the poorest segments of the population in affected areas, reducing them to a state of dependency, at least temporarily, on donations ... natural disasters seriously affect the living conditions of affected populations, and constitute an obstacle to a definite break with certain degrees and patterns of poverty. Therefore measures aimed at managing the risk are of the utmost importance." Mozambique Action Plan for the Reduction of Absolute Poverty, 2001-2005.

4.4.2 - Linkages between environmental vulnerability and poverty

The following box presents the various linkages between vulnerability, poverty and environment.

Box 7 - Environmental Stress and Shocks & Poverty

Resource mismanagement and environmental degradation can exacerbate the frequency and impact of droughts, floods, forest fires, and other natural hazards. Shocks relate to environmental disasters, while stresses refer to gradual processes of environmental degradation.

By worsening economic deprivation in the short term, environmental disasters can compromise long-term welfare by forcing affected households to sell assets that would otherwise be used to meet future needs and contingencies.

The effects of droughts and long-term land degradation are felt more gradually. They may build up over several years, during which a household's accumulated reserves are run down as a result of recurrent years of poor production. This will result in a slow but inexorable inability to invest in production and often leads to impoverishment and the abandonment of land.

The environmental stresses (increasingly fragile environments, natural hazards, changing climatic conditions, unpredictable seasons) make livelihood tasks more time-consuming, more dangerous, more costly, and require more inputs. Poor people highlight their dependence on the diversity of common property or open access resources - grazing lands, water bodies, and forests and the variety of products they hold - as a safety net during hard times. A decline in the abundance and diversity of these resources reduces people's livelihood options and increases their vulnerability.

Environmental degradation and disasters can cause their victims to migrate in search of better conditions, returning, or not, after the event. Globally, the Red Cross estimated that 1998 was the first year in which the number of refugees from environmental disasters exceeded those displaced as a result of war.

The frequency, intensity, and duration of extreme weather events is likely to increase as a result of climate change, and as a result food insecurity, spread of vector-borne disease, flooding and land degradation will increase.

Poor people use a range of coping mechanisms and survival strategies in the face of environmental degradation and disasters, but their capacity to mitigate and recover from disaster is often constrained by the wider policy and institutional context, in addition to factors related to their social and economic status. Informal institutions such as local social networks are important and their density and capacity can underpin the ability of the poor to cope.

Crisis and conflicts

Tensions between diverse interest groups over natural resources on which the poor directly depend for their livelihoods can contribute to conflict. In such circumstances, the poor are usually the most negatively affected because they have the fewest resources to cope with physical loss, and they are the most vulnerable to violence and lack appropriate means for legal redress.

Source: Linking Poverty Reduction & Environmental Management. Policy Challenges & Opportunities. DFID, EC, UNDP, WB. July 2002.

4.4.3 - Reducing environmental vulnerability and poverty

Addressing vulnerability, environment and poverty in a mutually beneficial way could be done through:

- An active prevention of environmental degradation in areas susceptible to environmental stress and shocks;
- Environmental restoration activities in areas that have been severely impacted by environmental stress and shocks;
- Providing safety nets to the population impacted and in particular the poor, through compensation and mitigation;
- Setting up Institutional arrangements and funding mechanisms for such activities;
- Ensuring that the importance of access to natural resources is taken into consideration in particular during the development of large natural resources type project (plantations), and infrastructure projects (hydropower in particular).

4.5 - Economic growth and the environment

4.5.1 - Importance and challenges of good environmental management for a sustainable pro-poor economic growth

We have seen in section 3.2 above the significance of the environment for economic development in terms of generating economically important goods and services. These goods and services translate into sources of livelihoods, revenues and employment for a large proportion of the population. The environment, and its integrity, directly affects growth of the hydropower, the agriculture, and the tourism sectors. Similarly, environmental degradation leads to decline in productivity, which in turn affects the growth of the economy.

While there is no simple relationship between growth and environment, there are many examples of how bad environmental management is bad for growth. These short-run growth paths are not only bad for long-run growth, but also have high social and environmental costs that disproportionately affect the poor. For example, flooding downstream can be caused or exacerbated by deforestation upstream, landslides and flash-floods be magnified by improper infrastructure development, reduction of storage of

reservoir be a consequence of increased upstream erosion and sedimentation, inappropriate waste management can lead to pollution having an impact on human health, ...

Thus environmental improvement is not a luxury preoccupation that can wait until growth has alleviated income poverty, nor can it be assumed that growth itself will take care of environmental problems over the longer term as incomes rise and more resources are available for environmental protection. Countries with similar levels of income and growth can have quite different levels of environmental performance, and countries can have simultaneously high levels of growth and improved environmental performance.⁴³ There is no simple tradeoff between growth and the environment. Ignoring the environmental soundness of growth - even if this leads to short-run economic gains - can hurt the poor in the short term and undermine long-run growth and its effectiveness in reducing poverty. What matters is the quality of growth, something that is well encompassed into the concept of Gross National Happiness.

There are two ways in which the environment can contribute to pro-poor growth: (1) Through national economic growth, which creates jobs, add to total income and Government revenues, which in turn be used to help the poor; and (2) through the development of small & medium-scale enterprises owned and managed by primary producers and processors of natural resources. These objectives are not always compatible, and a right balance needs to be set amongst these. For example:

- Hydropower and mining can come to dominate remote areas home to poor population, depriving them from their source of livelihood. Harm can be avoided by careful zoning, local hiring and procurement policies, management agreements and earmarking some of the profits for local-level investments and proper management of the watershed.
- Tourism can generate, at the local level, entrance fees contributing to development activities undertaken at the local level.
- Protected areas can be managed in ways that ensure poor people still receive substantial benefits and are compensated for any loss of natural resources use rights.

4.5.2 - Linkages between poverty, economic growth and the environment

The linkages between poverty, economic development and the environment are presented in details in section 3, in terms of achieving economic growth, creating employment, enabling livelihood, generating revenues and government incomes, and reducing expenditures.

4.5.3 - Improving environmental management to ensure a pro-poor economic growth

The strong emphasis on protecting and conserving the environment, that Bhutan has always enjoyed, is kept in the 10th FYP. We have seen above the importance of the environment in the economy of Bhutan, directly and indirectly, and its large contribution in the wealth of the country. The challenge is very much to ensure that the long term economic profits derived from natural resources are maintained and properly used as a source of development finance, saving it and investing it into produced and human capital (see section 3.1 above). The 10 FYP recognizes that the environment sector will require more attention than before in view of the accelerated pace of development activities accompanied by increased expansion of infrastructure development, urbanization, industrialization and consumption patterns likely to put an even greater burden and stress on the natural environment⁴⁴. Additionally, environmental conservation imperatives will be increasingly challenged by the need to balance it judiciously against the urgency of sustaining and improving rural livelihoods and reducing poverty. Close attention will also be required to ensure that the costs of environmental conservation do not fall disproportionately on the poor through crop loss or limited access to forest resources or cultivable land.

As the protection and conservation of the environment has always been deeply embedded into the five-year plans, numerous instruments currently exist to ensure that economic development is not done at the cost of the environment and that undesirable impacts are properly avoided, mitigated and compensated. These instruments are summarized in box 8. They provide the overall framework for the assessment of projects on the basis of their environmental impacts, and to some extent, on the basis of their social impacts. They are in no way intended to hamper socio-economic development, but to provide guidance on making the right investments considering the full environmental and social impacts of such projects.

Box 8 - Existing instruments to ensure a pro-poor and environmental friendly economic growth	
National Environment Protection Act	Sectoral Environmental Assessment Guidelines:
Environmental Assessment Act 2000	
Regulation for the environmental clearance of projects & regulation on Strategic Environmental Assessment (2002)	
Waste prevention and management Act (2009)	Environmental Codes of Practices:
	• Mine (Aug 2004)
	• Highways and Roads (Aug 2004)
	• Industrial project (Aug 2004)
	• Hydropower(Aug 2004)
	• Transmission and distribution lines (Aug 2004)
	• Forestry (Aug 2004)
	• Urban development (Aug 2004)
	• Tourism (Aug 2004)
	• Storm water drainage systems (Aug 2004)
	• Tourism activities (Aug 2004)
	• Installation of underground and overhead utilities (Aug 2004)

These instruments are regularly updated to take into consideration the experience accumulated, the emergence of new technologies and the development of international best practices. A point of importance that will be discussed further in details in the sectoral

⁴³ Linking poverty reduction and environmental management. Policy challenges & opportunities. DFID, EC, UNDP, WB.

⁴⁴ RGoB, 10FYP.

section of the document relates to the strengthening of the implementation of the related plans, and of their monitoring and the identification of the responsible parties for their implementation, monitoring and funding.

Numerous recommendations were made in the Bhutan Environment Outlook 2008, targeting land, water, air and biodiversity, to address perceived gaps. Because of their relative and absolute importance, the following issues will need to be given particular consideration to guarantee that economic growth is pro-poor and environmentally sustainable:

- Development of a code of practice for sustainable hydropower development⁴⁵, aiming at addressing all environmental and social issues in an holistic way, with the objectives to minimize environmental and social negative impacts and to maximize the benefits that such projects can have on the socio-economic development of the impacted areas. To achieve this it will be necessary to streamline the preparation of the Environmental and Social Impact Assessments, of the environmental and social management plans, including the ones looking at the environmental and social impacts of construction activities, and the contractualisation of the various environmental and social obligations. Bringing these projects in line with the best practices of the industry could also widen the range of potential investors and accelerate the hydropower development in the country, and therefore lead to a pro-poor economic growth, including creating numerous employment opportunities.
- Considering the magnitude of the proposed development of hydropower, it will quickly prove necessary to develop integrated water resources management plans, taking into consideration the multiple uses and functions of water resources. Cumulative impact assessments of such projects should also be undertaken to look at the impacts of all projects (not only hydropower) in a river basin. The protection of a number of critical river basins from hydropower development could also be considered to conserve critical habitats.
- Considering the focus put on the development of the infrastructure, it might be necessary to strengthen the implementation of the existing codes of practice for these activities and to promote further environmentally friendly road construction methods. Demonstrating that such EFRC methods are cheaper in the long run, and have significantly less impacts on the environment will be a very strong argument in favour of such techniques. Similarly, the use of bitumen emulsions instead of traditional bitumen should be encouraged, as this will not only reduce air pollution along road construction sites but also bring about a drastic reduction in the demand for firewood and also protect the health of the workers.
- On a general note, social impacts of development activities will need to be further mainstreamed into the development of the various projects.

Box 9 - Economic returns from environmental investment

(source: Making the economic case: A Primer on the Economic Arguments for Mainstreaming Poverty-Environment Linkages into National Development Planning. UNDP-UNEP Poverty Environment Initiative).

Natural capital generates a flow of benefits. Just as the environment base should be seen as an economic asset, so there are tangible economic returns from investing in it. Conversely, running down this stock of natural capital imposes costs and losses on most sectors of the economy, and undermines pro-poor economic growth. If managed sustainably, the environment base will continue to yield economically productive and beneficial flows of goods and services. If used and managed unsustainably, these economic benefits will progressively be lost.

The return from environmental investment is the flow of economically important goods and services that the environment yields. These extend beyond the commercial raw materials and physical products that conventionally dominate official statistics on the environment sector. Many decision-makers would see the value of a forest, for example, as comprising only its large-scale timber potential; or the value of grasslands as limited to livestock production possibilities. In many cases, considerations of sustainability would also not be factored into decisions— for example the revenues from gross extraction or clearfelling, not the economic value of ecosystem services and sustainable harvesting.

Environmental investment also yields a wide range of other economic benefits, including flows of products which are used at the subsistence or small-scale level (such as firewood or food) as well as services which underpin other productive activities and provide vital life support (such as the human health benefits of clean water and air, protection against disasters, maintenance of waterflow, or protection against the impacts of climate change and climate variability). The value of these goods and services however remains largely hidden in most official development statistics.

There are three main reasons why it is important to explain and emphasise the full range of both “visible” and “hidden” benefits as the economic return on environmental investment:

- 1 This presents a more complete picture of the economic importance of the environment, and of the high and wide-ranging costs associated with environmental degradation and loss. It is important that decision-makers are aware of and appreciate the full— and diverse— range of values associated with environmental investment.
- 2 The focus on only commercial values has in many countries led to a situation where development and economic policy have placed undue emphasis on maximising the quantity of products extracted from the environment, even when these uses are not sustainable and may not even be optimal in economic terms. It is important that decision-makers understand that extractive commercial uses are only one option among many when seeking to maximise the economic returns from environmental investment— and often benefit the richer groups in society who are able to access and gain from these commercial benefits. If environmental assets are not managed for the long term, and are exploited only for short-term gain, they may never allow for economic development on the scale or of the type required to reduce poverty or to benefit the poor.
- 3 “Hidden” environmental goods and services are especially important for the poorest and most vulnerable sectors of the population. In many cases, alternative sources of essential goods and services are simply not accessible or affordable elsewhere for them, and they suffer disproportionately in health, economic and general wellbeing terms from environmental degradation and loss. It is important to underline to decision-makers that there is a very direct link between the return on environmental investment, and the welfare and survival of the poorest.

⁴⁵ In particular for the large projected projects.

2.1 - Defining Mainstreaming

Poverty-Environment Mainstreaming is defined as integrating poverty-environment linkages into national development planning processes for poverty reduction and pro-poor growth. It involves (1) establishing the links between environment and poverty and (2) identifying the (a) policies and (b) programmes to bring about better pro-poor level implementation - reflecting the need to integrate the valuable contribution of environmental management to improved livelihoods, increased economic security and income opportunities for the poor which is usually largely overlooked in government policy making processes.⁴⁶

Poverty-environment mainstreaming means more than the existence of a chapter in a plan, or frequent references to environment and poverty in a document. Mainstreaming is a process, which is used to signify (1) the description of the environmental and poverty issues and opportunities; (2) the analysis of the links between poverty and environment; (3) the design of responses to meet the identified challenges; and (4) the inclusion of the environmental constituency in the processes leading to the design and implementation of the Five-Year Plan.

2.2 - Importance of Mainstreaming

Although a number of environmental issues needs to be addressed with a sector approach for a number of reasons (to reach a critical mass, to avoid dispersion of resources (human and financial), to wear a real weight in the decision making processes guaranteeing that environmental issues - but also social issues - are taken with the same weight as technical and financial issues for example, resources, for accountability reasons, for budget allocation, ...), the interactions that have been demonstrated above between environment, poverty and economic development, are so strong that a sectoral approach, only, will fail at looking at issues in an holistic manner, and could end up achieving the targets of one sector at the cost of the other sectors. For example, suppression of diseases vectors could be done at the cost of the pollution of aquatic habitats, hydropower development could marginalize further communities by destroying their traditional livelihoods, etc.

2.3 - How to mainstream environment for pro-poor growth & development?

The guidance provided here is more about how to reach the right decisions on mainstreaming poverty-environment. It is not about what has to be mainstreamed, as this will be based on decisions and prioritization by the various sectors. There are several ways to mainstream poverty-environment linkages, in the process and in the products.

One is to mainstream poverty-environment linkages into the process leading to the preparation of the FYP and to the associated plans at the sectoral and local levels. The Plan provides the overall framework which articulates Bhutan development priorities and spells out the policies, programmes, and resources required to meet these goals. The 10FYP covers a range of comprehensive strategies focusing on a broad range of issues - agriculture, forestry, water, industry, mining, energy, urban development - all of which encapsulate the need to mainstream environmental and poverty concerns. The planning process for poverty reduction and pro-poor growth, under the 10th Five-Year Plan, initially scheduled to cover the period from 2007 to 2012, started in 2006. Guidelines⁴⁷ were issued in March 2006, presenting both the process and the product that was expected. The 10FYP was finalized at the beginning of 2009 and covers now the period from 2009 to 2013. The preparation of the 11th FYP will start around 2011, and by that time it is expected that the Poverty-Environment linkages will be integrated into and PEM guidelines absorbed by the general mainstreaming guidelines part of the overall planning guidelines.

Assuming that the 11th FYP will be developed along the same lines as the 10FYP, the table below summarises the important actions required to enable PE mainstreaming at the various steps leading to the preparation of the FYP.

Table 5 - Enabling Poverty Environment Mainstreaming at the various steps leading to the preparation of the FYP

FYP Preparation Stage	Actions to enable PE mainstreaming	Responsible parties
Evaluation of 10 FYP implementation at all levels, including at field level.	<ul style="list-style-type: none"> Evaluate the planning processes at the central, sectoral and local levels, evaluate their coherence at the various levels and how they have facilitated, or impeded, the achievement of the targets set, in particular in relation with cross-cutting issues, such as poverty and environment. The evaluation should be undertaken by themes rather than by sectors. Evaluate progress on environment and poverty as a cross-cutting issue. Considering resources made available at the various levels, identify areas that need strengthening. 	GNHC All technical sectors of the RGOB Local governments Poverty reduction "group"
Agree on high level objectives / priorities	Recognise the multi-sectoral dimensions of these high level objectives. Translate these overall high level objectives into sectoral objectives and analyse how they interact.	All sectors, with GNHC and representation from the local governments.

⁴⁶ UNDP-UNEP Poverty Environment Initiative website.

⁴⁷ RGoB, Planning Commission. Guidelines for the preparation of the 10th FYP.

Agree on priorities for each sector	Identify opportunities to achieve these objectives, when PE linkages are strong	All sectors with GNHC, NEC, poverty reduction "group", local governments
Mapping exercise	Identify synergies with the various sectors and perceived threats from the environment sector	All sectors with GNHC, NEC, poverty reduction "group", local governments
Construct a logical flow from the high level objectives up to specific interventions of each sector.	Translate the poverty-environment opportunities into sectoral activities whenever possible and address the poverty-environment and environment threats perceived by the sectors	All sectors with GNHC, NEC, poverty reduction "group", local governments
Evaluate how existing tools for monitoring and evaluation have been used and strengthen them if necessary.	Identify/refine poverty-environment indicators necessary to monitor the activities with a cross-sectoral approach	All sectors with GNHC, NEC, poverty reduction "group", local governments
Budget preparation	Prepare the required budget for the implementation of the poverty-environment and environment activities.	All sectors with GNHC, NEC, poverty reduction "group", local governments
Assessment of the Institutional Capacity at the various levels and at the sector level, but also across the sectors	Assess the implementation capacity at the various levels, both in terms of skills and number of staff available. Identify how the multi-sectoral coordination will be addressed at the various levels (central and local). Clarify the decision processes at all levels to guarantee.	All sectors with GNHC, NEC, poverty reduction "group", local governments

The 10FYP plan was approved at the beginning of the year and therefore PEM guidelines can only be of use for the annual review of the implementation of the plan, and later on for the preparation of the 11th FYP. This document therefore also focuses on mainstreaming poverty-environment into the various programmes and activities (mainstreaming into the products) that contribute to poverty reduction and aim at a pro-poor economic growth, and in the follow-up of the implementation of the various plans. Mainstreaming into these products will be demonstrated by the extent to which environmental and poverty issues are integrated into: (1) the analysis of development challenges, (2) the design of the responses, encompassing how the coordination of the various sectors was taken into consideration, (3) the allocation of resources (both human and financial), (4) the indicators developed to monitor implementation. If environment - poverty linkages have not been properly analysed during the analysis stage it is unlikely they will be addressed in the response strategies. Similarly, if adequate resources (financial and human) have not been committed, and allocated, the environment-poverty actions will not materialise on the ground. Similarly, a well mainstreamed plan does not necessarily guarantee a well-mainstreamed implementation, nor a well-mainstreamed follow-up of implementation, if the proper institutional setting and capacities are not in place.

Box 10 - Checklist for proper poverty-environment mainstreaming

- Ensure that a wide menu of solutions is considered, in particular outside of the proponent sector.
 - In the case of environment mainstreaming, put in place a comprehensive strategy, including possible solutions and actions to address environmental issues, instead of just acknowledging the impacts.
 - Ensure proper indicators are set up. It might be necessary for example to collect data by wealth quintiles to be able to track the impacts on the poor of projects, programmes and plans.
 - Ensure that the complementarity of the sectors is not only recognized, but integrated into the design of the interventions, with the various sectors working together and complementing each other.
 - Ensure that the responsibility and accountability of the implementation of the interventions is clearly defined.
- Poverty-Environment mainstreaming should not be only driven by the environment sector requesting compliance for the activities of the various sectors, but the environment sector also needs to review its own strategy and approach to build synergies, adapt to the needs of the sectors and acts as a service provider in the form of regulations, standards, technical information, personnel and overall provide solutions.

2.4 - Some examples of mainstreaming addressing poverty-environment linkages

As presented above, mainstreaming can take place at all levels, from the overall general objective to the specific interventions of each sector. At each level, there are usually various options available to achieve the expected outcome, mainstreaming environment, poverty-environment, gender, climate change, ... is very much about ensuring that the option selected addresses simultaneously, and whenever it is practical, environment, poverty-environment, gender, climate change, ... issues.

The following examples are presented to demonstrate the poverty-environment linkages, the connections between the sectors in terms of plans and interventions, and stress on the need of clear coordination mechanisms and leadership.

The creation and promotion of employment opportunities is stated in the 10th FYP⁴⁸ as an extremely high priority. Considering that the large majority of the population is rural-based, this partly translates into creating farm and non-farm employment in rural areas. Looking at this issue in terms of mutual benefits, or synergies, between the environment and employment, contributing to poverty reduction, there are different ways to address this. One could be to increase access to clean water and electricity - which could be set as an operational target - to allow poor households to engage into economic activities. Other operational targets could be to secure access to land, at a reasonable cost; to restore and to improve productivity of the land; to provide the opportunity to market agricultural products, ... To address these operation targets, sector strategies have to be developed. These strategies have to be implemented by the various sectors, but in a coordinated way, to ensure that they are progressing at the appropriate pace, deliver the expected outputs, and are properly sequenced. This is summarized in the table below.

Table 6 - Example of sectors links in relation with the development of hydropower

Broad outcome	Creation and promotion of employment opportunities
Goal	Creating farm and non-farm employments in rural areas
Operational targets	Increase access to clean water and electricity to allow poor households to engage into economic activities Secure access to land Restore and improve productivity of the land Provide opportunity to market agricultural products ...
Sector strategies	Water supply Electrification Land Land productivity Marketing agricultural products ...

Hydropower development is also a priority in the 10th FYP, and is expected to stimulate economic growth in the country. A similar analysis is presented in the table below.

Table 7 - Example of sectors links in relation with the development of hydropower

Broad outcome	Increase economic growth
Goal	Enhance growth through the hydropower sector
Operational targets	Secure investments for the construction of hydropower projects Prepare multi-sectoral (RNR, Health, Infrastructure, Labor, ...) local development plans for the short term and the long term to maximize the benefits of such projects locally ...
Sector strategies	Promote hydropower development Develop the various skills that will be required for the development, construction & operation of such projects Promote the implementation of the various components that constitute the local development plan ...

The same approach can be taken for the various key priorities falling under the 4 types of poverty-environment linkages.

2.5 - Institutional requirements for mainstreaming⁴⁹

To implement these guidelines, Line Ministries will:

- 1 Ensure executive level commitment to environmental mainstreaming in policy-making, programming and planning and in the preparation of budgets. This requires the identification of a "champion" in the executive of the Ministry to provide effective and active leadership in mainstreaming.
- 2 Ensure Sector and Division Heads, and Planning Officers (a) understand the long-term interlinkages between sectoral activities and the environment, and (b) integrate these into *all* policy-making, planning and programming activities, *not only* into those activities with immediate and direct effects on the environment . Environment Officers should have at least 30% of their time allocated to environmental mainstreaming.

⁴⁸ Section 5.2 of the 10th FYP.

⁴⁹ The text in blue color is taken verbatim from the Interim Guidelines for Mainstreaming Environment in Policies and Programme.

- 3 Maintain the existing environmental *safeguarding* activities, but ensure that necessary budget lines and activities to implement required mitigation have been incorporated explicitly into project plans.

If the above addresses the institutional requirements for mainstreaming into the planning, it is also essential to ensure that institutionally mainstreaming is made possible during the implementation of projects and activities. It is not just sufficient to look at the multidimensional aspects of the goals set and then to translate them into a number of sectoral strategies, it is also necessary to devise how the various sectors can interact together during the implementation of the activities and support each other, whether at the central or the local levels.

Lessons from experience reveal that Poverty – Environment Mainstreaming is easier if the following conditions are filled:

- Initiative supported at a high level in the government / anchoring the mainstreaming process at a high level in the government
- Active engagement of environmental constituencies, including the civil society.
- Active donor participation and funding
- Analytical information on the environment sector, with specific information on the contribution to growth.
- Continued participation in and lobbying of other sector working groups by the environment sector.
- Effective mainstreaming in the various plans backed by effective implementation of the plans.

The mainstreaming process, in particular when it comes to implementation, includes the formation of working groups and the identification of environment champions in other sector working groups to take the agenda forward.

2.6 All sectors have responsibility for managing Bhutan's sustainable development

The RGOB has impressive achievements in developing national policy and regulatory frameworks for the environment, and in the conservation of its forests, biodiversity, and renewable natural resources. These achievements in conservation and environmental management are rooted in the rich traditions of the Bhutanese people and have received international recognition.

However, the country's environmental resources are not just to be preserved. They are an immense asset to be utilized to address the development priority of poverty reduction, and to achieve economic growth, social development, and the overarching objective of Gross National Happiness. The imperative is that such utilization of the country's environmental resources must be done *wisely* and *sustainably*.

Line Ministries have a critical role in the country's development through responsibility for the *policies, programmes* and *projects* in the sectors for which they are responsible. Ensuring the wise and sustainable use of environmental resources in all the activities of these sectors is a central component of these responsibilities.

Each sector currently manages, in its day-to-day operations, the environmental impacts of infrastructure and other projects using *safeguarding* approaches – assessing environmental impacts of projects under EA guidelines and managing them through environmental clearances, Environmental Codes of Practice, and other guidance.

While management of the environmental impacts of projects is important, this is not, by itself, sufficient to ensure sustainable outcomes within each sector, nor the sustainable development of the country as a whole. Sustainability requires much broader and earlier scrutiny of the way the policies and programmes of a Ministry intersect with the environment, cumulatively and in the long-term. **Mainstreaming**, or **integrating**, environmental considerations into the way policies and programmes of each Ministry are formulated is a key component of the Government's approach to ensuring the wise and sustainable utilization of the environment for development.

The strong emphasis on protecting and conserving the environment will not diminish in any way over the Tenth Plan. Indeed, the environment sector will require more attention than before in view of the accelerated pace of economic and development activities accompanied by the increased expansion of infrastructure development, urbanization, industrialization and consumption patterns that are likely to put an even greater burden and stress on the natural environment. Tenth Five Year Plan.

Sustainability requires ensuring the long-term ability of natural and environmental resources and ecological functions to support continued economic development and human well-being, maintaining sufficient natural capital to meet future needs.

While sectoral policies and programmes will always be directed at economic development and poverty alleviation, different ways in which the sector utilizes environmental services, different responses to environmental constraints and opportunities, and different management of cumulative environmental impacts, can have different flow-on effects on poverty. Poverty and environment are interlinked, with people's livelihoods, health and vulnerability affected either positively or negatively by development induced changes in environmental conditions. These Guidelines require each Ministry to consider, in policy and programme development, that the activities of its sectors can influence health, vulnerability, and income opportunities for the poor, not only directly through its planned interventions, but also indirectly through long-term and chain effects of these interventions on the environment. Modifications to policies and programmes that can maximize these indirect benefits and minimize indirect disbenefits, must be considered. Mainstreaming can assist identifying where opportunities for employment and sustainable livelihoods to be incorporated within the sectoral objectives.

Poverty reduction and development, and the protection of the environment are mutually dependent. The integrity and diversity of nature and the rational, sustainable use of natural resources are the foundations for human existence, social development and economic activities, not only today but also for future generations. The overall goal of reducing poverty can only be achieved if economic activities, and social and institutional development respect and serve to protect the integrity and diversity of nature and ensure that uses of natural resources are equitable and ecologically sustainable. UNDP Environmental Mainstreaming Strategy.

Mainstreaming considers the environment in the earliest stages of the decision-making cycle as proposed interventions are framed.

2.7 Entry points for environmental mainstreaming

Mainstreaming environment in policy-making and programming within each sector is achieved primarily through the way individual officers (at all levels), planning teams, committees and consultants, *think and act* within their policy-making and programming processes. *Environmental mainstreaming tools* that can be utilized are discussed in the next section, but as their application depends on the availability of time, skills and resources, it must be emphasized that should these not be available, environmental mainstreaming can still be progressed by planning officers following the generic approach to mainstreaming below.

Every sector undertakes a wide range of planning tasks (see Table 1) focused on achieving sectoral objectives. Each of these planning tasks is a potential entry-point for environmental mainstreaming, and the Table shows examples of mainstreaming actions that can be associated with these planning tasks.

What may be a reasonable outcome from a planning task from the perspective of the sector may not be so reasonable if it is found to be associated with potential long-term and cumulative environmental consequences. Or the planning may miss opportunities for synergy or complementarity with other programmes that would have resulted in more sustainable outcomes. Results-based planning requires considering not just the outcomes of immediate concern to the sector, but the outcomes of the programmes and activities within the broad context of the nation's goal for sustainable development.

The generic approach to mainstreaming requires:

- 1 The mainstreaming actions be taken at the earliest possible stage of the planning task
- 2 Involving stakeholders outside the sector drawn from a wide range of disciplines and interests, and bringing stakeholders together in a value-adding way.
- 3 Examining the proposed policy, programme or plan by looking at the whole "system" that may be affected by the policy or programme (the people-economy-environment system), not just by taking a sectoral perspective.
- 4 Brainstorming or other techniques can reveal the chain effects and interdependencies.
- 5 Identifying adverse cumulative and cross-sectoral environmental consequences associated with the policy/programme/plan.
- 6 Identifying potential environmental opportunities associated with the policy/programme/plan, not just problems (for example, there may be opportunities in areas with high quality environments for ecotourism, or for organic farming; or a wildlife preservation program could provide significant employment for a local community).
- 7 Considering alternatives and modifications to the policy/programme to minimize cumulative impacts and capitalize on opportunities.
- 8 Transforming alternatives and modifications from the mainstreaming into budget lines and identified specific actions. (This is the best indicator of whether mainstreaming has been successful).

Table 8: Planning Tasks that provide entry points for environmental mainstreaming

Example Planning Tasks	Examples of Environmental Mainstreaming Action
Programme/Policy Formulation Tasks	
review of previous plan	<ul style="list-style-type: none"> • utilize mainstreaming tools in the early stages of policy-making and programming • base review and analysis within a broad systems view, not just a sectoral one
situational analyses	<ul style="list-style-type: none"> • recognise "environmental services" utilized by the sector and long-term (15 year) cumulative impacts of this utilization
identifying constraints & opportunities	<ul style="list-style-type: none"> • include environment and poverty-environment outcomes in results-based planning • identify how strategic programmes intersect with crosscutting issues of environment and poverty
monitoring & evaluation	<ul style="list-style-type: none"> • engage in/comment on policy development in other Line Ministries
budgeting	<ul style="list-style-type: none"> • benchmarking internationally • use brainstorming - include wide representation - and consider cross-cutting issues
policy review and formulation	<ul style="list-style-type: none"> • look for opportunities to improve environmental outcomes, not just environmental impacts
thematic working parties and white paper preparation	<ul style="list-style-type: none"> • engage NEC and other stakeholders meaningfully in planning and budgeting • utilize environment-poverty indicators
co-ordination meetings	<ul style="list-style-type: none"> • recognize senior level commitment to environmental mainstreaming • include environmental, social and economic benefits and costs in formulating programme or policies
linking to agreements and treaties	<ul style="list-style-type: none"> • utilize stakeholder consultations and public notification • base review and analysis within a broad systems view, not just a sectoral one

Example Planning Tasks	Examples of Environmental Mainstreaming Action
Operational Planning Tasks	
formulation of studies/consultancies	<ul style="list-style-type: none"> utilize mainstreaming tools in the early stages of policy-making and programming look for opportunities to improve environment/poverty outcomes, not just for problems
resource mobilization and negotiation	<ul style="list-style-type: none"> attach these guidelines to the TOR of all consultants involved in planning tasks
project formulation	<ul style="list-style-type: none"> include requirements for environmental expertise in TOR of consultancy teams and incorporate environmental mainstreaming requirements in the consultancy/study tasks
preparation of standards and guidelines	<ul style="list-style-type: none"> develop sustainable development demonstration projects
internal departmental negotiations	<ul style="list-style-type: none"> develop in-house training in the Ministry's role in sustainable utilization of resources and environmental management develop generic guidelines to address environment and sustainability issues (as in MWHS "Environmental Friendly Road Construction" guideline)
internal training	<ul style="list-style-type: none"> demonstrate how Ministry's mainstreaming aligns with donor environmental requirements use brainstorming - include wide representation - and consider cross-cutting issues stakeholder consultations and public notification

2.8 - Some mainstreaming tools for poverty-environment mainstreaming

The Government states in the 10th FYP that it intends to promote mainstreaming environmental issues into the development planning process through the national spatial planning framework and through awareness and capacity building of relevant sectors.

The Center for Bhutan Studies is developing a set of policy screening tools⁵⁰, which purpose is to provide a systematic appraisal of the potential effects of proposed policies and interventions on the Gross National Happiness of the population. The expected benefits of the screening tools are that:

- All the relevant dimensions should be considered in the policy impact process, which should support a holistic approach to policy development;
- It forces an acknowledgement of areas where potential effects are not known and penalizes the policy accordingly;
- It provides a vehicle for a number of participants from various backgrounds to work towards a consensus about policy impacts.

The policy indicators considered are about equity, security, material, pollution, biodiversity, nature, learning, productivity, family, spiritual, recreation, support, health, stress, information, participation, corruption, judiciary, rights, culture, discrimination and values.

From the work undertaken for the preparation of the Environment Mainstreaming Guidelines it appears that ⁵¹a wide range of tools have potential use in environmental mainstreaming in policy-making and programming. They differ significantly in terms of the required skills, time and resources required for their conduct. Where it is intended to use a specific tools, sufficient time and resources should be budgeted for in the planning activity.

2.8.1 The Environmental Overview

This is a simple but effective mainstreaming tool that can be used as part of most planning tasks, with little additional time and resource. It can be conducted in a day, or perhaps two half days, but it does require developing skills in its leadership/facilitation.

The Environmental Overview is a process that can be used in the formulation stages of policies, programmes and plans. It leads to early identification of environmental and social impacts and opportunities, and incorporates steps to mitigate the impacts, or enhance the opportunities, directly into policy/programme redesign. It works at any scale: whether at sector-level, province level, or at whole-of-country level. The Environmental Overview should be seen as a creative formulation tool to move towards sustainable development, not a post-formulation audit tool.

The Environmental Overview is a participatory activity conducted by an in-country group consisting of different line agencies and other stakeholder organisations. This representation also ensures that a wide range of disciplinary backgrounds will be present within the group. The group is able to examine all the elements of any sectoral proposal (policy, programme or even project), set against the context of the environmental and social system in which it will operate, and ascertain potential problems and missed opportunities, and to reformulate the proposal to take these into account.

In various case studies, the Environmental Overview has resulted in small changes to the original proposal, but often this is all that has been required to move a proposed policy/programme away from adverse environmental impacts and in the direction of sustainability. Where appropriate, the Environmental Overview can also lead to the complete rejection of unsustainable programmes and policies.

The speed with which the Environmental Overview can be conducted, its application at the very earliest stages of proposal formulation, and the collective approach to the assessment, fit well with the nature, needs and processes of policy and programme development in Bhutan. It can be conducted efficiently with minimal delay or impedance to the process of development, and with

⁵⁰ CBS. Dasho Karma Ura. Policy selection tools. Draft version. 2008.

⁵¹ The text in blue color is taken verbatim from the Interim Guidelines for Mainstreaming Environment in Policies and Programme.

minimal use of scarce in-country human resources in the environmental field. Because of its potential for use within Bhutan, a full specification for the conduct of an Environmental Overview is at Appendix A.

2.8.2 Other mainstreaming tools

Some general guidance on different environmental mainstreaming tools can be found at:

- www.environmental-mainstreaming.org/key-lit.html - ideas & experience for mainstreaming env and water
- <http://drylandsnetwork.undp.org/extra/docs/MainstreamingEnv-drylandsGuidelines.pdf>

Environmental mainstreaming tools (or environmental integration tools) can range from highly technical assessment methodologies to participatory tools.

The following tools are economic assessment and valuation tools and may contribute to mainstreaming of environment into policy-making and programming:

- Cost Benefit Analysis (particularly extended CBA to include environmental costs and benefits)
- Internal Rate of Return
- Green Accounting OR Natural Resource Accounting

Other analytical tools include:

- Risk Assessment
- Multi-Criteria Analysis
- Sustainable Livelihoods Approach

- Ecological Footprint

Engaging/participation tools:

- Participatory Poverty Assessments
- Participatory Rural Appraisals
- Stakeholder Analysis
- Focus Groups
- Visioning

(see <https://www3.secure.griffith.edu.au/03/toolbox/index.php> for access to and guidance regarding participation and engagement tools)

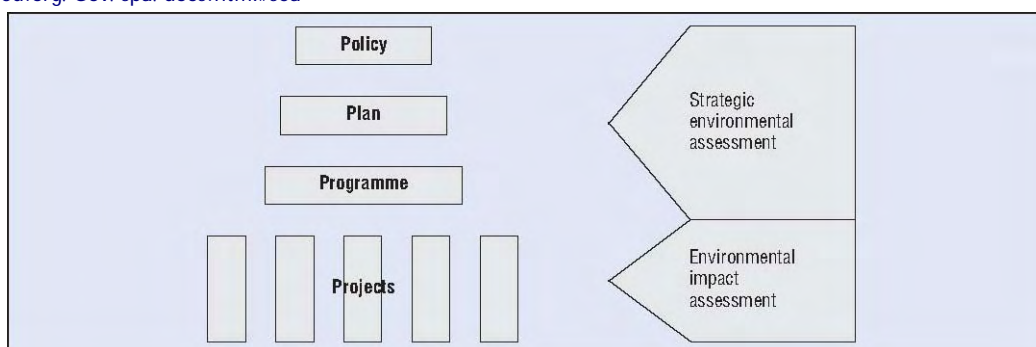
Various tools and concepts may be particularly useful for environmental mainstreaming in the industrial sector or tourism sector:

- Cleaner Production
- Environmental Audits
- Industrial Ecology
- Life Cycle Assessments
- Risk Assessment
- Eco-labelling
- Environmental Management Systems

2.8.3 Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) is designed for application to policies, programmes and plans as illustrated in Figure 2. SEA has had increasing use in some developed countries, and its more limited application in developing countries has largely been led by donors or multi-lateral banks. SEA would be an appropriate tool for mainstreaming where major policies of national level significance were to be developed or reviewed (say a national urbanization policy). It should not be seen simply as a post-hoc assessment of a policy or program, but a tool that would assist in the policy/program formulation. The SEA tool requires significant additional resources, and would likely require experienced external consultants. Guidance on SEA and its use is readily available, and useful starting points are:

- <http://www.nec.gov.bt/publications/publication.html> (refer Regulation of the Environmental Clearance for Projects)
- <http://www.sourceoecd.org/development/926-4026576>
- www.iied.org/Gov/spa/docs.html#sea



From: OECD (2006) *Applying Strategic Environmental Assessment: Good Practice Guidance for Development Co-operation, DAC Guidelines and Reference Series*, OECD Publishing.

Fig 7. The different assessment roles of EIA and SEA

2.9 - Implementation of the guidelines

Implementation of the Guidelines is the responsibility of the Ministry. Compliance with the Guidelines will be assessed as follows:

1 Approval of plans or proposals by the GNH Commission will be contingent upon compliance with the guidelines. Evidence of compliance will be assessed by the GNH Commission, with referral to NEC as necessary. Evidence may include provision of budgets and timelines for the mainstreaming activities. For new policies, evidence of environmental mainstreaming will be required within the material submitted in accordance with the Protocol for Policy Formulation in the RGOB.

2 Where GNHC approval is not required, compliance will be assessed in-house by the Ministry.

It is recognized that there is a steep learning curve and high transaction costs for the Ministry in developing the skills and procedures for effective application of these guidelines. The Ministry, in consultation with GNH Commission, will initially be selective in applying

these guidelines to a restricted set of policy and programming planning tasks. It is expected that Ministries will move towards full implementation of the guidelines within the period of the Tenth FYP.

The NEC has responsibilities for overall monitoring and effectiveness of the guidelines.

1 - Poverty-Environment Linkages in the 10FYP and development planning processes

1.1 - Review of achievements and linkages

Bhutan's planned development started with the 1st Five Year Plan in 1961. Nine Five Year Plans have been implemented since, with the 10FYP approved in January 2009. The recurring themes underlying all the FYPs have been the fulfillment of the fundamental objectives of achieving broad based and sustainable growth, the improvement of the quality of life, the conservation of the natural environment, the preservation of the country's rich culture and the strengthening of good governance; these development objectives enabling the achievement of the Gross National Happiness.

RGoB undertook in 2007 an impact assessment of the 45 years of planned development and of its effectiveness on rural development, and on rural poverty. While the report⁵² acknowledges that significant improvements have been achieved, it also recognizes that more than 38% of rural Bhutanese continue to live under the poverty line.

More than 80% of the people are reported to have potentially access to basic development services and facilities such as health, education, water and sanitation, and agricultural services. The report, however, mentions that access to services does not always imply use of these services. Access to income generating support was reported to be low. Education and agricultural services were considered as having the biggest impact on basic needs.

There are demonstrated linkages between poverty reduction activities and positive impacts on the environment. It was in particular noted that road access had facilitated the transportation of house building materials to villages, facilitating, for example, the use of CGI sheets reducing the use of wooden shingles and the time required for roof construction; that improved food sufficiency reduced the need for NTFP collection; that regeneration of forest and better management practices resulted in increased availability of forest products (fodder, firewood, leaf litter, timber and non-timber products like mushroom, cordyceps, ...). It was, however, also noted that the enforcement of forest rules and regulations have prevented some people from having access to forest resources, impacting in turn their food self sufficiency.

On the basis of the analysis of the achievements, but also of the deficiencies, the report comes with a number of recommendations and targets that have been translated into the 10FYP. One of the most important recommendations is probably the need to coordinate the activities and initiatives from the various sectors to guarantee that the various conditions are present together to enable rural development, and therefore poverty alleviation and good environmental management. For example, bringing access alone will not contribute significantly and durably to poverty reduction if agricultural services and income generation supporting services (such as access to credit, technical, marketing services) are not provided simultaneously and tailored to the needs of the poor. If these are not, the negative impacts of roads such as extraction of forestry resources by outsiders, land speculation, purchase of agricultural land at cheap rates by outsiders, exploitation of the poorer people can quickly outgrow, for the rural poor, the positive impacts.

2.2 - Development Planning Processes

The 10FYP took a new approach for its formulation and introduced the results-based planning framework, with the sectors ensuring that their processes, products and services contribute to the achievement of clearly stated results. A feature of this new approach is that the FYP is operationalised through multi-year rolling plans of three years that will be rolled over from year to year on annual workplans. This should allow more realistic planning. A review of how the planning processes have been executed and have enabled the achievement of the objectives set will need to be undertaken after one year of implementation.

The approach taken in the 10FYP with regard to the environment is to consider that the sustainable use and management of natural resources constitutes an integral and critical aspect of national spatial planning. This approach is considered to integrate the environmental issues within the overall national development framework for the full realization of sustainable development.

At the local level, the 2007 Rapid Impact Assessment of Rural Development survey found that participation in the planning process was high with over 75% of people participating in plan meeting. 90% of the respondents considered that villagers were consulted in setting development needs and priorities. It was, however, also reported that people should be better informed on the planning processes to enable greater participation and that capacity gaps in terms of planning facilitation (in particular to secure the active participation of women and the poor) and implementation had to be addressed. Separate plan formulation meetings, taking into account time availability of these persons, were suggested to ensure that poor and women concerns are properly taken into consideration. Further recommendations on consultation, planning, monitoring and evaluation will be part of the Local Development Planning Manual.

The 2007 Rapid Impact Assessment of Rural Development survey also recommended regular dialogue, and coordination of inputs, between GNHC, ministries and departments to improve efficiency of the planning process and the implementation of development activities. The need for such coordination of inputs came out from the consultations undertaken for the preparation of this document with the various sectors.

⁵² Rapid Impact Assessment of Rural Development 2007.

3 - Public Expenditures on Environment

3.1 - Public Environmental Expenditure Definition

Expenditures considered for the review relate to the environment and the natural resources in general, taking into consideration not only direct expenditures targeted towards improving the management of the environment, but also to protect and control human activities that may have an impact on the environment and natural resources⁵³. The activities are presented in the box below:

Box 11 - Environmental activities qualifying for Public Environmental Expenditures.

- Protect and maintain the natural status of ecosystems, including vegetation, animals, microorganisms, soil, atmosphere and natural phenomena;
- Safeguard the quality of natural resources, such as water and air, available for public consumption;
- Management of wastes without causing damages or pollution to the environment;
- Develop alternative livelihoods for those who are directly dependant on natural resources to reduce their future demand for such resources; and
- Improve the quality of goods consumed by the people to reduce adverse impacts on the environment.

(Source: Analysis of PEE of Bhutan, Draft for discussion, July 09)

The definition of Public Environment Expenditure adopted in the PER study is as follows:

Public expenditure on environmental protection activities are defined as activities carried out by the public sector institutions aimed at prevention, reduction and elimination of pollution or degradation of environmental quality either resulting from human activity as well as for improving the living conditions of communities while reducing the demand for environmental resources.

Based on this definition, Public Environmental Expenditure include budgetary expenditures incurred in the management and protection of natural resources, such as air, water, soil, flora and fauna, and activities aimed at administering, regulating and controlling of unlawful utilization or extraction of natural resources⁵⁴.

3.2 - Institutions involved in environmental activities

Using the above definition, the following public institutions have been identified as the relevant Ministries and Departments to be studied during the assignment.

- 1 - National Environment Commission (NEC)
- 2 - Ministry of Home and Cultural Affairs
 - Local Development Division
 - Department of Disaster Management
- 3 - Ministry of Agriculture
 - Department of Agriculture
 - Department of Forestry
 - Department of Livestock
 - Council of RNR Research for Bhutan
- 4 - Ministry of Economic Affairs
 - Department of Geology and Mines
 - Department of Energy
 - Department of Industry
 - Tourism Council of Bhutan
- 5 - Ministry of Works and Human Settlements
 - Department of Roads
 - Department of Urban Development and Engineering Services
 - National Housing Development Corporation
- 6 - Ministry of Information and Communications
 - Road Safety and Transport Authority
- 7 - Expenditures of Dzongkhags and Gewogs in:
 - Agriculture,
 - Forestry, and
 - Urban Development and Engineering

In all the above expenditure headings, environment related programs, projects/activities will be studied in detail to ascertain whether the expenditures incurred fall within the definition explained above. In some instances, the sub activities of a given activity or some activities within a programme or project will have to be excluded due to non-application of those expenditures within the definition of environmental expenditure.

⁵³ Analysis of PEE of Bhutan. Draft for discussion. July 09.

⁵⁴ *Ibidem*.

3.3 - Identification of Annual Budgetary Allocations for Environmental Expenditure Activities

The public expenditure review has been undertaken for the 9th FYP. Expenditure data is being collected as follows:

- Current Expenditure, broken down as salaries, operation and maintenance of assets and other;
- Capital Expenditure;
- Total Expenditure (Current + Capital); and
- Financing of Total Expenditure broken down into RGoB/Foreign.

The review is looking at the following institutions, environmental programmes, activities and projects:

Table 9. Institutions, environmental programmes, activities and projects involving PEE.

Institutions	Programmes / Sub Programmes	Activities/Projects
Planning Council Secretariat	National Planning strategy	MDG based National Development Strategy
National Environment Commission	<ul style="list-style-type: none"> • National Environment Management Services • National Bio-safety Programme • National Ozone Unit 	<ul style="list-style-type: none"> • National Environment Management Services – Direction • DANIDA Environment & Urban Sector Program Support (EUSPS) • UNDP Funded Project - Second National Communication to UNFCC • UNITAR/UNEP Assisted Training & PA to NEC • Capacity Building in Biodiversity & Impact Assessment • Implementation of Montreal Protocol • Support for Implementation of Micro Env. Action Plans • Evaluation of Ecological Status of Rivers • National Sustainable Development Strategy • Aforestation Program in Thimphu • Development of National Biodiversity Framework Project • Environment Mainstreaming Projects - UNDP & UNEP • National Ozone Unit activities
Ministry of Agriculture	General Administration & Coordination Services	<ul style="list-style-type: none"> • Wang Watershed Management Project Secretariat
	National Biodiversity Services	<ul style="list-style-type: none"> • National Biodiversity Center • National Herbarium & Flora • Agro biodiversity Conservation • Royal Botanic Garden • Biodiversity Utilization and Conservation • Development Regulations for Biodiversity Act • Preparation of Biodiversity Action Plan III • Agro Biodiversity Conservation III
	Wang Watershed Management Project (WWMP)	<ul style="list-style-type: none"> • WWMP - Direction Services • WWMP-Support to DoA • WWMP-Support Livestock Services • WWMP-Support to Forestry • Implement Focal Sub Catchment Plans • Plasti-culture and Precision Farming
	RNR Information and Communication Services	<ul style="list-style-type: none"> • Direction of Services • Viral Extension, Research & Communication Equipment • Sub Activities on RNR Centers
	BG-SRDP (GTZ) LOBESA	
	EUPS - Decentralized Natural Resources Management	<ul style="list-style-type: none"> • Enhanced Capacity of Natural Resource Management Units
Department of Agriculture (Agricultural Services)	Rural Enterprises Development Project	Rural Enterprises Development Project
	National Soil Service Center	<ul style="list-style-type: none"> • Soil & Plant Analytical Laboratory • Soil Fertility Unit • Inoculants Production Unit • Soil Services Unit • Sustainable Land Management Services

Department of Forests (Forestry Services)	Management & Supplementary Services	<ul style="list-style-type: none"> • Forest Information Management • Forest Fire Prevention • Sustainable Management & Development of Non-wood Products • Development of Non-wood Forest Products
	Divisional Forest Services	All 19 Divisional Forest Service Centers
	Conservation & Aforestation Coordination	Social Forestry Project
	Wildlife Preservation	<ul style="list-style-type: none"> • National Biodiversity and Wildlife Conservation • All Wildlife Sanctuaries and National Parks
	Forestry Training Institute	<ul style="list-style-type: none"> • Bhutan Forestry Training Institute • Ugyen Wangchuk Institute of Environment
Council of RNR Research	Management & Supplementary Services	<ul style="list-style-type: none"> • General Administration Services • RNR Research System Phase III
	RNR Research Services	All activities under the Programme
Ministry of Trade & Industry (now MoEA)	General Admin. & Direction of Services	<ul style="list-style-type: none"> • Rural enterprises Development Project • Environment & Urban Sector Program Support III • E-business for Rural Women
Department of Trade (Trade Services)	Trade Services Management and Supplementary Services	Construction of Quality Control Laboratory - Improvement of Fuel Quality
Department of Geology and Mines	Management & Supplementary Services	Mineral Exploration Services
	Mapping & Exploration	<ul style="list-style-type: none"> • Geological Expedition of Inner Black Mountain • Seismic Data Collection and Hazard Zonation
	Mining Services	<ul style="list-style-type: none"> • Mining Evaluation & Development • Mines Inspection & Environment Monitoring • Slope Stability & Environment Analysis Project
	Engineering Geology & Geophysics Services	<ul style="list-style-type: none"> • Regular Monitoring of Glaciers & Glacial Lakes • Flood Hazard Zonation Mapping
Department of Energy	Planning & Coordination	<ul style="list-style-type: none"> • Sengor Community Micro Hydro Power Project for Sustainable Livelihood • Bio Energy Technologies for Heat Application • Rural Electrification
	Hydromet Services	<ul style="list-style-type: none"> • Hydromet Service Direction • Flood Warning Services
	Renewable Energy Services	Alternate Energy Programmes
Department of Industry	Industries Infrastructure Development Services	Industry Estates and Service Centers
	Entrepreneurship Development Programme	Entrepreneurship Promotion
	Project Development Services	Environment Management in Industries -EUSPS
Ministry of Information & Technology	Road Safety and Transport Services	<ul style="list-style-type: none"> • Awareness Campaigns • Observation of Road Safety Week • Procurement of Road Safety Equipment
Department of Local Governance (now Local Development Division)	Management & Supplementary Services	<ul style="list-style-type: none"> • Preparatory Assistance for Disaster Management • MGD Based National Development Strategy-Local Level Initiatives • Disaster Management Activities
Dzongkhag Administrations	Management and Supplementary Services Forestry Services	<ul style="list-style-type: none"> • Maintenance of Hot Springs • Participatory Forestry Program • Community Forestry Program
Gewog Administrations	Forestry Services	Participatory Forestry Program - Plantations and Farmer Training

4 - Poverty-Environment Indicators

4.1 - Why having PE mainstreaming indicators?

The impact of PE mainstreaming can only be measured if appropriate performance indicators are available. Indicators are valuable tools for tracking progress against policy targets and objectives, for promoting greater accountability and public engagement in the implementation of programmes, and for analyzing and understanding social conditions, trends and change. They assist decision-makers and the public to monitor whether and in what form change is happening, to prompt for appropriate response strategies, and - if the indicators were established in relation to clear goal and target - to evaluate whether that change is good or bad. Indicators also facilitate comparison with the performance of others.

The primary focus of PEM related indicators is on measuring progress towards a better integration of poverty-environment issues into policies, strategies and plans, and of their successful implementation, i.e. to monitor poverty reduction that results from environmental changes.

Box 12 - Benefits of PEM indicators

Properly planned, developed, implemented and monitored, indicators can make a critical contribution towards decision policy development. The benefits include:

- Facilitating the monitoring and review of progress in achieving key objectives and targets;
- Allowing effective reporting to decision-makers and the public, thus encouraging accountability;
- Clarifying the meaning and application in practice of PEM;
- Contributing to the revision of existing strategies and action plans, and the development of new plans;
- Raising the political and public profile of PE mainstreaming issues;
- Encouraging meaningful dialogue on PE mainstreaming.

Source: Adapted from UNEP, Guidance Framework for SCP indicators.

4.2 - Various types of indicators & methodologies

Indicators can be used at different scales, for different purposes and in a number of different ways. At the national, and district level, poverty-environment trends can be monitored over time and across geopolitical categories. There are numerous existing methodologies:

- Indicators can be individual;
- The OECDs Pressure-State-Response model is a relatively straightforward framework for monitoring the impact of resource degradation on the poor and helping in identifying policy measures to stem the problems faced by the poor. It considers key environmental problems, identifies driving forces that are leading to pressure on natural resources, tracks the state of the resource, and then identifies mechanisms that have been or can be put into place in response.
- A slight modification to this model allows tracking the poverty impact of degradation. Priya Shyamsundar called it the Pressure-State-Poverty-Response model⁵⁵.
- Poverty-Environment Maps: Geo-referenced indicators are equally a very useful tool for monitoring the impact of natural resource degradation on poverty. Henninger and Hammond (2000) consider that they are especially useful for the following reasons:
 - Many environmental problems manifest themselves spatially and can be very local in their nature. Geographic mapping of environmental conditions makes it feasible to understand environmental conditions and act on them locally.
 - Maps showing poverty rates and environmental data can become important tools for screening and geographic targeting of interventions schemes. The complex nature of poverty-environment interactions make it useful to understand geographically a) where poverty exists, and b) the nature of environmental conditions in those poverty pockets. These maps can help pinpoint areas for more in-depth analyses.
 - Electronic maps are now very easy to prepare, with GIS tools and remote sensing products widely available, affordable, and easy to use. GIS have become a very convenient way to store and analyse data from different sectors and at multiple scale.
 - Poverty-Environment maps prepared from GIS are usually a very good way to present ideas to policy makers. Because of the ease to use, to test easily various hypotheses by using different layers of information and to correlate various variables, these geo-referenced indicators are very suited to track poverty-environment issues.

If some indicators are at the national and district levels, some are at the project level, and can monitor inputs, outputs, outcomes and overall impacts. While input and output indicators can be referenced as intermediate indicators; outcome and impact indicators are seen as final indicators. In this document we only focus on the final indicators.

4.3 -Developing PE mainstreaming indicators

The PE literature has not come yet with a systematic review of internationally recognized and nationally developed, and used, PE mainstreaming indicators. Development and refinement of PE mainstreaming indicators is usually part of the second phase of PEI projects⁵⁶, and are developed through extensive research and consultations. This should be the case for the project in Bhutan. What will be attempted here is to provide general indications on how to initiate this work, in particular during the consultations with the sectors.

⁵⁵ Shyamsundar, P. 2002. Poverty - Environment Indicators.

⁵⁶ UNEP Mainstreaming Poverty-Environment linkages into development planning. A handbook for Practitioners.

There are a number of critical challenges one usually faces when developing indicators:

- Keeping the indicators small in number, while at the same time covering an adequate spectrum of issues;
- To the extent possible, identifying indicators that are relevant to Bhutan's specific challenges, yet are compatible with international commitments and facilitate comparison between states;
- Providing meaningful information on trends to decision-makers;
- Identifying indicators that are measurable in the context of the resource constraints that may prevent access to useful data;
- Understanding the information that should be deduced from the direction the indicator is moving in, as there might be, especially in the case of PE mainstreaming indicators, different signals suggested by the trend. For example, an increase in the use of agricultural fertilizer could suggest enhanced agricultural productivity and an improvement to food security, yet this could also have implications for water quality and human health.
- Recognising that there might be conflicting political priorities that seek to drive the indicators in different directions.
- Ensuring that there are sufficient resources for regular monitoring of the indicator, so that appropriate response measures can be undertaken.
- Being able to identify the underlying driver for the trend.

Some guiding principles could be used during the development of the indicators, as presented in the box below.

Box 13 - Guiding principles in the development of the indicators

- Whenever possible, link to existing indicators;
- Agree on the level of aggregation: aggregated indicators can give a clearer picture of where the country as a whole is heading. Disaggregated indicators relating to certain themes and sectors might carry more methodological weight, but can tell a mixed story when some indicators are moving in one direction and some are moving in another direction;
- Recognise the limitations and provide detailed explanations for each indicator to ensure that they are not misunderstood or used inappropriately. It is also important to be clear about the potential limitations and uncertainties of the different indicators;
- Recognise the need to balance absolute or directional targets;
- Adopt a structured screening and selection process.

Source: Adapted from UNEP SCP indicators

It is certainly more useful for policy-makers to develop their own set of indicators based on an informed understanding of the practical implications of PE mainstreaming, and with the goal of ensuring that the indicators are specifically tailored to the information needs, sustainability priorities and national frameworks and strategies of the country.

Box 14 - Development of PE Mainstreaming Indicators.

The approach for the development of the indicators follows the successive steps: plan, develop, implement and monitor (evaluate the efficacy of the indicators).

Plan: Clarifying the context

The first step is to clarify the context in which the indicators are to be used and applied. This involves considering the key goals and objectives of the indicators, identifying the target end-user, and assessing the nature of existing resources.

What is the underlying scope and purpose of the indicators?

Are we clear about the key goals and objectives for these indicators?

Is the thematic scope of the indicators clearly defined?

Who are the target end-users?

Are we clear about the target end-user for the indicators?

Who should consider this information? For what purpose?

What are the implications of the target user-group and end-purpose for designing the indicators?

Where are these indicators to be applied?

Is the geographic scope of the indicator framework clearly defined?

Does it relate to reporting at the national, local or regional level?

When (over what time frame) are they applicable?

What are the timeframes for monitoring and reporting on the indicators?

Have appropriate baselines dates been defined? Are these consistent across indicators?

How are they to be applied?

What existing resources can be drawn on for accessing data?

What partnerships would make this easier?

Would it make sense to introduce a pilot programme?

Develop: Identifying the indicators and indicator framework

Source: SCP UNEP

4.4 -Some PE mainstreaming indicators

A number of intermediate and impact indicators are presented below, adapted from various publications, in particular from the WB Paper #84 of the WB environmental economics series, poverty-environment indicators, prepared by Priya Shyamsundar. These indicators will have to be discussed, refined and adapted by the various sectors, on the basis of the guidance provided above and on the availability of existing data sets. It is essential that the various indicators be linked to poverty, to be able, for example, to answer the following question: Do the poor disproportionately bear most of the health costs of environmental degradation? To do this it is important that the various indicators be disaggregated by income, by wealth or by an aggregated index of poverty, whatever is the simplest on the basis of availability of data. It is also important to identify which of the many indicators are the most important ones for monitoring the various outcomes, based on data availability, cost and ease of measurement and monitoring, perceptions of the stakeholder on what is important to monitor and acceptance of the indicators, and the final purpose for which the information is used.

The table below presents potential poverty-environment indicators. These poverty-environment indicators will change when a better management of a natural resource leads to a decline in poverty.

Table 10 - Examples of Poverty - Environment Indicators

Natural resources and livelihoods issues/dimensions relevant to poverty	Examples of PE indicators
<p><u>Natural resource degradation</u></p> <ul style="list-style-type: none"> • Soil erosion & land degradation due to deforestation, overgrazing, poor management of farm lands on steep slopes, climate change, ... • Increased use of natural resources linked to rising incomes • ... 	<p>Percentage of poor households involved in soil conservation activities.</p> <p>Percentage of poor households involved in soil restoration activities.</p>
<p><u>Biodiversity loss</u></p> <ul style="list-style-type: none"> • Agro-biodiversity (crop and livestock varieties, ...) • Natural biodiversity by pressure on natural ecosystems 	<p>Number of species and varieties used by the poor households.</p>
<p><u>Loss and restriction of access to agricultural and forest lands</u></p> <ul style="list-style-type: none"> • Conversion of agricultural lands to other land uses • Loss of access to common lands • Intensive contract farming leading to loss of access to common lands • Land loss to money lenders • Insecure land tenure linked with sharecropping systems, ... 	<p>Percentage of common lands lost to other usages by poor households.</p> <p>Percentage of land lost to money lenders amongst the poor.</p> <p>Importance of sharecropping for the poor.</p>
<p><u>Limited crop diversification and marketing</u></p> <p>Food security</p> <p>Income and opportunity</p>	<p>Quantity of household consumption that is derived from forest products by income quintile</p> <p>Time spent by household members to collect water and fuel wood</p> <p>Quantity of annual household consumption derived from common lands</p> <p>Quantity of annual household consumption derived from forest products</p> <p>Percentage of irrigated area in total cultivated area by income categories</p>
<p>Environmental Health issues and dimensions</p> <p>Water supply & sanitation</p> <p>Indoor air pollution</p> <p>Industrial air pollution</p> <p>Malaria</p>	<p>Examples of indicators</p> <p>Percentage of poor households without access to an adequate and safe water supply</p> <p>Percentage of poor households without access to an adequate sanitation system</p> <p>Adequacy of sanitation at school by community poverty criteria</p> <p>Time spent in collecting water by income quintiles</p> <p>Percentage of fuel wood used by poor households to provide safe drinking water</p> <p>Distribution of households using LPG & clean fuels by income quintiles</p> <p>Distribution of fuels usage per poverty status</p> <p>Distribution of use of improved stoves by incomes quintiles</p> <p>Availability of ventilation in cooking areas</p> <p>Children sleeping in cooking areas</p> <p>Percentage of dust emitting industrial plants with proper dust reduction devices and practices</p> <p>Prevalence of malaria amongst the poor (geographical mapping required)</p> <p>Proportion of households using bednet amongst the poor</p> <p>Malaria cases and death rates among various target groups</p>
<p>Vulnerability to unpredictable events issues and dimensions</p> <p>Direct exposure to environmental stresses and shocks</p> <p>Loss of access to natural resources, acting as safety nets, because of large industrial projects.</p>	<p>Examples of indicators</p> <p>Percentage of loss of land caused by landslide or severe soil erosion and degradation by the poor</p> <p>Number of deaths from natural disasters by income quintiles</p> <p>Households rendered homeless from floods/landslides/... per year by income quintiles</p> <p>Percentage of areas prone to landslide owned by the poor (mapping of such areas is a prerequisite)</p> <p>Percentage of farmers with land on slopes (different categories) by income quintiles</p> <p>Extent of compensation and mitigation provided to the population, directly and indirectly, impacted by large scale projects.</p>
<p>Economic growth</p> <p>Significant part of the GDP coming from RNR sector</p> <p>The environment sector as a major source of employment</p> <p>Natural resources, a major source of revenues</p>	<p>Examples of indicators</p> <p>Contribution of the RNR sector to the GDP and importance for the poor</p> <p>Number of employment created directly related to PE interventions</p> <p>Revenues collected from the natural resources sector, and importance for the poor (quintile)</p>

4.5 - Indicators of PE mainstreaming in plans & strategies

Annual progress reports on the implementation of the plan will also highlight efforts of transforming stated intentions and identified priorities in the FYP into concrete responses or actions. In particular the annual reviews should assist the relevant stakeholders to evaluate if in fact country priorities and poverty-environment linkages are being given adequate attention in the implementation of poverty reduction strategies. An indicator of the level of PE mainstreaming in plans and strategies could be based on the framework presented above, looking at issues, linkages, response systems and process. The assessment could attribute a score to these elements as summarized in the table below.

Table 11 - Indicators of PE mainstreaming in plans & strategies

1. Issues	
Land use	Degradation, erosion, overgrazing, ...
Water	Drinking water, irrigation, water pollution, ...
Air & climate	Air quality, solid fuel usage, emissions, climate variability, ...
Biodiversity	Threats to ecosystems, species, nature-based opportunities
2. Casual link assessment	
Poverty & natural resources degradation	Resource dependence and inequality
Environmental health	Water and air pollution related to disease
Vulnerability	Impacts of natural hazards
Property rights	Tenure and user rights
Incentives	Pricing interventions, taxation, subsidies, trade, ...
Empowerment	Community-based management, decentralization, partnerships
Gender	Role of women in environmental management and poverty reduction
3. Response systems	
Environmental management capacity	Legislation, regulation, institutional reform, data systems, cross-sectoral coordination, environmental standards, environmental economic instruments, ...
Investment in natural capital	Investment in sustainable natural resource management, e.g. watershed management
Investment in human-made capital	Investment in environmental infrastructure
Monitoring natural resource outcomes	Deforestation, afforestation rehabilitated areas, protected areas, soil & water conservation measures, renewable energy use, ...
Monitoring human resource outcomes	Infant and child mortality, disease burden related to environmental risk factors, time spent collecting fuelwood and water, ...
4. Process	
Description of the participatory process and inclusion of environmental constituencies, particularly with respect to the identification of environmental issues, poverty linkages, and actions	

(Source: Mainstreaming environment in the implementation of PRSPs in sub-Saharan Africa. World Bank. Environment Paper 112)

1 - Introduction

This section of the document looks into poverty - environment linkages by sector and comes with a number of recommendations on how it is possible to mainstream poverty-environment during the implementation of programmes and activities. The section relevant to the various sectors starts with a presentation of the environmental services and cumulative impacts. ⁵⁷Bhutan's natural environment provides extensive ecosystem services to the sectors, and it is these services which are utilized in the development activities of the Line Ministries. These services can be categorized as:

- provisioning services;
- regulating services; and
- enriching services.

These ecosystem services tend to be taken for granted, and failure to recognise them always potentially puts them at risk, over time, of over-utilization, or degradation, through the cumulative impacts of development activities. These impacts may be felt directly within the sector that generated them but, more often than not, they impact the ability of nature to provide the environmental services essential for the sustainability in other sectors.

2 - Mainstreaming Poverty – Environment in the Natural Resources Sector

2.1 - Environmental Services & Cumulative impacts

Bhutan's environment provides food, fresh water, fuels, genetic materials, fibres and plant and animal products. It regulates the regeneration of soil and soil fertility, the pollination of crops, the dispersal of seeds, the mitigation of floods and droughts, and it regulates climate. It enriches through the relationship of people to land.

Example cumulative impacts that could possibly result from policies and programmes of the Ministry are shown in the table below, and the way in which these may have consequences (both desired and undesired) in other sectors. Mainstreaming environment in policy-making and programming in the Ministry of Agriculture requires awareness of how its sectoral activities may have effects throughout the wider system.

Table 12 - Possible cumulative impacts resulting potentially from policies & programmes

Possible cumulative impacts	Possible consequences in various sectors
Reduced forest cover	Unsustainable hydropower through reduced flow of water Inadequate drinking and irrigation water (drying of water sources), aggravates poverty
Reduced soil fertility and degraded soils	Reduced crop yields, disruption of infrastructure such as roads through events such as land-slides
Land polluted with chemical fertilizers	Natural regeneration capacity of soils reduced, pollution of ground water affecting both human and wildlife health
Quality and diversity of flora depleted	Income opportunities and livelihood options of communities reduced, aggravate poverty
Diversity of fauna depleted	Food chains disruption and related problems (e.g.. crop and livestock depredation)
Changed river courses through substandard mining/quarrying	Land-slides flash floods - loss of lives and properties
Conversion of agriculture land to other uses	Reduced land for food production, food insecurity and vulnerability to international food market shocks
Certain natural resources over-protected and underutilized	Economic and opportunities and sustainable management options missed. Integration of development and conservation options not realized.

2.2 - Background

With an estimated 69% of its population living in rural areas, the Bhutanese economy is still, and will continue to be, dependent on a rural based economy. The linkages between environment and poverty are recognized in Bhutan, in particular the links between livelihoods and vulnerability, and the environment. However with a high percentage of the population relying on agriculture for their livelihoods and limited agricultural lands available, the agricultural land area per household is usually very small and sometimes of limited productivity. The pressure on the land, including from livestock, can lead to environmental degradation, soil degradation and erosion, with the potential to lead further to poverty.

The RNR sector is of the opinion that it has accumulated adequate experience to deal with the various technical issues at stake in this sector. Critical to this sector are more:

- The planning processes, at the national and at the local levels, and how they interact and connect among themselves: between the various sectors at the national level, and between the national and the district levels, and how the implementation of the various activities is coordinated with the various sectors at the district and gewog levels;

⁵⁷ The text in blue color is taken verbatim from the Interim Guidelines for Mainstreaming Environment in Policies and Programme.

- How the targets are set, who set them, and what are the resources (budget, staff) necessary to reach these targets, and how interventions are monitored and what are the indicators?
- How to involve the various sectors?
- How to deal with the limited capacity existing at the district and gewog level?

2.3 - Sector checklist for environment and social integration

The sector checklist presented below was drafted in anticipation of the meeting held with the Ministry of Agriculture. It was not discussed in details, as it was considered that the issue was not so much about the identification of key environmental and social issues, but more about the planning processes and the coordinator between the various sectors and the value added of some initiatives such as the Rural Economic Advancement Programme. The matrix is presented for reference only, and is organized along the following lines:

- Key issues considered important for the sector to achieve pro-poor economic growth and poverty reduction;
- Environmental and socio-economic relevance;
- Status & achievements made;
- Opportunities and possible interventions;
- Challenges and constraints;
- Areas for indicators for monitoring and evaluation.

2.4 - Requirements for collaboration & coordination between sectors

The RNR sector is a key player in terms of rural development, involved in various sub-sectors, such as agricultural production, livestock, forestry, conservation, farm roads construction. There are obvious linkages between these sub-sectors, such as for example conservation and agricultural production, but also between these sub-sectors and the other sectors. The coordination and the collaborations of these various sectors is essential to reach the targets set. How this has to be done, in particular at the district level, is yet to be defined.

2.5 - Recommendations

It is considered necessary by the sector to look into the way initiatives such as the Rural Economy Advancement Programme can address local issues, add value and create an impact at the local level and be integrated with the programmes already existing at the local level. It is essential for such programme to reach their objective of reducing poverty in rural areas to coordinate and collaborate closely with the programmes of the other sectors. The way this will have to be done remains to be clarified.

Mainstreaming poverty-environment will require a critical analysis of the existing processes with the objective to identify their gaps and weaknesses, to look at the interactions between the various levels and the various sectors, and to review how activities are planned and implemented at the level of the 10th FYP and of the annual plans. If this will be obviously undertaken for the preparation of the 11th FYP, lessons learnt before the completion of the 10th FYP will have to be taken into consideration, whenever it is possible.

Table 13. Sector checklist for environmental and social integration - Natural Resources

Key issues	Environmental and socio-economic relevance	Status & achievements made	Opportunities and possible interventions	Challenges and constraints	Areas for indicators for monitoring and evaluation
Promote soil conservation & improvement of soil fertility	Soil erosion due to cultivation on steep slopes without any erosion control or soil and water management or due to overgrazing contributes to soil degradation, and potentially to a reduction in terms of food security, and to the reduction of the capacity of the soil to retain water.	RGoB strategy/programme to reduce soil erosion, soil fertility management, water conservation, ... Intensification of livestock production Land management, reinforcement of capacity at the various levels	Awareness programme on erosion & soil conservation Provide training on land management & soil conservation techniques Promote intensification of livestock production	Limited number of trained extension officers impeding the diffusion of good land management and soil conservation techniques. Insufficient financial resources at the local level.	Number of trained officers. Area of degraded land. Area of rehabilitated land. Intensification of livestock production, for example area under forage production.
Secure a sustainable access, use to natural resources and sustainable livelihoods in national parks	Proportion of households living inside national parks and corridor, with their livelihoods entirely dependent on natural resources	Management plans prepared for protected areas. Experience from ICDPs in protected areas. Access to natural resources under conditions ...	Clarify access rights of the communities Provide alternative livelihoods (intensification of production in some areas, other alternatives, ...) Management of human-wildlife conflicts Develop vocational training and ensure that education facilities exist in the areas (all aspects, including infrastructure)	Limited agricultural land available because of the topography. Difficulty to provide services because of the scattered nature of the settlements. Limited budget made available.	Improvement of livelihood of household living in protected areas Reduction of impacts of human-wildlife conflicts
Access to land	Access to land is essential for the large majority of the rural based households if they are to develop sustainable livelihoods.	New Land Act Kidu granted by His Majesty	Secure a sustainable access to land and clarify land tenure arrangements (sharecropping, ...) to enable sustainable livelihoods development.	Limited land available. Provision of land is a condition necessary but not sufficient for the development of <u>sustainable</u> livelihoods. A rural strategy needs to be in place to support these initiatives.	Proportion of the rural household without land.
Promote the preparation of local development plans designed to maximize the benefits from large infrastructure projects, in particular hydropower.	Hydropower development and construction is expected to be key in the economic development of Bhutan during at least the next 15 years. Beyond the direct revenues generated, there are a lot of opportunities for local development.		Contribute, with other sectors, to the preparation of local development plans.	Direct involvement of the sector during the development of hydropower projects.	Activities of the sector related to hydropower development. Improvement of livelihoods in the areas of project construction and operation.

3 - Mainstreaming Poverty - Environment in the Trade, Industry, Energy, Mines & Tourism Sector

3.1 - Environmental Services & Cumulative impacts

Bhutan's environment provides water for hydro-electric power and for industry, mineral resources for mines, genetic materials, biochemicals and pharmaceuticals, fibres, and plant and animal products, biodiversity and genetic resources. It regulates the dispersal of air and liquid wastes as a sink from industry, and maintains climate. It enriches through aesthetic values, educational and scientific values and recreation - critical to tourism.

Example cumulative impacts that could possibly result from policies and programmes of the Ministry are shown in the table below, and the way in which these may have consequences (both desired and undesired) in other sectors. Mainstreaming environment in policy-making and programming in the Ministry of Economic Affairs requires awareness of how its sectoral activities may have effects throughout the wider system.

Table 14 - Possible cumulative impacts resulting potentially from policies & programmes

Possible cumulative impacts	Possible consequences in various sectors
Land degradation by mining and quarrying	Agriculture impacted, river courses altered, roadways affected, loss of forest cover, effects on aesthetics and cultural values
Air pollution from industrial activities (and urban settlements)	Reduced crop yields, loss of aesthetic values, human health effects, tourism affected, urban settlements with continuously polluted air
Loss of aquatic and terrestrial life forms from extending hydropower	Effects on fishing/tourism, biodiversity, conservation values, income opportunities and livelihood options of communities reduced
Increased waste generation through economic development and trade liberalization	Pollution of surface and ground water affecting both human and wildlife health, food chains disrupted, effects on human settlements and human health, loss of tourism values, loss of productive land through landfill, higher costs for managing waste disposal
Loss of wetland and arable land by hydropower projects	Reduction in food supply over time, displacement of rural populations, effects on biodiversity, rural-urban migration, communities divided
Increased industrial development and industrial wastes	Increasing demands for power and water, competes with other sectors for available land, energy and water, reduced land for food production
Increasing demand for power	Latent opportunities for energy efficient buildings, energy demand management and alternative energy generation
Overexploitation of resources used in manufacturing, niche trade products, or artifacts	Loss of biodiversity, income opportunities and livelihood options of communities reduced, aggravate poverty
Over development near areas of cultural, aesthetic and recreational value	Loss of aesthetic environment, demands for resorts in new areas, changing nature of tourism, adverse effects on local communities

3.2 - Background

Altogether the Trade, Industry, Energy, Mines and Tourism sector is essential for economic growth and development in Bhutan. It is the major source of economic growth, generates employments (including the potential to create alternative employments in rural areas), is the main contributor to public revenues and generates foreign exchange earnings.

At the exception, to some extent, of hydropower development, for which the Government is the main proponent, most of the activities in this sector are mainly undertaken by the private sector. Their objectives are to create value and to generate profit. The government's role is to set the appropriate policies, review and approve the various projects and to monitor the compliance of the operations with the relevant legislation, standards, and code of practices.

Unanimously the sector considers that by creating employment and facilitating possible alternative livelihoods for the rural population, it contributes significantly to poverty-reduction through economic growth. There is a strong sense that natural resources are indeed essential to economic development in Bhutan and at the same time that environmental considerations have already a lot of opportunities to be properly integrated into the decision and approval processes. There are numerous environmental legal instruments, guidelines and codes of practices, which, if they are applied properly, can guarantee a good environmental management. Weaknesses, when they exist, appear to result from a loose implementation, due to a lack of coordination among the sectors, unclear policies, lack of technical expertise, which can, in addition to a deliberate intention not to comply, result from inexistent facilities and infrastructure (waste management for example), insufficient clarity on the options available and limited resources available for compliance monitoring and enforcement. The same could apply to social aspects, where it might be said however that projects, especially medium and large, could take a more assertive position (1) to ensure that local people are made fully aware of opportunities that exist to them, (2) to guarantee, through commercial agreements, that preference is given, at similar level of skills, to local people, and that impacts are compensated, (3) to anticipate skills required for long term programmes so that these could be built through dedicated curricula, (4) to organize and plan for local procurement of goods and services whenever it is possible.

The sector requires technical support and facilitation from the Environment Sector as well as enforcement to ensure compliance. It seems important that proper consideration is given to the environmental and social aspects, as if financial performance takes precedence, environment and social objectives are likely to be compromised or to be subject to significant constraints.

3.3 - Sector checklist for environment and social integration

Discussions were held with the trade, industry, energy, mining and tourism sector with the objective to review how environment and social issues are assessed and integrated in their activities and contribute to poverty reduction and pro-poor economic growth. Instead of starting from the identification and prioritization of key environmental and social issues considered important to achieve pro-poor growth and poverty reduction, the sector considered that it was more appropriate to start from the activities which are of their mandate and to see (1) how they have the potential to contribute to poverty reduction and pro-poor economic growth, (2) why a proper environmental stewardship is important, and (3) what are the opportunities and challenges. The matrix presented at the end of the document, which is not exhaustive, is organized along the following lines:

- Key issues considered important for the sector to achieve pro-poor economic growth and poverty reduction;
- Environmental and socio-economic relevance;
- Status & achievements made;
- Opportunities and possible interventions;
- Challenges and constraints;
- Areas for indicators for monitoring and evaluation.

3.4 - Requirements for collaboration & coordination between sectors

Although the sector is fully aware of the importance of a good environmental stewardship and the need to integrate social components into the various activities under their mandate, it is also of the opinion that it is neither its role, nor it has the skills, nor the budget to look at the multi-sectoral issues associated with economic development. It focuses mainly on creating an enabling environment for economic development, when other aspects, such as environmental and social issues, are the responsibility of the other sectors.

It is obvious that almost all projects have a multi-dimensional nature and essential that the multi-sectoral components of any project are given the chance to be adequately and timely considered and that, either at the national level or at the local level, depending on the magnitude and complexity of the project, an independent entity is made responsible of the overall project, ensuring that none of the various dimensions is overlooked and that all are progressing adequately so that they do not hamper the overall progress.

There are several examples of a need for a better coordination:

- Coordination between tourism and for example MoA, MoHCA, might be required to timely authorize the full development of the tourism potential (through for example granting of approval and clearance, when it is considered acceptable, for camping sites, biking routes, ...).
- The multi-sectoral nature of large hydropower projects requires the active and timely coordination between the various sectors (MoEA, NEC, MoA, MoLHR, MoHCA, MoH, MoF, MoWHS, ...) to ensure that such projects can benefit to the largest group possible.

3.5 - Recommendations

The Trade, Industry, Energy, Mines and Tourism sector through the economic development that they promote have the potential to achieve pro-poor economic growth and poverty reduction. To strengthen the sector's contribution and increase the chances of having a pro-poor economic growth rather than an economic growth leading potentially to the increase of inequalities between the rich and the poor, the following could be considered:

General

- Ensure that all facets of businesses development are properly identified during the screening of projects and that appropriate considerations are given, in a timely manner, by the various technical sectors involved when approval is granted. This might imply having to revisit the existing processes, with the objective to make them easier and faster for the entrepreneurs, yet to ensure a thorough, efficient and well coordinated review by the various administrations involved.
- Ensure that local communities are given the opportunities to benefit from development.
- Ensure that social impacts of business development are properly assessed and managed, through proper social impact assessments. Skills that will be required for this will have to come from the various sectors (MoLHR, MoA, MoHCA, ...) and could then be federated into a dedicated agency/institution.

Trade & Industry

- Accelerate and spread business development, in particular in rural areas, to offer alternative livelihoods to the rural population, and provide tax incentives when E&S targets are exceeded and solutions on how to comply with the environmental and social regulation. (At the central level: MoEA, MoLHR, NEC, ... and the local governments).
- Ensure that the private sector contributes to the financing of environmental management, especially where it concerns preventive actions that mitigate the impact of their development activities.

- Promote private investment and public-private partnerships development in the field of environmental management (solid waste management, waste water treatment and sanitation, ...).

Energy

- Ensure that employment and social services are provided to the population impacted by large hydropower projects (MoEA, MoLHR, others).
- Ensure that appropriate regional development plans are put in place to optimize the economic benefits locally while projects are developed and negotiated, and then during their construction and operation. (MoEA, MoF, others).
- Support the need to comply with the environmental regulation (for example by ensuring that contracts have an environmental clause and elaborated environmental management plan) (MoEA, NEC, ...).

Mining

- Guarantee that employment opportunities are given to the local communities, in the area of activities (MoEA, MoLHR, others) and that livelihood impacts of these activities are avoided, compensated and/or mitigated.
- Support the need to comply with the environmental regulation (for example by ensuring that contracts have an environmental clause, that closure of the site is properly planned, ...) (MoEA, NEC, ...).

Tourism

- Funding mechanisms could be considered by which tourism revenues collected at the national level could contribute to the district budget for further tourism development (including national park related activities) and development activities. (TCB, MoF, MoA, ...).
- Support should be provided at the Dzongkhag level (both in terms of planning and in terms of construction of facilities) by TCB to avoid unnecessary mistakes.
- Accompany the development of the private sector and set guidelines to ensure that local population is given a chance and can fully benefit from their activities. This might require training development and planning.
- The findings of the community based tourism study, expected at the end of this year, will potentially come with recommendations in this regard.

Table 15. Sector Checklist for environmental and social integration - Trade, Industry, Energy, Mining, Tourism

Key issues	Environmental and socio-economic relevance	Status & achievements made	Opportunities and possible interventions	Challenges and constraints	Areas for indicators for monitoring and evaluation
Trade & Industry					
1 - Accelerate business development	Business dvpt will generate revenues, employment and livelihoods alternatives to people, in turn removing pressure on the natural environment.	Economic dvpt policy being finalised. Foreign Direct Investment 2002 being reviewed. Micro, small & medium enterprises policy being drafted Existing procedures very cumbersome	Promote env friendly and cleaner production Provide tax incentives if E&S targets are exceeded. Provide solutions and necessary infrastructure to comply with env & social (labor) regulations	Resources (both human & financial) Limited opportunities for businesses Weak enforcement Infrastructure development Implementation capacity	Number of new businesses created complying with standards Number of new employments created
2 - Spread business development	By spreading the business development over the country, issues related with "over-urbanisation" will be avoided and movement of people will be limited.	See above	Same as above plus potential incentives for development in areas considered as remote.	Development of infrastructure Market availability & accessibility.	Distribution of businesses
3 - Rural businesses (including trade and industry)	Facilitate provision of livelihood alternatives.	See above	Prevent rural-urban migration	Access to market Regular supply of raw material	Number of rural businesses
4 - Promotion of export for handicraft, agro-products, ...	Provide off-season employment in rural areas.			Skills development	
5 - Promote private sector investment in environmental resources management	In particular in management of E&S impacts of their own activities. Create new employment			There are several private sector investment opportunities in the field of environment and natural resources (renewable energy, waste management, water conservation, sanitation, ...). Create an enabling environment for investors in these areas.	Private investments in environment resources management (waste for example) or public-private partnerships.
Energy					
Hydropower development	Hydropower development will secure funding for poverty reduction programme, generate new employment, develop the infrastructure in the area of project construction	The Hydropower Development Strategy has been drafted. Projects under construction contribute to building up experience	Adapt best practices to the context of Bhutan. Develop an integrated approach to hydropower development. Develop skills.	Mainly one model of hydropower development being implemented. Resources.	Employment generated locally by project (construction, O&M) Economic opportunities seized during construction
Provide electricity to the entire population by 2013	Provision of electricity will reduce pressure on natural resources, increase chances of good education, facilitate communication, facilitate transformation of products, storage, ...		Look at all alternatives possible.	Scattered nature of settlements Difficult access in some areas	Number of households electrified.
Hydropower: provide employment and social services to the affected communities	Maximise potential returns of project construction and operation on the local communities, and by doing so provide alternative livelihoods to the rural population	See above, hydropower development strategy drafted. Numerous projects planned.	Develop best practices in this field.		

Integrated development of all energy sources	Provide alternative sources of electricity contributing to poverty reduction and removing pressure on natural resources.				Energy sources developed.
Mining					
Provide opportunities of employment to local communities (link with small enterprises)	See business development above			Availability of skills at the local level. Develop vocational training at a micro scale. Lack of professional inspectors and support staff.	
<i>Ensure that mine owners comply with the law</i>			<i>Promote the establishment of an environmental testing laboratory. Strengthen Gvt capacity to undertake audits Put in place strict periodic environmental monitoring and reporting requirements for mines.</i>	<i>Insufficient monitoring capacity, little social assessment at national level, but also at local level An independent laboratory that can measure air, water and soil analysis should be available in the country and be certified</i>	
Tourism					
How to maximize the return of tourism activities to the local population in terms of enabling the appropriate business environment rather than a simple redistribution of revenues.	Provision of services to tourists and trekkers could be a supplementary source of income	Various studies have been undertaken including a community based tourism study, a tourism bill drafted, a product development guidelines and some pilot projects implemented.	Set some rules giving priority of employment locally at comparable level of skills. Guarantee that some of the tourism revenues generated through the system is placed returns to the local level for development activities	Coordination issues, timely approval by the other sectors concerned	

4 - Mainstreaming Poverty - Environment in the Infrastructure & Urban Development Sector

4.1 - Environmental Services & Cumulative impacts

Bhutan's environment provides wood for construction, soil and rock for building materials, and fresh water and clean air for settlements. It regulates the flow in rivers, and provides a sink for the dilution of liquid wastes. It enriches through the relationship of people to land.

Example cumulative impacts that could possibly result from policies and programmes of the Ministry are shown in the table below, and the way in which these may have consequences (both desired and undesired) in other sectors. Mainstreaming environment in policy-making and programming in the Ministry of Works and Human Settlements requires awareness of how its sectoral activities may have effects throughout the wider system.

Table 16 - Possible cumulative impacts resulting potentially from policies & programmes

Possible cumulative impacts	Possible consequences in various sectors
Ever increasing demand for construction materials	Loss of agricultural and forest land, aesthetics of rural and urban areas, effects on water courses and water supplies
Cumulative effect of construction activities may trigger natural calamities such as landslides, floods	Possible increased chance of natural disaster in both rural and urban areas, increased cost of road maintenance, reduced crop yields, disruption of economic activity, effects on human settlements
Continuing urbanization	Rural urban migration, demands on housing, transport and social services, demands for construction materials, urban water and energy, waste disposal, changing employment patterns and lifestyles, increasing traffic congestion and related pollution and economic inefficiencies, loss of agriculturally productive lands
Changing hydrological patterns	Effects on agricultural activity, and water supply for settlements, agriculture, industry and power generation
Induced land use changes in rural areas opened up by road construction	Rural-urban migration, changing patterns of agriculture and effects on sustainable livelihoods, potential effects on water supply for hydropower and agriculture, loss of agricultural land

4.2 - Background

The purpose of these infrastructure sectoral section is to support this sector in identifying options for integrating environment and poverty into their policies, strategies and programmes.

Despite the challenges and the cost of road construction, the development of the road network is a strategic priority in Bhutan. A well connected national highway and road system interlinked with rural feeder and farm roads can help to reduce rural and regional isolation, expand rural access to basic services and markets and create conditions required to promote rural industrialization and non-farm enterprises.⁵⁸ In order for these activities to be sustainable, environmental and social issues need to be considered and integrated into the planning, construction, and maintenance of the sector. Obviously undertaking of EIAs for road and bridge construction can contribute to the reduction of environmental impacts, such as soil erosion, landslides, and localized pollutions.

The increase of migration from rural areas to urban centers is now imposing additional pressures on urban development and management. Integration of environmental and social issues in the urbanization strategy will give the opportunity to ensure that the proper attention is given to these issues, contributing to poverty reduction.

4.3 - Sector checklist for environment and social integration

Some environmental and poverty issues related to the infrastructure sector are presented in the matrix below, as examples of possible approaches to mainstream poverty-environment in the sector.

- Key issues considered important for the sector to achieve pro-poor economic growth and poverty reduction;
- Environmental and socio-economic relevance;
- Status & achievements made;
- Opportunities and possible interventions;
- Challenges and constraints;
- Areas for indicators for monitoring and evaluation.

⁵⁸ RGoB, 10th FYP.

4.4 - Requirements for collaboration & coordination between sectors

Most of the issues presented in the matrix require collaboration and coordination between various sectors. The implementation of the urbanization strategy requires the involvement of the health, energy, environment sectors. Road and bridge construction involves NEC, MoA but also potentially MoEA, MoLHR.

4.5 - Recommendations

- ESIAs prepared for road construction follow different standards based on the source of funds (Government of India, World Bank, ADB, RGoB) and standards are not applied systematically. National standards should be developed and applied systematically with the objective to properly manage environmental and social impacts of all projects in a consistent manner. Innovative approaches and environmentally friendly design should always be given priority.
- Compliance monitoring need to be undertaken systematically and proper resources (human and financial) have to be provided to enable this. Coordination between the various sectors involved in compliance monitoring is required.
- Responsibilities of contractors might have to be clarified (in particular in terms of supervision) and contractors need to demonstrate a minimum level of skills to undertake road construction activities, especially in difficult mountainous terrain and in protected areas.
- A methodology for cost-benefit analysis of road construction (for all types to road) could be put together to integrate fully all costs and benefits of road construction, including poverty reduction and environment considerations. Such an analysis is usually undertaken under international financial institutions funding. A detailed cost-benefit analysis will certainly provide a good decision tool guiding the selection of priority roads. The environment factors should be properly weighted, as should be the socio-economic benefits that the local population can derive from a better access.

Table 17. Sector checklist for environmental and social integration - Infrastructure & Urban Development.

Key issues	Environmental and socio-economic relevance	Status & achievements made	Opportunities and possible interventions	Challenges and constraints	Areas for indicators for monitoring and evaluation
Urban Development					
Support land use planning and urban development, in particular in the districts and new poles of development.	<p>Rural-urban migrations are putting pressure on services provided in the existing urban centres. Urban centres are poles of economic development. It is important to ensure that the rural-urban migration do not create urban poverty.</p> <p>The scattered nature of settlements makes it difficult and expensive to provide the population with the infrastructure required for development, and the development of urban centres can be an option to improve the quality of services provided to the population</p>	Bhutan National Urbanisation Strategy	<p>Mainstream environmental and poverty issues into the urbanization programme looking at all issues (planning, waste, energy, land...).</p> <p>Compensation mechanisms.</p>	Limited resources.	<p>Population living in urban centres.</p> <p>% of the urban population having access to safe water.</p> <p>% of the urban population having access to improved sanitation facilities.</p> <p>Health basic services indicators</p>
Infrastructure					
Integrate environmental and social concerns into infrastructure development	Roads plays a key role in socio-economic development. Construction of this infrastructure can seriously impact the environment when it is not well designed, built and maintained. It can lead to erosion, damage to other infrastructure and properties, affect crop production. Costs of these damages can be very high.	<p>An ESIA is required before the implementation of such activities.</p> <p>Guidelines for environmentally friendly road construction.</p> <p>Compliance monitoring is undertaken either by NEC, MoWHS or local authorities.</p>	<p>Consolidation of compensation for land acquisition linked to road development between the various Acts. Compensation beyond corridor still needs to be addressed.</p> <p>Further cooperation with the other sectors responsible of road construction (agriculture for farm roads).</p> <p>Ensure that environmental obligations are set for the contractors and that they are enforced.</p> <p>Ensure proper supervision by contractors of construction work.</p> <p>Ensure compliance with ESIA's.</p> <p>Support the development of cost-benefit analysis methodology.</p> <p>Deal and coordinate the various social issues associated with road construction (cost-benefit analysis, compensation, access to resources, health, ...)</p> <p>Use CBD as an instrument to improve awareness and skills.</p>	<p>Districts have limited technical skills and limited financial resources.</p> <p>Develop skills of local contractors.</p> <p>Clarify the responsibility for compliance monitoring and provide appropriate resources for its execution.</p>	<p>Road construction companies trained on environmental and social issues.</p> <p>Contractors registered for proper road construction and maintenance.</p> <p>Reduction of the number of non-compliances.</p>

5 - Mainstreaming Poverty - Environment in the Health Sector

5.1 - Background

Some environmental and poverty issues related to the Health Sector are presented in the matrix below. They are presented here as examples of some possible approaches to mainstream poverty-environment in this sector.

The Part A of the guidelines explains how health, and in particular environmental health, is important to the poor and can have an impact on poverty reduction. To reach the target of poverty reduction from 23.2% to 15% within the 10th FYP, the health indicators targets are set as follows:

Table 18. Health indicators targets

Sustaining access to safe drinking water	> 95%
Access to safe sanitation	96%
Life expectancy	> 70 years
Infant Mortality Rate (per 1,000)	20
Under Five Mortality Rate (per 1,000)	< 30
Maternal Mortality Rate (per 100,000)	100
Population Growth Rate	1.3%

(Source: RGoB, Ministry of Health, 2009. Annual Health Bulletin).

Amongst the top 10 diseases in Bhutan, those linked to environmental conditions, such as diarrhea, respiratory diseases, skin infections, ... are still important. They are caused, among other factors, by poor sanitation and hygiene and indoor and outdoor air pollution. These diseases have obviously impacts in terms of productivity, education, quality of life and can contribute directly to poverty.

The Health Sector in Bhutan has taken a wide approach to health improvement, with a particular focus on prevention of diseases, and by associating other partners to its activities, for example through:

- its extensive rural water supply programme, combined with awareness building about the importance of protecting water sources and watersheds;
- its programme, undertaken with the Ministry of Agriculture, of community kitchen gardening, addressing simultaneously malnutrition, providing a complementary livelihoods option, and using the health facilities as pilot sites;
- its aromatic and medicinal plants projects, in collaboration with MoA and the Institute of Traditional Medicine, aiming at ensuring a regular and sustainable supply of aromatic and medicinal plants; developing pro-poor livelihood alternatives; and looking at the opportunities to add value by transformation and packaging.

These examples demonstrate the potential for mainstreaming poverty-environment in the Health sector.

5.2 - Sector checklist for environment and social integration

Discussions were held with the health sector with the objective to review how environment and social issues are assessed and integrated in their activities and contribute to poverty reduction and pro-poor economic growth. The matrix presented below, which is not exhaustive, is organized along the following lines:

- Key issues considered important for the sector to achieve pro-poor economic growth and poverty reduction;
- Environmental and socio-economic relevance;
- Status & achievements made;
- Opportunities and possible interventions;
- Challenges and constraints;
- Areas for indicators for monitoring and evaluation.

5.3 - Requirements for collaboration & coordination between sectors

There are several examples of a need of further coordination:

- Coordination between MoH, MoA, MoEA and NEC for example to optimize the benefits of the aromatic and medicinal plants projects, and enable the full development of its potential, by adding value to the products and widen their marketing for example.
- Coordination between the various ministries and entities involved with water supply and sanitation could certainly avoid the fragmentation of projects, provide the possibility to look into the potential of public-private partnerships in this sector, and could streamline water quality monitoring for example.

5.4 - Recommendations

The rural water supply falls under the Ministry of Health for sanitation and hygiene reasons, the concern of MoH being the protection of health. The Ministry of Education takes care of water supply for schools, while MoH takes care of water supply facilities for

community schools and monasteries. There are various aspects related to water supply and sanitation (technical, environmental, social, legal, health, agriculture, ...) and obviously various sectors involved. The potential need of a better coordination might have to be considered. As the rural water supply will be decentralized at the level of the Dzongkhags, with obvious issues in terms of resources available at this level, decision processes might have to be put in place to guide the selection of the development of water supply schemes, taking into consideration the various facets of water supply schemes development and maintenance. The potential role of public-private partnerships in this area could also be explored, depending on the size of the various schemes.

The examples presented above demonstrate an active collaboration between the Ministry of Health and the Ministry of Agriculture. Such collaborations could be developed further with other ministries, for example, with the Ministry of Economic Affairs, and its Trade Department, for example, to promote investments that add value to the products or to look at the possibility to widen the potential markets of such products.

The health component of the various development projects (including rural electrification, roads, ...) should to be properly integrated into the design and the implementation of these projects. This could be done, to the extent possible, through cost-benefit analysis at the stage of the selection of projects. For example it has been demonstrated that rural electrification is associated with a decrease of the prevalence of ARI, eyes disease and an increase of hygiene, leading to a better health, and therefore an increased ability of the population to be economically productive and to lead a better life. This aspect has to be taken into consideration by the MoEA during the planning of electrification, in particular in isolated areas.

The health implications of rural-urban migrations need to be looked into, and integrated into the urbanization strategy, as this could result in the need to redistribute health services in the country, with the risk to reduce the services in isolated rural areas.

If medical wastes are made safe at the level of medical facilities, there is still potentially a problem with potentially infectious wastes generated at the household level. The health component of the waste collection and treatment has therefore to be taken into consideration by the sector responsible.

The MoH, which has the intention to undertake health inspections and to put in place a team of health inspectors, could monitor, with environmental inspectors, the impacts of industrial projects and of potential associated pollutions. Compliance monitoring of large projects could be undertaken by joint teams from the various sectors to guarantee compliance on all aspects.

Table 20. Sector checklist for environment and social integration - Health

Key issues	Environmental and socio-economic relevance	Status & achievements made	Opportunities and possible interventions	Challenges and constraints	Areas for indicators for monitoring and evaluation
Water supply & sanitation	Inadequate, leading to water-related disease & waste of resources (time, fuelwood, ...)	Out of the 85% access to safe drinking water, a survey undertaken in August 08 revealed that only about 69% of the RWSS schemes are still functioning.	<ul style="list-style-type: none"> • Ensure proper watershed management and proper practices • Ensure proper maintenance of existing water supply & sewage treatment infrastructures (district level) • Ensure proper design of new water supply infrastructures, including rain harvesting • Better sanitation facilities at school for boys and girls (MoE, MoH) 	<ul style="list-style-type: none"> • Limited resources available. • Dispersion of communities. 	<ul style="list-style-type: none"> • Number of protected watersheds for water supply. • Access to safe drinking points functioning.
Indoor air pollution	Increased risk of acute respiratory infections, reducing quality of life and productivity, and having the potential to lead to poverty	<p>Electrification has contributed to the reduction of ARIs.</p> <p>An improved stove programme, initially set up with the Women Association, has now been decentralized at the district level.</p>	<ul style="list-style-type: none"> • Promote further the use of improved stoves and restrict fuel wood collection to dedicated community forests, and if they do not exist, create them. • Promote the use of alternative fuels, ensuring that these alternatives are readily available, convenient to transport and provided at an affordable price. 	<ul style="list-style-type: none"> • Difficult accessibility of isolated rural areas making the option of LPG sometimes not realistic, unless it is properly designed, operated and maintained. 	<ul style="list-style-type: none"> • Reduction of ARI
Outdoor air pollution	Increased risk of respiratory infections and impacts on crop production	Compliance monitoring undertaken by Environmental Inspectors	<p>Ensure that measures which should be part of the environmental management plan of the industrial activities are properly implemented and that compensation measures are provided to the impacted households if these are not, in addition to possible fines and request of corrective measures to be taken.</p> <p>Health inspections.</p>	<p>Limited resources enabling a proper compliance monitoring.</p> <p>Limited awareness of the impacts of air pollution.</p>	<p>Reduction of the prevalence of ARI in impacted areas.</p> <p>Reduction of case of non-compliance</p> <p>Augmentation of use of dust suppressing devices.</p>
Improve waste management	Improper waste management, in particular of hazardous waste, can lead to diseases and pollutions, impacting the quality of life and productivity.	Medical wastes are neutralized before they leave medical facilities. However potentially infectious wastes generated at the household level are not treated and pose a threat to the health.	<p>Promote better waste management techniques.</p> <p>Promote public-private partnership for the management of waste</p>	<p>Little awareness in terms of segregation of waste.</p> <p>Limited interest of the private sector in terms of waste management.</p>	<p>Degree of waste separation</p> <p>Facilities provided to dispose properly potential infectious wastes at the level of the households.</p>

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The Environmental Overview

The Environmental Overview is a tool with its origins in Environmental Impact Assessment (EIA), but with very different form and application. It is a rapid environmental assessment tool for use during the *formulation* stages of policies and programmes. It is a simple but effective tool to apply frequently and to a wide range of draft policies, programmes, plans, strategies, etc to assist with mainstreaming the cross-cutting concerns of environment (or climate change, or similar) into policy/programme formulation stages. Its unique characteristic is that it is undertaken interactively in a group situation (around a table and with a flip chart or using a computer and a data projector) with the group drawn from a range of line agencies (and preferably from NGOs and other stakeholders) and is conducted in a highly structured format. The structure requires the group addressing a series of questions *in a particular* sequence that focus the group on the environmental issues and opportunities associated with the original proposal, and most importantly on how consideration of these can be incorporated in its redesign if this is seen to be necessary.

The Environmental Overview can be described as a process which pulls the first draft of a policy/programme/plan/strategy apart, examines its environmental consequences in the context of the systems in which it will operate, recognises the current economic forces and management capabilities which relate to the proposal, then reassembles it as a second draft in a way that addresses as many of the environmental issues and opportunities as possible. The Environmental Overview could lead to suggestions that the draft be abandoned if the adverse effects are seen to be too great - but this has not so in most of the cases on which it has been applied. Very often, suggested changes to the draft will be relatively small, but still critical to head off unwanted long-term environmental problems, and to ensure the policy/programme is moving in sustainable directions.

A national grazing policy, or further development of the tourism industry, or promotion of export growth of woven products, or new urban settlement development plans, are examples of policies/programmes that can be handled by the Environmental Overview. The preparation of policies/programmes of these types are upstream planning tasks. Draft policies/programmes such as these are never subject to conventional environmental assessments yet, once implemented, can have potentially large environmental consequences - usually through cumulative effects over a long period of time. The Environmental Overview is a tool that can be applied to assist in the formulation of these policies/programmes, by mainstreaming environmental considerations into the planning tasks. It is most effective when applied to a draft policy/program proposal, and in the very early stages of its formulation - not as post-hoc assessment of an already finalized policy/program

Experience of the Environmental Overview is that it can be applied at various scales of activity (policy, programme or strategy levels); at different geographical scales (whole of country, a province, a valley); or to "areas" of relevance to particular sectors ("all grazing lands", or a "city district"). While the tool originally developed within the UNDP context to appraise its own development assistance, it is a model that can be adopted and adapted to policy-making and programming within Bhutan.

Process and Conduct of an Environmental Overview

The Environmental Overview asks the set of questions shown in Box 1. In fact, these questions are similar to those "asked" in conventional project-based EIA, but with different players and within a very different time-frame. The questions have additional emphases on pre-existing environmental issues in the area of the proposal, on the economic forces which prevail, and on relevant management capabilities and practices.

The first set of questions concerns the baseline conditions for the policy/programme:

- *What are the biophysical and social environments of the areas where the policy/programme will apply?*
- *What are the major environmental and social issues which currently exist in the areas?*
- *What are the economic forces which are currently operating in the areas?*
- *What are the current management practices and capabilities in the areas?*

Next are questions concerning the policy/programme impacts and opportunities, followed by how the draft policy/programme can be redrafted in an operational strategy to take these, and the baseline conditions, into account:

- *What are the major natural and socio-economic impacts and opportunities associated with the implementation of the project?*
- *What modifications/alternatives are there for policy/programme design?*
- *What is the operational strategy to address these and the baseline conditions?*

Box 1 elaborates on the nature of the material which might be considered under each of these questions.

BOX 1 THE ENVIRONMENTAL OVERVIEW

WHAT ARE THE ENVIRONMENTAL AND SOCIAL CONDITIONS IN THE AREAS WHERE THE POLICY/PROGRAMME WILL APPLY?

Those participating in the development of the policy/programme need basic information on the physical and social characteristics of the environment in the area. This description highlights any aspect that might be a *determinant* of the selection and design of the proposed policy/programme. It may briefly describe, for example, the major relevant land, water and natural ecosystems that characterise the area (such as forests, valleys, mountain ecosystems, lakes, climate, biological and or mineral resources) and whether any of these represent untapped environmental opportunities or are areas of particular environmental concern. If the projects are urban, the form and functioning of the city can be described. Equally, the broad socio-cultural context in the areas (population size, ethnicity, poverty and gender indicators, etc) are part of this description.

WHAT ARE THE MAIN ENVIRONMENTAL AND SOCIAL ISSUES WHICH CURRENTLY EXIST IN THE AREAS?

These may include, for example, that the areas are prone to flooding, there is an ongoing process of soil erosion, or that the fish catch is smaller each year - sustainable potential being smaller than present exploitation. Areas may be suffering water shortages, or have waste management problems. Issues such as poverty, under-employment, quality of life of the local population, natural hazards, tasks of children and women, and land shortages are also included. Consultations with local groups would improve the quality of this information. This section is critical base line data of the situation existing *before* the policy/programme is implemented, and becomes particularly useful when looking for opportunities which can be integrated into the policy/programme.

WHAT ARE THE ECONOMIC SITUATION AND FORCES CURRENTLY OPERATING IN THE AREAS?

A clear picture is required of the prevailing economic situation and forces which exist in the areas where the policy/programmes will apply. Prevailing national or local economic issues and policies which affect the areas are to be considered - demand for agricultural or horticultural products, reliance on subsistence agriculture, development of entrepreneurial activity, income distribution, traditional measures of wealth and happiness, economic instruments, non-availability of finance, loan systems etc - could all prove relevant. Enforcement mechanisms for any economic policies and regulations may also be pertinent, as could information about the population's socioeconomic situation if not already described.

WHAT ARE CURRENT ENVIRONMENTAL MANAGEMENT PRACTICE AND CAPABILITIES IN THE AREAS?

What is the current capacity of the people and institutions working in the areas to cope with existing environmental and social problems, achieve appropriate environmental management and promote sustainable development? A simple listing of laws and regulations is not what is required here, but instead a thoroughly realistic appraisal of the strength and resources of institutions in the areas, and their staff capabilities, for management and enforcement. Broad thinking beyond government environmental management regulations and capabilities is essential. For example, the strongest management in an area may be traditional agricultural practices, local land husbandry, or management through cultural and religious practices. The description should include legal and regulatory matters and explicit environmental policies and regulations relevant to the areas. Do these have enforcement mechanisms and appropriate technical and financial support to be effective? The major actors in the project area should be described: monastic bodies, government authorities including dzonghags and gewogs, international organisations, private sector, NGOs, women's groups, grass-roots organisations, individuals etc and their objectives and strategies. Existing and possible conflicts among the actors should be identified.

WHAT ARE THE MAJOR NATURAL AND SOCIO-ECONOMIC IMPACTS AND OPPORTUNITIES THAT MIGHT BE ASSOCIATED WITH THE IMPLEMENTATION OF THE PROPOSED POLICY/PROGRAMME?

This is a familiar step for those experienced in environmental impact assessment - corresponding to the scoping stage in a project-based EIA. It lists the major potential socio-economic and biophysical impacts that could possibly eventuate from the policy/programme - and given the participatory approach required in the Environmental Overview, this step is best approached through a brainstorming activity. In addition to determining the scope of impacts, the step is used to identify the range of opportunities which can be associated with the project. Identifying opportunities is far more than identifying positive policy/programme impacts. It involves setting the policy/programme in the context of the environmental and social issues pre-existing in the areas that are the target of the new policy/programme, and some lateral thinking with respect to how the current proposal could be extended to address issues outside those deliberately targeted by the new policy/programme, and other broader development objectives. The brainstorming on impacts and opportunities must clearly extend beyond the particular goals of the sector(s) proposing the new policy/programme.

MODIFICATIONS/ALTERNATIVES FOR POLICY/PROGRAMME DESIGN?

This section examines the possibility of altering the design of the policy/programme (for example, policy/programme objectives, time-frame, staffing or method of implementation) to take better advantage of the environmental and social opportunities offered by the environment in the areas, and to mitigate and eliminate the environmental disadvantages that the project might create. It may also reconsider the need for the policy/programme and consider other ways by which the same objectives could be considered. It should state clearly and succinctly the **Gross National Happiness, environmental and social objectives** which will be addressed by both the original, and any modifications/alternatives for the policy/programme design, particularly if these are not explicit in the original. In considering modifications, **conflicts of interest** between different actors will need to be identified and articulated. For example, the interests of companies that distribute chemical fertilisers will conflict with activities aiming to promote organic fertilisation. Projects aimed at alternative sources of energy use and energy conservation may conflict with the energy production goals of central energy authorities. The Environmental Overview must identify such conflicts of interest and devise possible alternatives to avoid them.

FORMULATION OF AN OPERATIONAL STRATEGY

This is the most important part of the Environmental Overview and is action-oriented. It involves the formulation of an operational strategy of incorporating any modifications/alternatives that have been suggested to achieve environmental objectives into the original policy/programme (or assisting with whether this draft policy/programme should be considered further, or be rejected) or of developing additional policies/programmes which must be implemented in parallel with the current proposal. The strategy must be formulated in consultation with the officers responsible for proposing the draft policy/programme in the first place, but it must also involve other sectors of the economy such as industry, trade, health, transport and so on. The objective is to identify who, and how, to influence in the decision-making process to achieve the environmental objectives. The operational strategy must develop a plan of activities, timetable and budget for implementation. Realistically this will most often be by adding to, or altering, the activities included in the draft policy/programme document, and by altering the specifications or the terms of reference of key personnel to be involved or appointed for further development of the draft policy/programme. The plan must include when such activities are expected to occur, who will be responsible, and be compatible with the overall activities and timetable of the original policy/programme development. Where there are major difficulties in directly incorporating all necessary changes into the original, the operational plan should be to encourage supplementary policies/programmes which will complement the current proposal.

The Environmental Overview is applied by a group working sequentially through the questions of Box 1 in a structured way. The interactive group is a critical element of the procedure. The Environmental Overview must be undertaken participatorily using a broad mix of specialists and others. The mix of participants, from different line agencies, from different disciplinary backgrounds, and where possible from additional stakeholders' interests, provides the diverse range of perspectives that are critical to setting the original proposal in the context of its environmental and social systems. The outline of the Environmental Overview can be completed with considerable speed, perhaps in a single day or even half a day - though more experience of the appropriate time frame in practical working settings is required. For example, it is possible that two half days of group activity, separated by a short period where missing information is obtained and fed into the Environmental Overview procedure, may prove to be better.

For effective intervention, the development proposal must be in its *draft* formulation stages when the Environmental Overview is applied. Further, as the *Formulation of an Operational Strategy* section of Box 1 indicates, the process must extend past mere analysis and critique, and develop modifications to the original proposal as an integral part of the Environmental Overview. For the tool to be effective, it must be perceived and operated as a creative process in programme formulation (see the Figure) and not as a static procedure which results in the preparation of a separate environmental document (though documenting the process of the

Environmental Overview may prove useful). The value is in the process of conducting the Environmental Overview, not in the additional words on paper.

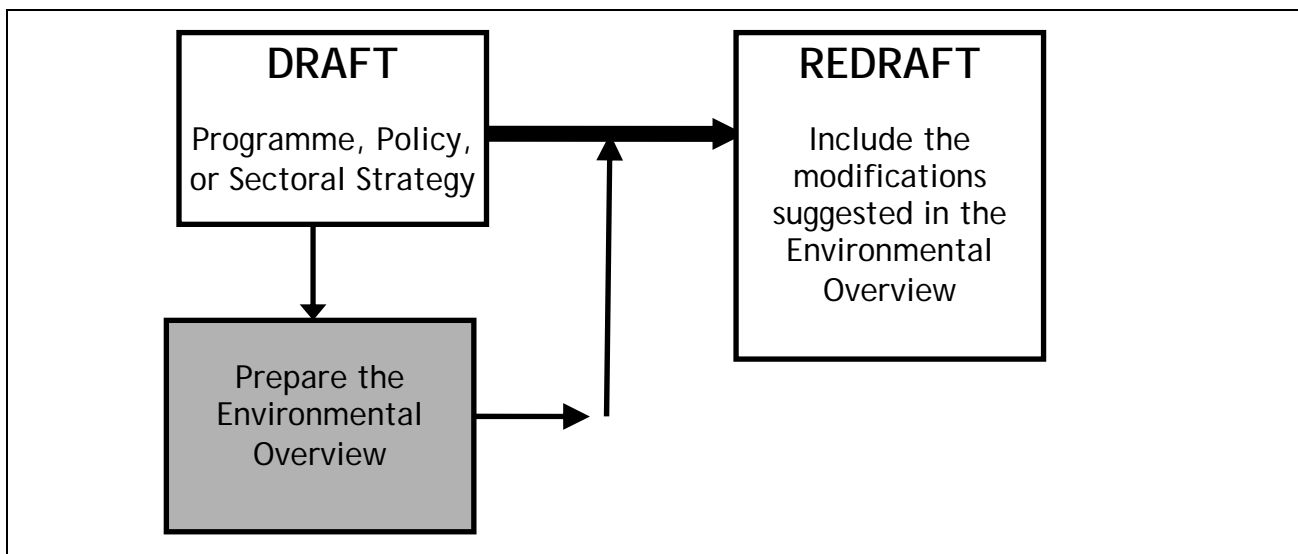


Figure 1: This figure shows how the Environmental Overview fits into policy/programme/strategy formulation. All policies/programme go through multiple iterations of draft/redraft, in their passage from conception to approval. The Environmental Overview must be conducted at the earliest possible stage of this process.

Policy/programme documents pass through many drafts in their progress from raw concept to final proposal ready to be submitted for approval. It is during this drafting and redrafting - preferably as early as possible in the process - that the Environmental Overview can prove most effective, allowing the activity to be reformulated where necessary to reduce the potential for non-sustainable consequences. Figure 1 shows this basic concept - but of course with many drafts/redrafts of the proposal, the Environmental Overview too need not be just a once-off activity leading to the final proposal, but part of the creative input into several different iterations of the redrafting.

Many policy-making or programming formulation procedures require the planner to reflect on how the proposal will impact on particular cross-cutting concerns, say "environment" or "gender issues". However, these tend to result in non-analytical and ineffective checklists (for example, "Has the effect of this project on women been considered?" Yes/No?) or result in cursorily dismissive statements ("The proposal will have no deleterious effect on the environment."). The Environmental Overview has been deliberately designed to avoid both of these tendencies.

Observations

- The Environmental Overview has to be conducted as early as possible on drafts of policies/programmes/plans (effectively illustrated by one participant in an Environmental Overview exercise who exclaimed "What I now understand is that as soon as I start to work on a new policy or programme - and often this is over lunch and written on the back of an envelope - I should commence the Environmental Overview process too.")
- The Environmental Overview has to be conducted as a participatory exercise. It requires the presence of representatives from a range of line agencies (and preferably from non government and community based organisations too). Bringing together government personnel from different sectors including the environmental sectors, as well as non-government personnel when appropriate, can help to quickly build a picture that allows rapid identification of significant opportunities/impacts associated with proposals. The Environmental Overview provides both process and structure to these participatory activities. While some environmental expertise must be present, often environmental and sustainability wisdom, and the lateral solutions, do not necessarily come from individual expertise, but emerge from the collective interaction.
- Flexibility in the Environmental Overview tool comes from adjusting the headings of the sections in Box 1 according to the focus of the particular policy/programme. For example, sometimes the term area may refer to a geographical area. Equally, the term area can be interpreted as sector for non-geographically based policies and programmes.
- The Environmental Overviews need to be conducted on most draft policies and programmes, not just those that have obvious environmental consequences, even apparently "non-environmental" areas in sectors such as tourism or trade promotion. While most policy and programme proposals may be judged beneficial when examined within only one particular sector of development, the complexity of all development interventions means few, if any, do not form part of a complex web in which changes in one part of the system result in quite unexpected changes in other parts of the system. Environmental concerns may have to be inserted as an integral part of all sectoral activities. Achieving sustainable objectives requires a shift away from leaving environmental assessment and management solely to specific environmental agencies and towards the integration of environmental responsibilities into all sectors. The Environmental Overview is a tool which can assist in this shift.

References

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