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AN ANALYSIS ON SYNERGIC EFFORTS ON ENVIRONMENTAL SUSTAINABILITY AND POVERTY ALLEVIATION TOWARDS ACHIEVING MILLENNIUM DEVELOPMENT GOALS IN NEPAL

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Author's declaration

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List of Abbreviations

ADB	Asian Development Bank
APP	Agriculture Perspective Plan
CBOs	Community Based Organizations
CBS	Central Bureaus of Statistics
DFID	Department of International Development
DWSS	Department of Water Supply and Sewerage
EIA	Environment Impact Assessment
EIA	Environmental Impact Assessment
GDP	Gross Domestic Products
GoN	Government of Nepal
HDI	Human Development Index
HMG/N	His Majesty's Government of Nepal
IBRD	International Bank for Reconstruction and Development
ICIMOD	International Centre for Integrated Mountain Development
IEE	Initial Environment Evaluation
IPM	Integrated Pest Management
JoIP	Johannesburg Outcomes of Plan of Implementation
MAPs	Medicinal and Aromatic Plants
MDGs	Millennium Development Goals
NBAP	National Biodiversity Action Plan
NCS	National Conservation Strategy
NGOs	Non- Governmental Organizations
NHDR	Nepal Human Development Report
NLSS	Nepal Living Standard Survey
NNSD	Nepal Network for Sustainable Development
NTFPs	Non Timber Forest Products
PMAS	Poverty Monitoring and Analysis System
TSP	Total Suspended Particles
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WCED	World Commission on Environment and Development
WSSD	World Summit on Sustainable Development
WWF	Worldwide Fund for Nature Conservation

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THE CENTRAL EUROPEAN UNIVERSITY

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Both issues, poverty reduction and environmental degradation, are considered as the greatest global challenges of twenty-first century. Developing countries, which are the primary sufferers, are formulating and implementing different policies and programmes to address these problems. Most of the developing countries have signed for achieving Millennium Development Goals (MDGs), an ambitious global development agenda, designed by the United Nations in 2000, in national level by 2015. It also covers the poverty reduction and environmental degradation issues in its Goal 1 (Eradication of Poverty and Hunger) and Goal 7 (Environmental Sustainability). Nepal has also agreed and signed to work for achieving these goals.

This research work analyses the progress of Nepal towards MDGs, particularly, poverty reduction and environmental sustainability, and reviews the policies, programmes and activities. The analysis highlights the challenges and opportunities to achieve environment and poverty related to MDGs. The study also identifies how its goals are internalized into other policies and programmes, formulation and their implementation and activities, and what the causal relationships between poverty and environment in rural and urban areas of Nepal are. The analysis also highlights the situation of synergic efforts made by Nepal's government to address these challenges in cost effective manner.

Keywords: MDGs, environmental policy, poverty, Nepal, synchronisation

1. INTRODUCTION

1.1. Background

Poverty and environmental degradation are considered as major development issues especially in developing countries, and numbers of studies show their causally and inextricably linkage with other development issues such as health, water and sanitation, energy, gender etc (Melnick *et al* 2005; DFID 2002; IBRD/World Bank 2002). These two are also highly interconnected and closely associated with each other. Environmental resources are the major sources of jobs, livelihood and food security of the poor people, and it is estimated that 80-90 percent of jobs of poor people are based on natural resources in global level (DFID 2002). On the other hand, poverty is often considered as a reason of short time horizon on use of environmental goods and services, and lack of ability for saving for future or environmental quality, and these two reasons lead the higher level of resources dependency and causes of environmental degradation (Durning 1989; Mink 1993; Prakash 1997).

It has been also stated that poor people are the first suffers of all types of environmental problems (exposure to toxic chemicals, water pollution, air pollution, in-door pollution etc.), environmental hazards (drought, floods and attacks by crop pests) and environmental related conflicts (IBRD/World Bank 2002; OECD 2002). DFID (2002) estimates that around 3.4 million people die due to the lack of safe drinking water, nearly 3 million people die from air pollution and one billion people are exposed by indoor air pollution annually. Now, natural disaster; most of them are man-made, has become the major

problem that has displaced more people (most of them are poor) rather than conflict (DFID 2002).

Poverty-environment issues relate to access to natural resources and their sustainable use to the poor in rural and urban areas, they also relate to the use of natural resources and their impact on the poor (OECD 2002). In both areas, poor people are more vulnerable in comparison with others. In rural areas, poor are affected by soil erosion, deforestation and loss of biodiversity. They lose their livelihoods by low productivity and environmental related disasters, which are the major causes of displacement and forced migration to the cities. Similarly, in urban areas, poor people are major suffers of environmental degradation like air and water pollution, and industrial and hazardous waste. However, urban and rural issues cannot be considered separately as they are strongly interdependent in many ways (OECD 2002).

Considering these interconnections between environmental degradation and poverty, global community seems to be realized that they should be addressed together for effective outcomes (OECD 2002). In the past, several global summits and commitments (e.g. Earth Summit 1992, Millennium Summit 2000, WSSD 2002) have been conducted to focus on the economic and social development and environmental protection together for achieving sustainable development in local, national, regional and global level. In September 2000, the United Nations Millennium Summit announced an ambitious agenda of global development and agreed to set quantitative targets and measurable indicators including poverty and environmental sustainability issues (UNDP 2003). A total of 191 countries agreed and signed to work for achieving these goals by 2015 in national and international level. Nepal was one of the signatory countries of the summit and agreed to implement its

agendas. It is believed that MDGs provide the guidelines to all the governments for long-term policy and investment planning for achieving better future (UNDP 2005).

1.1.1. Poverty and Environment in MDGs

MDGs reflect the multifaceted nature of poverty, with each goal illustrating a different aspect of poverty (IBRD/World Bank 2002) and "the centrality of the environment to the Millennium Development Goals is reinforced by its strong linkages to the rest of the goals" (IBRD/World Bank 2002). It (MDGs) has set 8 goals, 18 targets and 48 indicators, including goals on poverty eradication (Goal 1) and environmental sustainability (Goal 7)[1]. MDGs 1, poverty eradication, focuses on the eradication of extreme income and hunger poverty of world, especially, from the developing countries, and goal 7 focuses on environmental sustainability which is related to sustainable natural resource management, access to safe drinking water and sanitation, and safe shelter to the poor.

MDG 7, environmental sustainability, has comprised three targets: sustainable management of natural resources (Target 9), access on water and sanitation (Target 10), and reduction of urban slum dwellers (Target 11). Target 9 has recognized that natural resources are the primary sources of all types of raw materials for production, economic activities and livelihoods since a large share of income of the rural poor is based on natural resources (World Bank 2002). Similarly, ensuring the access of poor in safe drinking water and sanitation (Target 10) will contribute in poverty alleviation goal of MDGs along with other goals. Likewise, secure tenure, access on water and sanitation, better waste management system, clear air and fuels and better housing may help to improve the livelihoods of slum dwellers (Target 11).

[1] See Appendix 1 for details list of MDGs.

Realizing these facts, MDGs has tried to interlink the poverty and environmental goals to each other. It means, implementing environmental goals would help to achieve the poverty goals, and achieving the poverty goals would support to ensure environmental sustainability. In other words, "economic growth can help pay for a better environment; and improved environmental management enhances and sustains growth" (DFID 2002), but, it needs an integrated, environmental friendly and pro-poor approaches to achieve MDGs. Furthermore, in 2002, World Summit for Sustainable Development (WSSD) is also accepted for the potentiality of MDGs goals for achieving sustainability that have immediate relevance to the living conditions of the poor (WBGU 2004).

1.1.2. Nepal and MDGs

It is widely accepted that poor people of the developing countries bear a disproportionate burden of the negative impacts in their livelihoods from environmental degradation (Tharakan and MacDonald 2004). Like other developing countries, Nepal also has been facing the serious problems of environmental degradation and poverty, which are considered as major developmental challenges of the nation. Nepal's government also identified poverty and land degradation as critical issues for sustainable development of the country and mentioned as priority agendas in the policy document named "Sustainable Development Agenda of Nepal" (SDAN) (MOPE 2002). Both of these issues are related with poverty and environmental sustainability goals of MDGs.

According to the CBS (2004), 30.8 percent population is still below the national poverty line on income basis and, 24 percent population is under hungry poverty line, where 75 percent population lives in rural areas. Nearly 20 percent population lives in urban and rest

is in rural, but because of hardship of rural livelihoods the migration rate from rural to urban is so high during the last decade (1996-2004) for seeking employment opportunity and looking for security (CBS 2004).

UNDP and NPC (2005) report that 87 percent of population is using traditional fuel sources, and 67 percent cooking fuel comes from the forest which is considered as a serious problem of deforestation and health problem. It also estimates that 29 percent land is covered by forest, and deforestation rate is 1.7 percent per annum. Similarly, 79 percent rural and 93 percent of urban populations have sustainable access in improved drinking water, and 30 percent of rural and 81 percent urban populations have access to sustainable sanitation (UNDP and NPC 2005). On the other hand, urban air pollution is highly deteriorated, and solid waste management has become a serious problem particularly in urban areas.

1.2. Aims and Objectives of the Study

Countries like Nepal which have limited financial resources and massive needs of resources for feeding their population and basic services, synergic strategies, policies and investments would be the better options to address poverty and environmental degradation problems within limited resources and time. Only the synergy efforts help to reduce cost by avoiding the double counting by taking into account as well (UNDP and NPC 2006).

The primary objective of this study is to contribute to the sustainable development of Nepal through adoption of environmental sustainability and poverty eradication related goals of MDGs in effective manner to improve the quality of life of the people of Nepal.

The major objectives are:

- To analyze the causes and effects of resource degradation and environmental pollution of rural and urban poverty and their inter-relationship
- To assess the government policies in national level to address the income and environmental poverty and institutional arrangement
- To identify the opportunities and challenges to achieve environment and poverty related MDGs
- To make recommendations on how poverty reduction and sustainability policies could become synergistic to achieve the MDGs in national level

This study considers various aspects under these objectives. These include analysis of government planning process, decision making mechanism, national budgetary and financial mechanism, public participation in decision making process, role of non-governmental organizations, their activities, private sector's role for poverty alleviation and environmental sustainability and donors' funding mechanism.

1.3. Hypothesis

Government decisions and plans have been designed without considering synergic effort towards achieving environmental sustainability and poverty. In this regard, the hypothesis of this study is: most of policies adopted considering the only one problem separately without considering the linkages with other problems. Similarly, many poverty reduction programmes are not linked with environmental sustainability and environmental policies and far away from poverty alleviation programmes, and government policies are either only economic growth oriented or radical environmental.

This type of planning and expenditure process, finally, demands high invest, overlapping and inequity. Synergic effort towards poverty alleviation and environmental sustainability at the national and local levels help to achieve sustainable development in cost effective manner and develop environmental democracy, economic growth and human well-being.

1.4. Limitations of the Study

This study does not focus on other Millennium Development Goals (MDGs) and is limited only to poverty and environmental issues, more specifically agriculture and land degradation, forest, energy, water and air pollution issues.

2. RESEARCH METHODOLOGY

This study is based on available secondary data, previous studies on poverty, environment and MDGs related publications of Nepal. This study is undertaken through a review of available literatures, publications of United Nations, international organizations, government policy documents, programmes, and reports prepared by different institutions and organizations, and informant interviews of different stakeholders. Besides that the researcher interviewed with several professionals and organization heads that are involved directly or indirectly in these issues in different capacity.

2.1. Research Phase

Various steps were taken to complete this study. First of all, all the available policy documents and programmes, and activity reports were reviewed. After that interviews were taken on the basis of available information. At the same time, the researcher attended two following seminars organized by Sustainability Watch and National Planning Commission (NPC).

1. Seminar on Poverty and Sustainability issues of Nepal organized by Sustainability Watch/ Nepal Network for Sustainable Development (NNSD) in 3rd of June 2007 at Hotel Himalaya, Kupondol, Lalitpur, Nepal.

2. Consultation meeting on preparation Eleventh Five Year Plan of Nepal, organized by National Planning Commission (NPC) of Nepal on 25th of May 25, 2007 at NPC Secretariat, Kathmandu, Nepal.

2.2. Reviewed Documents

This study mainly focuses on forest and biodiversity, agriculture and land degradation, air pollution and water and sanitation, and their linkages with overall poverty issues. The following documents were reviewed in this study:

1. Publications on government specific policies related to poverty alleviation and environment
2. Sectoral policy documents on forest and conservation, urban planning, air and water pollution, drinking water and sanitation
3. Government five-year development plans, their mid-term monitoring reports, finance and budget reports, and local level planning documents
4. Publications of donors, and their policy documents related to poverty and environmental sustainability
5. News and publication on rural urban migration, losses by disaster, health impact by pollution, etc. are also assessed and incorporated
6. MDGs related publications of United Nations, World Bank, NGOS and CBOs

2.3. Interviews

Personal communication and interviews were conducted with different stakeholders like development agencies, government officials, planners, and NGO people, civil society organizations' representatives and media people based in Nepal. Informants were identified on the following basis;

- Former planners of National Planning Commission of Nepal -4
- Development economists- 4
- Experts and stakeholders from water and sanitation sector -4
- Experts and stakeholders from forestry and agriculture sector-4

- Experts from overall environment and air pollution sectors -4

On the basis of available information, opportunities and challenges are identified in different sectors to achieve the MDGs, and synchronization of poverty and environmental policies.

3. LITERATURE REVIEW

3.1. Overview

This section looks at the theoretical relationship between poverty and environmental issues from the economic, social and political perspectives and tries to cover the nature and characteristics of poverty and environment rather than others. This section also examines the causes or factors of environmental degradation due to the poverty determined as a direct cause or as secondary cause and secondly, whether environment is the cause of poverty or not. It also tries to map out the history of the development of key concepts and highlights the challenges and opportunities on the synergic efforts in policy sectors on poverty reduction and environmental conservation particularly in the developing countries like Nepal.

3.2. Development of Key Concepts

Since 1970s, when environment entered into global development field, debates and researches on poverty-environment nexus have been passed the long distance. Likewise, until the 1970s, poverty was also defined in terms of minimum levels of income and food intake. But, in1980s, this narrow definition was progressively modified covering the dynamics of poverty with minimum conditions of human well being. Now, this covers the minimum levels of social life like lack of consumption capacity, different types of insecurity and failure to participate (OECD 2002).

In the beginning of 1972, United Nations organized World Conference on the Human Environment in Stockholm, Sweden. After that environmental issues became the major agenda of the development, and organized several global conferences and came out with

several reports like World Commission on Environment and Development (WCED) report on sustainable development known as “The Brundtland Commission”, entitled “Our Common Future” (1987), World Bank report on environment and development (1992), United Nations Environment Programme (UNEP) report on poverty and the environment (1995), etc. All of these outcomes are related on linkages between environment degradation and poverty (Angelsen 1995).

In 1987, Bruntland Commission defined sustainable development as one, which “meets the needs of the present without compromising the ability of future generations to meet their own needs” (Bruntland 1987). This definition focuses on the two equities: intergenerational equity as environmental protection and intra-generation issues as poverty alleviation. This report encompasses sustainable development beyond environment, as dynamic intergenerational ideas and needs of its effective operationalization (Bruntland 1987). This widely accepted definition has clearly recognized the poverty as a major cause of global environmental problem, and has called first time for poverty eradication for environmental protection as necessary and central condition (Duraiappah 1996).

Following the Bruntland Commission’s suggestion, in 1992, United Nations (UN) organized a major global conference on environment and development in Rio de Janeiro known as Earth Summit. 172 governments participated including 149 heads of the states. In the summit, issues concerning sustainable development were well discussed and published a resulting document “Agenda 21,”which has focused on comprehensive agendas for sustainable development, role of major stakeholders and responsibilities of developed and developing countries for sustainable development. A major outcome of Rio Summit was that call for global partnership along with poverty and environmental issues

considering as major global challenges.[2]. According to Killeen and Rafi (2001), in Agenda 21, acknowledgement of "linkage between the social, economic, environmental and political dimensions of sustainable development" is most important achievement of the summit, although, there is still lacking of in-depth coordinated empirical research in the economics of environmental degradation-poverty causality relationships (Duraiappah 1996).

After the Earth Summit 1992, throughout the 1990s, a series of global conferences were organised on different aspects of sustainable development (e.g. education, poverty and environment health, population, climate change, children, human rights, gender, human settlement). On the basis of the outcomes and recommendations of these conferences, in 1996, a set of International Development Goals (IDGs) was recommended which, later, became the basis for Millennium declaration and Millennium Development Goals (MDGs) in 2000 with specific time-bound to be achieved by 2015, to improve the quality of life of the world poor. Similarly, in 2002, United Nations also organized another global conference named World Summit on Sustainable Development (WSSD), which came out with Johannesburg Outcomes of Plan of Implementation (JoIP) accepting the MDGs as an effective tool for achieving sustainable development.

3.3. Poverty–Environment Nexus

The role of environment to the poor can be defined in three dimensions: sources of livelihoods (poor are highly depended in resources and ecosystem services for their livelihoods and environmental degradation, which affects to the poor directly), health (poor are the primary suffers of environmental risks and hazardous, water pollution, air

[2] http://www.un.org/geninfo/bp/enviro.html (consulted on June 7, 2007)

pollution and toxic pollution), and vulnerability (primary sufferer of environmental hazards, disasters and conflict) (Hazlewoord 2002; Jehan and Umana 2003). On the other hand, poverty is responsible for environmental degradation by forcing unsustainable use of resources, by pressuring poor countries for higher economic growth in the cost of environment, by causing the decreasing the role of societies and lack of resources towards environmental protection (Jehan and Umana 2003). In the other word, poverty and environment linkages are characterized as a "vicious circle" or a "downward spiral" (UNU 2003.)

According to Vries and Hilderink (2003), environment and poverty are linked by three layers of the system; first, social system and individual development; second, economic system and infrastructure with the government system in between, and third, together with backward and forward linkages from the environment and resource system across all the three layers. Considering these dynamics and multidimensional linkages between environment and poverty, (Hazlewoord 2002) identifies two fundamental challenges; first, sustainable management of environmental resources considering poverty, and second, making sure of these goods and services to poor in secure and equitable manner. These two issues are directly related with socio-economic policies and governance regarding the environmental management and poverty alleviation.

3.3.1. How environmental degradation affects to the poor?

Environment has significant role to the poor people and their livelihoods. Their well-being and quality of life are strongly related to the environment in term of basic services, security, housing, income opportunities, health condition, etc. (Jehan and Umana 2003). Since poor people cannot afford the cost of environmental damages, they are always

evicted-wealthier classes virtually never face forced eviction (Tebbal 2005). On the other side, poor people live in environmentally risk and vulnerable areas for selling their labour in nearest markets and minimum costs of living. These risks are acceptable to poor as an "easy excuse to evict people" (Tebbal 2005), and "poor are main sufferer of loss of life and health from pollution and other environment-related causes" (PEP 2005). Data shows that most of the people who die every year from water and air pollution related diseases are from developing countries (e.g. 3 millions by water related diseases like diarrhoea and cholera, 2.5 millions by malaria, 3 millions by air pollution and more than 2 millions of them by indoor air pollution (UNDP 2002).

The impact of environmental degradation always affects to the poor more than non-poor and its damage hits to them the hardest. According to the Shyamsundar (2002), environmental degradation may affect the poor in two ways more than non-poor: they may suffer in illness and makes them vulnerable due to the low productivity and low nutrition; and air and water pollution affect to the poor rather than to the non-poor.

Rural poor are basically concerned with the availability and accessibility of natural resources (e.g. land, water, forest, pasture, etc) especially in relation to food security. "Impact of deforestation on the living standards of the poor would be greater than for the non-poor" (Baland *et al* 2002). World Vision (1999) states that soil erosion reduce productivity; deforestation increases the cost of firewood collection and increases the risk of natural disasters to the rural poor who used to live in ecologically fragile and vulnerable remote areas.

Likewise, urban poor are concerned with the use of natural resources, access to a clean environment and basic services like air and water pollution, waste disposal, secure tenure, safe drinking water, sanitation, energy etc. (World Bank 2002). According to World Vision (1999), in urban area, unsanitary increases the risk of diseases and environmental damage increases the risk of natural disasters to the poor who live in vulnerable areas like edges and slum.

Environmental degradation reflects in different scales some are truly global concerns and some are localized. However, the impact of global environmental degradation in local level affects the lives of poor people more (Jehan and Umana 2003).

3.3.2. How poor affect to the environment?

Melnick *et al*. (2005) have identified five major drivers of environmental deterioration by human activities: changes in land coverage, inappropriate exploitation of natural resources, invasive of exotic organisms, air and water pollution, and climate change. Among them, poor people are responsible for only two drivers (changes in land coverage and inappropriate exploitation of natural resources) in minimum level.

It is believed that poor are responsible for environmental degradation by doing over exploitation of resources to fulfil their family needs for survival. Likewise, poor cannot invest or would not be interested to invest in environmental protection, and they don't have knowledge to protect environment as well (Tharakan and MacDonald 2004).

3.2.3. Poor are not responsible for environmental degradation: Deconstructing some myths

There are some strong counter arguments against of "poor are responsible for environmental degradation". Some literatures (World Bank 2002; Jehan and Umana 2003; Tharakan and MacDonald 2004, DFID 2002) argue that the industrial sector, non-poor and government agencies are actually the responsible for the majority of environmental damage through using the resources in unsustainable manner and generating wastes and stress to the nature.

Tharakan and MacDonald (2004) argue that in reality non-poor actors in the local level (i.e. local elite, consumers, government agencies etc.) damage environment by land clearing activities, over consumption and massive use of chemicals. In international level, basically, rich people and industrialized economy are major responsible for environmental degradation and breaking down traditional knowledge (WBGU 2004; Angelsen 1995)). Available Data also shows that per capita carbon emission is 11 metric tons in developed countries comparing 2 metric tones of developing countries (Jehan and Umana 2003).

But, impact of poverty on environment is overestimated. World Bank (2002) argues that poor people have technical knowledge about how to manage resources, and conscious about the negative impacts as they depend on environmental resources for survival (DFID 2002). Not only that, they are also investing monetary and labour resources for the conservation of forest, water and grasslands in many cases using their traditional knowledge (Tharakan and MacDonald 2004, DFID 2002).

3.3.5. Poverty-Environment Nexus in Rural Areas

In rural areas, resource degradation is considered as a serious problem for both environment protection and poverty alleviation. High population growth rate among the poor people and their dependency on natural resources to feed their growing population is the major cause of resource depletion (World Vision 1998). According to Angelsen (1997), nearly 60% of the world's poorest people are living in ecologically vulnerable rural areas, and they are the first sufferers of all types of natural disasters like droughts and floods.

Pressures on common property resources (CPRs) is considered one of the major issues of poverty-environment nexus in rural context as poor are highly dependent for CPRs like forest, pasture land, watershed for their livelihoods. CRPs provide so many things to the rural people, and they have been preventing from the degradation of CPRs by adopting traditional resource-sharing systems. Similarly, due to the lack of control by anyone, open access resources (e.g. pastoral lands, government forest and wetland) are being over exploitation for short-term benefits in rural areas (OECD 2002).

3.3.6. Poverty-environment nexus in urban areas

In the urban context, the poor are primary victims of the urban environmental hazards and considered as the most vulnerable groups who have to phase the all types of pollution and disease-causing agents. Like the rural poor, the urban poor are also more vulnerable community to natural disaster (e.g. flood, earthquake) since they used to live in marginal and unplanned land. According to the OECD (2002), women and children are the most vulnerable groups from the negative impact of urbanization.

3.4. Poverty-environment linkages with MDGs

3.4.1. Poverty Eradication Approach

In the recent days, poverty is defined using more parameters than only with monetary. Initially, poverty was calculated on the basis of income and expenditure capacity of people but it covers beyond the income like health condition, safety, access to education, food security and basic needs including vulnerability, and their inclusion by government and society (DFID 2002). Since poor people depend on natural resources for their livelihood, environmental degradation directly affects them, especially by scarcity of resources like food, fuel, fodder, building materials and medicines from a diverse natural environment (DFID 2002). Having this situation, environment problems cannot be addressed effectively without considering the poverty situation to achieve overall MDGs goals.

3.4.2. Environmental Sustainability Approach

In the same way, environment is also defined beyond the physical and natural environment and its services are recognized as a "source of financial, cultural and spiritual value" (DFID 2002). On the basis of this definition, UNDP (2003) has identified two dimensions of environment to address the global challenges on poverty, resources availability for the poor and their livelihoods, and reduce the damage of over consumption by rich people. On the other hand, poor are suffering by several environment related risks and vulnerable conditions which is the major challenge for achieving MDGs (ADB 2007). Furthermore, UN Millennium Project also argues that "long-term success in meeting all of the Millennium Development Goals depends on environmental sustainability" (Melnick et al 2005), and focusing on economic growth without considering the environmental sustainability only hurt the poor and can't solve the problem in long term (UNDP 2003).

3.5. Synchronization of Policies towards MDGs

There are so many examples around the world on the synergic effort of poverty and environment and win-win option to improve the quality of life of the poor and environment together (PEI 2000). The basic idea of synchronizing environment and poverty policies is to address the several political, economic and social obstacles in effective way to achieve the MDGs. In this situation, only synergic efforts help to reduce the cost by avoiding the double counting by taking into account as well (UNDP and NPC 2006). It can be an appropriate tools and practical approach to the developing countries that have been facing the resources scarcity to invest in their development.

In conceptual level, poverty eradication and environmental issues are in the centre of sustainable development and MDGs globally, therefore, made commitment for mutually reinforcement. They have considered two way relationship- how MDGs related policies can contribute for achieving sustainable development, and where sustainable development policies can contribute to achieve MDGs by 2015 (Prakash 1997). To translate the concept in the reality, policy and programme should be designed and implemented accordingly, and some available literatures (Prakash 1997; PEI 2000; DFID 2002) discuss on how to make synergic efforts in poverty and environment.

DFID (2002), PEI (2000) and Prakash (1997) focus on the participation and ownership of stakeholders. Since most of the resources are controlled by powerful groups of the society, thus, minorities such as lower-caste, women and indigenous people are vulnerable which should be included in the process (DFID 2002). To build up the synergic effort to poverty and environment, partnership of poor local communities as a major stockholder in

decision-making process through empowering poor as actors of problem solution, not the part of problem, is essential. (PEI 2000, DFID 20002). Prakash (1997) goes beyond the participation, and states that if poverty is the cause of environmental problem in rural area where environment is fragile and marginal, allow to the local community to manage the resources jointly with government agencies to help control the resource degradation in local areas by getting balanced distribution and common responsibility.

Similarly, institutional structure, incentive mechanism and governance are also equally important for synergic efforts. DFID (2002) states that government should be transparent, accountable and responsible for pro-poor policies and should incorporate the poverty-environment issues, and role of other stakeholders should be increased. If we analyze accurately and adopt appropriate institutional measures (e. g. provision of soft credit, cheap fuel and clean drinking water) to the poor during the serious natural disasters and hazards, and economic crisis, environmental problem and poverty can be reduced (Prakash 1997).

3.6. Linkages between PRSP and MDGs

Poverty Reduction Strategy Paper (PRSP) is being implemented in most of the developing countries with the support of World Bank to promote broad-based economic growth and poverty reduction. Now, it has been described as an effective tool for achieving MDGs. A review done by World Bank about the progress on PRSP, Bojö *et al* (2004) find that only the most of PRSP outlines are focused on legislation, regulations, law and institution for environmental management in general, but not in actions. Review also found that they are almost silent in the documents about the policy intervention, synergic efforts and cost effectiveness (Bojö *et al* 2004).

It is found that there is still big variation to improve PRSP focusing on MDG 7 on environmental sustainability but less effort to its improvement. Most of PRSP, they reviewed, have mentioned the relationship between poverty reduction and environmental sustainability, but indoor pollution, and children and women health issues are still ignored (Bojö *et al* 2004). Even after the revision and improvement process of PRSP, most of them were found only focusing on water supply and sanitation. Even, progress review report (Bojö *et al* 2004) reports: "Out *of 11 full PRSPs that were upgraded from interim to full stage since the latest MDG7 review, most lack information on baseline and target data"*.

According to the review reports, crucial environment issues are either missing or not addressing properly. It was found that most of the developing countries have addressed rural environmental issues like land degradation and deforestation in PRSP documents, but rarely discussed in-depth urban poverty ((Bojö *et al* 2004). Since most of the cities provide water in cheap price, but they never reach in slum areas where poor live. Urban are highly vulnerable because the average income of urban area is higher than the rural, but inequity and Gini-coefficient are quite high in urban (Melnick *et al* 2005). However, urban slum issue is covered in MDGs. But, in both PRSP and MDGs, disaster is completely missing to address properly which is directly related with environmental conditions and vulnerability of the poor (WBGU 2004).

3.7. Implementation of Environmental and Poverty Policies: Challenges and Opportunities

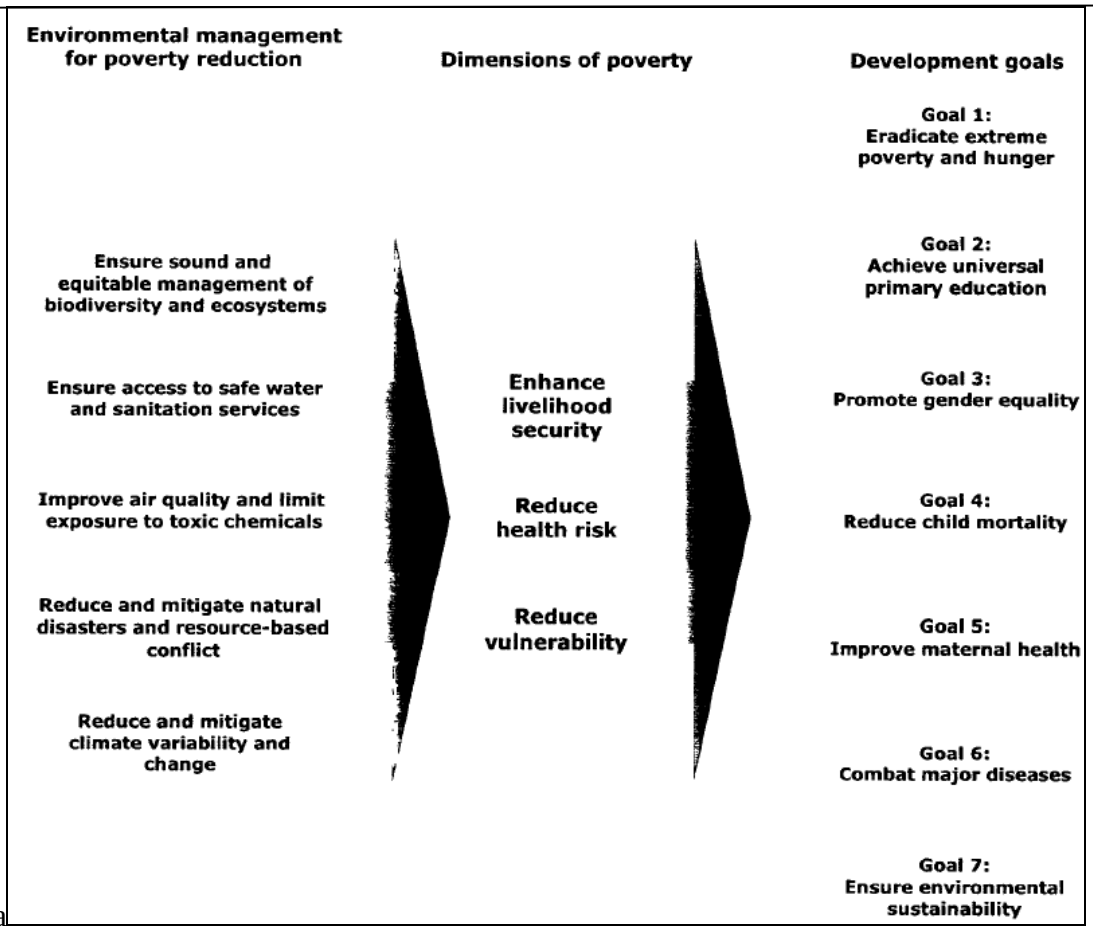
Considering the complex and multidimensional nature of poverty-environment linkages, it needs massive institutional and policy reform in different sectors that may create wider opportunities and challenges.

3.7.1. Opportunities

If poor people are regarded as the part of solution rather than the part of problem, and environmental management programme is implemented jointly with other development programmes, they will be enable to improve their livelihoods and quality of life through using their own resources and cooperation with other members of the society (Killeen and Rafi 2001). Prakash (1997) argues that poor put in a tremendous amount of planning and labour to control the environment degradation in traditional manner but only the lack of appropriate policy frameworks and incentives to facilitate and regulate the practice of poor people toward environmental management. Therefore, it is argued that decentralization, good governance, involvement of the civil society and participation of disadvantage communities are the effective tools to implement the poverty and environment programme in local level. Similarly, to enhance the capacity of poor for environmental management and establish their rights over resource, pro-poor and environmental friendly technology should be promoted (IBRD/World Bank (2002).

Figure 3.1. Poverty-environment policy and achieving Millennium Development Goals

ca



Source: IBRD/World Bank 2002. *Linking Poverty Reduction and Environmental Management: Policy Challenges and Opportunities*

As shown in Figure 3.1, integrated poverty and environmental policies help to improve the quality of growth to achieve the overall Millennium Development Goals (MDGs). Directly, it increases the access of poor on natural resources and reduces the negative impacts of the environmental degradation on poor people. It also contributes to the other goals like reducing child mortality, child education, accessibility of resources and services, and gender empowerment. It has also some indirect implications to the poor people such as the issue of ownership of poor on common resources, empowerment of the poor etc. Similarly, Environmental Kuznets Curve and Beckerman Hypotheses on environment and pollution argues that only the environment projection is a prerequisite to achieve the goal of environmental sustainability, but this poverty-environment linkages approach advices to

the policy maker to “take a balanced approach towards environmental policies” (Jehan and Umana 2003). Finally, it helps to improve the environmental conversation, reduce environmental degradation and resources for other development sectors (Jehan and Umana 2003).

3.7.2. Challenges

Changing global economy and neo-liberal model of national economy have reduced the role of government in formulation of economic policies and programmes and their effectiveness in implementation as well (Tharakan and MacDonald 2004). Furthermore, World Bank (2002) argues that subsidies, mispricing of the resources, inadequate taxation in non-environmental friendly products have been providing the wrong incentives for environmental improvement.

PEP (2005) argues that environment related issues of poor people are normally ignored in national planning process in many countries and their efforts towards MDGs, because poor people have less influence capacity in the political level. In the market economy, industrialists and rich people can always influence the policy. According to the OECD (2002) political will is a prerequisite for the pro-poor and environment friendly policies since the issues of redistribution of resources or rights of access are very important in these cases.

In Nepal, lack of organized voice of people, government authorities neglect many serious issues related with poor. Since their voice is not louder voice, poor people are receiving very limited supports for basic sanitation and safe drinking water as well (UNDP and NPC 2006b).

On the other side, poor people believe that poverty is result of their fate. UNDP and NPC (2006b) identifies that due to social system and tradition, they never try to come out from the poverty. It also identifies that accessibility; reliability and quantity are the major problems of safe drinking water. “Unequal distribution and fragmentation of natural resources like land are resulting in poverty for many people” (UNDP and NPC 2006b). Unplanned growths of population and over consumption of limited natural resources are the basic causes of increasing poverty and environmental degradation in Nepal (Nunan 2002).

3.8. Conclusion

Both poverty and environment have correlation with the issues of equity and growth (Tietanberg 1994). Without reversing environmental degradation and pro-poor environmental management programme, it is not possible to achieve the millennium goals along with its poverty goal (Hazlewoord 2002). On the one hand, economic growth helps to improve the environmental quality rather than blaming it as leading to environmental problems and on the other hand, better environment provides the goods and services without any biasness to the rich and poor. Countries like Nepal, which have more than 30 percent population, are still under the poverty line and are facing several environmental problems. Thus, synergic effort can be a policy tool in terms of cost efficiency and dynamic benefits in such countries. But, most of the available literatures are focused on cause and effect relation in theoretical level or discussing separately, this also helps to identify the potentiality of synergic effort toward MDGs.

4. CONCEPTUAL FRAMEWORK

Enough has been discussed in previous chapter to show what has come to be known as the "environment-poverty relation" which is complex so the synergic effort is important. This conceptual framework section defines major themes and sub-themes, and tries to develop the systematic cross-linkages among poverty, environmental degradation and MDGs about why poverty is not reduced and environmental degradation has not decreased. Unless the people have clear understanding about the causes of poverty and environmental degradation, MDGs related policies may be completely misguided and the misconception only creates the loss of resources. As the 3rd chapter suggested the causes and relation of poverty and environment, pro-poor and environment friendly investment mechanism is a need for synergic effort to achieve MDGs.

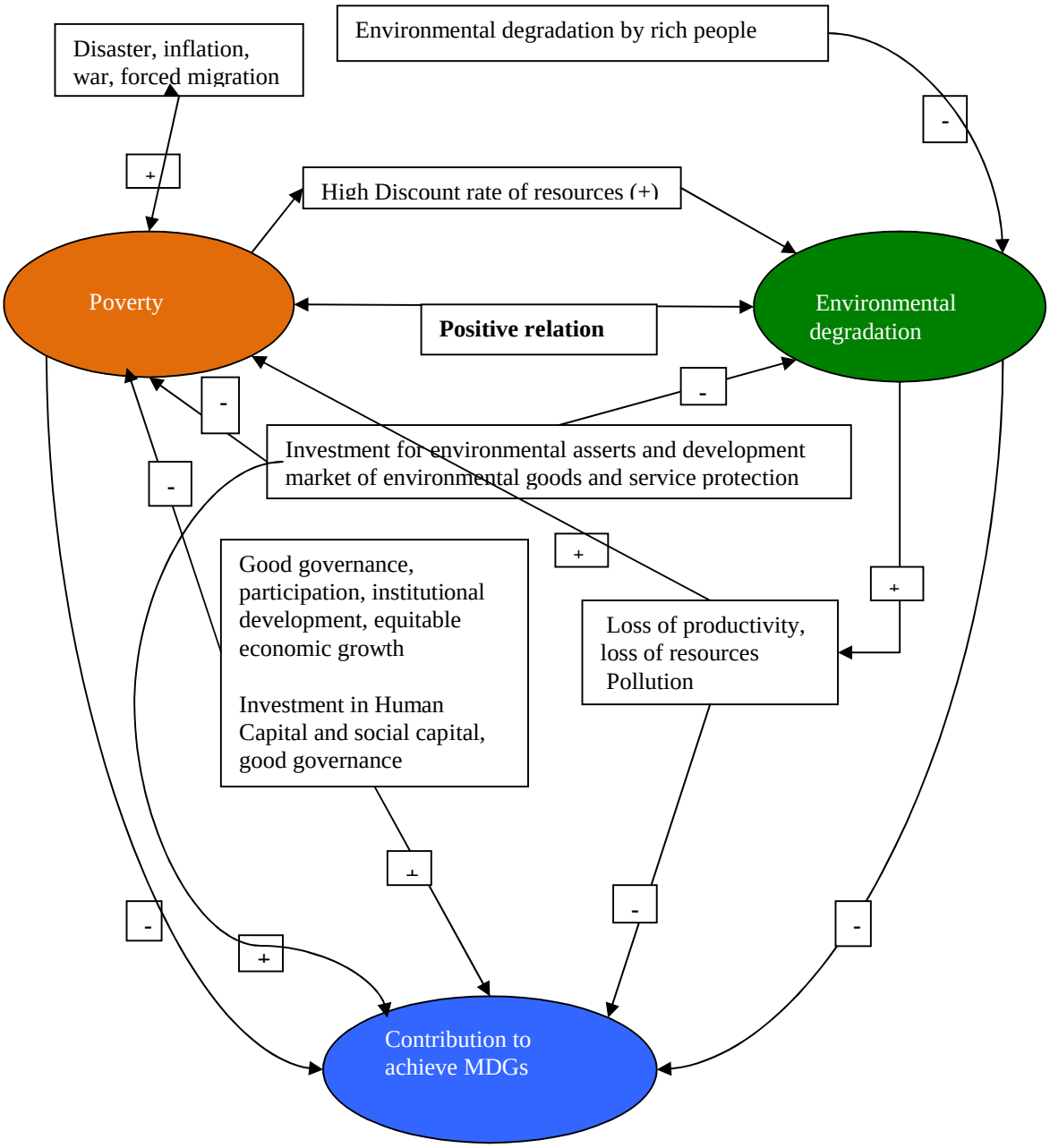
Figure 4.1 shows clear pictures of the relationship among the poverty, environment degradation and MDGs. In the figure, arrows show the linkages with compounding effect (+) and amelioration effect (-). It also shows the vicious circles situation between poverty and environmental degradation and their relationship with achieving MDGs. Environmental degradation makes worse life of the poor and poverty creates the pressure to ruin the natural resources due to their dependency for their livelihoods. Again, environmental degradation makes poor more vulnerable as they should be depended for recourses and may be affected by environmental pollution. It means, this situation affects their health condition, reduce the productivity and overall quality of life. This situation induces a vicious circle. It means, neither poverty eradication goals nor environmental sustainability goals of the MDGs will be achieved by 2015, a global target. But in policy interventions, synergic efforts between environmental degradation and poverty can change

the situation and create positive cycle. More effectively targeted investments in environmental management make good economic sense and create opportunities to poor to lift themselves out of poverty (MDGs) (UNDP 2005).

Only increasing the investment in environmental sector is not enough to achieve the Millennium Development Goals. Equity and equitable economic growth is most important to reduce the poverty and to promote environmental justice but inequitable growth and access may create worsen negative poverty-environment interactions (OECD 2002). According to the UNDP (2005), through improved governance (e.g. participation, effectiveness of state institutions, right balance of power and responsibilities,), investing in environmental assets, improved access to markets of environmental goods and services, improved access to information and technology, creation of human capital (investing in health and education), creation of social capital (access to credit etc.) can be possible to implement the environment and poverty policies in equitable manner.

Likewise, IBRD / World Bank (2002) identifies the following four key priority areas for effective policy and institutional change to link the environmental management and poverty reduction: improving governance (integration of pro-poor and environmental friendly in national policy, establishing institutional framework), enhancing the assets and capabilities of the poor and reduce vulnerability, improving the quality of growth and livelihood opportunity through intergraded environmental and economic policies, and reforming international and industrial-country policies towards environment. However, a county needs political, socioeconomic and environmental sustainability to achieve the MDGs (Jehan and Umana 2003).

Figure 4.1. Poverty, Environment Linkages and their roles for achieving MDGs



Note: "+" indicates a positive feedback and "-"indicates the negative feedback. Arrows show the interactive mechanism,

4.1. Synergic Efforts on Poverty Alleviation and Environment Management

Integrated environmental and economic policies may help reduce poverty through achieving higher performance of economic growth and improved environment. Otherwise, it may get only short term economic gains without long term economic growth, adverse affects to poor and less effectiveness for poverty reduction (IBRD /World Bank 2002), and "if the policies and investments are not put in place quickly, it will be too late to catch up" (UNDP 2006). Therefore, to implement these approaches in action, they need integrated planning of environment and resource allocation in national level strategies, policies, plans, programmes and budgets with the effective partnership among private sectors, NGOs, government, donors and poor people as well (Hazlewoord 2002).

"Synergies accelerate innovation" (IDRC 2006), and increase achievements, reduce cost and time. If environment and poverty alleviation policies and programmes are implemented separately, it only increases the cost and input. In the favour of this argument, Tietenberg (1990) argues to stop those policies which are not pro-poor, and to stop the policies and incentives which are not environmental friendly to achieve sustainable human development. But, the approaches may be different in urban and rural areas. In urban areas, poverty and environmental issues should be addressed through the political and economic policies, rather than addressing directly in environmental issues of the urban area, and in rural areas, environmental policies could be better options to improve the quality of life of the rural people (Forsyth and Leach 1998).

5. COUNTRY BACKGROUND

Nepal is a landlocked and mountainous country located between two mega and highly populated countries: India and China. Northern Himalayan region is linked with Tibetan Plateau of China, and west, east and southern plains are linked with Indian boarder. Total land area is 147,181 square kilometers with diversified landscape from 60 meters of Terai[3] in the south to 8,848 meters high Mt. Everest from the sea level. This chapter describes about population distribution, forest and biodiversity, land degradation and agriculture, air quality, drinking water and sanitation, and poverty distribution scenarios of this country briefly.

5.1. Population Scenario

The total population of Nepal was estimated 23.2 million in national census of 2001 (CBS 2001), and it was predicted to have reached 21.23 million population living in rural areas and 4.08 millions in urban areas in 2005, with the growth rate of nearly 2.25 percent (MOEST 2006a). According to the second national living standard survey (CBS 2004), around 30.8 percent population are living under the poverty line of one dollar per day. Agriculture is the mainstay of the national economy, and almost 75 percent of the population's livelihood is based on agriculture related activities which covers around 39.6 percent of Gross Domestic Products (GDP) (CBS 2004).

Nepal's urbanization rate is considered as the highest rate in South Asia as the figures indicate near about 7.7 percent annual growth rate (CBS 2001). According to national census 2001 (CBS 2001), 14.2 percent of population of 23.2 millions people of this country live in 58 designated urban areas. According to the ADB and ICIMOD (2006)

mountain region is the largest source of out-migration with 69 percent of the total and Terai is the main receiver of migrated population. Rural to rural migration from hills to plain is the highest of 68 percent, while rural to urban is 26 percent, and urban to urban is only 3 percent of total migration (CBS 2004).

5.2. Forestry and Biodiversity

Due to the altitudinal variations, location and high rain fall; it has high biodiversity richness of mammals, birds, insects and several types of forest. The Himalayas rise almost abruptly above the Gangetic Plains from about 100 m. to 8848 m., the top of the world, within less than 200 km of aerial distance (Sharma 2001a), which has made Nepal a mixing place of species originating species of both places, with 118 plant ecosystems particularly 38 in mountains and 52 in hills (NBAP 2000)[4]. Similarly, Nepal has significant result in protected areas. It has 22 protected areas which cover 18.1 percent of the total country land i.e. 2.6 million hectares. Similarly, Nepal has 242 wetland sites mostly in plain Terai and hills, which are the habitat of many endangered species of fish, mammals, reptiles and amphibians (Sharma 2001a).

The forest of Nepal has three important functions: production of goods, protection of natural environment, and regulation of atmospheric conditions. In the Nepalese context, the production function of the forest is to be enhanced for the economic benefit of the community, while the protection and regulation functions are for ecological betterment (NESS and MOEST 2007). 75 percent people depend on agriculture and foresty for gathering fuel woods, timber, fodder, medicinal plants and other forest resources for their livelihoods (CBS 2004) and dependeny on resources for livelihoods has been increasing as

[3] Plain land of the southern part

well (ADB and ICIMOD 2006). Recent study shows that 79 percent of fuel comes from the forest for firewood and it is also main source for grazing and fodder for livestock (GoN 2006).

5.3. Agriculture and Land Degradation

Land is the main resource of Nepal. Around 27 percent of land constitutes the plain and rest 73 percent land includes mountains and hills; cultivated land makes up 2.968 million hectares or 20 percent of the total in 1999 (Sharma 2001). Land Resources Mapping Project (1986) identified that only 16.9 percent of land area is suitable for agriculture practice with deep soils, 15.2 percent is better for fodder production and grazing, 25.5 land consists of slopes of 30 degrees or more which is only suitable for forest, and 22.6 percent land is steep slopes in high altitude alpine zone which is fragile or hazard prone.

Land degradation is one of the major environmental problems in Nepal. “About 28.24 percent of the total land (about 3.2 million hectares) is under the process of desertification in one-way or the other” (MOEST 2006a). It is attributing to fragile geology by several human activities like deforestation, extensive agriculture, excessive grazing, and conversion of steep and marginal lands to agriculture. According to Koirala (2001), the current productivity levels of various agricultural enterprises are less than half the potential.

5.4. Drinking Water and Sanitation

According to the Nepal Living Standard Survey by CBS (2004), only 53 percent of the total population has access in piped water. Tap water and tube wells water is mainly used

[4] See Appendix 2 for details

for drinking purpose in both rural and urban areas. The relative share of tap water in urban and rural areas is 65 percent and 51 percent respectively, followed by tube wells with 23 percent and 29 percent (ADB and ICIMOD 2006). About 38.5 percent of rural population has access to piped water comparing with 68 percent of urban population (CBS 2004). Likewise, 61.8 percent households of the mountains and hills have access to piped water, and 75 percent households of Terai have access to tube wells (UNDP and NPC 2005). Similarly, it is estimated that 92 percent of the urban population and 63 percent of the rural population have toilet facilities (UNDP and NPC 2004). In total, "76.9 percent population has access to safe drinking water and 46.3 percent population has sanitation facility" (GoN 2006).

5.5. Air Quality

Anthropogenic activities like transportation; industry and traditional fuel consumption pattern are the major sources of Nepal's air pollution. In urban areas, people are mainly suffering from the air pollution related problems. The recent study carried out by MOEST (2006) shows that particulate matter less than 10mm (PM 10), total suspended particles (TSP), nitrogen dioxide (NO_2), sulfur dioxide (SO_2) and benzene have increased significantly in the air of Kathmandu Valley, and have crossed the level of WHO guideline value like other Asian cities. According to Shrestha and Raut (2002), vehicle emission shares 67 percent of the PM10 of the valley.

On the other side, in the rural areas where majority of people reside, are highly depended on fuel wood and other biomass for cooking and heating purposes. According to MoF (2003) and WECS (2002), traditional energy source has 87.4 percent share in total energy consumption of Nepal mainly in rural areas which is the main contributor of indoor air

pollution. Acute respiratory infection (AFI) due to the indoor air pollution is considered among the top five diseases in rural areas, responsible for more than thirty percent deaths in children under age 5 (Pokharel 2001).

5.6. Poverty Situation

Poverty is widespread and basically a rural phenomenon in Nepal. The per capita income of the people of Nepal was estimated to be US dollar 240 in 2004 (World Bank 2005). Second Nepal Living Standard Survey (NLSS) carried out by CBS (2004), estimates 30.8 percent population are living under the absolute poverty line comparing the 39 percent of 1995/96. This study also shows that poverty is widespread in mountain (32.6 percent), hills (34.5 percent) and rural areas (34.6 percent) comparing to Terai ((27.6 percent) and urban areas (19.6 percent). Similarly, Nepal Human Development Report (NHDR) also estimates the big gap in terms of Human Development Index (HDI). It estimates the HDI of urban (0.581) comparing with rural (0.452) and national average (0.471), and very low (0.386) of mountain in comparison with hills (0.512) and Terai (0.478) (UNDP 2004).

5.7. Conclusion

Nepal has lots of natural resources for the development and they are equally significant for the global environment protection. On the other hand, it has big challenge to reduce the poverty and improve the quality of life of the people using the natural resources. Sustainable utilization of natural resources and their balance distribution are the crucial issues for the development. Considering these facts, balanced approach to environment protection and poverty alleviation has important role in policy formulation of the country.

6. NEPAL'S PROGRESS TOWARDS MDGs

Nepal has also made commitment to achieve Millennium Development Goals (MDGs) set by UN Millennium Summit 2000 and has been trying to address by several national policies and programmes. To measure the progress towards MDGs, National Planning Commission (NPC) and United Nations Development Programme (UNDP) have published two progress reports jointly after the MDGs commitment in 2002 and 2005. This chapter discusses the progress of two MDG goals: poverty eradication (Goal 1) and environmental sustainability (Goal 7) on the basis of two official reports of the Nepal's government and UNDP.

6.1. Goal 1: Poverty Eradication

> ***Target 1: Income Poverty:*** *Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day*
>
> ***Target 2: Suffer from Hunger****: Halve, between 1990 and 2015, the proportion of people who suffer from hunger*

Millennium Development Goal 1 is related with poverty reduction with two specific targets to reduce income poverty and hunger. Target 1 is to reduce the poverty by half the proportion of people less than one dollar of 1990 by 2015, and Target 2 is to reduce by half the proportion of population suffering from hunger on the base of 1990 by 2015. The latest progress report on MDGs of Nepal argues that income poverty reduction scenario is quite achievable and encouraging and potential to achieve by 2015 (see Table 6.1) (UNDP and NPC 2005). The result of the latest NLSS II survey also supports the argument since it is found that poverty has reduced from 38 to 30.8 percent from 2000 to 2005 (CBS 2004).

But, Target 2, which is related with hunger poverty scenario, is not achievable by 2015 if progress remains the same trend (see Table 6.2)

Table 6.1: Progress in reduce Income Poverty (Goal 1, Target 1)

Indicators	1990	2000	2005	2015(target)
Percent of population below $1 per day (PPP value)	33.5[a]	NA	24.1[a]	17
Percentage of population below national poverty line	42[b]	38[c]	31[a]	21
Poverty gap	NA	11.75[d]	7.55[a]	-

Source: [a]CBS World Bank 2005; [b]CBS 1996; [c]NPC 2003; [d]NPC 1998, citation in UNDP and NPC (2005).

Table 6.2: Progress in reduce suffer from hunger (Goal 1 Target 2)

Indicators	1990	1995	2000	2005	2015(target)
Percent of population below minimum level of dietary energy consumption	49[a]	NA	47[a]	NA	25
Percentage of underweight children aged 6-59 months (>-2 S.D.)	57[b]	47[c]	53[d]	NA	29
Percent of stunted children aged 6-59 months (>-2 S.D.)	60[b]	54[c]	55[b]	NA	30

Source: [a] HMG/UNDP 2002; [e]Extrapolation based on the trend between 1975 and 2000; [c]Nepal Micronutrient status Survey 1998/99; [d].DOHS/New Era 2002, citation in UNDP and NPC 2005.

6.2. Goal 7: Environmental Sustainability

Target 9: *Integrate the principal of sustainable development into country policies and programmes and reverse the loss of environmental resource*

Target 10: *Halve by 2015 the population without sustainable access to safe drinking water and basic sanitation*

Target 11*: By 2020, to have achieved significant improvement in the lives of at least 100 million slum dwellers*

MDGs goal 7 is related with environmental sustainability. Target 9 of MDGs has based on principle of sustainable development which focuses on the reverse of the loss of environmental resources particularly forest, biodiversity, land and protected areas considering these natural resources as the major sources of livelihood of poor people. Target 10 is related with safe drinking water supply and sanitation to provide the safe water and sanitation to half of needy people which is directly related with the health quality of poor people and their hardship to collect water, and target 11 is related with improvement of the quality of life of 100 millions urban by 2020.

In Target 9, there are some specific indicators to measure the progress towards MDGs goals: proportion of land area covered by forests, carbon dioxide emissions per capita and consumption of ozone depleting CFCs (ODP Tons) and proportion of population using solid fuels, ratio of area protected to maintain biological diversity to surface area and energy use (kg oil equivalent) per $ unit GDP (PPP).

Table 6.3: Progress on Integrate the Sustainable Resources Management in Nepal (Goal 7, Target 9)

Indicators	**1990**	**1995**	**2000**	**2004**
Area Under forest (%)	37[a]	29[b]	-	-
Area Protected to maintain biological diversity	10,948	20,077	20,077	28,585.7[c]
Energy use per unit of GDP (Toe/mRS) [d]	34.8	29.0	28.4	29.6
Proportion of people using wood as their main fuel (%)[a]	75	67.74	67.74	69.1
Commercial Energy/GDP (Toe/mRs) [d]	1.44	3.91	3.91	3.64

Sources: [a]MFSC 1998, [b]MFSC 1994, [c]DNPWC 2005, [d]MOF 2003/4 and WESC, [e]CBS 1996, citation in UNDP and NPC (2005).

Table 6.3 shows the progress on sustainable resource management. It indicates that forest coverage area was lost significantly in the past but the recent data is not available, but

NEFEJ (2005) claims that after the successful implementation of community forestry programme, forest coverage area has increased in mountains and hills significantly, but not possible to achieve the 40 % forest coverage areas of total land as targeted by Sustainable Development Agenda of Nepal (NPC and MOPE 2003). But, in the case of protected areas, 19.4 percent of total land areas coverage has been already classified as protected areas; including shrub and grassland of high altitude.

Regarding Target 10, Table 6.4 shows that there is significant improvement in water supply in the past but slow progress in sanitation. It also shows the high gap in accessibility of safe drinking water and sanitation between urban and rural areas.

Table 6.4: Sustainable Access to Safe Drinking Water and Basic Sanitation (Goal 7, Target 10)

Indicators	**1990**	**1995[b]**	**2000[c]**	**2005[d]**	**2015**
Proportion of population with sustainable access to an improved water source[1]	46[a]	70	73	81	73
• Rural	43[a]	68	71	79	72
• Urban	90[a]	96	86	93	95
Proportion of population with sustainable access to improved sanitation	6[*]	22	30	39	53
• Rural	3[*]	18	25	30	52
• Urban	34*	67	80	81	67

Source: [a]Nepal Family Health survey, [b]CBS 1996, [c]MoH, NDHS 2001, [d]CBS 2003/4, [*]Nepal State of sanitation report citation in UNDP and NPC (2005).

Regarding Target 11 on urban slum dwellers, there is lack of clear definition of slum dweller in Nepal and there is no any clear data /study available in this area. Even, MDGs progress report UNDP and NPC (2005) has not mentioned any single line or information about urban slum. But, many organizations and reports (NEFEJ 2004, NEFEJ 2005, Devkota 2006,) claim that there are near about 15000 families living as squatters' status in

different cities, and their living standards and available facilities are not different from slum dwellers.

6.3. Conclusion

Most of MDGs goals related with poverty eradication and environmental sustainability are not achievable within the deadline. Only to speed up the progress, it also needs huge financial resources and institutional mechanism which are not possible immediately in such country like Nepal. Even the latest progress report of MDGs agrees that some indicators have very poor data for monitoring the progress l (NPC and UNDP 2005). As NEFEJ (2006) mentioned, without the political will of the government of Nepal and commitment of development partners, it is not possible to internalize the MDG in the formal plans and programmes of government. Poverty and environment related goals depend on the political will, donors' commitments and effective implementation.

7. REVIEW OF NATIONAL POLICIES AND PROGRAMMES

This chapter briefly looks at the overall and sectoral policies and programmes related with environmental and development adopted by Nepal's government in the past. This reviews the development history of poverty and environmental policies, forestry and biodiversity policies and programmes, agriculture and land degradation policies and programmes, drinking water and sanitation policies and programmes and air pollution policies and programmes which are related with MDGs goals 1 and 7.

7.1. Environment Related Policies

7.1.1. Overview

In 1955, first time, Nepal adopted planned development process introducing the first five-year development plan and the tenth five-year development plan have been implemented so far. These five-year plans have been considered as major strategic documents of the government for the overall development of the country including priority areas, expenditures mechanisms and expected outcomes. Poverty alleviation has been focused as a major development overarching agenda of the nation in all the past development plans. But, the environment was included in fourth five-year development plan, first time, in 1970s after Nepal became the party of The Stockholm Conference in 1972. As a result, Nepal developed the forest policy in 1976 for the first time. After that Nepal has been adopting several environment related policies, which are basically derived from the international conventions, and policies.

From the mid 80s, Nepal attempted to integrate the environmental issues in development agendas and policies by initiating the Environmental Impact Assessment (EIA) for the

development projects especially road and hydropower construction (NEFEJ 2005). After that in 1987, government adopted National Conservation Strategy (NCS) focusing the sustainable use of resources for better conservation, maintenance of biodiversity and genetic resources and active people's participation for conservation (NEFEJ 2005). Similarly, in 1988, Twenty-five Year Master Plan of Forestry sector came out focusing sustainable forest management for poverty alleviation through the community based conservation.

After the restoration of democracy in 1990, several environmental policies, plans and programmes came out liking with development plans which include the environmental issues in development sectors legally (NEFEJ 2005). In 1993, Nepal Environmental Policy and Action Plan (NEPAP) was brought out which is the major policy document to internalize the Agenda 21, the major outcomes of Earth Summit 1992, to address the balanced approach between environmental conservation and economic development. Likewise, development and environment related policy documents like Agriculture Perspective Plan (APP) (1995), Environment Protection Act (1996), Environmental Protection Rules and Regulations (1997), Sustainable Development Agenda of Nepal (2003), National Action Program on Land Degradation and Desertification (2004), National Water Plan (2005) were brought out in the past by the government.

7.1.2. Forestry Sector Policies and Programmes

Nepal government has been implementing several policies and programmes related with forest conservation and its linkage with livelihood improvement. In 1988, forestry sector master plan was brought out with specific policies and programmes focusing on the major aspects of satisfaction of basic needs, sustainable utilization of the forest resources,

participation in decision-making process and sharing of benefits and socioeconomic growth of nation. “The basic principle of master plan was meeting minimum needs of people is pre-condition for growth, but it is not the ultimate end of growth” (Sharma 2001), addressing to the poorest of the poor of the society. It has also focused on the compulsory participation of local people for forest management especially in hilly areas with the idea of bringing the forest users in the decision-making process and benefit sharing for effective management and rational use of resources (MOFSC 1988). After that, five year development plans of government also focused on peoples’ participation in forestry sector for poverty reduction and sustainable resource management through “conservation for poverty approach” (NPC 2003), with the involvement of poor and disadvantaged groups for resource management and income generation activities related with forest sector.

Major programmes implemented in forestry sector in the past are:

Community Forestry Programmme

In 1978, government decided to handover the forest area to local communities for its management, utilization and conservation under the community forestry programme. The main idea of community forestry is to handover the forest to the local communities for management, utilization and management (Sharma 2001a). According to the GoN (2006), until the fiscal year 2005/6, 1,187,184 hectares of forestland has been handed over as community forestry. Now, it is recognised as a successful programme for sustainable resource management with empowerment of local community and income generation activities, although it is implemented only in mountain areas.

Leasehold Forestry Programmme

From 1991, government decided to handover the national forest land to the poor community of the hilly areas in lease basis in free of cost for fixed time of period for their economic growth. The idea is to provide forest-based economic opportunities to the poor farmers of the hills, who are proportionately more dependent on the natural resources and are, therefore, the main causes of environmental degradation (Sharma 2001a). It has adopted an approach of bringing together agricultural and forestry line agencies with rural financing banks and agricultural research agency. Under this programme, government has handoverd 8,272 hactares of governemnt forest to 18,791 households of 19 hills districts are benefited till 2005 (GoN 2006, NPC 2005). According to the UNDP and NPC (2005), about 80 percent of poor people engaged in leasehold foresty programme transfered in non poor catagories after the programme.

Soil Conservation and Watershed Management Programme

Soil conservation and integrated watershed management programme has been implemented in watershed areas with the participation of local community in planning, management and awareness programmes with intergraded packages of watershed, agriculture and forestry. The basic objective of this programme is to improve the local environment and increase economic status of poor farmers to achieve their basic needs of forest resources and food by improving the land productivity and watershed management.

Conservation and Protected area Programme

Conservation and protected area programme has been implementing from 1978 and 18.1 of the total land of the country is protected under this programme so far (GoN 2006). The basic objectives of this programme are to protect the ecosystems, wildlife habitats and genetic resources along with the increase in the income of local people through the tourism

promotion providing alternative fuel sources to the local people in some conservation areas (Sharma 2001a). Not only the protected areas, in 2002, Nepal Biodiversity Strategy (NBS) has focused on the broad concept of landscape management of ecosystem, covering the potentiality of forest biodiversity, agro biodiversity and rangelands for genetic resources and its use (Bhatta 2004). The basic strategy of this type of conservation is to protect the property right of local community over the genetic resources, establish in-situ gene bank and ecosystem protection with the involvement of local community. Interestingly, nongovernmental organizations (NGOs) are also involved in managing the conservation areas with partnership of local community in Nepal.

Non Timber Forest Product Programme

The programme was launched to provide the economic opportunity to the local community through sustainable marketing of the non-timber forest products (NTFPs), specially medicinal and aromatic plants and other minor forest products. It aims to increase the supply of medicinal and aromatic plants and other minor forest products, and facilitate their conversion into useful commodities and their distribution to local and foreign markets (Sharma 2001).

7.1.3. Agriculture and Land Degradation

Nepal is agriculture based country, but only after the 1980 from the sixth five-year development plan, Nepal endorsed the integrated environmental and land use policies which also “identified the linkages between environment and development and proposed programs for poverty reduction” (NEFEJ 2005).

Agriculture Perspective Plan (APP) 1995

Nepal government formulated the 20 years Agriculture Perspective Plan (APP) in 1995 with the objectives to increase the role of agriculture for poverty alleviation through the expansion of commercial agriculture from subsistence traditional farming system and increase employment in agriculture sectors. The main intention of the APP was to reduce the input in agriculture sector, and increase the outcome by identifying the potential areas on the basis of climate and topography of the county with large scale production plan and its trade.

Five-year Development Plans

Previous Five-year Development Plans emphasize the land use and management with the objective of protection of the environment and the judicious utilization of land and other natural resources (NPC 2003). They have focused on classification of land based on ecological characteristics and comparative geographical advantage in production, and land use planning in rural and urban on the basis of productivity. Tenth Five-year Development Plan (NPC 2003) emphasizes on enhancing food security, achieving sustained broad-based agricultural growth, development of agro-based enterprises in rural areas and promotes environment-friendly agriculture such as permaculture, organic farming and integrated pest management (IPM).

7.1.4. Drinking Water and Sanitation Programmes

Nepal has endorsed couple of drinking water and sanitation related policies and programmes in the past. The first policy, Water Resources Act came out in 1992, giving the high priority among the competing uses of water in domestic use and drinking purpose. National Sanitation Policy and Guidelines for Planning and Implementation of Sanitation

Programme in 1994, National Water Supply Sector Policy in 1998, Fifteen Year Development Plan for Small Towns Water Supply and Sanitation in 1999, National Water Supply and Sanitation Sector Policy and Strategy in 2004 have been endorsed in the past.

Five-year development plans also have kept the drinking water and sanitation in high priority. Tenth Five-year Development Plan aims to provide piped water facilities to 85 percent of the population and provides treated water to 40 percent of the population during the period of 2002-2007 (NPC 2003). It also aims to provide sanitation facility to additional 20 percent population during the period. It has also planned to spend 7.5 percent of total government expenditure in water and sanitation sector (NPC 2003). Most of the cases, drinking water and sanitation programmes have been implementing together considering their nature.

Community Participation Programme

In the last decade, Nepal implemented several community projects on drinking water and sanitation projects with the support of several donor agencies, NGOs, Asian Development Bank (ADB), UNICEF, and other several programmes with NGOs and INGOs. In current practice, "community has to contribute 10 percent of the total cost and 1000 NRs per tap for monitoring and operation of the system" (Pande 2001). These demand driven projects are evaluated highly successful in terms of community involvement and ownership (NEFEJ 2004).

Institutional Strengthening Programme

Department of Water Supply and Sewerage (DWSS) was established in 1972 to work as a main responsible institution for water supply and sanitation. It alone spends around 60

percent of the total government budget allocated in the country for constructing new drinking water and sanitation projects (Pande 2001). Similarly, Nepal Water Supply and Sewerage Corporation (NWSC) was established in 1989, as a public company, to work as a leading agency to provide water supply and sanitation in all the municipalities.

7.1.5. Policies to Reduce Air Pollution

Nepal government brought the National Conservation Strategy (NCS) in 1998 addressing air, water and noise pollutions particularly in urban areas. NCS also guided government to enforce industrial effluent standards, noise abatement standards, and correlative mitigation and preventive measures. Another important aspect of the NCS is that it recognizes the "need of the establishment of air and water quality monitoring and evaluation system" (Pande 2001). Environment Protection Act (1996) and Environment Protection Regulation (1997) also emphasized to adopt the environmental friendly technology, standard, control measures and transportation models to reduce the air pollution (Pande 2001). Similarly, National Transport Policy (2002) also emphasized the pollution control in urban area by vehicle operation, promotion of electric transportation, and promotion of public transportation.

To reduce the urban air pollution, government has enforced the policy to import only EURO-1 emission standard transportation, banned of high pollution diesel operated three-wheelers from main cities and phasing out program of 20 years old vehicles and two stroke engine and three wheelers diesel tempos. Similarly, to reduce the indoor air pollution, government has been promoting the improved cooking stoves (ICS) in rural areas. Except that there is no any other specific policies and programmes found to reduce the indoor air pollution.

7.2. Poverty Alleviation related Policies and Programmmes

7.2.1. Overview

Nepal has been implementing five-year development plans from 1955 and poverty alleviation is considered with high priority and reflected in other policies and programmes. In 1965, population policy was introduced with the objectives to improve the child and maternity health and population control. In the later years of Panchayat regime (1952-1990), especially in the sixth five-year development plan (1980-1985), poverty was reflected as a major agenda of development with the target of fulfilment of basic needs of the population (NEFEJ 2004). After that most of the plans and policies have identified the poverty as a major challenge and its linkage with other development issues.

After the restoration of democracy in 1990, development plans emphasized on poverty alleviation using demand led approach and broad-based development (Koirala 2001). Eighth plan (1992-1997) focused on poverty reduction linkage with basic needs approach with identification, food security and other legal and institutional arrangement for poverty. In the planning period of 1997-2002 the ninth plan focused the poverty with specific sectoral policy and programme for poverty reduction (CBS 2003, CBS 1997). Likewise, in 2002, Nepal government identified the poverty and land degradation as major challenges for achieving sustainable development (MOPE 2002).

7.2.2 Poverty Reduction Strategy Paper (PRSP)

The Tenth Five-year Development Plan (2002-2007), known as Poverty Reduction Strategic Paper (PRSP) of Nepal, has tried to internalize the Nepal's commitments to

Millennium Development Goals (MDGs), and Sustainable Development Agenda of Nepal (SDAN). It has identified four major strategies for poverty alleviation (NPC 2003). The first one is “high broad-based and sustainable economic”, second one is “improving the quality and availability of social and economic services”, third one is “ensuring social and economic inclusion of the poor and marginalized groups through targeted programs” and fourth pillar is “vigorously pursuing good governance to improve services, their efficiency, accountability and transparency” (NPC 2003).

PRSP has emphasized on poverty reduction of rural area through improving the governance system, reducing the role of government and limited public intervention, promoting decentralization, increasing the role of private sector for employment generation and income generation activities with nongovernmental organization for service delivery, increasing the public participation and role of local authorities in local level for better monitoring etc. (NPC 2003). It also focused on budget expenditure mechanism through strict adherence to a sustainable macroeconomic framework through setting annual budgets and spending plans within realistic levels (NPC 2003).

It has also reflected poverty and environmental issues and agendas with high priority, and plan has incorporated environmental issues into its socioeconomic development planning within the policies of sustainable development and poverty reduction ADB (2004). Ongoing Tenth Five-year Development Plan (2002-2007) aims to promote sustainable, reliable, low-cost, safe, comfortable, pollution free and self-reliant transport system to improve overall impact in socioeconomic development of Nepal. It has also given highest priority on fixing standards on various sources of pollution and need of effective monitoring and evaluation system, design and implementation of economic tools to

facilitate compliance of standards voluntarily, improving data bank of air pollution for the improvement of air quality of the urban areas (NPC 2003).

Recently developed environmental policies and documents (i.e Water Resource Policy 2003, Leasehold Forestry Guidelines 2003, Collaboration Forestry Guidelines 2003) are also tried to reflect the basic concepts of PRSP focusing on people participation, resource and benefit sharing, commercialization and privatization of resources in sustainable use manner (NEFEJ 2005).

But, after the 10 years long Maoist war and other ongoing conflicts, the recently developed draft of Eleventh Five-year Development Plan of Nepal has focused on peace and reconstruction as a primary goal, and poverty reduction goal has become the second priority in 50 years long development planning history (Himal 2007).

7.3. Conclusion

Poverty alleviation and improving quality of life with greater opportunity in social, cultural, ecological and political aspects of the people's life are the major challenges of sustainable development in Nepal (NPC and MOPE 2003). There is no lack of plan, policy or programme to address the poverty and environmental problems, but the only problem is "lack of effective implementation." to achieve the MDGs. Therefore, most of the major policies are repeating one after another plan.

8. ANALYSIS OF POVERTY AND ENVIRONMENTAL POLICIES TOWARDS MDGS

This chapter analyses the opportunities and challenges to develop the synergic efforts to achieve the poverty eradication and environmental sustainability goals of MDGs. Narrowing down the broad coverage, it only covers forest and biodiversity, agriculture and land degradation, drinking water and sanitation, air quality and poverty. To evaluate the opportunities and challenges in these areas, this chapter tries to look through the angles of governance (integration of pro-poor and environmental friendly policy), resource rights and institutional framework, stakeholders' participation, equity (distribution of resources, benefit sharing mechanism, paying for environment etc.) and investment in environment.

8.1. Overall analysis

8.1.1. Lack of Harmonization on Policies and Coordination among Government Authorities

As discussed in the chapter 3 above, integrated environmental and poverty policies may help to achieve the better results in multi sectors reducing overall investment and resources as well. In Nepal, National Planning Commission (NPC) designs and coordinates the overall national policies, and Ministry of Finance (MoF) is responsible for financial resources. Likewise, other ministries and agencies (e.g. ministries of agriculture, forestry, science and technologies and other local authorities) develop the policies and programmes. In 1993, Environmental Protection Council (EPC) was established under the coordination of NPC to coordinate the all ministries for environment related activities. Under this act, all the development related ministries have separate environmental unit. But most of the development and environment policies are challenging each other rather than

complementing, therefore, lack of harmonization of these policies is still remained one of the major bottlenecks (NEFEJ 2005). NEFEJ (2005) identified one of the reasons behind this failure is that NPC does not have any legal power to enforce to other government agencies for the implementation of policies and programmes.

In a conversation on 17 May 2007, Dr. Dilli Raj Khanal, former member of NPC states that Nepal never exercised coordination during programme designing. It has several organizations and structure for similar types of work. He also adds that it has been done some exercise in macro level to make harmonization, but reflection on programme and outcome is insignificant. Also, in a conversation on 21 May 2007, Prithivi Raj Ligal, former Vice-chairman of NPC agrees and says that different government authorities (like agriculture, forestry, health, education and infrastructure) are working in the same place for different purposes but not well coordinated. ADB (2004) also reports that Nepal has problem in coordination and working being isolated in implementation along with lack of capacity of policy coordination in bureaucracy and political will.

8.1.2. Lack of Institutional Arrangement in Implementation Level

Several institutions are involved in policy formulation related with poverty alleviation and environment in national and local levels. NPC is responsible for policy formulation, Ministry of Finance for financial resources and other ministries for implementation. In practice, government policies take long time to translate it into acts, regulations, rules and guidelines since legal documents are most important for policy implementation. Due to delay in policies translation, new programme only comes out in older age (NEFEJ 2005).

On the other hand, (NEFEJ 2005) argue that most of the policies come without identifying the operational mechanism, either these are superficial or philosophical without considering the reality and needs since programmes and projects are the wheels of policies to achieve the targets. In a conversation on 29 May 2007, Dr. Hari Pradhan, former Programme Manager of MDGs Project, argues that most of the government policies are donor driven not the demand driven. He claims that they are designed under the pressure of international policies to get donors support without preparing the programmes and activities.

Regarding the synchronization of environmental and poverty programme, in a conversation on 27 May 2007, Dr. Toran Sharma, Executive Director of NESS, observes:

> *Ministry of Science, Technology and Environment (MOEST) is rhetoric and completely failed to coordinate among several institutions and synchronization of poverty and environmental policies are beyond the thinking. MOEST is not development friendly for poverty alleviation as they are more biased on protection attitude that is why other institutions, ministries and private sectors never want to consult with it.*

Consequently, integration of environmental policies with development is always ignored in national level. Other ministries "are left on their own to implement their own environmental activities, as each of these sectors has its own environmental desk" (NEFEJ 2006).

8.1.3. Weak Environmental Impact Assessment

Development projects are necessary to the developing countries like Nepal for reducing poverty and economic growth. Since 1993, Nepal has enforced the new and important policy towards environment protection implementing the Environmental Assessment Guidelines. According to the MOFST (2006), more than 42 Environment Impact Assessments (EIA) and large number of Initial Environment Evaluations (IEE) have been approved by Nepal government. But "EIA is still largely considered to be an 'add-on' project burden and EIA reports are commonly based on inadequate data" (ADB 2004).

8.1.4. Stakeholders' Participation

There is very limited stakeholders' participation in development and environment related policy formulation process as "ceremonial functions. It has become either academic practice of consultants or bureaucratic exercise of government officials" (NEFEJ 2005). In a conversation on 27 May 2007, Dr. Toran Sharma, an EIA expert, also claims that most of the policies and programmes are developed without stakeholders' consultation. He also adds that stakeholders' consultation is only practicing to fulfil the legislative condition. In a conversation on 7 May 2007, Dr. Govinda Koirala, Executive Director of SAPPROS, also argues that poor are not treated as the actors of development just considering as third part, participation of poor in decision making of these programmes are insignificancy either absent or only in token.

8.1.5. Investing to Poor and in Environment

Given the responsibility and support to protect, and benefit sharing from the resources to the local communities, they can be the guardians to protect their own natural resources (ADB 2004). In the case of Nepal, very limited resources have been given to local community for their utilization, protection and management. Koirala (2001) argues that

most of the poor households are not organized into viable institutions, and hence, they cannot receive development attention. Poverty reducing programs are unorganized or haphazard covered only the borderline poor and not the ultra-poor and not sufficiently holistic targeted. It means, most poverty related development projects have only 23.5 percent of economic rate of return in Nepal (Koirala 2001). Similarly, investing in environment related poverty project never becomes the priority (NEFEJ 2005)

8.2. Challenges and Opportunities for Forestry and Conservation Targets

This section discusses on how environmental sectors' policies are incorporating poverty issues in terms of policy integration, resource rights, institutional mechanism, equity, benefits sharing and so on. Recently, Interim Constitution of Nepal (2007) has ensured the fellow citizens to have a fundamental right to live in a clean environment and economic development.

8.2.1. Integration of Pro-poor and Environmental Friendly Policy

Nepal's forest coverage data was estimated 45 percent of forest coverage of land in 1964 and 43 percent in 1979, 37.4 percent in 1986 and 39 percent in 1998 (MOFSC 2003). The latest figures show that total forest area coverage has been increased during the 90' and it is the result of policy on people participation in conservation and management of forest resources (MOFSC 2003), since government has been implementing some people participatory programmes in conservation and most of the conservation related programmes are designed with compulsory people participation (see chapter 7 for details).

Tenth Five-year Development Plan also focused on broad based economic growth and prioritized the community forest as an income generation for poor, raw materials for industries and creating employment beyond the fulfilment of community basic need and protection (NPC 2003). However, national government has designed forest polices based on protection approach rather than utilization of forest resources for poverty alleviation. This unclear situation has created confusion to use community forest resources for income generation activities (Kumar 2000).

In a conversation on 27 May Dr. Toran Sharma, Executive Director of NESS, identified two issues related with forest management programmes: status of biodiversity inside the forest areas and contribution to poverty alleviation. He argues that there is no evidence and any data available about improvement of biodiversity status and contribution of forestry programme in poverty alleviation in national level. Similarly, in a conversation on 29 May, 2007, Dr. Binod Bhatta, a community forest expert, also adds that definitely, there are some positive changes in overall greenery of the forest areas, but not the sufficient proof regarding the overall improvement of quality of forest since majority of forest areas still remains as national forest.

Regarding the community forestry, a widely acknowledged successful programme, initially the idea, was to fulfil the need of poor and protection of forest resources to control the deforestation and degradation of natural resources but that the community forestry operation plan is basically focused on protection and incomes for the forests are very limited (Kumar 2000). Government focuses only on areas of forest coverage since local people are spending huge social capital for their community forest management, but returning to their livelihood improvement is insignificant (NEFEJ 2004). The reason of

this failure is that government has not considered the forest resources for poverty alleviation; but it only considered as a part of subsistence economy, which never makes poor richer. Same thing applies with other conservation programmes as well (In a conversation on 27 May 2007 with Dr. Binod Bhatta). Nevertheless, in a conversation on 3 June 2007, Dr. Bharat Pokharel, Community Forestry Advisor of Swiss Development Agency (SDC), argues that contribution of community forestry has been underestimated since long time as it has tremendous contributions in rural livelihoods.

8.2.2. Resource Rights, Institutional and Stakeholders' Participation

As discussed in chapter 7, government has handed over the forest areas to the community as community forest and leasehold forest for the protection, utilization and management. Even in the protected areas, local people's involvement is made compulsory. But, in practice, government roles are still overwhelming and limited rights have been transferred to the community (NEFEJ 2005). Kumar (2000) argues that several government restrictions on forest products marketing, transportation, pricing and taxes and their own interpretation by field level staffs of forestry are creating obstacles to the local people on commercialization of forest products. Due to this reason, community and leaseholds forest users' groups are facing to sell their product in other districts for getting barrier for making profits.

Under the community forestry regulation, local community can spend all the income of community forest without any consultation with government authorities. But, in Terai where forests are mostly managed by government due to the vulnerable to illegal felling and smuggling because of their proximity to international border, government implemented the community and partnership programme under the collaborative forestry

programme in 1993. Under his programme, community only can spend 40 percent of their incomes in community development, which became the cause of conflict in Terai between government authorities and local community. “Many user groups managing Terai forests could not protect their forests from illegal felling and smuggling, and in fact, in some of those cases, the Forest User Group (FUG) officials were themselves found involved in the illicit practices” (Sharma 2001a). In a conversation on 11 June 2007, Bhabesor Das, Executive Director of SION, argues that it was implemented considering the high value of Terai forest which was the major source of government revenue.

Regarding community forestry programme, in a conversation on 10 May 2007, Jiban Bahadur Shahi, President of Network Nepal Network for Sustainability Development (NNSD), argues that poor people are not involved in decision making process as they are uneducated and economically poor but they are just involved as ceremonial and most of the decisions are made by rich people. But, in a conversation on 3 June 2007, Dr. Bharat Pokharel, Community Forestry Advisor of Swiss Development Agency (SDC), claims that at least, community forestry programme has done great contribution in democratic practice and people participation.

8.2.3. Local Resource for Local Development

Annapurna Conservation Project (ACAP) is very good example on mountain resource conservation through the participation of local community and benefit sharing. This conservation area collects resources from the tourist as entry fees and other incomes, and spends in local development of the conservation areas. It has been recognized a successful example of local development, conservation and participation. Similarly, leasehold forest

programme is also considered as a successful programme for conservation and poverty alleviation (see chapter 7 also).

8.2.4. Park and People Conflict

Most of the national parks of Nepal were established during 1970s in traditional model of conservation. “People’s participation is limited to seeking their opinions by the respective managers before preparing management plans or strategies” (Sharma 2001a). Nepal Army is responsible for protecting most of the national parks in Nepal. And only the government authorities allow local people to enter the park for a continuous duration of 7 days (reduced from 10 days earlier) to harvest grasses, reeds and binding materials (Sharma 2001a). In a conversation on 10 June 2007, Ghanshyam Pande, Chairperson of Federation of Community Forestry Users Groups, argues that government attitude on protected areas is the major problem as local people are facing the negative externalities of National Parks. However, under the buffer zone area programmes; local people are receiving very limited resources for the local development.

8.2.5. Equity and Distribution of Resources

Equity and distribution of resources matter a lot for poverty alleviation (Tietenberg 1994). There are so many second-generation issues in forest management that are not addressed yet, especially equity related issues in community forestry in terms of economic, gender and regional balance (NEFEJ 2004). But, leasehold forestry programme is found as a successful programme to address the poverty and equity since about 80 percent of poor people engaged in this programme transfered in non poor catagories after the programme (UNDP and NPC 2005).

In a conversation on 10 May 2007, Jiban Bahadur Shahi, President of Network Nepal Network for Sustainability Development (NNSD), argues that community forestry is still controlled by feudal and traditional landlord people in rural areas and user's policies are made in the favour of rich people of the society as poor people have no access of market and power. Koirala (2001) argues that in community forestry policy, the timber required for building construction is available at a highly discounted rate based on the construction needs, but the poor people of the society cannot construct expensive houses, and hence the non-poor largely reaps these benefits. Likewise, poor people need only fodder and fuel wood from the forest but policy has banned to collect these resources regularly which mean that in many cases poor are affected by community forestry policy and shifted in other sector for survival (NEFEJ 2004).

8.2.6. Commercialization of Resources for Income Generations

There is great achievement in forest coverage, but commercial potentiality of forest resources for economic development and equity issues are rarely realized (NEFEJ 2004, Kumar 2000). In fact, policy makers and personnel of forest department are not interested to promote community forestry for commercial purpose as user groups are interested in commercial activities rather than protection. This situation has become the problem of commercialization of resources (Kumar 2000). In a conversation on 3 June 2007, Dr. Bharat Pokharel, also argues that recent tax policies on community forestry have discouraged the use of resources and protection of forest areas, which has direct relation in rural livelihoods and urban supply, and has adverse impact in overall poverty reduction goals.

8. 3. Agriculture and Land Degradation

8.3.1. Lack of Land Use Management Plan

Nepal never focused in appropriate land use policy for sustainable development. Still there is the absence of a coordinating agency and comprehensive legislative framework in the area of land use planning and management and awareness of the importance of appropriate land use and zoning which is a major cause of land degradation and reducing productivity (Sharma 2001). In a conversation on June 17, Bhairab Risal, a senior environmental journalist and former president of NEFEJ, analyses that due to the lack of appropriate policy, inappropriate and environmentally risk land is being used for most of the agriculture practice and most of highly populated cities are built up in fertile land.

8.3.2. Human Settlements in Plain

In plain land like valley and Terai, most of the development infrastructures are established on agricultural land. District level MDGs progress reports that fertile land has been decreasing due to the haphazard urbanization and industrialization leading to construction of houses and opening of factories including brick factory in fertile land, river cutting, etc (UNDP and NPC 2006). Similarly, most of fertile lands of river basin and valley are covered by population settlements due to the growing population (ADB 2004). In a conversation on 22 May 2007, Maheswor Ghimire, organic agriculture expert, also argues that most cities are settled in fertile agriculture land and covered by concrete building. These types of practices directly reduce the agricultural productivity, damage the fertile land and overall impact in poverty and environment.

8.3.3. Farming in Slope

Due to the lack of fertile land and awareness, most of forest areas have changed into steep cultivated land, which is the main reason of soil erosion in hills and mountains. Likewise, traditional agricultural practice like shifting cultivation in slope areas particularly in Mahabharata range is also the major cause of these types of erosion. ADB (2004) estimates that out of 55 districts of hills and mountains, steep cultivation has been doing in 33 districts in high slope and more, which are highly vulnerable for soil erosion. As a result, different forms of soil erosions like rock falls, landslides, slumps, river cuttings in hills and mountains are the major causes of sedimentations in valley and river basin, and responsible for sedimentation and soil degradation (ADB 2004). On the other hand, ICIMOD (2001) calculates that agriculture activities in slope land, especially 30 degree, cannot return the cost of investment. This type of agriculture practice is not only the cause of land degradation and disaster, it also pushes the poor people toward more poverty and makes more vulnerable as well.

8.3.4. Resource Rights

Structural dimensions of poverty are not addressed providing ownership to the poor on land resources and land reform agenda is completely ignored in all poverty related policies (NEFEJ 2005). Due to this reason, people who are based on agriculture could not get land ownership, and who are involved in non-agriculture sector hold most of the agricultural land resources. This may lead the migration of poor farmers looking for survival and reduce the productivity of the land as well.

8.3.5. Food Insecurity

Population growth has resulted in the decline of per capita holding of agricultural land from 0.16 ha in 1980 to 0.13 ha in 1999 (Sharma 2001). Sharma (2001) argues that much

of the increase in cultivated land has been due to the depletion of forest area. More than two-thirds of the total land holding is combination of less than one hectares of land per person (MOEST 2006a). On the other side, out of 39 hill districts, 33 districts had negative food balance in 1995, which were 34 in 1985. Similarly, out of 16 districts of mountain, all had negative food balance which was 13 in 1985[5] (Koirala 2001). These scenarios show that food insecurity has been increased in all regions along with population growth, reduction in agriculture productivity and land degradation which leads for poverty in these regions**.**

8.3.6. Cost of Development Project

Development related construction works like road and canal are also responsible for soil erosion and land slide. In total landslides, 53 percent are related with human activities and 47 percent are natural (NPC 1986) and five percent of landslides are related with construction activities (ADB 2004). Environment issues are only concerned in road sector but very few green roads have been developed so far. In a conversation on 22 May 2007, Maheswor Ghimire, organic agriculture expert, argues that most of the local level construction related projects are in operation without considering the soil erosion and landslides. Past government decided to provide some fund to local authorities for local development under the programme "*Aafno Gau Aafai Banau*", and most of that fund was spent in local road construction without any environmental impact assessment (NEFEJ 2005).

8.3.7. Fragile and Forgotten Mountains

Holistic approach for mountain development has been never considered in Nepal since this area is ecological fragile and economically deprived. "There is overall lack of sensitivity of

[5] Nepal is divided into 75 administrative districts zone.

the development planning and implementation process to objective conditions obtained in mountain areas" (Sharma 2001). To address the issues of development, integrated approach is required in interlinked nature of resources and production system in mountain areas. Development of mountain areas is contingent on strengthening high land-low land linkages. In the lack of this linkage the benefits from enhanced highland-lowland linkages are not being realized to the extent possible. But, environmental friendly potential mountain resources (e.g., hydropower, tourism, horticulture, NTFPs, etc) are not explored properly for poverty reduction (Sharma 2001).

8.4. Challenges and Opportunities for Water and Sanitation Targets

As discussed in Chapter 7, drinking water and sanitation facilities have been reached in greater population than other facilities. But, the other issues (e.g. quality, quantity, distribution, equity) are still remaining.

8.4.1. Linkages between Drinking Water and Sanitation Facilities

As reported in MDGs monitoring report (UNDP and NPC 2004), drinking water facility covers wider population than the sanitation facility (see details in chapter 6). The reason is that the government policies in the past only focused on water supply only without considering the sanitation (NEFEJ 2004). On the other side, some social and culture factors like low awareness in sanitation and hygiene knowledge, unwise use of sanitation facility; unsuitable consumer behaviour and timely maintenance are additional reasons of poor sanitation situation (UNDP 2004). NEFEJ (2004) argues that these culture and social causes are not being considered during the project implementation, to change the total behaviours of the people. "Socially, there is greater demand for drinking water than for

sanitation. Toilet is considered needed only for privacy and not for hygienic purpose" (NEFEJ 2004). Recently, tap and toilet concept has been practiced by various development projects. These projects are promoting sanitation programme extensively with some technical supports including the subsidies to latrine. Especially, Rural Water Supply and Sanitation Fund Development Board (RWSSFDB), has demonstrated the great success in sanitation with drinking water supply project (NEFEJ 2004).

8.4.2. Poor Infrastructure and Institutional Mechanism

Both surface and ground water are the main sources of drinking water in Nepal. High population growth rate, haphazard development and poor infrastructure facilities have all put high pressure in water demand and are the causes of pollution of these water sources. It is reported that nearly 50 percent of drinking water supply schemes are not functioning as designed due to the lack of proper maintenance in Kathmandu valley (ADB 2004). In a conversation on June 17, Bhairab Risal, a senior environmental journalist, pointed out that water supply system established in 1940s' has not been improved yet.

In urban areas, solid waste is poorly managed with low rate of collection and often-unsanitary disposal. Due to the lack of landfill side facility, most of the urban rivers in the country have turned into open sewers due to haphazard disposal of solid and liquid waste (e.g. domestic waste-water, solid waste, industrial waste, increased use in ago-chemical) in river bank which has adverse impacts in river water quality and human health especially in poor people who live at river bank as they use drinking water from the river (ADB 2004). Interestingly, there is no any sanitary landfill side even in Kathmandu Valley (UNDP and NPC 2005).[6]

[6] 58 settlements are recognized as municipality in Nepal and 5 municipalities are located in Kathmandu Valley.

Likewise, ground water in most of the urban area is contaminated due to seepage from septic tanks **(**Adhikari 1998), and drainage management is generally very poor all low-lying municipalities as well (Sharma 2001). In Terai, arsenic contamination in underground water sources is major source of water for poor people, which have not been addressed significantly by policies (ADB 2004). NEFEJ (2004) argues that urban poor are the primary sufferers from these types of problems. In a conversation on 7 June 2007, Bhusan Tuladhar, Executive Director of ENPHO, also argues that there are no adequate policies of government to reduce the risk to poor and vulnerable people.

8.4.3. Stakeholders' Participation

Government invests for all of the cost of drinking water supply in rural areas except the consumers' physical labour to develop the feeling of ownership for long-term sustainability and maintenance cost. Likewise, local community and NGOs are also involved in water supply and sanitation schemes and rural sanitation, which are highly successful, but issue of the coordination among the agencies is insignificant (NEFEJ 2004). In the urban areas, Nepal Water Supply Corporation (NWSC) provides the 50 percent of the total cost and rest 50 percent is covered by municipality (30 percent in loan by town development fund) and 20 percents by consumers themselves (ADB 2004). In a conversation on 7 June 2007, Bhusan Tuladhar, Executive Director of ENPHO, argues that poor population of the slums and riverbank areas cannot afford the cost of drinking water and they have to depend on the polluted river water sources.

8.4.4. Pro-poor Investment

Comparing with urban rural situation of water and sanitation, the coverage of service is higher in urban areas comparing with rural but the progress is faster in rural areas. However, poor people are still out of access in both rural and urban areas. There is no clear

mechanism to invest adequately to the poor community of rural areas and urban slum areas. In a conversation on 15 June 2007, Drona Raj Ghimire, Environmental Consultant of World Bank, states that role of private sector has been ignored in water supply so that private sector can provide to the rich people and government and other development organization can divert their investment to the poor community solely. Similarly, appropriate and affordability technology is most important for the poor people. In a conversation on 7 June 2007, Bhusan Tuladhar, Executive Director of Environment and Public Health Organization (ENPHO), argues that most of technologies provided by government in rural areas are costly and difficult to operate by local people since cost of technology and its maintenance, knowledge of operation and its reliability matter for sustainability of water supply and sanitation.

8.5. Challenges and Opportunities for Air Quality Targets

Little Green Data Book published by World Bank (2006), estimates that Nepal's per capita $CO_{2\ is\ 0.1}$ metric ton comparing with South Asian average 0.9 metric ton and 0.8 of least developing countries. It clearly shows that Nepal has positive contribution in global carbon reduction. But the local level pollution especially in urban areas is high. Growing congestion, huge supply of transportation pollution, increasing number of private vehicles and old aged vehicles, weak government policy enforcement, and low fuel quality are the major causes of air pollution in urban areas (Dhakal 2006). In rural areas, high dependency with fuel wood, only the source of energy for cooking and heating is the main cause of indoor air pollution.

8.5.1. Urban Air pollution

Public transportation (e. g. bus, tempo, microbus, taxi) is the major mode of transportation in Nepal. Dhakal (2006) estimates that public transportation serves nearly 57 percent of

total passengers in the pick hours in Kathmandu valley, and rest passengers use private transportation. These public transportations are almost owned and operated by private sector and individual vehicle by nature since government only owns a public transportation company called *"Sajha Yatayat,"* which is almost out of operation at this time. In a conversation on 27 May 2007, Dr. Toran Sharma, Executive Director of NESS, argues that public transportations, what we call, are all owned by private sector and are operated individually as private vehicles. Due to the nature of private transportation, government policies towards reducing air pollution are less effective and difficult to implement perfectly in public transportation. Likewise, traffic congestion, poor maintenance of road and old vehicles are also additional factors of increasing air pollution. Since poor people cannot afford the defence cost of air pollution, they have become main sufferers of air pollution.

8.5.2. Indoor Air Pollution

Only the 21 percent of rural households have electricity comparing 82.5 percent of urban households and 31.1 percent of total national households for lighting only (UNDP 2004). Since 80 percent population lives in the rural areas, where almost 40 percent is under the poverty line, they are basically dependent in traditional energy sources for lighting, cooking and heater (UNDP 2004). Use of traditional fuels like firewood and cow dugs is the major source of indoor smoke, which is the major cause of respiratory diseases particularly in women and children (NEFEJ 2004). The problem has not been addressed adequately except some programme of promotion of clean improved stove (CIS) in few districts (UNDP and NPC 2004). Likewise in urban areas, in a conversation on 7 June 2007, Bhusan Tuladhar, Executive Director of ENPHO, states that 20 percent of urban

population, which has no access in electricity, is more vulnerable than the rural poor since they have to suffer with scarcity and external effects additionally.

8.6. Opportunities and Challenges for achieving MDGs

As mentioned in chapter 6, most of MDGs are not achievable by the deadline. Only the income target of poverty eradication goal and drinking water supply target of environmental sustainability goal are considered likely achievable on the basis of current progress (UNDP and NPC 2004). There are some policies and institutional challenges to achieve the rest of the targets.

8.6.1. Opportunities and Challenges for Achieving Poverty Goal

High population growth and its pressure on available natural resources, and unequal distribution of resources are considered as the main causes of poverty (NEFEJ 2005). Besides that high underemployment rate of 50 percent, inadequate and ineffective public services delivery, high corruption, expensive and wasteful social and cultural function, natural calamities and epidemics, lack of pro-poor policies are additional causes of poverty of Nepal (Koirala 2001). On the other side, one decade long Maoist war (1996-2006) and other conflicts created problems for dispersion of resources, reduced the area of implementation of programmes in grass-root level, and also increased the defence budget of the government. However, due to the increased amount of remittance, income poverty has reduced in national, but only the middle class and high economic class people from the urban and semi urban areas are benefited rather than poorest of the poor or rural areas (CBS 2004).

Lack of Pro-poor Policy

Establishing resource rights and institutional mechanism for service delivery are important tools to provide income and empowerment opportunity to the poor. Koirala (2001) analyses that legislative provisions on resource right and its utilization are directly benefiting to the rich segment of the society rather than poor, who are conserving resources traditionally (Koirala 2001). In a conversation on 22 May 2007, Maheswor Ghimire, organic agriculture expert, also argues that rich people are using local resources without paying a single coin, but rich and poor in it are tolerating cost of protection and conservation cost or higher by poor. Likewise, service delivery mechanism to the poor is also not effective. According to Koirala (2001), government services are not easily accessible to the poor, since they have to come in service centres for getting small support spending long time and get advice of petty expensive high technical solution. In a conversation on June 8 2007, Dr. Govinda Koirala, gives the example of irrigation system and says that government has been providing heavy subsidies only in large irrigation but has been withdrawn subsidies on small and micro irrigation referred by poor people.

Resource Gap

In 2005, Government of Nepal has prepared MDG Need Assessment Report to implement policies focusing MDGs goals and strengthens MDG/PRSP linkages in time basis. It has also identified the lack of integrated interventions to achieve MDGs by 2015. According to this report (UNDP and NPC 2006a), Nepal needs around US $ 16.1 billion to achieve the MDGs by 2015, and around US $7.6 billion is expected from international development partners. In a conversation on 17 May 2007, Dr. Dilli Raj Khanal, Former National Planning Commission (NPC) member, argues that there is no any possibility to manage estimated huge financial resources within this time period. On the other side, ongoing

conflict has reduced the domestic revenue collection, discouraged donor agencies for support and reduced people's participation (NPC 2004). [7]

8.6.2. Opportunities and Challenges for achieving Environmental Sustainability Goal

As mentioned in Chapter 6 and above sections, government and market failure, lack of institutional mechanism, lack of sufficient financial resources and political will are considered the major barriers for achieving environmental goals of MDGs. As discussed in Chapter 3, poverty is also responsible somehow especially resource depletion.

Natural Resources based on Livelihoods

Nearly 80 percent people are involved in agriculture sector and based on natural resources from their livelihoods (CBS 2004). As a consequence, forest areas have declined drastically both in terms of coverage and density (quality), particularly in the areas where there are easy access of people. As a result of deforestation, travel distance and time of rural people to the existing forest locations has increased (ADB 2004). After all, it has become the cause of migration in other areas especially marginal forest areas of Terai and inner-Terai, highly valuable for biodiversity richness, erosion control and water recharging, for their livelihoods (ADB 2004). This cycle of population dependency on natural resources (forest, agriculture land etc.) is always creating pressure on resources. Considering these facts, in a conversation on 29 May 2007, Dr. Binod Bhatta, a community forest expert, argues that Nepal has missing the opportunity to use the forest resource for poverty alleviation programme. On the other side, Nepal forest policy is focused on coverage areas of forest and may achieve the goal of total coverage of MDGs by land in time, but only the quantitative target may not necessary to capture the

[7] There was a decade long civil war from 1996- 2006, which is also not solved completely yet.

qualitative aspects. So, NEFEJ (2004) argues that there is little chance of achieving biodiversity target if only quality aspects are considered in forest management.

Huge Resource Gap

It is estimated that Nepal needs around US $ 16.1 billion to achieve the overall MDGs goal and about US 385 million to achieve drinking water goal by 2015 (UNDP and NPC 2006a). But in reality, government has been spending only US $ 30 million per year now, nearly half of the need (UNDP and NPC 2006a). According to the Water Aid Nepal (WAN), an INGO working in water supply and sanitation, to achieve the water and sanitation target, government should provide the water supply to additional 11,300 households (4,300 in urban and 7,000 rural) and an additional 14,000 toilets (4,000 in urban areas and 10,000 in rural areas) per month. But in reality, only 2,650 and 1,420 toilets were constructed per month in rural and urban areas respectively during 1990s (Shrestha 2006). For achieving these targets, WAN (2005) estimates that Nepal needs US$ 1099 million (US$ 934 million for drinking water and 1,634 million for sanitation) and should spend US $ 70 million per year, almost 3 times higher than the government estimation. However, these both reports show the huge resource gap to achieve the drinking water and sanitation goals.

Situation of Urban Poor

As discussed in Chapter 7, due to the inadequate and poor quality of urban infrastructure and services, Nepal is facing several urban environment problems. Besides that, absence of clear strategy, economic and planning policy towards the rural-urban linkage and urban poverty, urban areas is facing the socio-economic problems as well. It is estimated that nearly 20 percent population of urban area is considered under the poverty line (CBS 2004), and there is no clear and wide definition of slum in Nepal. In practice, slum is

defined on the basis of land ownership and physical indicators such as infrastructure, water, sanitation, sewage etc., and completely ignoring the social-economic indicators (Shrestha 2006). But, on the basis of available facilities and quality of life, living condition of about 80 percent urban population is more or less similar to slum (NEFEJ 2005). ADB (2004) estimates that 15000 populations are in 44 squatter settlements of Kathmandu Valley and living as "de facto slums" due to lack of basic sanitation and utility facilities (ADB 2004). Defiantly, the quality of life of urban poor is much worse because there is nothing free in urban areas, "even a city dweller has to pay for drinking water and even to manage their wastes" (Devkota 2006). But, policy makers have never considered the urban poverty as a serious problem like rural poverty.

9. RECOMMENDATIONS AND CONCLUSION

This study provides the scenarios of the policy implementation on poverty and environmental sectors and illustrates the major findings of the study briefly and discusses how they are related with achieving MDGs goals in this chapter. Besides that, it also describes some sectoral recommendations for more synergic efforts and areas of research in future.

9.1. Conclusions

In Nepal, poverty and environmental problems are highly interconnected, and it is not possible to solve the problems without considering each other. But, it seems that most of the government decisions and plans have been designed without considering the synergic efforts towards achieving environmental sustainability and poverty. Poverty reduction programmes are not linked with environmental sustainability, and environmental policies are far away from poverty alleviation programmes. These types of planning and expenditure processes are only leading to increase the cost, overlapping of programmes and social inequity.

In central level, National Planning Commission (NPC) is responsible for policy formulation but it does not have any legal power to enforce to other government agencies for the implementation of these policies and programmes effectively. Similarly, it is found that there is lack of coordination among the government agencies because work is being isolated in implementation due to the lack of capacity of policy coordination in bureaucratic and political level. As a result, integration of poverty and environmental policies are always ignored in national level and most of the related ministries have their own environmental units and are working separately.

In implementation level, poor are not treated as the actors of development. They are just considered as third part, so their involvement in decision making is insignificant, either absent or only in token. Similarly, because of the lack of coordination among the development agencies and donors, different programmes have been implemented separately without considering potential partnership in order to reduce the costs and to increase harmonization. On the other hand, due to the lack of financial resources, investment has not been allocated sufficiently in most of the programmes.

In forestry and conservation sector, government had not considered the forest resources for poverty alleviation in the past, but it had only considered them as a part of subsistence economy. Only after adopting the participatory forest management policy, there are some positive contributions on poverty alleviation through increasing stakeholders' participation, establishing people's rights on natural resources and developing institutional mechanism. Community forest, leasehold forest and conservation area programmes are contributing in local development and sustainable resource management. But, the issues of equity on distribution of resources and benefit sharing are still remaining. Similarly, commercialization of resources for income generation is still discouraged for poverty alleviation.

On the other side, due to the lack of land use management plan, inappropriate and environmentally risk land is being used for most of the agriculture practice in hills and mountains. This type of agriculture practice has low agriculture productivity and environmental vulnerability, which is the major cause of food insecurity, land degradation and migration of poor farmers looking for survival alternatives. Mountains and hills are

potential for environmental friendly activities (e.g., hydropower, tourism, horticulture, NTFPs, etc), but they have not been explored properly for poverty reduction. Similarly, most of the highly populated cities are built up in fertile land due to the lack of land use policy.

In the areas of drinking water and sanitation, access of piped water and toilet facilities have been reached in greater population than other facilities and likely achievable as targeted in MDGs. The reasons behind this success are extensive programmes of the government, massive involvement of development partners, stakeholders' participation, institutional set up and investment. But, the other issues (e.g. quality, quantity, technology, distribution, equity, ultra poor) are still remaining.

But, poor people are the main sufferer of the air pollution in urban areas and in rural area, people are suffering from indoor air pollution due to the high dependency on fuel wood for cooking and heating is the main cause of indoor air. There is no any effective programme to reduce the indoor air. Even in urban area, policy makers do not give poor people any attention, thus they are the main sufferers of air pollution.

As discussed in Chapter 8, very limited efforts have been designed to synchronize the poverty and environment programmes. Lack of coordination among the development partners, lack of effective stakeholders' participation, weak institutional arrangement, lack of socio-economic framework for equity and the resource gap are major problems to achieve the poverty eradication and environmental sustainability goals of MDGs. There is no any hope to achieve environmental and poverty alleviation goals in Nepal by 2015. Consequently, if environmental and poverty policies will be designed in integrated

approach, it is possible to get better result towards the goals sooner or later in cost effective manner.

9.2. Recommendations

Nepal needs to synchronize the poverty and environmental policies through the institutional reform, stakeholders' participation, capacity development in different levels, policies integration, equity and investment to create the win-win option to improve environment and the quality of the life of people. In the central level, a strong leading authority for focusing on environment and poverty is necessity to coordinate among the government authorities and donors, and also to monitor the performance of policies and programmes. Likewise, similar types of institutional framework are also necessary to decentralize in district and local level.

In policy level, government priorities are necessary to be focused on cross-sectoral policy-making as pro-poor environmental programmes and environmental friendly poverty programmes in order to improve the livelihoods of poor. In the same way, government investment has to be allocated massively in environmentally risk and economically poor areas to improve the environmental quality and poverty alleviation. Likewise, donors' support for actions in poverty alleviation and environmental protection should be based on local needs rather than international issues and should support the sustainable environment and resource management for the improvement of the quality of the life of poor people.

Poor people are the targeted beneficiaries of the development planning, so their involvement as partners in policy formulation, programme designing and monitoring is most important for pluralistic partnership approach. They should be fully aware and well

informed regarding the policy and programme impacts in terms of environment and poverty issues. To implement this approach in grassroots level, community based performance auditing may help to identify the policy effectiveness, monitoring and sustainability. In the development projects, Environment Impact Assessment (EIA) can be an effective means to increase wider stakeholders' involvement, but it needs to be fully localized and adopted in all types of development projects.

Considering the growing market and consumption pattern, policies have to be focused on the promotion of environment-friendly consumption pattern providing incentives to the poor in the short term. In the long term, economic empowerment of the poor through increasing the non-agricultural income and employment, and market expansion of environmental goods and services is important to get MDGs achievement. However, political will is the prerequisite to implement these approaches.

Forestry and Conservation Sector

Considering the high dependency of poor on forest resources for their livelihoods, it is not possible to implement any forest policies without considering them. To address the issues, government policies should be integrated effectively in the whole rural livelihoods practice to contribute in food production and resources protection. For the integration of poverty and forest, policy is necessary to focus on replicating of the successful programmes (e.g. leasehold forest, community forest) in nationwide, commercialization of resources in sustainable manner, income generation activities based on protection and development of asset base of poor. As a long-term approach, national policies should be addressed to improve the skill of local farmers, research of potential products and expansion of market to transfer the poor in non-agriculture sector.

Agriculture and Land Degradation Sector

Nepal immediately needs to develop a land use planning strategy to achieve broad based sustainable development; and scientific, economic and cultural researches should be done in potential areas of resources. In this policy, effective legal system and decentralized institutional arrangement should be included in proper land use for environmental protection and economic development. Similarly, utilization of potential mountain resources, development of highland-lowland economic linkages for harnessing comparative advantages should be focused in land use management plan. To control the soil erosion in hills and mountains, farming in more than 30 degree slope areas should be refrained, and expansion of cities in fertile agriculture land needs to be shifted in less productive areas. In agriculture sector, integrated pest management (IPM) and organic farming programmes should be promoted, and indigenous knowledge of farmers also needs to be recognized and conserved.

Water and Sanitation Sector

To address the issues of quality, quantity, distribution, resource scarcity in water and sanitation sector, government should welcome the active roles of private sectors in economically empowered areas for operating qualitative and reliable water supply system, and should transfer the resources to the poor people. For the effective implementation of the programme and its sustainability, involvement of stakeholders for maintenance, operation and monitoring, institutional plurality in supply system and demand-side management system could be promoted. Similarly, traditionally accepted and cost effective methods of water collection like fog collection and rainwater harvesting can be facilitated in rural and urban areas.

Air Pollution Sector

Considering the potentiality of hydropower and huge regular expenditure for buying fossils fuels, Nepal has to promote the rural hydropower sector massively, targeting the electricity to the poor people through the management, operation and monitoring by local community. It does not only provide the electricity to the poor, but also reduces the national expenditure in buying fossil fuels, reduces the indoor pollution and also controls deforestation. Renewable alternative energy sources like biogas, solar, small hydropower should be promoted, and the government has to transfer subsidies from fossils fuels to these energy sources massively specially targeting to poor. In the same way, it is needed to reduce the urban air pollution and its impact on poor, especially promoting the reliable and accessible public transportation through economic measures. To do so, the environmental friendly transportation should be promoted and the old and polluted vehicles should be replaced.

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APPENDICES

Appendix 1: List of Millennium Development Goals (MDGs)

Goal 8: Develop a global partnership for development	
Target 12: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system Includes a commitment to good governance, development, and poverty reduction – both nationally and internationally **Target 13**: Address the special needs of the least developed countries Includes: tariff and quota free access for least developed countries' exports; enhanced programme of debt relief for HIPC and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction **Target 14:** Address the special needs of landlocked countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly) **Target 15:** Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	*Some of the indicators listed below are monitored separately for the least developed countries (LDCs), Africa, landlocked countries and small island developing States.* *Official development assistance* **33.** Net ODA, total and to LDCs, as percentage of OECD/DAC donors' gross national income **34.** Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation) **35.** Proportion of bilateral ODA of OECD/DAC donors that is untied **36.** ODA received in landlocked countries as proportion of their GNIs **37.** ODA received in small island developing States as proportion of their GNIs *Market access* **38.** Proportion of total developed country imports (by value and excluding arms) from developing countries and LDCs, admitted free of duties **39.** Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries **40.** Agricultural support estimate for OECD countries as percentage of their GDP **41.** Proportion of ODA provided to help build trade capacity[e] *Debt sustainability* **42.** Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative) **43.** Debt relief committed under HIPC initiative, US$ **44.** Debt service as a percentage of exports of goods and services
Target 16: In co-operation with developing countries, develop and implement strategies for decent and productive work for youth	**45.** Unemployment rate of 15-24 year-olds, each sex and total[f]
Target 17: In co-operation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries	**46.** Proportion of population with access to affordable essential drugs on a sustainable basis
Target 18: In co-operation with the private sector, make available the benefits of new technologies, especially information and communications	**47.** Telephone lines and cellular subscribers per 100 population **48.** Personal computers in use per 100 population and Internet users per 100 population

The Millennium Development Goals and targets come from the Millennium Declaration signed by 189 countries, including 147 Heads of State, in September 2000 (www.un.org/documents/ga/res/55/a55r002.pdf - A/RES/55/2). The goals and targets are inter-related and should be seen as a whole. They represent a partnership between the developed countries and the developing countries determined, as the Declaration states, "to create an environment – at the national and global levels alike – which is conducive to development and the elimination of poverty."

[a] For monitoring country poverty trends, indicators based on national poverty lines should be used, where available.

[b] Amongst contraceptive methods, only condoms are effective in preventing HIV transmission. The contraceptive prevalence rate is also useful in tracking progress in other health, gender and poverty goals. Because the condom use rate is only measured amongst women in union, it will be supplemented by an indicator on condom use in high risk situations. These indicators will be augmented with an indicator of knowledge and misconceptions regarding HIV/AIDS by 15-24 year-olds (UNICEF – WHO).

[c] To be measured by the ratio of proportion of orphans to non-orphans aged 10-14 who are attending school.

[d] Prevention to be measured by the % of under 5s sleeping under insecticide treated bednets; treatment to be measured by % of under 5s who are appropriately treated.

[e] OECD and WTO are collecting data that will be available from 2001 onwards.

[f] An improved measure of the target is under development by ILO for future years.

Source: http://www.emro.who.int/CAH/pdf/MDGs-List.pdf

Appendix 2: Nepal's Environment in Figure

1. Land Use Pattern

Land Use type	Area (000 hectare)	Percentage
Cultivated land	3090.79	21.0
Non Cultivated land	1030.26	7.0
Grass land	1766.16	12.0
Forest land	4268.22	29.0
Shrub land/degraded forest	1560.11	10.6
Other land uses	3002.46	20.4
Total	14748.00	100

Source: CBS 2002, Environmental Statistics of Nepal.HMG/NPC/CBS

2. Agriculture Land in Nepal

Agriculture land ('000 Ha.)	1991/92	2001/02	2004/05
Land under temporary crops	2284.6	2326.1	2326.1
Land under permanent crops	29.4	117.5	117.5
Other arable land	39.7	30.9	30.9
Permanent pasture	36.9	19.8	19.8
Pond	3.9	3.5	3.5
Woodland and forest	108.8	37.2	37.2
Total area of holdings	2597.4	2654.2	2654.2
Agriculture land ('000 Ha.)	**1991/92**	**2001/02**	**2004/05**
Total land area	14718.1	14718.1	14718.1
Area under holdings as % of total	17.6	18	18

Source: Ministry of Agriculture and Cooperation, 2005

3. Trend of Energy Consumption, Contribution of Fuel wood and Population Growth

Year	Energy consumption		Total Population (millions)
	Total energy used (000)	Fuelwood as % of total energy used	
2001	7841	77.4	23.1
2002	8105	77.9	23.62
2003	8244	78.3	24.15
2004	8477	77.7	24.69

Source: Water and Energy Commission Secretariat (WESC) of Nepal, 2004.

4. Nepal's Share in Plant Species in the World

Groups	Nepal	Endemic Species	World	Nepal's Share (%)
A. Non-flowering plants				
Algae	687	13	40000	1.72
Fungi	1822	150	70000	2.38
Lichen	471	48	17000	2.77
Bryophytes	853	37	14000	6.09
Pteridophytes	383	-	12000	3.19
Non-flowering Total	4216	248	153000	2.76
B. Flowering plants	5833	246	250000	2.33

Source: Department of Plant Resources (DPR), 1999 (Citation in Environmental Statistics of Nepal.HMG/NPC/CBS 2002)

5. Nepal's Share in Animal Diversity in the World

Groups	Nepal		World species	Nepal's share (%)
	Species	Endemic sp.		
Arthropods				
Insects	5052	4	1000000	0.44
Butterfly	645	29		
Moth	789			
Other than	144*	108	190000	
Freshwater	185	8	85000	0.21
Herpetofauna				
Amphibians	43	9	4000	1.07
Reptiles	100	2	65000	1.53
Birds	847	2	9881	8.57
Mammals	185	1	4327	4.27

- *Spiders only.*

Source: BPP 1995. Citation in Environmental Statistics of Nepal. CBS 2002.

6. Endangered Plant and Animal Species

Animal Groups	Amphibians	Birds	Fishes	Invertebrates	Mammals	Reptiles	Total
World	169	970	979	2754	741	316	5929
Nepal		21		2	28	9	61

Source: MOEST/NESS 2007.

Appendix 3: Key Development Indicators of Nepal

Indicators	Value	Year
Population Size (million)	23.2	2001
Population growth rate (%)	2.25	2001
Life expectancy at birth (yrs)	61.9	2001
GNP per capita (US$)	300	2004/5
Real GDP growth (%)	2.8	2004/5
Inflation (%)	4.3	2004/5
Human Development Index (value)	0.504	2004
Percentage of population below national poverty line	31.0	2003/4
Percentage of underweight children under five	53.0	2001
Literacy rate 15-24 years old (%)	73.0	2003/4
Net enrollment in primary education (%)	84.0	2004
Ration of girls to boys in primary education (%)	0.86	2004
Mortality rate of under-fives (per 1000 live births)	82.0	2003
Maternal Mortality ration (per 100000 live births)	415	2002
Prevalence of HIV/AIDS in age group 15-49 years (%)	0.5	2003

Source: UNDP and NPC 2005. *Second Progress Report on Millennium Development Goals (MDGs) of Nepal.*

Appendix 4: Nepal Progress towards the MDGs

Goals	Will goal be reached	Supportive Environment
1. A. Extreme Poverty : Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	Likely	Fair
1.B. Hunger: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	Potentially	Fair
2. Universal Primary Education : Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	Unlikely	Strong
3: Gender and equality : : Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	Potentially	Fair
4. Child Mortality: Reduce under five mortality by two-thirds by 2015		
5. Maternal Health : Reduce maternal mortality ration by three-quarters by 2015	Potentially	Weak but improving
6.A. HIV/AIDS: Halt and reverse the spread of HIV/AIDS by 2015	Unlikely	Weak but improving
6. B. Malaria and other Major Diseases: Halt and reverse the incident of malaria and other diseases by 2015	Potentially	Weak but improving
6.C. Tuberculosis: Halt and reverse the incident of tuberculosis by 2015	Potentially	Fair
7.A. Environmental Sustainability : Reverse loss of environmental resources	Potentially	Fair
7.B. Access to Safe Drinking Water: Halve the proportion of people without access to safe drinking water	Likely	Fair

Source: UNDP and NPC 2005. *Second Progress Report on Millennium Development Goals (MDGs) of Nepal.*