

**POVERTY-ENVIRONMENT NEXUS IN SOUTH ASIA:
A CASE STUDY OF BANGLADESH**

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fulfilment of the requirements for the award of the degree of*

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DECLARATION

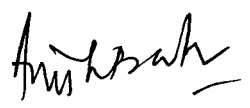

I declare that the dissertation entitled “**Poverty-Environment nexus in South Asia: A case study of Bangladesh**” submitted by me in partial fulfillment of the requirements for the award of the degree of **Master of Philosophy** of Jawaharlal Nehru University is my own work. The dissertation has not been submitted for any other degree of this University or any other university.


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Abbreviations:

ADB: Asian Development Bank

ARI: Aquaculture Research Institute

BARC: Bangladesh Agriculture Research Council

CBO: Community Based Organisations

CEA: Country Environmental Analysis

CHT: Chittagong Hill Tracts

CPR: Common Pool Resource

DoF: Department of Fisheries

EIA: Environment Impact Assessment

GDP: Gross Domestic Product

GNP: Gross National Product

HYV: High Yielding Varieties

IBRD: International Bank for Reconstruction and Development

IDA: International Development Assistance

IMF: International Monetary Fund

LDC: Least Developing Countries

MDB: Multilateral Development Banks

MFI: Microfinance Institutions

NGO: Non-Governmental Organisation

NPK: Nitrogen, Phosphorus and Potassium

UN: United Nations

UNCED: United Nations Conference on Environment and Development

UNDP: United Nations Development Programme

UNEP: United Nations Environment Programme

WWF: World Wildlife Programme

CHAPTER 1:

Understanding Poverty and Environment

Poverty as a concept has captured the attention of many learned man and scholars for a very long time. Being at the centre stage of development studies, many have tried to uncover the various facets that characterise poverty, yet it exists like a canker that never dies. It is the most unbeatable and caustic evil that has wrecked havoc in the lives of man. As William James quoted, we have grown literally afraid to be poor.

Poverty doesn't have a single face or definition. Different communities have understood, interpreted and characterised it differently, according to their own experiences. For some it means not having enough food from the farm, little or no access to drinking water. Many feel it is the inability to shape decisions, to negotiate terms of trade and barter, to stop corruption and make governmental and non-governmental organizations accountable to them. Poverty is not simply having low income, it is about multidimensional deprivation. Landlessness or very small holdings followed by dependency on wage labour are commonly viewed as major indicators of poverty.

In the Asia and Pacific region, poverty is mostly a rural problem. Several factors like population, access to resources, property rights, illiteracy, ill-health etc. contribute to the existing poverty in the region.

This chapter begins by defining poverty in general, the changing dynamics of poverty and the shifts that took place through the years in the definition and measurement of poverty. The chapter also gives a brief idea about absolute poverty, moving on to build the nexus between poverty reduction and environment protection. A significant amount of attention in this chapter has been paid to the various meetings and summits that brought the environment factor into the agenda of poverty reduction. The chapter highlights the need for integrating environmental management into economic planning to achieve the goal of poverty reduction.

1.1. Understanding poverty

Development agencies across continents have based a great deal of their research and work on the understanding of poverty and the life of the poor. Eradicating or reducing poverty lies at the heart of welfare economies. A significant percentage of poor people living in extreme conditions in the developing and underdeveloped regions face adverse pressure in terms of starvation, malnutrition, disease, stunted growth and vulnerability. This deplorable condition of the poor and the indirect effects on the environment surrounding them not only affects their own life but the society at large. As it has been quoted in the book 'Poverty and Famines':

People must not be allowed to become so poor that they offend or are hurtful to society (Sen, 2008).

Poverty pushes the poor to take various steps that not only create hurdles for themselves but for the society at large.

To understand the impact of poverty on society, one must look at the evolution of the concept. No specific dates could be traced on how the understanding of poverty actually developed. It must have taken place long ago, maybe with the consciousness of the living conditions of man. Later with the rise of capitalism, the number of poor people increased rapidly. Scholars and economists saw it as a social phenomenon. Many economists in the classical period derived an understanding of poverty by observing the lifestyle of the people in those societies.

Three significant questions about poverty engaged great researchers for years. First, what causes poverty, how it is to be eradicated and who should be the focus group? There emerged the need to understand poverty in all its dimensions.

The specification of certain 'consumption norms' or a 'poverty line' was seen as the first step. The poor is understood as those whose consumption standards fall short of the norms, or whose income lies below that line. The causation of poverty and effects would also be important issues to be studied in this relation (Sen, 2008).

Poverty has been defined in various ways. Since it is a relative term, there were different definitions given at different periods. The most common way it has been defined is according to what is prioritized as a 'need' (Chowdhury and Ahmed, 2008).

It is also defined as a continuous action. It is a series of decisions made about household assets, human resources (labour, skills, and social linkages), animals, buildings, equipment, and community assets such as infrastructure, natural resources and institutions that provide survival needs. Based on these definitions it has been assumed that all household, including poor and marginalised ones, have assets. Connected to this is the ability to convert the assets into other goods they may need or want. If household member are not able to convert their assets effectively or efficiently than they are more vulnerable to not meeting even survival needs (Johnson, 2002).

Charles Booth in his "Life and Labour of the people in London" examined poverty in the 1880's and collected data from almost 909,000 people in the east end of London to support his study on poverty. For the first time the use of the poverty line based on income was set in modern Britain. Following him, Benjamin Seebohm Rowntree extended the precision of measurement by calculating a poverty line based on contemporary scientific findings. He conducted a survey covering nearly every working-class family in York. He arrived at a socially acceptable amount of money to meet the minimum necessities for the maintenance of merely physical efficiency (Beck 1994: 10-15).

Based on the nutritional content of various foods and their local prices, Rowntree concluded that fifteen shillings would provide the minimum budget for food for a family of six for one week. Rowntree 1899 study is claimed to be a forerunner in understanding the absolute measures of poverty. His study published in 1901 calculated that 10 percent of the population of the English city of York in 1899 was living in poverty (below minimum needed expenditure). This approach has been used in other countries and at different time and it was found to be sensitive to local circumstances (World Development Report, 2000/01).

In his classical work on Poverty, Rowntree (1902) distinguishes two types of poverty, primary poverty and secondary poverty, which later came to be known as absolute poverty and relative poverty respectively. The condition of absolute poverty generally refers to people whose income is insufficient to obtain the minimum necessities for purely physical efficiency. The term *absolute poverty* is also sometimes used synonymously as extreme poverty. Absolute poverty is understood as the state of living under a certain, pre-determined amount of income or consumption. The most common absolute poverty line is the \$1-a-day line. It was found that most of the world's absolute poor live in rural areas and most of them are either landless labourer who lack secure access to enough farmland to support themselves at a decent level (Kanbur and Squire, 1999).

Often it has been seen that biological considerations related to the requirements of survival or work efficiency have been used in defining poverty line. Starvation, clearly, is the most telling aspect of poverty.

Classical economist like Thomas Malthus and David Ricardo defined poverty as a natural state of humanity. Referring to the concept of Law of Diminishing Returns they explained that majority of the people suffered from poverty because the means of support always fell short compared to the growth of population. Excessive population and the vices of mankind overpowered the power of the earth to produce subsistence for man. The only solution to poverty was in population control. For them poverty was indispensable.

Later this view was rejected by the neo-classical economist. According to the classical economist the accumulation of wealth was essential for the economic growth since it brought greater income and benefits to the society. However the growth factor alone failed to bring the welfare of all. The neo-classical economist added that 'inequality of income' was an indispensable condition along with capital accumulation and economic growth (Isser, 2002).

A shift took place from the classical thought with the advent of the industrial revolution; from the idea of poverty reflecting the limitations of human productive powers to a much broader concept. The industrial revolution witnessed the growth of

many industrialised countries and labour migration became quite prominent. Poverty became visible in all the affluent countries and demanded attention at a global level. The neo-classical thinkers like A.C.Pigou and Alfred Marshall brought out the need for understanding the ways and means, for the welfare of the poor.

The human aspect of poverty started taking shape with the birth of development economics in the 1950s. Alfred Marshall linked the study of poverty with political economy and drew insights into the modern concept of “Human Face to Development”. Economist by then had started supporting the welfare orientation and the concept of poverty became much broader.

The understanding of poverty received further momentum with the writings of T.W.Schultz. Schultz put forward the thesis that it was essential to have an idea of the characteristic and profile of the poor to come out with an effective economic strategy for their development. He questioned the primacy of capital accumulation for economic growth and specified that the human capital is an important factor of production for the overall growth and prosperity (Isser 2002: 25-28).

The global economic scenario by that time showed growing income gaps between the poor south and rich north. There were growing pockets of poverty in Asia, Africa and Latin America. Poverty became a mass phenomenon, highly visible in the developing and poor underdeveloped countries. There were growing concerns on the link between inequality of income and economic growth. Earlier, the neo-classical economists had also pointed out that inequality of income is an indispensable condition along with capital accumulation.

In the nineteenth and the early twentieth century it became widely popular that poverty existed due to the carelessness, ignorance and irresponsible attitude of the poor as they neglected the need for resource utilization and the practice of conservation. This resulted in poor living conditions within the rural communities and also outside the region. Poverty became a historical problem. Questions arose on where to draw the ‘poverty line’ and which statistical data to be used in establishing it. How poverty was to be determined and based on which accepted assumptions and aims?

Since the poor are not a homogenous group there has been different measures adopted to identify poverty. The three basic questions that have dominated the study of poverty since ages, the causes of poverty, means to eradicating poverty and locating the focus group, are to be explored in the chapter. After finding the answers to the three questions an attempt is made to find the measures that could be adopted to alleviate poverty.

1.1.1. Measuring poverty

The most commonly used measure to map poverty has been “the income/consumption” approach. Historically poverty has been related to income which remains at the core of the concept even today. A person is regarded as poor when their personal income or consumption is below a specified ‘poverty line’. This is the physiological model that underlines the specification of the poverty level.

“A person is poor in any period if, and only if, her or his access to economic resources is insufficient... [to]acquire enough commodities to meet basic material needs adequately (Lipton,1996).

There are two different ways to derive this poverty line. The first, the food energy method, estimates a food-energy minimum required to satisfy dietary energy (calorie) requirements and then determines the level of income/consumption at which the minimum is typically met.

The second is the food share method, estimates the minimum cost of a food basket which satisfies the food energy minimum and multiplies this by the non-food share in total consumption of a sub-group definitionally classified as poor. It has been observed that personal income can vary greatly and is only appropriate for the wage earners and has less relevance to the poor. Many poor rely on their own production and informal sector activities in which the concept of profit is unclear, rather than on a formal income (Nunan et al., 2002).

The other version of the physiological deprivation is the basic human needs approach that formed a crucial aspect in identifying poverty. Basic needs may be interpreted in

terms of minimum specified quantities of such things as food, clothing, shelter, water and sanitation that are necessary to prevent ill health, under-nourishment and the like. This approach attained popularity in the 1970's. It differed from the income approach in three ways.

Firstly, it specified a complete basket of goods/services that fulfill basic needs (food, health, education, water, sanitation etc.) or related achievements (nutrition, life expectancy, mortality etc.) rather than relying on the indirect methods to determine non-food needs. Secondly, it represents relevant aspects of well being in terms of the different goods/services or achievements that fulfill basic needs but not in terms of equivalent income/consumption. Thirdly, it sets an adequacy level for each of the different goods/services, instead of specifying an income/consumption poverty line based on dietary energy adequacy.

By the 1960's, the consumption of goods and services was considered as a superior indicator as it presented a more stable indicator over time than income. A bundle of goods for meeting basic needs is identified, consisting of food expenditure and modest expenditure on non-foods (Chowdhury and Ahmed, 2008).

In the beginning of 1970's more qualitative indicators were incorporated in the definition of poverty like nutrition, access to health services, well-being.

Prof. Amartya Sen introduced the concept of capabilities in the late seventies to replace the basic needs approach and his writings on development added new dimensions to the analysis of poverty. An essay on entitlement and deprivation (1981), commodities and capabilities (1985), offered new insights into the understanding of poverty and contributed significantly to the focus of development thinking in post-war era. The entitlement approach was a great contribution of Amartya Sen that showed that not only the material well being but also the opportunities are important – what people can do or cannot do (capabilities) as well as what they are or are not doing (functions) (Isser 2002: 25-31).

Prof. Sen held the view that poverty is not just a matter of being relatively poorer than others but of not having some basic opportunities of material well being what he

termed as the failure to have certain minimum “capabilities”. Putting his thoughts much clearly he emphasised that a person must have basic capabilities to obtain the elementary physical necessities such as nourishment, clothing, shelter, etc. Because of capability failure, a poor person is deprived of amenities and facilities such as health, services, education etc. Even though there may be sufficient income, a poor person may be deprived of these basic needs and services and so social and educational conditions become important to determine the degree of poverty in a society (Sen, 2008: 9-23).

The capability approach to the analysis of poverty in the developing world brought the limitations of the income based concept of well-being. The empirical evidences of persistence of poverty in the developing world in the 1970's and 1980's showed that the so called trickle – down effects of growth did not address poverty. There were concerns that the issues like environmental quality, health or educational provisions in the developing countries were neglected (Huby, 1998).

Also the impact of environmental pollution and degradation are experienced unequally in most societies. The marginalization of the poor, their exclusion from the normal services and benefits of society and from political decision–making makes them more vulnerable to conditions

Researchers have found that the greatest obstacle to attain holistic growth and human development was the existence of mass poverty in the developing countries. With the passage of time a new shift took place from an income or consumption based concept to a much broader approach that took other development factors like participation in community life, ability to pursue well being, primary education, healthcare, housing, sanitation, safe drinking water and most importantly the environment into consideration.

1.2. Relation between Economic Growth, Poverty and Environment:

With the transition in the identification of poverty, debates soon revolved around the primacy of economic growth vs. pattern of growth. The growth model pursued in the developed countries was found to be inappropriately designed for the developing and

low income countries. It failed to establish an understanding on the character and composition of the developing world.

Most of the developing countries were rural in character and depended mostly on agriculture. The liberalisation of the market was best suited to meet the needs of the urban, semi-urban and the middle income groups. It failed to reach and enrich the lives of the rural people. Even if some growth schemes benefited some rural parts, it benefited only those who had strong political links for e.g. the Green revolution in India and Bangladesh in South Asia brought economic benefits for the rich and mid-level landlords.

The pattern of growth followed in the developing countries did not quite address the agonies of the poor. Either the rate of poverty remained constant or rose which made the lives of the poor difficult. Growth is supposed to improve the living standards of people and provide an access to the resources. However growth in the developing countries was highly unequal and failed to ameliorate the condition of the poor.

The main sources of economic growth are basically the accumulation of human capital, physical capital and technological knowledge. Growth from all these will benefit the poor both directly and indirectly. For example, the acquisition of human capital by the poor results in their earning higher wages. Adoption of agricultural technologies, such as higher-yielding crop varieties, may raise the incomes of the poor. Increasing capital formation can yield an advantage to the poor (Besley and Burgess, 2003).

Modern economic growth brought phenomenal gaps between the rich and the poor. Only one sixth of the world's population achieved high-income status through consistent economic growth. Another two thirds have risen to middle-income status with more modest rates of economic growth. One sixth of humanity is stuck in extreme poverty, with very low rates of economic growth (Sachs 2005: 25-30).

Poverty in the developing countries could not be viewed alone. A debate emerged between the pattern of economic development pursued in developing countries and the environment. It was found that the fast growing economic growth in many

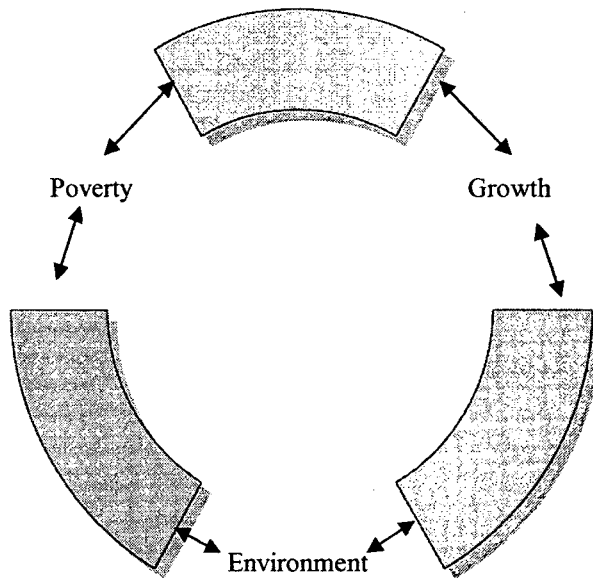
countries had led to a range of environmental impacts. It is expected that the benefits of economic growth will percolate down to the poor and raise their income. This will help in declining poverty. But the fast economic growth led to negative consequences. Development projects that were undertaken to scale down poverty was degenerating and harmful to the environment. Although positive developments were visible in the income growth, yet it came with a heavy cost. The natural resource base was depleted to the extent that it would take years to revert to the original state. The destruction of the resource base left the poor with no means to fall back and made them more vulnerable.

Growth, poverty and environment share a deep-rooted link. High economic growth may help to bring down poverty but may not certainly ensure environmental protection. On the other hand, sustainable growth will not only bring poverty percentage down but will also preserve and protect the environment. Since the process in achieving sustainable growth is time-consuming, the poor find it hard to adopt the sustainable measures. It is basically the failure of the government to ensure the social security of the poor that keeps them indifferent and reluctant to adopt sustainable methods.

Short time horizons, unsustainable growth and lack of access to resources and assets act as major hindrances in ensuring environmental protection.

Figure 1.1. shows that growth, poverty and environment influence one another. Growth brings positive changes in poverty but may result in negative or positive changes in environment. Similarly poverty reduction through sustainable means may minimise the exploitation of environment thereby generating long-term growth. And environmental sustainability may bring both growth and poverty reduction.

Fig. 1.1. Growth- Environment-Poverty linkages



Globally there was vast amount of depletion of natural resources, atmospheric pollution, depletion of biodiversity, drying-up of aquifers, the pollution of aquatic and marine ecosystems and the increasing production of wastes. Practically any economic activity is seen to alter the state of the environment in one way or another and causes number of negative impacts on the environment.

Nature is used both as a source and a sink for enhancing human consumption. Also the use of open access common resources has been a source of concern as its overuse has led to the environmental degradation in developing countries. The interdependence between the economic system and the relevant natural ecosystem underscores the biophysical limits of the input of resources in the economic system and the flow of wastes from the economy to the ecosystem. Together they define the condition of sustainability which requires that these limits are not violated as the costs of violation are considered to be too high. It has become essential to examine the feasibility and scope of economic development without violating the resource base and the environmental quality. Nature and economic interactive relations necessitates the adoption of a holistic perspective and an analysis for the understanding of the relationship between the economic and ecological factors (World Resources, 2005).

There have been conflicting views between different schools of thought on the primacy of economy over ecology or vice-versa.

On the one hand some argue that economic growth is essential to produce the necessary resources to improve well-being at the cost of environment, the other section refutes by stating that economic growth should not be given importance over human welfare, which includes the social & environmental security too.

The International Bank of Reconstruction and Development or World Bank has taken a middle stance. It defines that economic growth is essential for sustained poverty reduction. But it also states that for decades the quest for economic growth has always caused serious environmental damage. The World Bank stated that the adverse effects on the environment could be sharply reduced. With effective policies and institutions, income growth would provide the resources for improved environmental management (Huby, 1998).

Nature and economy are integrally linked to each other and not independent or isolated phenomenon. Economic theories have centered on production of material commodities and services which involve, directly or indirectly, conversion of some natural resource with the help of human labour and manmade capital, into final consumable form. In the phase of capitalist development indefinite accumulation of capital and generation of surplus became a driving force behind the growth of economic activities. This led to the growing demand of natural resources and environmental services to support resource intensive development. The excessive & unsustainable use of biotic resources in the production process led to the degeneration of biodiversity. Development process seemed to conflict with the ecological sustainability which in turn constrained poverty reduction process.

1.2.1. Environmental degradation

The ecological system is of great value to the human beings. It offers wide range of services, acting as the source of water, of animal and plant food and of other renewable resources. It also maintains a genetic library, sustaining the processes that preserve and regenerate soil, recycle nutrients, control floods, filter pollutants,

assimilate waste, pollinate crops, operate the hydrological cycle, and maintain the gaseous composition of the atmosphere. It provides the basics for man to live and grow.

Bucknall notes that the environment generally refers to the natural resource base, the forest acts as the sources of resources and performs sink function. The rich and the poor, rural and the urban people, almost everyone depend on the goods and services that the ecosystems provide. The rural poor moreover share a special relationship with nature). They are dependent on the Common Pool Resource (CPR) from which they derive income and wealth (Kerstein et al., 1994). It is the base on which the rural masses depend as they share a good amount of closeness with nature.

The impact of environmental degradation is unequal for the rural and the urban people. Environmental damage hits the poor harder because they are directly dependent on the natural resources and majority of them die due to scarcity of food, air and water pollution. Degradation of natural resources further impoverishes them by cutting down on the environmental income they earn from the resources. This impoverishment further pushes them to the most ecologically fragile lands. Similarly, biodiversity loss severely affects the indigenous people, as they depend more on biodiversity for their livelihoods, energy and medicine. Globalisation has further accelerated the destruction of biodiversity in a great way that plants and animals that were common a few years ago have disappeared. Global market integration converts millions of acres of forests and farms into industrial monocultures destroying our biodiversity (Shiva, 2000).

In Asia, pressure to increase production and improve the yield to cope with the growing population has led to intensive use of fertilizers, pesticides and water for irrigation. Changing demands for both cheaper and more varied food have also led to intensification of food production techniques in agriculture, livestock rearing and fisheries. Intensification of food production methods means that more food can be produced more cheaply, but apparently cheap food production carries a number of hidden costs to the environment.

There is no doubt that the process contributes to the substantial increase in agricultural production including the reduction of rural poverty. However such resource intensive agriculture has posed serious environmental threats which have in turn led to poor conditions and climate change. An important driving force behind critical global trends is the human nature that adds to the aggravation of the global condition.

Most of the agricultural and farming population in the Asia and Pacific region has taken to large scale agricultural production in rural areas which has been the major sources of methane flow in the atmosphere. Traditionally nutrient rich manure was used to fertilize the land, but due to the unavailability of such manure, farmers use manufactured chemical fertilizers instead. When these fertilizers are used the rates of application often exceed the rates at which nutrients are taken up by plant roots, so that excess amounts are left in the soil. In wet conditions excess nitrogen and phosphorus are leached out of the soil and run off into streams and bodies of water where they may cause problems of eutrophication. Some excess nitrogen may be released into the air in the form of nitrous oxide, a greenhouse gas which is also implicated in depletion of the ozone layer (Huby, 1998).

Overexploitation of freshwater resource has in some cases resulted in the drying-up of spring-fed rivers, the intensive use of fertilizers and pesticides has contributed to water pollution, overuse of surface water for irrigation has resulted in saline intrusion, land subsidence or depletion of aquatic life. The ample evidences of the adverse impacts of the expansion of economic activities driven by the forces of capitalist accumulation have led to the shift in the stability of the ecosystem. The global pattern of development process has become an issue of deep concern as the environmental crisis has emerged as threat for the sustainability of human life.

1.3. Poverty-Environment nexus

Conventionally it has been maintained that poor people degrade the environment due to low income. However the poverty-environment nexus is more complex. Questions of ownership of natural resources, access to common resources, role of local communities and institutions, poor people's entitlements, risk and uncertainty are all

important in explaining the rural poor behaviour. People trapped in extreme poverty and without much access to resource need to eke out their livelihoods by utilising the limited resources available. With not much in their basket they move to different locations and undertake cultivation and production by either clearing forest or pursuing with their activities in environmentally fragile areas. The degradation of the resource bank further impoverishes them (Jehan and Umana, 2003). This has led to the finding that poverty and environment are integrally linked.

Trying to seek a solution to poverty without taking the environmental condition into prominence would only lead to a dehumanizing condition. The need to reduce poverty in developing countries has brought directly the need for the broadening of the concept of poverty by studying the linkage between poverty and environment.

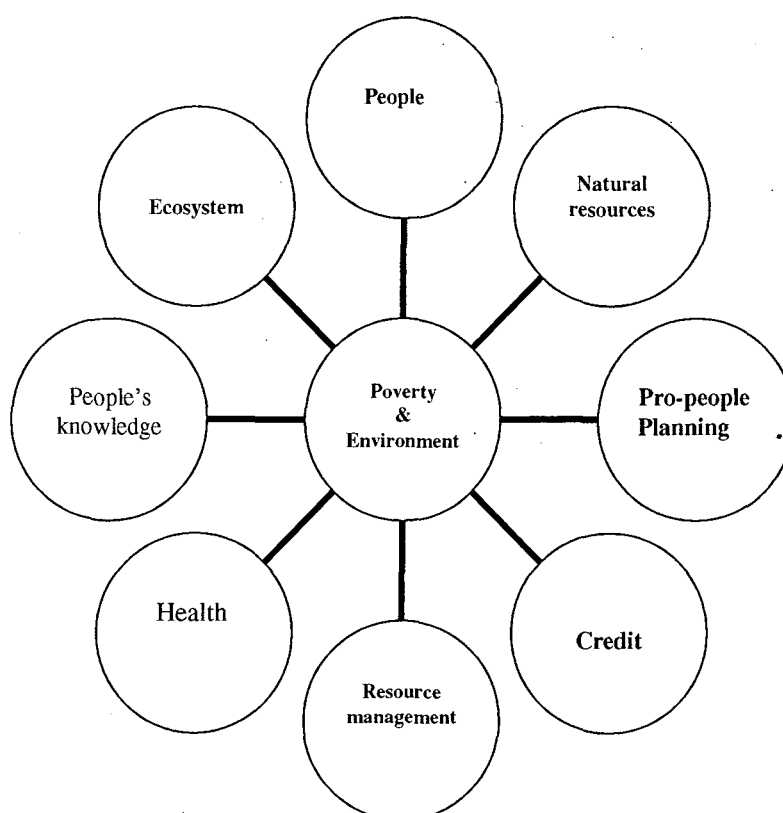
According to some, the traditional view was that poverty was one of the primary causes of environmental destruction. The poor who give primacy to the question of immediate survival over-exploit their own resources, putting their own future at stake as well as depleting the environment. Nunan also stated that since much of the environmental problems are due to poverty, eliminating poverty through economic growth is the key to saving the environment (Nunan et al. 2002)

The poverty–environment nexus forms a cyclical or a two-way relationship. Poverty affects environment in various ways by forcing people to degrade environment, by encouraging countries to promote economic growth at the expense of environment. On the other hand, massive environmental degradation leads to increasing poverty. The downward spiral hypothesis maintains that poor people and environment damage are often caught in a downward spiral. People in poverty are forced to deplete resources to survive, and this degradation of environment further impoverishes people. Poverty has negative effects on the environment and the environment has in turn produced negative impact on poverty.

The relation between the two is also dynamic, influencing the other, and creating a virtuous or vicious circles for environment preservation and poverty reduction. In the contemporary times, the poverty–environment linkage is multi-faceted and a number of other factors are to be taken into consideration too. Figure 1.2. shows that multi-

faceted combined effect of poverty–environment bears influence on natural resources, people, people’s knowledge, resource management, credit, pro-people planning, ecosystem, governance, health etc. Poverty exerts a lot of pressure on people and that in turn affects the ecosystem since due to lack of adequate knowledge or governance failure the natural resources are depleted or exploited without even giving a second thought. Pro-people planning and resource management would help to conserve environment, attain sustainable economic growth and avert health risks. Poverty–Environment combined influences other aspects directly or indirectly.

Fig.1.2. Combined affect of poverty and environment on various aspects



Source: Siwar, 2007

Environment degradation affects the poor people by increasing the unavailability of natural resources, affecting the health of the poor and by influencing their vulnerability. Past resource degradation deepens today’s poverty, while today’s poverty makes it very difficult to care for or restore the agricultural base, to find alternatives to deforestation to prevent desertification, to control erosion and to

replenish soil nutrients. Environmental economist states that sustainable development practises could bring massive change world over by reducing poverty and sustaining ecology at the same time (Jehan and Umana, 2003).

1.3.1. Evolution of the understanding of poverty-environment nexus

The relationship between poverty and environment first emerged in the United Nations Stockholm conference on the Human Environment in 1972. Former Indian Prime Minister Indira Gandhi drew the link between pollution and poverty. At the conference developing countries expressed the concern that environmental goals could detract from the development goals. Hence the term sustainable development was coined by the World Conservation Union, United Nations Environment Programme (UNEP) and World Wildlife Foundation (WWF) to establish the fact that conservation could not be achieved without alleviating poverty.

The World Commission on Environment and Development also known as the Bruntland Commission recognized the need for the integration of environmental and development concerns and for international equity. The 1987 Bruntland report stated that poverty reduces people's capacity to use resources in a sustainable manner; it intensifies pressure on the environment. Poverty was seen as a major cause and effect of global environmental problems (Roy, 1996).

It was however in the 1992 Earth Summit on Environment and Development or United Nations Conference on Environment and Development (UNCED) a dialogue between the north and south took place where it was recognized that a relation between poverty and environmental degradation exist in underdeveloped countries. In the Rio Summit in 1992, the importance of a sound environment to sustainable livelihood was widely acknowledged.

The United Nations agencies and other organizations prepared poverty profiles together and concluded that the goal of economic growth could not be achieved unless development was given a human face. The World Summit for Social Development which was held in 1995 in Copenhagen reflected this growing consensus on the need to eradicate poverty as a goal of economic development.

In the development studies undertaken by the International Monetary Fund (IMF), World Bank and the United Nations the analysis of poverty was included. The United Nations Millennium Declaration on 19th September 2000 incorporated targets for the eradication of poverty. The member countries resolved to halve, by the year 2015, the proportion of the world's people whose income is less than one dollar a day and the proportion of people who suffer from hunger, and by the same date, to halve the proportion of people who are unable to reach or to afford safe drinking water. Poverty by then was seen as a dynamic concept.

The World Development Report 2000/01 broadened the notions of poverty to include vulnerability and risk- and voicelessness and powerlessness. It was pointed out that vulnerability of the poor is an important aspect as the poor people are more vulnerable to shocks and stresses because of the lack of assets available to them to cope with circumstances.

Poverty has been defined by ten indicators which incorporate multi- dimensionality of poverty—food, income, assets, consumption, capability and well-being. However the head-count ratio has been the most popular measure of defining poverty all these years. It is argued that the income/consumption measure has assumed importance only because of its importance in a developed world state. This has led to the broadening of the understanding of poverty and a linkage between poverty and environment.

Drawing heavily from Sen's conceptual framework of poverty, the United Nations Development Programme (UNDP) advanced its Human Development Report and introduced the human poverty approach as an alternative to income/consumption measure of poverty. UNDP specifies some of the basic capabilities which include the capability to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-respect and the respect of others.

The International Bank for Reconstruction and Development (IBRD) mentions that the poor families often lack the resources to avoid degrading their environment. The very poor, struggling at the edge of subsistence are mostly preoccupied with day to day survival. However the IBRD makes a slight move here by mentioning that it is not the short term horizons of the poor that could be blamed but the fragile and

limited resources, the poorly defined property rights and limited access to credit and insurance markets that prevent them from investing as much as they should in environmental protection (Huby, 1998).

The rural poor in Asia rely heavily for their livelihoods on the common pool resources (CPR) that are available through open-access systems. As the poor lack property rights, the CPR provides the means of livelihoods and security. These CPRs include rangelands, irrigation, forests, fisheries and wildlife. Since the CPRs are open to everyone without regulations and restrictions, therefore they are heavily degraded. To achieve environmental sustainability as well as poverty reduction, experts suggest that the open-access commons be transformed into common property of the poor, which would boost their productivity.

1.3.2. Common pool resources

Common Pool Resource consist of core resource like irrigation systems, fishing grounds, pastures, forests, water and the atmosphere. There is an inextricable link between common pool resource and the rural poor. The lives of the poor are greatly depended on the CPR's like forests, lakes, roadside areas that are owned by the community or the state. Even though they might have their own lands yet the CPR's are the vital means of survival because they generate income or insurance from risk like loss of job or bad harvests. Majority of rural households harvest the wild resource products mainly to meet their subsistence needs and rest is harvested for commercial purposes. By using CPRs, rural households are able to fill income gaps to meet the shortfall in production. The lower households clearly depend more heavily on utilization of wild fruits and vegetables than do the higher income households (Kerapeletswe& Lovett, 2001).

The CPR or the public goods provide indirect values that are only partially traded in the marketplace but are vital to the livelihoods of the poor, especially in more marginal environments or where the poor have limited access to external technology and other inputs. Much of the environmental income earned in the developing countries comes from the Common Pool Resources (CPRs) (Jehan and Umana, 2003).

Environmental experts emphasized on the CPR's by stating that they are the vital resources for the poor, particularly in the lean or pre-harvest season, or other times of stress. Issues surrounding access to, and control over CPR's are critical aspects of the livelihood strategies of the poor, and should be considered in the poverty-environment study (Nunan et al., 2002).

In understanding the poverty-environment nexus and the degradation of the common pool resource the impact of population growth has to be taken under consideration. The rapid growth of population is limiting the space for everyone. The earth cannot bear the over-explosion of the population anymore. Its carrying capacity is diminishing which is exacerbating poverty and the environmental problem.

1.3.3. Carrying capacity of nature

Understanding the 'carrying capacity' of the ecosystem is crucial for having a better idea of the burden that the environment shares, owing to the impact of human action on the ecosystem. It is well understood by studying the consumption levels of various countries and the ecological capacity of our planet. It is the maximum stress the ecosystem is capable of absorbing without it flipping to a vastly different state (Nielson, 2006).

The ecosystem's carrying capacity does not remain constant but is subject to change witnessing natural shocks and surprises (for e.g. fires, storms etc.). Economic policies that apply fixed rules to achieve constant yields and a few structural adjustment programs have only added to the degradation of the environment. It has been witnessed that at many occasions the resilience of the ecosystem did break down in the face of disturbances (Kerstein et al 1994).

Nature has always been a route to wealth -- profits from harvesting timber and fish stocks, converting grasslands to farm fields, and exploiting oil, gas and mineral reserves have created personal fortunes, inspired stock markets and powered the growth of nations for centuries. For more than 1.1 billion people living in severe poverty, nature has always been a daily lifeline (World Resources, 2005).

But the wealth earned by utilizing the natural resource has been mostly done in an unsustainable manner. The poor and the rich tend to use natural resources differently to derive income. While the poor tend to pursue a variety of different sources of environmental income, the rich often concentrate on one or two that allow them to make use of their greater assets for agriculture or livestock rearing. On average, income from small-scale agriculture and the collection of wild products such as non-timber forest produce together account for some two-thirds of the household incomes of families in poverty. Without income from ecosystem goods and services, rural poverty would unquestionably be deeper and more widespread - a lesson to remember as the pace of ecosystem degradation picks up worldwide. Environmental resources are absolutely essential for meeting our goals of poverty reduction. Conventional models for poverty reduction and economic growth may have worked well for urban populations but they have done little to help the rural poor who make up around 75% of the nearly 3 billion people who live on less than two dollars a day (World Resources, 2005).



Environmental problems are almost always associated with resources that are regenerative (renewable natural resources) which are in danger of exhaustion because of excessive use. The ecosystem which sustains us is facing the greatest threat today due to the ignorance and exploitative nature of man. It provides us with the essential necessities and functions. Agriculture, forestry and fishing form 50% of all jobs worldwide. In the South Asian region, life is dependent on these three sectors and a good percentage of income is generated from the involvement in primary services. Human development and human security is seen to be closely linked to the productivity of the ecosystems. However human pressures on ecosystems have increased enormously and even though global economy has expanded and growth rate has doubled yet poverty still continues to exist.

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In the developing countries the dependence of the poor on natural resources is high and many policies of the countries failed to take the environment as primary factor. The income generated from the environment is found to form major part of the livelihoods of the rural poor and many being involved in small-scale farming, livestock rearing, fishing, hunting, and collecting of firewood, herbs or other natural products.

The income that is generated from the use of natural resources act as the fundamental stepping stone in the economic empowerment of the rural poor. The poor make use of the common pool resource not only for their personal use but for selling, in the form of food, fodder, fuel, fiber, small timber, manure, bamboos, medicinal plants, oils and building materials for houses and furniture. Fish, shellfish, seaweed and other items harvested from coastal waters, rivers and other aquatic environments are also of major importance to the poor. The landless households are found to benefit hugely from the CPRs and a major fraction of the total income comes from it. However due to increasing degradation of resources, deforestation and overgrazing the rural poor are experiencing increasing burden. When the ecosystems get degraded, its potential as a source of environmental income gets limited. This cuts down the choice of the poor. Human development is concerned with both growth in terms of national income and distribution and is defined as a process of enlarging people's choices, increasing opportunities

Unsustainable farming and mismanagement of land resources result in the degradation of the land and the loss of soil productivity. Traditional farming systems which were based on mixing and rotational cropping systems of cereals, pulses, and oil seeds with different varieties of each crop kept the land and soil sustainable. However to meet the growing demand for food due to the pressures from increasing population , intensive farming methods were adopted that resulted later to the deterioration of land productivity adding further to the poverty problem. By 2000, most of the 830 million people who lacked adequate access to food were rural communities whose entitlements have collapsed either due to environmental degradation or due to livelihood destruction and negative terms of trade (Shiva, 2000).

The history of human impacts on ecosystems is a long one. Historical records from more than 4000 years ago show that water logging and salt build-up in the arid soils of summer in ancient Mesopotamia – the product of over irrigation – gradually handicapped the kingdom's ability to feed itself and contributed to its fall. Modern examples of the human costs of degrading ecosystems surround us as well. In China the residents of more than 100 major cities face severe water shortages because of over extraction and pollution of nearby rivers and groundwater sources. Commercial cutting of Indian forests has left the traditional system of village management of local

forests in shambles and brought shortages of fuel wood and building materials to millions of rural villages. Most of the time people exploit the ecosystem for short-term gains. The rural poor in order to meet the immediate needs have most commonly mismanaged the environmental resources (World Resources, 2000-01). This has further affected many lives as the dependency on the goods and services have seemed to decline

The natural environment is the only resource which is “free” and so the poor turn to greater exploitation of it in the absence of other sources of credit. Environmental resources also provide the basis of coping strategies in ecologically vulnerable environments, with people eating certain leaves and vegetables only in times of drought (Scott, 2006).

In many ways the poor due to various visible and invisible pressures exerted on them have contributed significantly to the depletion of natural resources. Clearing forest areas to create land for agricultural use by adopting slash and burn method has been harmful for the land and it has been practiced immensely by the rural people. Certain consumption practices of the poor, such as damaging the forest to acquire firewood for the purpose of cooking have also effected the environment.

1.4. Environmental degradation increases vulnerability

The environment has strong linkages with the livelihood, health and vulnerability of the poor. There are three broad categories of “environmental goods and services” that are crucial for all, particularly to the poor. Natural resources, environmental conditions, including environmental stresses and the ecosystem are the three areas that draw linkages with poverty.

Natural resources can be atmospheric, land-based or sea-based. The resource that has an immediate bearing on the poor is land. Used for agricultural production it forms the important source of livelihood for the poor. Land degradation due to the overuse of chemical fertilizers, depleting groundwater other than natural depletion has added to the woes to the poor, who do not possess the means to counter adverse impacts.

Fishing provides income to the poor who live near the sea, rivers, marshy lands and swamps. However in the developing countries fishing sources are commercially over-harvested in an unsustainable manner. The forests also provide major part of income to the rural poor. Twigs and wood collected from forests provides energy. Resources from the forest are used for consumption and also help in balancing the atmospheric gases and prevent soil erosion, flooding and mud slides in hilly areas. However the unsustainable use of forest causes much misery to the poor, both directly and indirectly.

The existence of a continuous mutual influence between the economic processes and environment has been ignored by economists for a long while. The local resource degradation is so widespread today that they have added to matters of global concern. Cropland degradation, denuding of forest lands, forest clearing and felling, use of harsh chemicals and fertilizers in agricultural lands causes greatest harm and threat to our environment. The deterioration of natural systems in poor and marginal areas results in extreme misery for the poor by adding more burdens for the rural and urban poor and by limiting their choices. The natural resource problems cannot be seen in isolation. It is integrally linked to the question of economic progress. Detailed research has led to the premise that extreme poverty prevailing among the rural poor has given rise to much ecological damage and human suffering. Damage to forests and soils has impaired the quality of life, especially among the poor and raising the costs of agricultural production (World Resource, 2005)

The poor in the developing countries are involved in forest burning or forcible occupation of the common property land and its conversion into cropland. Deforestation and farming on hill areas causes soil erosion and flooding. Even though the rural marginal and poor farmers are able to practice agriculture yet they overuse the land for cultivation by unsustainable agricultural practices such as mono-cropping and shifting cultivation resulting in exhaustion of nutrients in soil. (Sengupta, 2001). The poverty profile and understanding the conditions that pushes the poor towards unsustainable use of the environmental resources are to be unravelled.

Short term goals of the rural poor, lack of proper education on natural resources and sustainability, array of governance failures, political marginalization and exclusion

from decision making are factors found responsible for mismanagement of the ecosystem. Ecosystem management, democratic governance and poverty reduction are each essential elements of sustainable economic growth. However absolute poverty has been so deep-rooted that it forces the rural poor to be indifferent to the very resources on which their life depends.

In the Asia and the Pacific region between 80-90% of the poor are rural in all the major countries. The poor live in places which are ecologically more vulnerable, low-lying, flood-prone areas, on steep mountain slopes or on dry land and are forced by circumstances to earn their living from low-productivity. The economic and social consequence of natural degradation have been immense, especially when 45% of the population live below the poverty threshold and they are naturally vulnerable to the slightest change in environment. Therefore damages to human resources, agriculture, fisheries, forestry and livestock has been witnessed.

The income measure of quantifying growth may have been widely accepted all through these years and across continents, but from the Southern perspective it seems to be only a half-hearted measure to identify poverty in the developing and underdeveloped countries.

Conclusion

An in-depth understanding of the linkage between economic growth and poverty, the common pool resources, the degradation of the environment and the carrying capacity of the earth has opened up doors of knowledge on the evolution of the concept of environmental poverty. Poverty is a broad concept that comprises besides income, the welfare and social development aspects and lately the inclusion of environment in the agenda of poverty reduction. Earlier, environment was studied as a separate entity but later the environmental economists have drawn a strong linkage between poverty and environment in reference to the problems of the developing world. Now therefore it has become more than essential to integrate the environment factor into economic policy making for achieving holistic growth.

With the failure of many economic measures to offer a permanent solution to poverty it became all the more necessary for the present generation of scholars to examine the conditions of the poor living in the developing regions. Unresolved questions like what causes poverty, its characteristics and linkages have led to more comprehensive findings on the subject. Environment which plays an integral part in the life of the poor has long been avoided while formulating policies.

Ecosystem services have always contributed to maintaining livelihood options and the potential for livelihood diversification. When ecosystem functions are impaired, this inevitably leads to a narrowing of livelihood choices and an increase in the vulnerability of the poor. And the vulnerable condition of the poor forces them to exert pressure on the environment that impoverishes the entire rural community.

The life of the poor are integrally bonded with nature, and economic policies that seek to address poverty in the South Asian region has to take environment as the most important factor. This chapter has systematically tried to present the historical background to the linkage with a clear explanation on how poverty contributes to the degradation of the environment which results in poor economic conditions. Poverty is a multidimensional and variegated concept and must involve environment concerns at every stage of national and global development planning.

Across the world, low-income communities are confronting challenges of economic development and environmental sustainability. The study finds that poverty and environment are inter-dependent and the combined affects bears influence on several aspects. Poverty reduction cannot be achieved without taking into account the environment. Efforts to reduce human poverty cannot ignore the role that changes in ecosystems play in shaping human lives.

In the following chapters the inter-linkage between poverty and environment has been studied in the context of South Asia and in particular Bangladesh. The following chapter discusses in detail the interrelationship between poverty and environment in South Asia and briefly examines the nexus between the two at individual level for each country - India, Pakistan, Nepal and Sri Lanka. Chapter three studies at length the bi-causal relation between poverty and environment in Bangladesh. The role of

the International organisations and NGOs in Bangladesh has been dealt in chapter four, bringing out the importance of the agencies in addressing both poverty reduction and environmental protection. Finally, the thesis concludes by highlighting key points in understanding the poverty-environment relation, providing answers to the stated research questions and proving the hypothesis. It also assesses the role played by different agencies in achieving poverty reduction and environmental protection. Further, the conclusion points out the main findings of the research and provides some suggestions that can help in achieving the twin goal of eradicating poverty and achieving environmental sustainability.

CHAPTER 2: *Poverty-Environment nexus in South Asia*

South Asia is home to a large population, to a large section of economically impoverished people living in the hope of a poverty free world; at the same time a significant section of the population belong to the progressive lot, those who have experienced growth with the liberalisation of the market economy. High income growth along with technological development scaled up livelihoods in the region. More people were lifted out of poverty in the past decade than before. However, inequality of income and irregular distribution of wealth, has created a huge gap between the 'haves' and the 'have not' of the region.

Significant amount of poverty reduction had taken place across South Asia in the late 1980's and early 1990's. In the 1990s, poverty fell by 9, 10 and 11 percentage points respectively in Bangladesh, India and Nepal. In Sri Lanka it fell by 6 percentages. Only in Pakistan did poverty increase by 8 percentage points, but that was because Pakistan experienced economic stagnation throughout the 1990s. The poor in the region are mostly rural. Growth in the manufacturing and services did not ameliorate the conditions of the absolute poor.

The poor in the region mostly rely on the natural resources and the immediate environment for their livelihoods. By using the natural resources, they generate environmental income from which they extract their living. But with the irregular income growth and increasing population, the region is losing grounds on many counts. Continuing poverty in the region has led to the depletion of the natural resource base creating a complex environment, especially for the downtrodden, marginal poor, tribes, women and children. The poor in South Asia struggle with the basic needs, and have knowingly or unknowingly contributed to the degradation of the environment.

This chapter looks into the state of poverty and environment in South Asia. Further going from there it explores the strong connection between poverty and environment in the region. This paper seeks to address questions like why mainstreaming poverty-environment linkages is significant for the overall development; how well South Asia

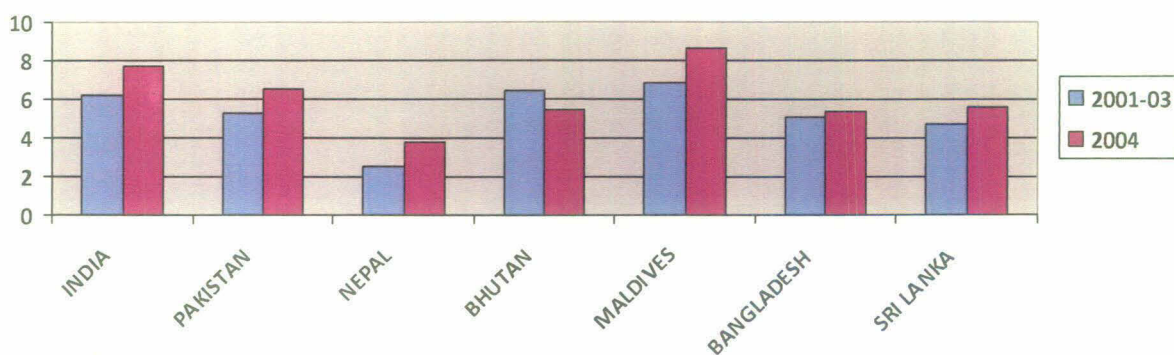
has performed in achieving poverty reduction? Has undertaking development programmes in South Asia brought any changes in the environment? Finally, the chapter moves on to understand whether the inclusion of environment as a component in economic planning will help to achieve the twin goal of poverty reduction and environmental protection in the region.

2.1. State of Poverty and Environment in South Asia

Globalization has played an important catalytic role in reducing poverty in developing countries through its impact on growth. In the past 5-6 years, average annual Gross Domestic Product (GDP) growth in Bangladesh, Bhutan, India, Maldives, Sri Lanka and Pakistan exceeded 5 percent except Nepal. In 2005-06, India and Pakistan have been averaging GDP growth of nearly 7 percent. And Maldives has successfully developed an enclave-type tourism industry with GDP growth averaging 9 percent a year over the last two decades (World Bank, 2006).

In Figure 2.1. is shown the real GDP growth in South Asia in 2001-03 and 2004. South Asia's economic growth in the last five years has been impressive. Bangladesh, Bhutan, India, Maldives and Pakistan have all grown at over 5 percent per year on average, except Sri Lanka at 4.7 percent and Nepal at 2.5 percent in 2001-03. In 2004, all countries other than Nepal averaged above 5 percent GDP growth. India, Maldives and Pakistan performed especially well, averaging GDP growth of nearly 7 percent.

Fig. 2.1. Real GDP growth in South Asia has been impressive, especially so in the recent past



Source: Devarajan and Nabi (2006)

South Asia is characterised by many socio-economic and political problems like corruption, internal conflicts, high fiscal deficits, social and economic exclusion, illiteracy, ill-health and unstable government. Good governance is just catching up.

Countries like Bangladesh, Pakistan, and Nepal suffer from frequent political confrontations. Bangladesh is considered by Transparency International to be the most corrupt country in the world. Sri Lanka and India have run fiscal deficits of over 9 percent of GDP for decades. (Devarajan and Nabi 2006: 1-2).

While sustained policy reforms in South Asia in the past few decades have led to significant amount of growth, there remains tremendous diversity between the countries in South Asia in terms of growth, poverty, social and human development.

Sri Lanka began liberalizing its trade and industrial policies in the 1980s, India and Bangladesh in the early 1990s, and Nepal and Pakistan in the late 1990s. In the financial sector, India and Sri Lanka started deregulating interest rates and allowing private banking in the 1990s, followed by Pakistan and more recently by Bangladesh (Devarajan and Nabi 2006: 1-2). The opening up of the markets, flexible trade policies and reforms in banking and infrastructure did contribute to the economic progress of the region. Certain sections of the population profited much from the reforms. However the state of the people living below the poverty line did not change much.

One of the reasons behind the persisting poverty is the 'inequality of income growth'. Irregularities in growth between countries of the regions as well as differences within the countries help to understand why poverty continues to exist. In India, states in the South and West have done well compared to the states in the North and Northeast, leading to the phrase "Two India's". In Sri Lanka concentrated economic growth in Colombo district is leaving behind the rest of the country, GDP in the western province grew at 6.2 percent annually over 1997-2003 as compared to 2-3 percent for the rest. In Pakistan too there are visible disparities between regions, with Punjab province at one end and Balochistan and North West Frontier Province (NWFP) on the other. Rising inequality became a concern in South Asia because the higher the

inequality in the country, the harder it became for the country to reduce poverty¹. The inequality also leads a section of population to fall deeper into poverty because of lack of assets like land or livestock or the human capital (World Bank, 2006).

After the liberalisation process agricultural growth and allocation of resources to agriculture or forestry was reduced. Forests reserve dwindled and pressures generated on the natural resource base brought great devastations. Slow growth in agriculture is constraining economic opportunities for the vast rural and semi-urban population who depend on agriculture. For example in India, agricultural growth is decelerating from 3-2 percent in 1980-92 to 2.4 percent in 1992-2003 further going down to 1.3 %. The rural poor, indigenous and marginalised groups in South Asia are highly depended on the forest ecosystem. In India, roughly 300 million people still depend to some degree on forest resources and approximately 100 million people among the poorest of the poor live on forest lands (World Bank 2001 : 1-10).

Forests help the poor sustain and provide the rural population with the basic means of survival. The tropical forest of South Asia has deep-rooted meaning in the lives of the indigenous and marginal poor. They depend on the forests for livelihoods, extracting a broad range of commodities from it such as firewood, vines and fruits, and some of the forest derived benefits are converted to monetary income. E.g. by selling logs, charcoal or resins.

When immigrant newcomers or powerful actors from outside like the logging or mining firms, commercial farmers or ranchers intrude on the land and start exploiting the forest for their own benefits, the means of livelihood of the poor-forest dwellers are snatched away. The forest-dependent poor become poorer and thus because of adverse circumstances they too start exploiting the very resource bank that they guarded for years or they become urban migrants labouring their way out in the big infrastructural and manufacturing businesses. This further deteriorates their conditions and adds to their poor conditions. On other hand the environment is left in the exploitative hands since they loose their control over lands. Poverty inexplicitly exerts

¹ Example, Sri Lanka's 41 percent cumulative growth in per capita GDP between 1991 and 2002 translated to only a 3.4 percent reduction in poverty. This is because the growth increased per capita consumption of the richest fifth by 50 percent but of the poorest fifth by only 2 percent.

tremendous amount of pressure on the poor and the environment. As the poor in South Asia depend on the tropical forest, colonial exploitation and later the opening up of the markets has brought many challenges for them. Without much social security or government remedial measures the poor were pushed into abject poverty. Poverty combined with internal and external factors like population growth, land races and external interventions leads to land and forest degradation in South Asia. (Wunder, 2001).

Most of the poor in South Asia are found to have limited or no access to land and property rights. They are of fundamental value to the poor in rural South Asia, and their deprivation makes the lives of the poor highly vulnerable leaving them at the mercy of the rich and the powerful that leads to their exploitation. To secure their lives the poor turn to the natural reserves which later gets aggravated due to the various pressures on them. They started encroaching on unauthorised forest lands and took up cultivation even on the environmentally sensitive areas to meet the immediate needs for survival. The incidence of poverty is highly correlated with the lack of access to land, and vice versa (World Bank, 2001).

In this chapter we study the poverty and environment nexus in other countries of South Asia - India, Pakistan, Nepal and Sri Lanka, examining the growth trends, poverty reduction process, the vast environmental degradation in the region. In the next chapter the inter-linkage between poverty and environment in Bangladesh has been dealt in length.

2.1.1. State of Poverty and Environment in India

Poverty in India is basically rural in character. It is because the bulk of the population continues to be rural and also because the proportion of poverty in rural areas is higher. The rural poor comprise mainly small and marginal cultivators with 2 hectares or less and labourers and rural artisans. Natural resources play an important role in the lives of the rural poor in India. They derive their livelihoods from forestry, agriculture and fisheries. Agricultural reforms introduced in India, the green revolution left mostly the rich and mid-level farmers better off. The marginalised poor did not reap much benefit from the reforms.

Poverty alleviation was started in India on a large scale in the early 1950s. It was first sought through the Community Development programs in rural areas, and in 1970s direct programs were started on a wide scale. However during those times growth rate in the country was almost 3 percent and resources were not enough.

Excessive population is one of the major hindrance to poverty reduction process in India. The pressures from excessive population, especially in the rural households create a shortage in the supply of food and the resources available are not enough to meet the needs. Illiteracy and ignorance among the poor, also contributed to a great extent in aggravating the poverty situation. The poor were not able to figure out whether the development programmes would bring positive or negative changes.

Economic reforms introduced in India in the 1990 have led to an increase in income growth. People belonging to the middle and high income group largely benefited from the reforms. The GNP growth rate, which was around 3 per cent till 1980s, scaled up in 1990s going above 6 per cent (Hayes and Nadkarni 2001: 9-11).

India's low-income states did not see growth accelerate in the 1990s. Between 1980 and 2004, Bihar averaged 2.2 percent growth per year as compared to 7.2 percent in Karnataka. The rural areas of states like Bihar and Orissa have some of the world's highest levels of poverty. New reforms initiated by the government did not quite address the problems of north east India. While north and west India grew, the northern eastern states were experiencing adverse conditions, with little growth and hardly able to meet the human development indicators.

Inequality² in growth among states became visible due to the increases in inequality between households *within* regions. Andhra Pradesh, Karnataka, Maharashtra, and Tamil Nadu—all rapidly growing middle-income Indian states—have pockets of deep rural poverty and districts with infant mortality rates higher than the average for Bihar. More than a quarter of Tamil Nadu's population has a lower standard of living than the typical person in Bihar (World Bank, 2006).

² Rising inequality means sizeable populations are vulnerable to falling deeper into poverty because they lack assets like land or livestock or the human capital that can be used to cope with shocks

Liberalising the Indian economy led to the growth of infrastructure and service sector which brought the decline of the natural resources. Rapid exploitation of the environment took place in the name of development as agricultural lands were converted to industrial locations, for housing and infrastructural development. Even the farming class turned into non-farming labour. The farmers migrated to urban areas for jobs and got converted into non-farm labourers. The natural habitat was left at the mercy of the encroachers. Big industrial houses and manufacturing sectors poured in and bought lands and forests either through legal or illegal means. Forest lands were forcibly converted to fields for agricultural, industrial and manufacturing purposes. Massive deforestation took place across the country.

India did take up required legislation and established institutions to take proper care of environment. Since 1980s, environment legislation has been made comprehensive and tighter, making agencies of control more proactive. However, the Pollution Control Boards did not have enough resources and staff to monitor the implementation of pollution standards by industries effectively. Industries went ahead with their exploitation process. Many examples can be cited to show the environmental degradation that took place in India. For example, the tanneries in Tamil Nadu, where a shift to a modern chrome tanning process caused widespread environmental problems, adversely affecting both land and water, and thereby aggravated human misery. The policies and programs of the forest department failed to ensure the long-term sustainability of the environment. It took up quick growing and non-browseable trees like eucalyptus, acacia auriculiformis and pines which benefited the pulpwood industry. Large stretches of uncultivated lands were taken up for mono-species plantations to meet the needs of industry rather than to meet biomass needs of local people. The forests which served as CPRs for the poor were destroyed and instead of bringing the indigenous and local tribes in India close to social forestry, the policies further alienated them from their lands (Hayes and Nadkarni, 2001).

2.1.2. State of poverty and environment in Pakistan

In Pakistan, state of poverty is as dismal as in other parts of South Asia. The country made significant progress in reducing consumption poverty since the early 1970s.

National accounts data indicate that real GDP per capita increased by about 70 percent during 1972/73 to 1994/95. The household income distribution also remained fairly stable between 1971/72 and 1987/88. Supported by good GDP growth, consumption poverty declined from 46 percent in 1984/85 to 34 percent in 1990/91. However due to economic slowdown, decline in private and public investment, increase in fiscal and current account deficits and rapid debt accumulation, poverty rate increased from 26.1 percent in 1990-91 to 32.1 percent in 2000-01.

Growth has been uneven in Pakistan. From the 1970s to the early 1990s government in Pakistan has incurred high fiscal deficits, which it financed by heavy borrowing from abroad and from the domestic private sector. This policy became increasingly unsustainable during the 1980s as debt to GDP ratios rose. The economy also suffered from excessive interference of the government in the operation of the markets and lack of openness to the world economy (World Bank, 1995).

In 1980's, Pakistan's GDP grew by an average of 6 percent annually. However growth rate declined during the 1990's to almost 3%. Real GDP grew by 5.1% during 2002-03.

The Government in Pakistan felt the need to address the problems and adopted strategies to reduce poverty and restore economic stability. The Interim Poverty Reduction Strategy Paper (IPRSP) underlines the strategies that brought significant progress and improved economic growth. One of the core objectives was to accelerate economic growth by improving the conditions of the poor and the vulnerable. However, involving the poor in the formulation of the policies and management of their affairs was seen to be critical. Therefore, a need to forge a broad-based alliance with the civil society and the private sector was felt. The IPRSP mentioned in its report that keeping the vulnerable out of the decision-making process will only accentuate the vicious cycle of poverty.

The IPRSP also found high concentration of population within a small range around the poverty line. According to the Planning Commission, as much as 63 percent of the poor population in fact fall between the poverty line and a level of consumption that is equivalent to 75 percent of the poverty line (PRSP, Pakistan 2003: 1-16).

In Pakistan, almost 80 percent of the country's poor live in rural areas. According to the 1998 census, 89.3 million people lived in rural areas of Pakistan. Among regions, Punjab appears to be considerably poorer than Sindh, largely because rural South Punjab has an extremely high incidence of poverty of nearly 50 percent. Evidence on the comparative poverty of the two smaller provinces, Balochistan and the Northwest Frontier Province is mixed (World Bank, 1995).

The rural population in Pakistan depend mostly on natural resources like agriculture soils, water, rangelands and forest. Growing poverty as a result of the increasing population exerted a lot of pressure on the environment, straining the natural resource which in turn disturbs the economic growth in the country. Mainly the rural poor who faced numerous challenges due to lack of access to resources, poverty, conflicts over local resources, debt burden etc. were exerting tremendous pressure on the environment. High debt and poor living conditions of the rural population compels them to carry out mining activities and overuse the limited resources available. This has created a downward spiral in Pakistan as a fragile and damaged resource base leads to further impoverishment, degradation and continuing poverty

Government policies to reduce poverty have somehow not been carried out effectively. Economic reforms that were undertaken paid good dividends and the country achieved record growth rates, however poverty still continued.

Going on with the development programmes and economic reforms without having proper environmental assessment has strained the resources. Pakistan spans across a number of ecological regions- ranging from coastal ecosystems, through deserts, flood plains to the mountains of the Himalayas and Hindu Kush ranges. These vast ecological resources provide a platform for economic development and growth. However excessive degradation of these resource bases by carrying out development programmes to increase income growth without examining the environmental consequences has not only affected the resource bases but also poverty outcomes (World Bank 2006: 5)

Agricultural plays a dominant role in Pakistan's development and continues to be crucial for overall growth and poverty reduction. It remains the largest source of

household income for 38 million Pakistanis, including 13 million of the poorest 40 percent of rural households. Agricultural expansion in Pakistan has been supported by vast irrigation network. Green revolution introduced the high yielding varieties and new technology. Intensification of crops was carried out with the help of fertilisers, pesticides and huge lot of water. However Pakistan's performance wasn't much impressive.

About 40% of irrigated land has been affected by either salinity or water logging. Mismanaged irrigation and human induced activities has aggravated the salinity problem in Pakistan. Total irrigated land in Pakistan is about 18.2 million hectares. Nearly 25 percent of this land suffers from various levels of salinity and this brings direct economic losses, through reduced yields.

Between 1990 and 2000 Pakistan's rate of deforestation has been greater than that of other countries in its income group. A number of development activities were taken up by the government during this period. Neglecting environmental policies while conducting development projects have lead to negative outcomes that impede progress.

Estimates of rangelands in Pakistan over a period of ten years, point that rangeland area declined from 28.5 million hectares in 1992 to about 23.5 million hectares in 2001. The rangelands are home to the poorest of the country's population, so the impact of pasture loss is highly regressive. Similarly the degradation is also leading to severe natural disasters. Most complex is the damages to the rangeland which is irreversible (World Bank 2006: 20-30).

Forests occupy a relatively small proportion of the land area in Pakistan almost 3 to 5 percent; even then it plays a vital role in the country's economy by being an important source of fuel wood, grazing land, livelihood and government revenue. It helps maintaining the ecological balance by providing multiple benefits like watershed protection, soil conservation, assuring eco-system resilience. Decline of forest cover took place at a rate of 2.1 percent or 47 thousand hectares over the period of 1990-2005. Pakistan's valuable coniferous forest was declining at the rate of 40,000 hectares annually (World Bank 2006: 19-20).

In Pakistan, poverty and environment forms a cyclical relationship. While environment degradation has aggravated poverty situation in the country, the large population of urban and rural poor exerts enormous pressure on the environment to meet the short term goals. Also the government agencies in an attempt to address poverty have undertaken projects that failed to involve environment as an essential component in policy making.

A sustained growth would lead to rapid consumption poverty reduction, but that needs to be achieved through broad- based programmes without much negative impact on the environment. Environmental degradation translates into many socio-economic problems that affect the overall growth. In Pakistan, a clear environmental degradation has been observed over the years. The country till date faces a number of environment challenges that could undermine the economic performance of the country.

2.1.3. State of Poverty and Environment in Nepal

Poverty situation in Nepal is deep, worrying and masked with dramatic disparities. While the neighbouring countries have made some headway in reducing poverty, Nepal hasn't made much progress. According to the Nepal living standards survey data, poverty rates in 1995/96 remain nearly the same in 1976 and 1984/85.

Even between the urban Kathmandu and the rest of Nepal there is sharp disparity visible in population and poverty rate. In Kathmandu where around five percent of the population lives, the incidence of poverty is around four percent, on the other hand in the rest of the country poverty is ten times as high. In the rural areas the situation is far worse. Almost 90% of the population lives in rural areas and poverty is more widespread and deep in the remote area (World Bank, 1998).

Population in Nepal has been growing at a rapid speed. Since 1961 it has remained at over two per cent per annum. It increased from 8.473 million in 1952/54 to 18.491 million in 1991. The year 1981 marks the rapid growth in population, both rural and urban. This growth in population has put tremendous pressure on the available natural resource of the country. In 1991, there were visible decline in gainfully employed

land has taken place over the years through double and multiple cropping to produce more food. Agricultural land has increased from 2,376 thousand hectares in 1980 to 2,968 thousand hectares in 1985. However from 1985 to 1999 agricultural area has been recorded as constant due to the loss of agricultural land for non-agricultural uses. Rural poor or farmers shifted to unsuitable and environmentally sensitive steep slopes for cultivation since the suitable, agricultural land were no more available (UNEP State of Environment 2001: 12-17, 81-83).

Real GDP growth in South Asia has been impressive in 2004 scaling over 5% except Nepal which is at 3.8%.with the shift of vast agricultural land to non-agricultural uses the growth of large dependencies on agriculture has got affected. For almost 90% of the poor and very poor agriculture it is the most remunerative activity and farming income represents more than half of all income (World bank 1998: 5-6).

Pressures exerted from rising poverty and population excesses are taking its toll on agriculture. There are several outcomes; fragmentation of agricultural land has taken place because of the increase in the number of farming households turning landholding parcels into uneconomic sizes in terms of modern agricultural practices. Skewed distribution of landholdings among farmers has hindered agricultural land development; the marginal and small farmers own lands below one hectare which leaves them impoverished as they barely are able to meet the basic livelihood means.

To meet the short term needs the farmers take to shifting cultivation in remote hills, further encroaching upon forests. From time and again environment damages have affected the live of the poor. Economic growth taking place in Nepal have been visible in a few urban areas and did not translate into growth for all.

Soil degradation has taken place on a vast scale in Nepal and has been recognised as a serious environmental problem. Pressures from poverty and population led to the intensification of agriculture which brought enormous changes in the soil fertility. The nature of soil degradation varied greatly in Nepal, being higher in the unmanaged land-use category and on steep slopes than in the managed land-use category. The intensity of soil erosion also differs between cultivated terraces and grasslands. A study conducted in the Yarsha Khola watershed in the middle hill district of Dolakha

showed that soil loss from cultivated terraces was 2.5-16.4 tonnes/ha/yr and from grasslands was 0.7-8.7 tonnes /ha/yr. Another study showed erosion from very steep slopes where shifting cultivation is practised is around 100 tonnes/ha/year (UNEP State of Environment 2001: 81-85).

To increase the yield of agricultural land, fertilizers were added to the soil and irrigation was undertaken. But over the last few decades vast domestic and foreign resources have been poured into fertilizer, irrigation, without improving public expenditure, which therefore did not produce enough growth to shrink poverty. Without making significant progress in targeting public expenditures and providing the poor access to the resources, Nepal's agriculture is not likely to keep up with the population growth and rural poverty will still persist (World bank 1998: 13-15).

Soil fertility has decreased tremendously over the years because of the erosion of the topsoil, extensive silation on farmland because of the floods. According to the country's Ninth plan crop productivity has declined due to the overuse of soil for cropping with inadequate supply of manure and fertiliser that would sustain the fertility of soil for long. Use of fertiliser in Nepal compared to other countries in South Asia is low. Moreover due to the ignorance of proper fertiliser, the land productivity also suffered.

The livestock production has also put immense pressure on forests and grasslands, leading to soil erosion. Increased dependence of the population on agricultural land has resulted to the encroachment upon forests land.

Population from the hills have migrated to the Terai region in the past few decades. In 1952, the region had nearly 35% of the country's population and by 1991 this increased to almost 47%. High scale migration to the Terai plains has led to the encroachment of forests land. From 1978-1991 a total of 99,400 ha of Terai forests was cleared which was converted to agricultural area. A study showed that there was a decline in the growing stock of Sal forests from 101 to 72 cubic m/ha and for Terai hardwood forests from 76 to 58 cubic m/ha. In many developing countries the decline in forests and woodlands is due to land conversion, especially agricultural expansion for crop production.

Improperly designed forest policy is viewed as one of the responsible factors for the degradation of forests, besides human migration and conversion of forests to agricultural land. The Private Forest Nationalisation Act 1957 which was implemented assuming that it would bring the protection and management of the forests, but conversely it led to the degradation of the national forests.

A large section of the Nepalese population extract firewood, fodder, timber and medicines from forests. The per capita timber consumption has increased from 1985 to 2000. The forest area in the Terai region declined by 0.1 million hectares between the late 1950s and 1985. Besides illegal migration to the Terai lands, the forest area in the region had also declined due to the continuous extraction of non-timber forest products (UNEP State of Environment 2001: 11-20, 55-58).

Income growth that has taken place in Nepal has lifted a quarter of the poor out of poverty. But inequality has played a strong role in the multiethnic country. Abject poverty has led to enormous pressure on environment, illegal migration within the country from the hills to the plains, encroachment upon forests, conversion of forests land for agricultural purposes, extension of cultivable lands, and use of fertilisers without knowing the impact on land, soil degradation and disasters.

Sustainable management and development of forests, agricultural land and involving communities in managing the resource can bring both the alleviation of poverty in Nepal along with environmental protection. Many CBFM programs have focussed on improving forest-based livelihoods through commercial use of forest resources.

A World Bank study established that declining natural resource base largely caused by poor people deprived of access to resources exacerbates the conditions of the poor by limiting their already restricted production possibilities. One of the basic understandings for the vicious circle between poverty and environment is that poverty limits people's options and induces them to deplete resources faster unleashing more environmental threats. The poor in Nepal facing similar situation of lack of access to resources, faulty government policies, gross inequalities in wealth, and minimal options in terms of services / jobs are exerting more pressure on the limited resources to fulfil the short term goals. The poverty-environment nexus is deep-rooted in Nepal

as poverty exerts too much pressure on the environment. The Himalayas is facing severe threat from global warming that is endangering both livelihoods and the natural resources (Ekbom and Bojo 1999:6-7).

An example of reforestation or regenerative programme in Nepal showed how degraded forests can be restored and productive if there is appropriate management, investment, and security of tenure. Small parcels of land with degraded forests were provided to groups of poor households through renewable 40-year leases; 1,773 leasehold groups, comprising 12,028 households, were formed, covering about 7,500 hectares of degraded land. The result were splendid as both poverty reduction and reforestation of the hills took place. Grazing was stopped and pockets of grasses, legumes, and trees were planted. Overall, a more or less natural forest returned over most of the area. Collection time for fodder and fuelwood fell greatly, and women had more time to take up income-earning activities. Over 10-years, this small pilot project became a national program supported financially by the Government and a growing number of donors, supported by a new leasehold forestry policy (Asian Development Bank, 2009).

2.1.4. State of Poverty and Environment in Sri Lanka

Like all other countries in South Asia, Sri Lanka too faces a huge challenge from poverty. Despite the countries steady growth performance, the pace of poverty reduction has been slow. Between 1991 and 2001, poverty headcount ratio declined only by 3.4 percentage points. The country made good progress in literacy and infant mortality making outstanding records in human development. The income growth was also increasing significantly.

With the rising income growth regional disparity in terms of poverty reduction was becoming quite prominent. While on the one hand, poverty headcount ratio of Colombo district has declined by 10 percentage points from 1990-91 to 2002 on the other hand it has increased by almost 10 percentage points in the same period in the Puttalam District(World Bank, 2005).

The disparities in poverty percentages within Sri Lanka have led to many social, political and economic consequences. Since 1977, Sri Lanka has been working on achieving higher economic growth, which is a necessary condition for poverty alleviation. However there was a change to a private sector led economy, emphasising on export and infrastructural development. All the major development projects since 1977 were done with foreign borrowings, and that led to a diversion of resources from poverty alleviation and social welfare to strengthening the foreign and domestic private investments.

Increasing population has been found as one of the foremost reason behind the vast environmental degradation in the country, which has in turn jeopardised the poverty reduction process. Sri Lanka has a population of 19 million and the growing population exerts a lot of pressure on the natural resource base. Expansion of human settlements has led to large scale erosion in several parts of the country especially in the up and mid country.

The 1977-1994 government undertook development projects to promote infrastructure which led to the negligence of the agricultural sector. Subsidies and services to the poor were cut down to provide heavy subsidies and tax benefits to the rich .The 1994 government continuing with its economic growth policies spent heavily to upgrade services such as telecommunications and the harbour.

The poor in Sri Lanka are mostly rural and depend heavily on subsistence agriculture. After the shift to the private sector led economy, diversion of resources from the agriculture took place, which made an adverse impact on the poor. The total extent of agricultural land in Sri Lanka is 31% and out of per capita land availability of .38 ha, agricultural land per capita is .26 ha. It is the lowest in Asia.

Many of the poverty alleviation programmes that were undertaken in the country since 1977 were used more for political suppression of the poor. The programmes like “Janasaviya” and “Samurdhi movement” were used as a means to control the poor politically. As people were more impoverished the small grants provided under the poverty alleviation programmes were used to make the poor passive. Samurdhi movement with over 30, 000 paid workers having close links with the poor Samurdhi

beneficiaries that have been openly used for political control. The corrupt policies and the political force exerted on the poor, failed to ameliorate the conditions of the marginalised groups (UNEP State of Environment, 2001).

Persisting poverty in Sri Lanka is the result of many factors. The foremost among them is the high population growth. The corrupt policies and political pressure on the poor is seen as a strong force behind the impoverishment of the rural poor.

Another reason for the prevalence of extreme poverty and indebtedness of the poor is the high cost of production due to heavy dependence on external inputs. Millions of small farmers are suffering as a result of the market conditions which compel them to sell their produce at prices that are below the cost of production. The poor have become victims of market economy and the trickle down policy did not work wonders for the poor.

Pressures to meet the basic needs have left the poor with limited choices. The poor cultivated even the rainfed areas, moved from one place to another. During the British times the poor were employed as plantation workers in the coffee and tea gardens. Upper catchments of major rivers located in the central highlands were stripped of natural vegetation to make way for plantation agriculture. Soil erosion took place due to the sudden change in land patterns. Even after independence Sri Lanka witnessed massive land clearing. Human settlements and large amount of land converted for agricultural purposes have led to the degradation of the natural resource base. Since population was fast growing meeting the demands of the people became a huge challenge. Fragmentation and overexploitation of land became quite prominent.

Encroachments over forest lands and stream reservations started taking place. Ignorance among the poor on the use of fertilisers and its negative impact disabled the process of restoring the productivity of the soil. Unregulated and poor land use patterns in cultivating these lands have resulted in widespread soil erosion.

High taxes on imported potato encouraged many farmers to clear the lands, even environmentally sensitive areas for cultivation of this high value crop. Many 'Chena-slash and burn farming' and 'Patana' lands have been converted to cultivation of

erosive crops such as potatoes, tobacco and vegetables in need of better returns on investments (UNEP State of Environment 2001: 29-30)

Government did establish some policies in protecting and sustaining small scale rural agriculture. Those were like:

- Development of irrigated agricultural settlements to provide land to the landless
- Agricultural subsidies and services provided
- Price controls on essential foods and food subsidies
- Rural agricultural credit systems , and others

However, all these policies could not bring the desired outcome as poverty continued. Competition from the market and erosion of the natural base during the colonial and post-independence period had already strained the common pool resources, leaving the poor vulnerable to the fast growing economy. Social safety nets for the poor went missing and led to the easy reduction of environmental base for meeting the basic needs of the poor.

Deforestation led to the decline of the natural dense canopy forest cover from 80% at the turn of the century to less than 24% by 1992. Forests were being cleared illegally and legally both for development projects, human settlements and agriculture. The adverse impact of slash and burn farming on the environment were recorded in the Land Commission Report of 1987. Changes in microclimate, soil erosion, destruction of natural vegetative cycle and loss of forests reserve were found. Forestlands in the low country were converted to timber producing lands resulting to large-scale gully formations. Land pattern changes had direct bearing on the increasing soil erosion rates (UNEP State of the Environment 2001: 25-35).

Even the coastal ecosystems are under severe threat. The length of the Sri Lankan coastline is 1,585 km. Coastal migration has increased the coastal population densities to 446 and even 1000 persons per sq. km. Excessive exploitation of the coastal reserves and pressure from the population led to the fast depletion of reserves such as fringing coral reefs, shallow beds etc. Prawn farms were established in

environmentally sensitive mangrove areas exerting tremendous pressures on mangroves and degrading associated lagoons and estuaries. Because of additional chemicals and organic on the water lagoons and estuaries, the water quality has changed. Timber felling, mangrove clearing, tiger prawn farming housing and infrastructure have reduced the natural ecosystem (UNEP sState of the Environment 2001: 85-98).

Sri Lanka environment faces increased pressure from several factors .Even though the country has enacted environmental laws, their enforcement have failed to preserve the resource base. Development projects failed to take note of the environment component subjecting the land and water bodies to more exploitation, human pressure on the natural reserves due to food, settlement and later infrastructural development were all responsible for the erosion of common pool reserves. Poverty seems to exert continuous and large-scale impact on the environment in Sri Lanka.

Conclusion

The comprehensive account of poverty – environment nexus in South Asia has revealed that in India, Pakistan. Nepal and Sri Lanka population has been one of the main causes behind the continuing poverty. There has been a vicious interaction between population growth, poverty and environmental degradation in South Asia. Continuing poverty due to massive explosion of population has led to depletion of the environmental resources which adversely affects the lives of the poor.

Without growth poverty alleviation cannot be met, but the years of ignorance and exploitation of the poor and the common pool resource in the name of development has only brought destruction. Lately the environmental economist have traced that in developing regions like South Asia, development projects have to be one of its kind, meeting the particular economic and social needs of the region. It has to be more inclusive and sustainable. Development programs in South Asia have bypassed the women, landless, indigenous peoples and vulnerable groups. There is an urgent need to include them in the programmes, introduce more environmental components in the economic programs, and lay more emphasis on building human, social and physical assets and effective delivery of basic services.

Keeping in mind the contribution of women in South Asia in preserving and protecting the environment, their participatory role in food and fodder collection, tea gardens, agricultural cultivation, fuelwood and medicinal herbs collection etc. much needs to be done to promote their independent land rights through policy measures that increases their bargaining power and rescues them from the clutches of poverty.

If the region's population increases, as projected to almost 2.2 billion in 2045, agricultural production will fail to meet the needs of the population and depletion of resources will scale up beyond imagination. Existing technology needs to be put into good use through energetic research, developing more efficient and sustainable processes.

An integrated, holistic and broad based rural development programme needs to be pursued in South Asia that addresses both the goal of poverty alleviation and environmental protection. Before taking up development projects an assessment of the environmental impact and understanding the relation between local environment and poverty becomes quite crucial. Government agencies, international donors, civil society has to move beyond personal interest and work jointly to ensure the steady growth of the region along with the preservation of the environment.

CHAPTER 3:

Poverty-Environment nexus in Bangladesh

Bangladesh became a nation under the most hostile conditions in 1971. The country was filled with dark events like dislocations, transmigrations, chaos and trauma which required the leaders to bring the nation back to stability. The new leaders of independent Bangladesh had to recuperate the deep losses faced during the emergency. It was one of the most vulnerable economies of the world at that time; characterized by extremely high population density, low resource base, high incidence of natural disasters and political instability. Many development pundits had questioned its long – run economic prospects and political viability as an independent state.

For decades, abject poverty has been the key concern of the country and demands strategic action at a global level. According to the World Development Report 1990 Bangladesh officially ranked fifth poorest in terms of Gross National Product (GNP) (Palmer-Jones, 1992).

The country for the first time entered the “Medium Human Development” league in 2003. According to the UNDP Human Development Report (UNDP, 2003) it was the only country in the LDC group to attain this status. There has been substantial amount of decline in the poverty percentage in Bangladesh in 1990’s; however the current poverty rate in Bangladesh is still one of the highest in the world. Though, poverty and its variable aspects have received primary importance in all the successive development plans and political campaigns in Bangladesh, yet the rate of absolute number remains very disturbing

Bangladesh also faces many environmental threats. Over the years, many disasters have taken place that led to enormous destruction of livelihoods and property. Floods, cyclones, droughts, and other natural disasters have become common phenomenon. Massive environment degradation has posed multiple challenges to the growth and poverty reduction process in the country. However, only in the recent years have environment found place in the poverty agenda. The rural poor, who depend on the environment for survival, face extreme conditions due to the erosion of the

environmental resource base. Extreme poverty and overpopulation is straining the natural resource base in Bangladesh.

This chapter aims to study the pattern of growth and poverty in the country over the years. Following this, an attempt is made to understand the relationship between poverty and environment and the enormous environmental degradation that took place across the country. The core objective is to find how poverty exerts pressures on the environment and the state of rural poor in Bangladesh. The chapter also highlights the need for sustainable development programmes for achieving holistic growth, and the inclusion of environment into the economic policy making that would help to bring both poverty reduction and environmental conservation.

3.1. Growth scenario in Bangladesh

Bangladesh has an interesting and irregular growth history and poverty has featured in all the phases. The first phase was the 'period of reconstruction and recovery amidst political turbulence' during which the country achieved the pre-independence level of per capita GNP such as gross savings and investment. The period witnessed modest and disastrous beginning amidst economic and political uncertainties of a war - ravaged economy, nationalization of large and medium scale industries , famine in 1974 , military coup in 1975, partial liberalization and privatisation measures in the second half of the 1970's with increased inflow of concessional aid , emergence of targeted employment programs , population growth measures , restoration of the pre-independence level of per capita GNP by the end of the period . There was also increased and unsustainable reliance on external assistance which was a major concern of the period. The most significant development of this period was the emphasis on green revolution as part of a drive for national food self-sufficiency.

The subsequent period of the 1980's was the period of slow economic growth with growing macroeconomic instability, growing financial crisis, institutionalization of corruption and the rise of crony capitalism. Privatization was introduced during this period to address the growth problems and augment the economy. NGOs (Non-Governmental Organisation) also emerged as important conduits of development. The slow economic growth led to the adoption of Structural Adjustment Programmes by

the government with the support of the international organisations. The implementation of these schemes did bring in positive changes but at the same time had negative impact on the environment too.

The transitional period covering from 1989/90 to 1992/93 is considered as the period of crisis – driven economic reforms. The goal was to attain a ‘threshold level’ of human and other forms of capital. There have been considerable gains in the country in terms of per capita GDP (Gross Domestic Product). In the 1980s, the per capita GDP grew only at a rate of 1.6 per cent per year; this has nearly doubled to 3 per cent during the 1990s. The comparative performance of Bangladesh (measured in terms of GDP per capita in PPP\$) has improved vis-à-vis neighbouring and other Asian countries except India (Sen et al., 1992).

An important aspect in Bangladesh growth pattern is the volatility of economic growth. Higher volatility was prominent before the 1990’s. This was largely due to the extreme vulnerability of the economy to natural disasters and other events.

The nineties witnessed a greater outward orientation with focus on trade liberalization, a move towards more economic stability and the development of human capital. This period is termed as the era of high economic growth and more social development. There has been continued emphasis on the private sector as the engine of economic growth, more liberalization of the market economy, while at the same time significant action were taken to improve agricultural productivity and rural development. The role played by NGOs in social and economic development was quite notable. Bangladesh economy during the nineties improved considerably compared to earlier periods.

According to World Bank and UNDP, growth in national income does not necessarily lead to improvement in well – being, and so the focus had to be on human needs and poverty alleviation in addition to economic growth.

Earlier, Bangladesh used to produce more food than what the population needed. However that doesn’t stand true anymore. With population growing too fast and agriculture not getting the attention, the scenario has changed drastically. A study

conducted by the World Food Programme indicated that large section of the people suffered from calorie needs in the country. Land remaining fixed or even eaten up by non-agricultural pursuits the attention should have been more towards maintaining sustainable agriculture (POT, Dec. 25, 2007).

Fast economic growth in the nineties has helped to bring down poverty in the country though that hasn't made much of a difference. Poverty in Bangladesh is deep-rooted and endemic and hinders the economic progress of the country.

3.2. Poverty in Bangladesh

Poverty eradication is one of the key challenges of Bangladesh. At the time of independence, the population faced extreme poverty and were living in squalor. The proportion of population living below the poverty line was 74 percent in 1973/74. Facing adverse conditions the leaders felt the need to design development schemes that gave more attention to higher income growth in order to tackle the poverty situation (Sen and Hulme, 2004).

Till date the poverty situation in the country hasn't changed much. According to a recent set of estimates, about 19 percent of rural households cannot have "three full meals a day"; 10 per cent of rural households have to subsist on "two meals" for some months of the year. It is apparent that at least about one-third of the national poor in Bangladesh subsist in extreme poverty, indicating the importance of differentiating pro-poor growth strategy to match the varying needs of the different groups of the poor (Sen et al.1992: 12).

Absolute poverty is deep rooted, pervasive and has multiple implications. It is not just the absence of reliable incomes and productive assets, but also to food, safe water, sanitation, education, shelter, inequities, injustice and lack of power.

Chronic poverty in the country is characterised by both the external and internal dimensions. Externally the country was seen to fall 'below – poverty level equilibrium trap' for decades with successive famines, distress- migration and abject

poverty. It attained the lowest position along with Rwanda in 1974 as the chronically poor nation of the world.

The experience of chronic poverty in Bangladesh can also be understood in terms of understanding the society from within. The society was not homogenous and sharp differences existed among various population, sub – groups based on land, income, status and power across different segments. The deep gradation within poverty with fissures and fractures along caste, class, religious belief and ethnic lines made the rift between the moderate and the severe poor. A large section of the rural poor was deprived of opportunities and benefits due to the internal fissures. In Bangladesh human existence in the most extreme conditions has been visible in all the development phases (Sen and Hulme, 2004).

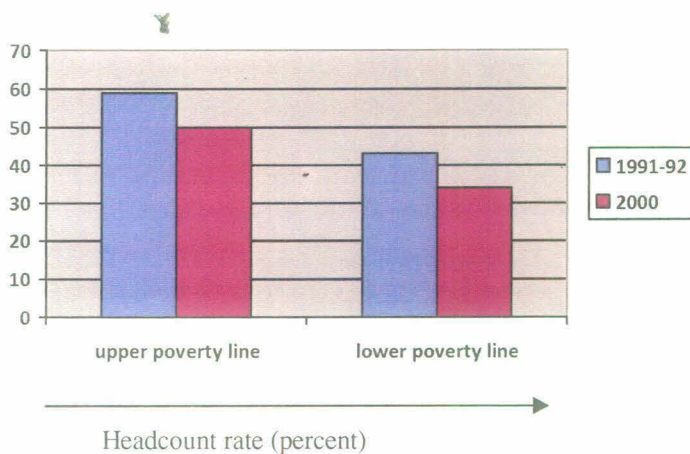
The poverty reduction process was slow in the eighties due to considerable instability. The incidence of rural poverty declined in 1983-85, increased in 1985-88, declined again in 1988-91. The damaging effects of the floods in 1987 and 1988 on agricultural output increased the food insecurity problem within the country.

By the 1990's, the incidence of rural poverty dropped .This could be attributed to the better resilience capacity and more diversified sources of growth due to the expansion of winter- season irrigated boro rice crops combined with the development of rural non- farm activities . Progress was faster during the nineties compared to the eighties. The pace of poverty reduction was also felt differently in urban and rural areas. In urban areas poverty reduction was faster than the rural areas.

High economic growth brought down the poverty percentage in the new millennium. In Figure 3.1. is shown the poverty decline in Bangladesh from 1991-92 to 2000 by a creditable 9 percent, with the decline occurring in both urban and rural areas and touching all of the poor, even the poorest of the poor. The upper poverty line in 1990-91 is 59% compared to 50% in 2000 and lower poverty line is 43% in 1990-91 compared to 34% in 2000. But because of population growth, Bangladesh entered the new millennium with the same number of absolute poor as ten years earlier. In Figure 3.2. is shown that the upper poverty line in 1990-91 is 62.2 million compared to 62.7

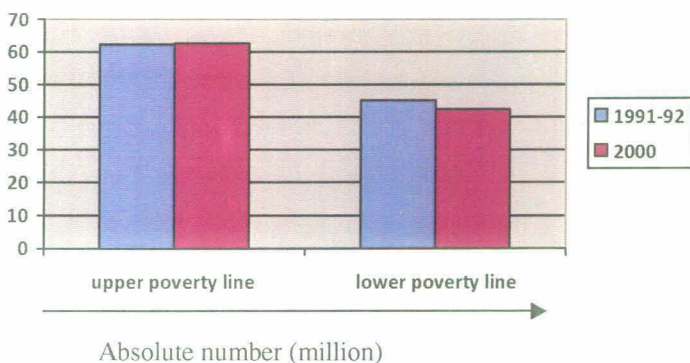
million in 2000 and lower poverty line is 45.2 million in 1990-91 compared to 42.5 million in 2000.

Fig. 3.1. Declining poverty rates in from 1991-92 to 2000



Source: World Bank, 2002.

Fig. 3.2. Increasing absolute poor rates



Source: World Bank, 2002.

The number of abject poor rose by 35 per cent in five years, despite several non-governmental organisations (NGOs) working for poverty reduction. Mahbub Ali, an economist highlighted that abject poverty in Bangladesh meant disparity in income increased (POT Dec. 26, 2007).

The challenges these absolute poor face also get exacerbated by the accelerating environmental degradation of an over-populated land base.

3.3. The relation between Growth, Poverty and Environment in Bangladesh

3.3.1 Relation between Growth and Poverty in Bangladesh

Over the years it has become visible that economic growth leads to the decline in poverty. However in the present era a new nexus between economic growth, poverty and environment has become prominent. While economic growth may negatively affect the environment, improvement in the environment may have positive impact on poverty reduction. For example, agricultural activities for producing food may lead to methane flow and contribute to greenhouse gas emissions which creates the threat of global warming, and that in turn may destroy livelihoods, property and erode the natural resources base. This makes the economy more vulnerable and aggravates the poverty situation in the country. However sustainable land practices for example, zero farming, organic cultivation may restore the fertility of the soil and enable good productivity which in turn helps to meet the food needs, provide income and goods to the poor, alleviating them from their deplorable conditions.

Another example is the overexploitation of freshwater resources and the production of waste as a result of the unregulated consumption pattern. This stresses the water resource bank and limits earth's carrying capacity, further deepening the poverty situation in the country (Aktar, 2005).

Both poverty and environment are to be dealt together for achieving economic prosperity. The lives of the poor in Bangladesh are shaped by their physical surroundings. The group of rural landowning, small and marginal farmers are depended heavily on the resources and should invest in protecting rather than destroying the environment. Earlier Bangladesh was self – sufficient in food, however improper family planning and increasing population generates more demands of subsistence, and that forces the poor to exert more pressure on the limited resources. Inefficient, unsustainable agricultural and farming practices have been adopted throughout the years in the country to meet the immediate needs of the population.

Agricultural resources are already under tremendous environmental strain. The rural poor are particularly constrained in their access to credit, insurance and capital markets. Moreover the local commons like village ponds, pastures, riverbeds, fuel

wood, etc. are not open for the use of all in the society but only to those who own historical rights, through kinship ties, community membership and have rights to use the resources.

Land ownerships determine to a great extent how resources are utilized. Local commons are easy enough to monitor, so their use is often regulated in great detail by the community; either through the practice and enforcement of norms of behaviour, or through deliberate allocation of use.

However incomplete property rights have negative impact on the growth process of the country as poverty continues unabated directly affecting the environment. Wrongful use of resources has taken place either due to the ignorance of the locals about the sustainable quotient of the resources or due to the gullible nature of the community people.

Excessive population, unreflective public policies and lack of knowledge of sustainable methods are responsible for huge pressure on the common – property resource base in Bangladesh.

The role of women in achieving economic growth, reducing poverty and bringing environmental sustainability also makes crucial study. Women in Bangladesh have for years participated in farming, cultivation and forestry. They have shouldered several responsibilities in terms of food collection, production, preservation of land. They are known as the harbingers of change having fought for land rights, forest rights, and coastal protection in all over the world. But throughout their life they have been discriminated and have limited access to resources such as land credits, information services, modern tools, technology and training. The land tenure system is also discriminatory; women have been restricted from having direct control over the profit of their produce. Income generating activities carried out by women in connection with government programs have generally been characterised by low productivity, low return and weak demand in the market place. Major parts of developing activities have pre-dominantly been male dominated (Ahmed and Laarman, 2000). Women's lives are deeply connected to nature and they shared equally with man the responsibility to protect natural reserves.

The growth, poverty, environment nexus have a deep effect on the lives of the women. A huge section of the women population are also the absolute poor hence government agencies must take measures to support women economically so that their living standards could be raised and they could take better care of the environment.

In the present decade many initiatives are taken by government bodies, international organisations and NGOs to bring women in direct control of the natural resources, as they are found to be better guardians of the natural reserves than their male counterparts.

The Grameen bank's effort to provide micro-credit to women is prominently known world over. It provided services to almost 1, 186,826 women and 84, 635 men in Bangladesh. It provides loans exclusively to the poor who possess not more than a half acre of land or assets so that they can make the most productive use of loans and succeed in their business ventures. They also advise them to live in a cleaner and better environment (Wahid, 1994).

Destruction of environment in Bangladesh has led to conflicts and migrations that have in turn led to further degradation of natural resources. As mentioned earlier due to increasing population, conspicuous consumption and development initiatives reduction of resources are taking place on a vast scale. Conflicts are emerging within the society due to scarcity of resources and leading to the environmentally forced population migration. The Farakka – led environmental destruction in the south- west region of Bangladesh has led to the loss of agriculture, drop in fish yields, death of valuable forest resources, disappearance of land due to river- bank erosion and devastating floods (Swain, 1996). Many development schemes have brought severe damages to the environment letting in more adverse situation for the poor.

Various aspects that hold significance while understanding the relation between growth, poverty and environment in Bangladesh are:

3.3.1.1. Increasing population

Population growth is an important factor in the study of the economy. Due to high fertility rate the population of Bangladesh has increased from 50.76 million in 1961 to 115 million in 1990. The planning commission's projection is that by the year 2000 to 2010 population will increase to 137 million and 154.5 million. The pressure of excessive population could be felt in the land and the ownership rights. The high population growth has reduced the land man ratio to 0.11 ha in 1990 from 0.13 ha in 1981. This has further led to the increase in landless population. The rapidly growing population has caused ecological imbalances leading to massive degradation of resources. Pressures to meet the need or feed the growing population have brought in the practice of using unsustainable methods for achieving high agricultural production & growth (Haq et al., 1998).

Rapid population growth in Bangladesh has led to some key concerns. It has negative externality on the environment leading to the degradation of natural resources at the local and national level, contributing to global concerns as loss of biodiversity leads to negative impacts on the global climate. It also reduces the income of some groups, specially the poor and therefore exacerbates the problems of poverty and income inequality in developing countries (Kerstin et al., 1994).

Increasing population and expanding needs in various sectors, have changed the land use patterns in Bangladesh. During 1974-75 the percentage of land not available for cultivation was close to 19% of total land. It rose to 20% in 1984-85 and by 1994-95 it increased largely to almost 29%. The area not available for cultivation has been increasing while on the other hand the net cropped land and forestland is shrinking. Almost half of the existing forest land was brought under non-forest use by the 1990's e.g. shifting agriculture, illegal occupation, unproductive areas etc. (World Development Report, 2000/01).

3.3.1.2. Impact of shifting cultivation on environment

In Bangladesh a good proportion of land is owned by the 'Jhumias' (shifting cultivators) who cultivate land on payment of jhum tax at a fixed rate stipulated by the Chittagong Hill Tracts' manual 1910. The Jhumias enjoy perpetual right of cultivation on the land they first clear for cropping. First step is to clear and then burn the surface vegetation before planting mixed crops of rice, sesame, maize, vegetables and cotton. The mixed nature of cropping ensures a supply of food for most of the year. At the end of an annual cycle, the land is left to revert to scrub and the cultivators move to another area.

Area under shifting cultivation was first reduced drastically in 1880 when a vast area in the CHT was declared reserved forest where shifting cultivation was practised. According to the statistical yearbook of 1992 there were 3,285,000 acres of total area in CHT. Of this area, in 1990-91 around 235 was not available for cultivation. As a result of population pressure the cycle of shifting cultivation has become shorter than the optimum causing imbalance in the system (Gain 1998: 75-86).

Although, the practice of shifting cultivation has helped in meeting immediate production needs but simultaneously it has affected the soil fertility, land productivity and the ecological sustainability.

3.3.1.3. Unsustainable cultivation process and food insecurity

The growing intensity and cultivation of modern varieties of crops have increased the net removal of nutrients. Soil organic matter content has decreased to an alarming level. More than 60% of the cultivable lands have less than 1.5% organic matter content (Mahtab and Karim, 1992).

Overpopulation has been identified as the most serious problem inhibiting the sustainable use of resources. Growing demand for food has led to the overexploitation of land. Food insecurity has been increasing rapidly and many in Bangladesh are deprived of even minimum nutritional amount.

Estimates show that less than 5% of the population consume an adequate quantity of food. The 1976 - 77 data indicates that only about 25% of the population purchase an adequate quantity of food grains. The poorest 32% of the population consume only 1500 calories per day. To meet the food demands of population, agricultural production must increase at a much faster rate. There is a strong connection between population growth and production.

The growth of food production have taken place in the existing land base by increasing cropping intensity, introducing modern varieties of crops which were mostly pursued at the cost of environment depletion which is of serious concern. In most cases production methods were practised without taking account of the sustainability or carrying capacity of the environment. To meet the immediate needs of the population, environmental sustainability has always been put on hold leading to more dehumanizing conditions.

A vast majority of the population in Bangladesh depend on agriculture and natural resources for a large part of their food and income. Over 60 percent of total land area in Bangladesh is cultivated. 75% of the population depend directly or indirectly on agriculture for their livelihoods. Agricultural growth has been stimulated mainly by a relatively rapid diffusion of new technology in food production, increasing land and labour productivity.

In 1971, the use of modern inputs in agriculture was negligible, but since then mechanical irrigation has been extended to over 30 per cent of cultivated land and the use of modern crop varieties to nearly 45 percent of food grain area. The use of chemical fertilizers has increased from 380,000 tons in 1973/74 to 2.2 million tons in 1990/91, a growth rate of 11 percent per year (Hossain and Sen, 1992).

During the green revolution³ the mechanization of agriculture and emphasis on high-yielding varieties to grow more food has resulted in the loss of many traditional varieties of rice and other crops in Bangladesh. Since the green revolution took place

³ The new seeds used during the green revolution were called high yielding varieties or miracle varieties that would make possible the end of hunger and famine. However the varieties were not intrinsically high yielding than the farmers varieties.

many ecological processes of food production were replaced by ecologically destructive methods such as intensive use of water and of synthetic chemicals (Shiva, 2000).

The practice of mono-cropping has also caused serious deterioration of soil characteristics and decline in productivity. Modernization of agriculture has led to extensive use of fertilizers and pesticides. Although production of food grains have increased significantly but the usage of chemicals in the lands have affected the quality of soil and land. In addition the health of farmers and domestic animals used in agriculture deteriorated greatly (Rahman et. al, 2002). Agricultural resources have been under severe pressure as a result of the growing population and increasing food demand.

Pressure on land was high in the 1950s and rose rapidly during the 1990s. Farmers struggled to intensify cultivation to meet the food security problem and therefore adopted chemicals and High Yielding Varieties (HYV)⁴ seeds on lands, which further degraded the land. Land depletion meant the loss of the fertility of the soil and long-term sustainability.

During 1969-70 to 1989-90 cropping intensity in Bangladesh has increased by 15 percent, aggregate fertilizer use has increased by 600 percent, proportion of irrigated land has increased by 800 percent, proportion of HYV has increased by 1300 percent and yield rate of rice has increased by almost 65 percent,. This was possible by replacing the traditional seeds with newly developed miracle seeds during the green revolution. Although these positive developments helped to meet the food demands of the growing population and increasing growth rate yet it had its negative affects too.

Environmentalists raised concerns of the declining quality of the health of the soil in the long run, due to the use of chemical fertilizers. They brought out that the strategy for the implementation of green revolution was the increasing shift of land from non

⁴ In a 15- nation study of the impact of the high yielding varieties (HYV) seeds, D. Palmer concluded that the term HYV is a misnomer. They are highly responsive to certain key inputs such as fertilizers and irrigation. Palmer suggested high responsive varieties (HRVs) in place of HYVs.

rice crops to rice crops. The intensive cultivation of paddy (rice) on small plots primarily for subsistence dominated the countryside (Turner and Ali, 1996). This led to the declining supply of non cereal crops and the supply of various kinds of pulses. It raised the prices of pulses invariably which affected the poor people's nutritional status.

According to the Bangladesh Agriculture Research Council NPK (Nitrogen, Phosphorous and Potassium) in the soil is depleting quite rapidly. The content of organic matter in the soil is very low. The farmers have to apply more and more fertilizers in the soil every year but still the yields decrease. Use of too much Urea fertilizer instead of balanced composition of fertilizer contributes to the loss of several nutrients in the soil.

The greatest impact of the loss of land and soil degradation was felt on the women folks because traditionally the preservation of seeds was handled by them.

Following the promotion of high yielding varieties, multinational companies largely took over the distribution and sale of seed which brought about large-scale involvement of foreign donors and organizations in the internal economy. The farmers suffered tremendously due to their dependence on single crop as well as on the market to obtain inputs which put them in a vulnerable position. During the last ten years the production cost for rice has increased by 250%.

Twenty years ago farmers in Tangil used 250-500 grams of fertilizer for one decimal, but today they use at least 2 kilograms of fertilizer for one decimal. The small and marginal farmers got caught in the debt trap. The modern agricultural practices have not only proved harmful for the poor but are totally anti - nature. Agriculture has to be seen in a much more holistic way taking into account the qualitative, cultural and environmental aspect.

Ecological agriculture in a country like Bangladesh needs to be adopted with diverse and mixed cropping patterns, green manures and compost instead of chemical fertilizer, natural pest management, monocultures. Preservation of seeds at the household level and agroforestry could bring positive changes.

The nature and use of technology in agricultural practices in Bangladesh also has led to serious negative outcomes. The adoption of farming techniques in areas not favoured by green revolution technologies such as dry lands, wetlands and uplands caused serious damages to the resources. The inefficient use of technology led to adverse consequences both for the environment and poverty.

In Figure 3.3. an assessment has been made in terms of production loss of crops and additional agricultural input necessary to maintain soil nutrients. The study finds that the total economic cost of land degradation exceeds to 2 billion US dollars per year.

Fig 3.3. Estimated cost of land degradation in Bangladesh

Nature of land degradation	Physical quantity of loss output	Amount (mt/yr.)	Cost (Million US \$/yr.)
Water erosion	Production Loss	1.06	140.72
	Nutrient Loss	1.44	544.18
Fertility Decline	Cereal Production Loss	4.27	566.84
	Additional Agricultural Inputs	1.22	461.04
Salinity	Production Loss	4.42	586.75
Acidification	Production Loss	0.09	11.95

Source: State of Environment, 2001, Pg no. 36

The land use process in Bangladesh has also led to widespread changes in the water bodies and forest land decreasing them to great proportion. Forest species are declining due to plantation activities undertaken by the private donors, shrimp cultivation in the coastal areas is taking over much of the croplands and eroding the mangroves and the ration of cultivable fallow land is decreasing (Gain, 1998).

Soil degradation in the coastal areas in Bangladesh is also taking place due to unplanned land use as well as intrusion of saline water. It is one of the most severe environmental problems of Bangladesh and farmers have failed to address it properly.

More intensive cultivation degrades soil fertility; while more intensive conservation and an increased use of win-win technologies reduce soil fertility losses (Grepperud, 1997). Improper actions and policies have led to major decline in forests land as well.

3.3.1.4. Forests

Forestry is a sub-sector of agriculture in Bangladesh which contributes immensely to the national economy and also helps in maintaining ecological stability. Most of the public forest lands are located in the Chittagong Hill Tracts, greater Khulna district, greater Sylhet district, Dhaka, Mymensingh and Tangail districts. In the year 1927, 18% of the land was covered with forest which has declined to 6% today. Half of Bangladesh does not have public forest at all (Gain 1998: 72-73)

Human intervention due to various reasons has led to the decline of the forest. The most significant reason has been the unsustainable use of forest land to meet the growing needs of the population and the goal of reducing poverty. The largest category of the forests of Bangladesh is reserved forests which include the Sunderbans (Mangroves) in the southwest, the CHT region in the southeast and the Modhupur tracts in the north-central region. The much smaller category of forests is the protected forests (UNEP State of Environment, 2001).

The Sunderbans has a huge patch of mangrove forest, which is the largest mangrove in the world. Large section of the population depends directly or indirectly on the Sunderbans. It is not only important for economic benefits but also provides protection against coastal erosion and cyclones. It produced about 45% of the total timber and fuel wood output from the forest of the country in the 1980s. More than 120 fish species are harvested in the mangrove area. After the construction of the Farakka barrage, the freshwater flow in the Sunderbans decreased, increasing the salinity in the region (Gain, 1998: 70-104).

Deforestation has widely taken places across Bangladesh due to vast population pressure, poverty, unequal access to land, intensification of agro-exports to water logging and several other factors. According to the Forestry Master Plan the annual rate of deforestation for 1981-90 was around 3.3 per cent (Roy, 1996). Forest in

Bangladesh is under serious threat because of increasing demand for forest products like fuel wood and timber, the growing demand for commercial or pulpwood plantation for industries. Inequitable distribution of land, partial implementation and lack of monitoring of various forest management plans, institutional constraints faced by the forest department due to shortage of manpower and resources and encroachment into forest lands are some other causes behind the continual decline of forest cover (Chowdhury and Ahmed, 2008).

In the CHT jhum is certainly the cause of deforestation and soil degradation. Even though the government has made efforts to stop it, one obvious reason is that the valley land used for intensive farming is very limited in the CHT- some 100,000 acres.

During the British colonial era when Bangladesh was east Bengal and part of India, the demand for hardwood including teak was very strong. Huge quantity of hardwood was needed for use as railway sleepers. The British expropriated millions of hectares of communally owned forest which led to the decline in forest cover. Even after the colonialism the demand for wood continued in the west and the multilateral donor agencies functioning in Bangladesh ensured that wood supplies continued. They funded and developed projects that promote the cultivation of teak, timber, rubber and fuel wood. The clearing of the woodlot and rubber plantations led to widespread wildlife and biodiversity loss (Gain, 1998).

Besides land and forests, coastal areas in Bangladesh also faced enormous pressure and the depletion of inland or marine resources have led to the increasing marginalisation and widespread poverty.

3.3.1.5. Coastal areas and fishery

Fish is an important source of food and income for almost everyone in Bangladesh. It comes from two sources, inland (mainly freshwater) and marine which is openly accessible. The inland fisheries is composed of capture and culture fishery. Capture fisheries refer to the harvesting of fish and prawn population in the open inland water systems that are self-reproducing and self-sustaining under normal conditions. The aquatic components of the capture fisheries are the rivers and estuaries, the flood

lands, the beels⁵, and the Kaptai Lake. On the other hand, the growing of fish in confined bodies of water is termed as culture fishery. Fish is a source of protein and basic source of livelihood for people in Bangladesh. Overfishing to satisfy the needs of the growing population led to the decline of the fisheries in Bangladesh (Toufique, 1998).

Property rights over coastal areas hold great significance in understanding the relation between owners and the utilization of resources. After the abolition of Zamindari system in 1950 the ownership of the water bodies got transferred to a class of people coming from outside the fishing community. The owners of the fishing rights made no attempt to maintain the growth and reproduction of the fish stock rather they overexploited the resources to generate immediate income without trying to maintain the sustainability of the water resources.

Shrimp cultivation practised in Bangladesh led to tremendous environmental degradation in terms of fisheries as well as depletion of the coastal area. It not only cost hugely in terms of depletion of vast natural resources but at the same time also affected the lives of the small and marginal farmers. Increased landlessness reduced the means of the livelihood in Bangladesh. Almost 4.1 percent of global production of commercial shrimp had taken place in the mid 1990s. The area under shrimp culture registered a three-fold increase over the last decade. Production of shrimp by coastal aquaculture accounted for about 30 per cent of annual shrimp production, while the relative shares of marine capture and fresh water capture were 23 percent and 47 percent respectively. Shrimp culture was promoted as monoculture in Bangladesh and because it earned major foreign exchange, therefore it was widely practised. Unplanned and unscientific shrimp cultivation has drastically reduced the stock of indigenous fish varieties, destroyed many mangrove species of flora and fauna and severely affected rice cultivation (Gain 1998: 116-201).

Many international organizations in the 1980s funded shrimp farms within the forest area by offering loans to the Bangladeshi government. This led to a massive forest clearing. In 1985, the government handed over all shrimp - cultivable forest land to

⁵ Beel: small lake or a deeper portion in a low-lying natural depression area that may or may not dry up in the dry season.

the Ministry of Land. The land ministry gave about 7000 acres of forest land to the Department of Fisheries (DoF). The foreign assisted shrimp farms were set up in the Chokoria Sunderbans that brought about the decline of the biodiversity in the area and serious damage to the soils. The soil of mangrove forests contains a high proportion of acid sulphate. Different mangrove species help the soil to keep it down and maintain the balance. However, the large scale shrimp culture will enable the increasing content of acid sulphate that would ruin the soil completely (Gain 1998: 116-329).

The shrimp farming in Bangladesh extends from the Sunderbans mangroves in Khulna to Cox's bazaar, the entire south - east fringe of the coastal belt. The government of Bangladesh sacrificed a major portion of coastal ecosystem seeking to attain large share of foreign exchange necessary for strengthening economy. The pressure exerted by the government on the small farmers and cultivators to lease their land at an unjust rent for shrimp cultivation led to the degrading livelihoods resulting to much poorer conditions than before. Many in Bangladesh joined the anti - shrimp movement. Those who never experienced poverty and hunger earlier had become vulnerable to poor conditions and had to fight tooth and nail to keep poverty at bay.

3.3.2. The relation between Poverty and Environment in Bangladesh

For years the poverty reduction agenda was set to address the social and economic problems in the country. The development programmes laid more preference to the generation of higher income growth even at the cost of environment. Large area of coastal reserves, agricultural land, forests faced massive exploitation in the name of development. Development is good because it results to the growth of the masses, but unsustainable development brings in more inequity and deterioration of the natural wealth. Today the environmental causes of poverty are highly visible through the disasters. Ignoring environment has brought devastations for the country. Bangladesh faced the maximum brunt of nature and over the years the natural disasters have increased.

Bangladesh witnesses heavy monsoon rains and some 30 to 35 percent of the total land surface is flooded every year during the wet monsoon. Abnormal floods inundate

the large areas and cause widespread damage to crops and properties. In the year 1988 and 1998, two devastating floods inundated more than 65 percent of the area in the country. In 2000, Bangladesh witnessed an unusual flood in the flood-free southwestern plain, which also causes massive damage to life and property. Cyclones accompanying the rains have caused tremendous damages in Bangladesh. With the high rate of soil erosion and exploitation, huge variations in climate conditions are making Bangladesh highly vulnerable.

Riverbank erosion is a serious problem in the country and disrupts the life of many local communities, aggravating the poverty situation. Many development projects that intended to remove poverty have rather incited more threats to the livelihoods. The unsustainable cultivation has made the natural base weak and eroded major landscapes and forests making Bangladesh easy prey to disasters. There has been a massive damage to rice crops the staple food of the country. Loss of crop yield is the major impact of drought and affects the economy badly. Resources worth an estimated US\$ 25 billion have been destroyed by natural calamities in Bangladesh from 1947 to 1991 (UNEP State of the Environment, 2001).

The ecosystem is likely to change in Bangladesh as a consequence to climate change affecting the crop yields and economy. The problems are man made more than natural. Unregulated, inefficient and unsustainable activities in the country have heightened the poverty problem by making the environment fragile.

Poor households typically own less land than the non-poor and mostly form the landless category. Variation in land quality is also of great concern as access to irrigation is far from universal. Therefore, the incidence of poverty is clearly the highest among the landless and marginal land owners. The dependence on environment is visibly more among the poor and the marginalised. Poorer access to drinking water supply and sanitation in turn make it more likely that the poor suffer from worse health than the non-poor. The poor lack even minimum access to water. With half of Bangladesh living below the official poverty line, the stress on natural resource base is more the carrying capacity (World Bank, 2002).

The population problem has to be addressed at every planning year to prevent further escalation and deterioration of environment. The country cannot get rid of its poverty problem until it takes serious action to control the growing population. Reducing population growth⁶ rate at a low level of income is an important source of pro-poor growth. Studies also show that participatory forestry management increases farm income.

Bangladesh, like many other developing countries, is advocating a high increase of GDP, but the number of landless people is increasing. Economists are looking inwards and speculating about the changes in the stock of wealth, where wealth is defined to include natural, human, physical and social capital. If society's wealth per capita is declining, future generations have to live with less resources with the present level of consumption. The modern economic development that has taken place with technological advancement has endangered ecology and threatened economic sustainability. The concept of poverty has stayed very economic over the years and only with the threat of global warming, environmental poverty is being considered as an essential factor.

Being directed by IMF and the World Bank, Government of Bangladesh has finally produced the Poverty Reduction Strategy Paper (PRSP) in October 2005. The issues included are Conservation of Nature, Agricultural Land Degradation and Salinity, Biodiversity, Public Commons (resources), Rural Energy and Afforestation (including tree plantation) and Urbanization Related Environmental Issues. Ensuring sustainable employment for the poor, coordinating among all the policy and planning related to environment, emphasizing the environmental analysis while planning and implementing projects and focusing on achieving main goals such as increasing the opportunities of poor for production, collection of natural resources to improve health and nutrition, increasing access of poor to common resources and increasing the participation of poor in forest resource management are the core concerns and needs to be achieved. The PRSP also included 'social forestry' under the major strategic block.

⁶ The population growth rate came down from 2.9 percent per year in the mid-1970s to 1.5 percent in the late-1990s through impressive decline in the total fertility rate. The remarkable feature of this decline was that it had been achieved not only at a low level of income but also at a low level of literacy.

Bangladesh and other developing countries that have high population could follow the sustainable consumption policy to alleviate poverty and overcome the population problem itself. Poverty alleviation and environmental protection can be in harmony to reinforce sustainable development, Today environment has become a predominantly factor in increasing or removing poverty.

Conclusion

The conventional paradigm to 'grow first and clean later' has come under attack at the global level. In Bangladesh too, the adoption of this principle has largely affected both the livelihood and the environment to great extent. The pressures of over population, poverty and maximisation of the return of land have led to unsustainable resource management. Poverty has quite often driven people to use marginal land. Agriculture on steep slopes led to accelerated soil erosion and sediment transfer to lower region by way of slope wash, agriculture in moisture deficit area led to the threat of salinisation of soil as irrigation water may stagnate in fields in the absence of adequate drainage. Enormous pressure on the environment in the form of deforestation, land degradation and soil erosion has been highly visible.

One of the negative implications of human activities, mainly with the irrational use of forest and other natural resources is seen in the riverbank erosion in Bangladesh, floodplains subjected to moderate and heavy erosion. Lack of appropriate watershed management resulted to the deterioration of cultivable soil because of siltation. About 2.8 mill. ha of the coastal regions are subject to damaging cyclones almost every year (Mahtab and Karim, 1992).

Nature has been a source of food, wealth and nutrition for the both the rural poor and the urban rich. The Rio summit in 1992 focussed on the objective of sustainable development that could be achieved by integrating both development and environmental conservation at the same time. Bangladeshi government has realized the importance of sustainable development and have adapted positively to the process.

Emphasizing that economic growth is essential in reducing poverty, the Bangladesh's National Strategy for Accelerated Poverty Reduction cautions that "A careful

balancing act must be orchestrated where economic growth is maximised without compromising environmental protection...” The Strategy explicitly recognizes both the dependency of the poor on natural resources, and the vulnerability of the poor to environmental health risks (World Bank, 2006).

Lack of institutional capability has also been identified as a major constraint in implementing policy, and enforcing environmental acts and regulations in the country. To reduce land degradation in the country is to form a basic land integrated use policy with respect to agriculture, industry and environment. Extensive reforestation is needed to reduce the impact of the loss of forest contributing to climate change. The implementation of environment policy of 1992 and 1994 in Bangladesh needs to be activated. Positive utilization of environmental resources in development measures will bring in long- term growth and sustainability of livelihoods.

One of the key aspects that need to be worked in Bangladesh is how development policies could integrate the environment factor. Previously policies relating to forest, land, rivers took only the economic aspect and the environmental sustainability quotient was missing which has led to devastating consequences in the form of disasters and climate change. Addressing poverty without maintaining the environment sustainability in Bangladesh would be futile.

CHAPTER 4:

Role of International organisations and NGOs in Bangladesh

Poverty reduction and economic growth are important challenges of the developing world. Since the millennium declaration, sustainable development has become priority agenda of the global community. The governmental agencies, international donors and civil bodies have all been involved in eradicating poverty by 2015. But with its forceful nature, poverty remains a major impediment to the human development.

Removing poverty from the middle and low-income countries would need a broader vision. In countries like Bangladesh, the lives of the poor are deeply rooted to the natural environment and hence any measure to eradicate poverty must include environment as an essential component in the economic policy. Uprooting poverty from the society will only be possible when an attempt is made to understand the unique problems of the region and addressing them holistically.

For many years the international organisations and non- state actors have worked separately or cooperatively in empowering countries to achieve higher income growth. However the actions and measures adopted by these bodies have met severe criticisms. It was found that the agencies were more interested in short term gains and earning benefits rather than ensuring the long term sustainability of the region. The effectiveness and dubious nature of the social welfare schemes left many disillusioned. The multilateral agencies soon felt the need to move beyond private interest and support countries in achieving economic growth while maintaining the environmental sustainability of the region.

This chapter focuses on the role played by the international organisations and the non-state actors in the poverty- environment nexus in Bangladesh. An attempt is made to understand the characteristics and attributes of the international organisations. Why the multilateral bodies take interest in the poverty reduction programme in developing countries, especially in low – income countries like Bangladesh? Also there is a need

to evaluate policies and actions of the international organisations in undertaking the development programs especially those related to poverty reduction.

The role of non-state actors in the poverty-environment nexus is also examined in this chapter - their role as guardians of the poor and the environment. An attempt is also made to examine the coordination between the government agencies, international organisations and the non-state actors in addressing poverty reduction and environmental protection in Bangladesh.

4.1. International Organisations, Economic Growth and Poverty Reduction

International organisations and non-governmental organisations have come to play an important role in the development process of third world countries. With their intention of promoting a free market economy, these multilateral bodies have extended their help to these nations. As donor agencies they have contributed immensely in providing aid to the low or middle income economies so that the socio-economic conditions of these nations could improve. But in pursuing the goal of poverty reduction much importance has been laid on raising income levels of the country rather than achieving wholesome growth, which again leads to the crisis of economic regression and poverty.

For the poor countries, achieving higher income growth is a Herculean task with limited capital and technology. In such circumstances international organisations have come to provide much support to the poor, developing nations for achieving socio-economic growth. They have come to play an instrumental role in accelerating economic growth and achieving poverty reduction in developing countries. Critics have found the interventions of these organisations as a way of asserting their capitalist ideology, trying to popularise the market economy concept. They also feel that by providing aid to the poor developing countries, the agencies are rather colonising them by turning them into dependencies.

The international organisations however assert that without external support the poor nations will not be able to get rid of their deplorable conditions. Global poverty has

put much challenge before the world and can only be tackled by a coordinated action. The aim of the multilateral development bodies is to help nations build their capacities to address the problems emerging from poverty.

In the study of poverty, social capital has emerged as an important aspect. It refers to those social organisations, relationships and networks which facilitate co-ordination and management of extra-market and collective tasks and which provide critical support in times of crisis. Social capital relates closely to concepts of trust and reciprocity (Shaffer, 2008).

It is a significant non-institution⁷ attribute which plays significant role in the life of a poor. It enables people to coordinate action and achieve desired goals in the society. Different macro institutions and structures (e.g. government, political regime, legal system and civil and political) along with different networks co-exist in society to achieve social and economic development. Many countries in the Asia and the Pacific region have adopted pro-poor economic growth strategies in an attempt to raise the standard of living of the people of the region. The international organisations have come to play notable role in bringing pro-poor growth in the developing countries and forms a significant non-state institution (Deoalaikar et. al, 2002).

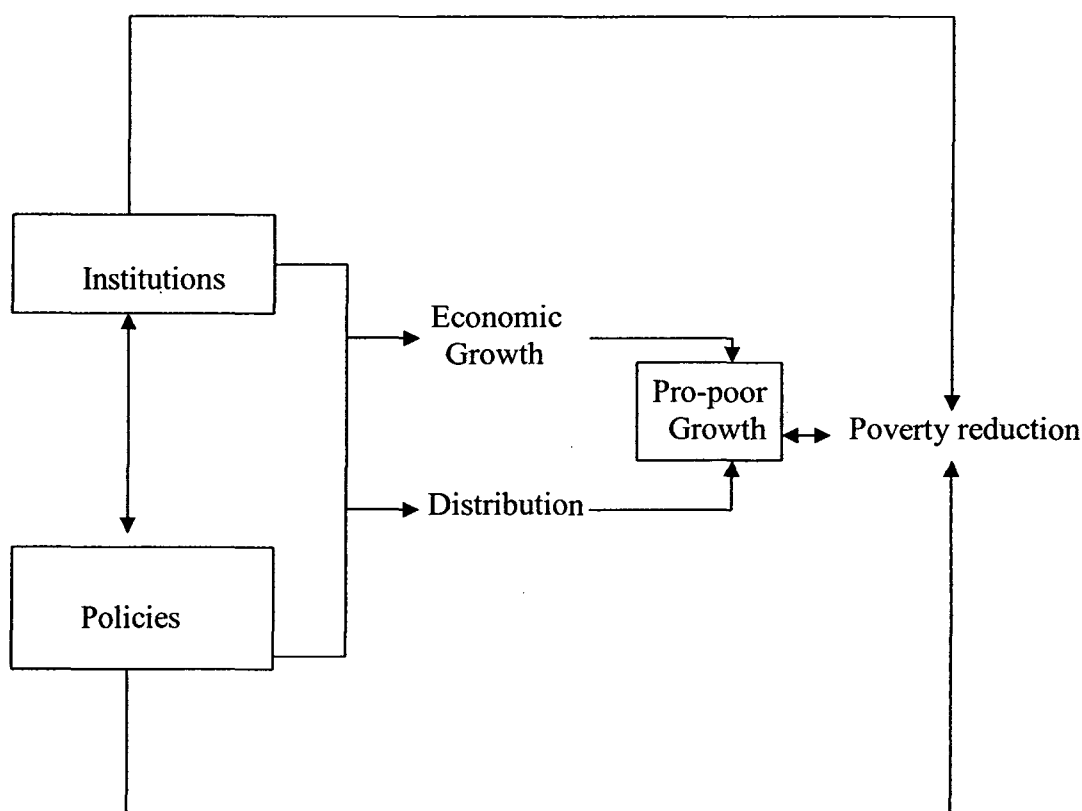
The extent and seriousness of poverty is found to vary from region to region. Using national definitions, poverty incidence ranges from a low of 6 percent in the People's Republic of China to a high of 53 percent in Bangladesh. Donor agencies work along with civil society or community organisations to enhance the human capital⁸ of the people or countries. The respective government agencies in developing countries are responsible for undertaking the task of carrying out development programs. But due to inadequate resources and infrastructure they have to coordinate with other agencies and civil bodies. The International donors like World Bank, Asian Development Bank, United Nations Development Programme and others provide their expertise, financial support and assistance to the countries for addressing their grievances.

⁷ Non-state institutions are social institutions, values, norms.

⁸ Refers to individual characteristics or attributes which are central for the achievement of human goals. A short list would include satisfactory levels of physical and cognitive development due to adequate health, nutrition and education.

In Figure 4.1. the linkages between poverty, economic growth, policies, institutions is shown. Institution affects poverty both directly and indirectly. Institutions include social networks, gender roles, legal system, politico- administrative system and the state more generally. Policies, along with institutions are also seen as an important aspect of poverty reduction strategy. It has been found that political, social, cultural and administrative institutions affect economic growth and income distribution in the country via its choice of macro-economic policies, trade policies, outward orientation- financial liberalisation, exchange rate flexibility, macro-economic stability, and labour market flexibility (Deoalaikar et. al. 2002: 6).

Fig. 4.1. The relationship between Institutions, Economic Growth and Poverty Reduction



4.2. The evolution of poverty strategies and international organisations

The interest of the multilateral organisations in poverty reduction and income distribution programme could be traced back to 1970s, when the United Nations Committee for Developing Planning, in preparing for the United Nations Second

Development Decade declared poverty reduction as a goal to be attained through accelerated development, improved income distribution and other social changes. (Deoalaikar et al. 2002: 4).

Concerns over integrating environment and development issues has been posed by a range of international conferences and reports like the UN Conference on the Human Environment in Stockholm (1972), the publication of the World Conservation Strategy (1980), Our Common Future (1987), Caring for the Earth: A Strategy for Sustainable Living (1991), and the UN Conference on Environment and Development (1992) (Roy, 1996).

World Bank's World Development report on poverty declared that poverty could be mounted on three fronts:

- Broad-based (labour-intensive) economic growth that generates employment and incomes for the poor.
- Development of human resources which would allow them to exploit the opportunities created by economic growth.
- Establishment of social safety nets for the rural poor who are unable to benefit from growth and human development.

Working on the same lines even the Asian Development Bank (ADB) included core aspects in its poverty reduction strategy like,

- Pro-poor sustainable economic growth
- Social development comprising human capital , social capital , improving status of women and social protection
- Sound macroeconomic management and good governance

The United Nations Environment Programme (UNEP) has also emphasised the inclusion of environment in the development programmes. It has called for increasing financial aid and technology to help minimise the adverse effects of industrialisation. The 1987 report of the World Commission on Environment and Development has brought out clearly that is futile to deal with environmental problems without a

broader perspective that encompasses the factors underlying world poverty and international inequality the report established that poverty is a major cause and effect of global environmental problems (Roy 1996: 27-31).

It was the 1992 UN Earth Summit that stressed on the interrelationship between poverty, economic growth and environmental degradation. Agenda 21 highlighted that economic growth, without appropriate environmental policies adversely affected growth in the future.

Poverty reduction and economic growth are significantly related to each other in ways that achieving one would bring positive development in the other. Economic growth acts as the principal force behind poverty reduction and helps in raising the living standards of the people, by stimulating their financial capability. In some countries growth can reduce poverty while in many other countries it has a smaller effect on poverty reduction. Not always has income growth benefited the rural poor. Many of the best laid plans and programmes could not bring the desired results and certainly deprived the rural poor of the benefits of development.

The World Bank has extended its support to the government agencies of poor countries, whenever the states have lacked the ability to prepare bankable projects. The sectors that the bank has taken interest are agriculture (which includes rural development and forest), transportation, education, energy, industry etc. (Goodland, 1990). Many multilateral donor agencies like World Bank and ADB feel that the primary objective of these development institutions is to rescue the poor countries from the economic, social and political crisis that acts as barriers in the growth. However their mission to help the poor countries comes along with promoting their own interest.

4.3. International agencies, poverty reduction and environment in Bangladesh

Successive government in Bangladesh took up development programmes to alleviate poverty and achieve higher levels of growth. But already debt ridden, the country did not have enough financial capital to pursue development programs. Neither did it have the technological know – how or skilled manpower to carry forward the projects

effectively. Achieving a growth rate of 6% and above requires human capital, physical capital and technological expertise. Acquisition of human capital by the poor results in their earning higher wages, adoption of agricultural technologies may possibly raise the incomes of the poor, and increasing capital formation can yield a disproportionate advantage to the poor (Besley and Burgess 2003:70)

Bangladesh felt the need to work jointly with the international agencies that would provide the country with funds, along with the support of the NGOs and community organisations. The government agencies invited the donor bodies to support them with capital and other expertise.

International donors who wanted to carry forward their free-market approach to the third world countries found a way into Bangladesh. The promotion of the market economy had varied impacts on different sections of the country, while the rich landowners and elite enjoyed the benefits of the growing economy, a larger section of the marginalised poor and peasants were negatively affected. They were left at the mercy of the open market competition without much social security which further pushed them to poverty. Governments and private organisations have largely failed to provide insurance and credit markets to the landless and agricultural poor as a result of which farmers have taken to various risks like scattering of plots, diversification, and intercropping (Grepperud, 1997).

4.3.1. Intervention in land and forests

Much human intervention in the forest has been observed while carrying out development projects like the Kaptai hydroelectric project and improper plantation that changed the landscapes to a great scale. Most of the Sal forest has been used for commercial or industrial plantation resulting to the loss of soil fertility, forest cover and exotic species.

The controversial Forestry Master Plan in Bangladesh that was backed financially by the Asian Development Plan (ADB) contributed immensely to the depletion of the forest. According to the Forestry Master Plan the annual rate of deforestation for 1981-90 was around 3.3. percent which took place mainly due to the pressure from

commercial or pulpwood plantation .In Tangil district alone the Sal forest had shrunk to 1,000 hectare in 1990 from 20,000 in 1970.Commercial fuelwood plantation followed by rubber plantation funded by the ADB has led to continuous cutting of Sal coppices.

By the time the plan was completed in 1993 about half of the land area controlled by the forest department was reported lacking tree cover. The ADB has offered support to projects undertaken by the government without making much speculation and assessing the environmental impacts. Mostly the bank has forwarded its own interest in disguise of the economic welfare objectives.

Even the World Bank has contributed extensively to the degradation of the forest. Pulpwood or industrial plantations with exotic species funded by the World Bank have brought in massive degradation and replaced natural forests with alien species in Chittagong and the CHT(Gain, 1998).

The expansion of industrial or commercial plantation for pulp was seen as major threat to the local communities and the environment. Monoculture also played devastating role. After the end of the colonial role many developed countries wanted to ensure supplies of wood from the Asian countries and with the interdependence of economics vast amount of raw materials from these developing or least developed countries were exported to the rich developed nations. With the help of Multilateral Development Banks (MDB's) and other agencies the developed countries imported tropical timber from third world countries. The MDB – funded development projects have led to massive degradation of forest resources in Asia. These mega projects contributed to the snowballing effects on the forest resources and on the forest communities including the indigenous people.

Two examples of MDB funded project that had devastating effect on the ecology, economy and life of the local communities in Bangladesh is the Karnaphulli paper mill in Chandraghona and the Kaptai hydroelectricity dam in the Chittagong hill tracts.

The paper mill at Chandraghona was constructed at the cost of approximately US\$13 million foreign funds including US\$4.2 millions from World Bank. Since the

construction of the mill, millions of tons of bamboo and softwood have been cut for paper production.

The Bangladeshi government was left with a huge challenge of dealing with the vast degradation of land and forest. In the environment policy of 1992, the government policies included –

- to conserve , develop and augment forests with a view to sustain the ecological balance and meet the socio-economic needs
- include tree plantation programs in all relevant development schemes
- stop shrinkage and depletion of forest land and forest resources
- develop and encourage use of substitutes of forest products

Many projects and initiatives of the government for the restoration of the forest were financially backed by the MDBs like the ADB, World Bank, UNDP etc. The international organisations got involved in the social forestry program to combat problems associated with deforestation and soil degradation. In 1982 the large scale social forestry started with almost a US\$11 million from the ADB and US\$2.09 million technical assistance from UNDP. The project with the aim of increasing the supply of fuelwood , timber, edible fruits , fodder and other products was rated to be successful. As there was huge amount of capital invested in the projects, the multilateral donors ensured that they earned back profits. They compelled the government agencies to undertake the cultivation of those crops that would be exported to their countries and sometimes that proved to be harmful for the soil.

One of the social forestry programs taken up by ADB in Modhupur has been challenged by the local communities. The ADBs report asserted that the project had a positive impact on the environment. However in reality in many places including Modhupur sal forest the projects have rather deteriorated the conditions. In 2000 when the project got completed the participants (local communities) were facing social, economic and environmental problems (Gain, 1998).

The Forestry Mastery Plan, the preparation of which was funded by ADB had the key objective to optimise the contribution of forest resources for environmental stability and economic and social development. With the plan in hand the forest department had set the target to attain tree cover on 20% of the total land area of the country. However the critics claim that the tree cover on the public forest land includes the short-rotation plantations, which are not forest but agricultural crops. The plan has also linked Bangladesh with the controversial tropical forestry action plan sponsored by the World Bank which will promote commercial forestry, which is a threat to natural forest and the environment.

Critics claim that the amendment to the Bangladesh Forest Act of 1927 was written keeping the interest of the ADB in mind. Bangladesh a stakeholder of the ADB, had obligations to the ADB policy on forestry. The amendment actually promoted commercial and industrial plantation without consulting different groups especially the forest dwelling communities whose lives are integrally linked to forest.

The Forest Amendment Act of 2000 that finally came up did not satisfy the bank and the bank through various means tried to influence the government officials to accommodate its proposals. And finally got its recommendations incorporated in the proposal. In the name of social forestry the ADB had just forwarded its interest for the sake of meeting the greater needs of the developed countries. Public forest were turned into commercial or industrial plantations , patches of Sal coppices were hastily cleared, the deforestation process took off with great speed, which led to a wholesale destruction of the local environment and increased external dependence of the country. Critics say the kind of exotic species that have been planted with their soft loans are good for pulp and paper mills, not for the local economy.

4.3.2. Intervention in coastal areas

The ADB undertook the coastal greenbelt project, another US\$30 million dollar project to promote tree planting for increasing the vegetative cover in coastal areas through 'social forestry'. The bank approved a loan of US\$37 millions in the US\$82 million Sundarban biodiversity conservation project which started in October 1999 and was to be completed in 2006. The key objective was to save the world's single

largest mangrove forest, the largest mangrove patch in the world. However thousand of acres of land have been cleared of mangroves for the promotion of prawn cultivation since the ADB shrimp cultivation project required cutting the forests.

The ADB-funded US\$48.41 million second aquaculture development project completed in 1996 has raised serious environmental concerns. It was taken up in six north eastern districts- Sylhet, Sunamganj, Moulavibazar, Habiganj, Netrokona and Kishorganj where carp hatchlings were stocked in beels (marshlands) and other open water areas during the dry season.

Before stocking, remaining predators were removed with pesticides and the use of pesticides became a matter of serious concern as it could kill fish and fries in hoars and beels before stocking exotic fish varieties. The local communities wanted to preserve the traditional fisheries and organic farming and this was seen as a great threat.

Shrimp cultivation causes serious environmental damage along with affecting the small and marginal farmers. The project allegedly ignored environmental, cultural and socio-economic diversity. Technical review of the Environment Impact Assessment (EIA) by the Asian Wetland Bureau suggested that the ADB's EIA document did not address the potential social impacts of the project. The cultivation of shrimp is promoted as a monoculture project and is an important contributor of foreign exchange. The social factor and environmental degradation resulting out of shrimp cultivation have been largely ignored. Total disappearance of the 21,000 acre Chokoria Mangrove in Cox's bazaar, largely due to shrimp cultivation is an example of how shrimp cultivation has caused unprecedented harm to the unique mangrove ecosystem (Gain, 1998).

The whole attack on forest land became more intense in the 1980's when the ADB and the World Bank started funding shrimp farms within the forest area. These multilateral development banks (MDB's) provided loans to the Bangladesh government to help this export-oriented venture. The ADB began to fund shrimp cultivation in 1982. Its loan helped set up over a hundred shrimp farms. Then the

US\$26.5 million shrimp culture project came which was funded by the World Bank. The project included a grant from the UNDP also.

The ADB project was completed in 1986 and the World Bank one in 1993. By then, shrimp cultivation had completely wiped out the forest. ADBs report claimed that about 800 ha of mangrove forest was cleared to culture brackish water shrimp. While on the other hand the World Bank claimed that there were no negative environmental effects caused by its project (Gain, 1998).

Shrimp cultivation has already caused serious damage to the soil of the Chokoria Sunderban area. Without the mangrove coverage the soil of Chokoria has lost the balance.

In Bangladesh the government's effort to increase the income or accelerate national economy by promoting paper industry or shrimp cultivation has led to dangerous conditions. No doubt the initiatives were profitable and did well in the western markets bringing high revenues, but the long term impact on the society, economy and the environment is adverse. The projects have ruined the land starving many small farmers. The World Bank's efforts to help the small farmers were rejected by the shrimp farmers or the rich landowners.

Bangladesh had gone deep into debts and the need for survival has exerted farmers, agricultural landless poor, tribes to undertake unsustainable practices. Biodiversity loss, coastal depletion, land degradation have taken place immensely due to the governments neglected behaviour and lack of foresight.

The negative impacts of degradation were too high. The local communities were deprived of the environmental resources on which their lives were based, and hence had to look for opportunities elsewhere like working in infrastructural projects or in industries which although did provide them with certain amount of income but increased their vulnerabilities.

World Bank extended its support with the replanting of mangrove trees near Chokoria Sunderban, but that did not help much. The coastal afforestation program was started

in 1966. Till 1996 the program was funded by the World Bank and the Bangladeshi government. The primary objective of developing mangrove plantation was in conserving and stabilising of newly accreted land, to mitigate disastrous effects of cyclones and storm surges, production of timber for fuel wood and industrial uses, creation of employment opportunities for remote rural communities, development of suitable environment for wildlife, fish and other estuarine and marine life (Iftekar and Islam, 2004).

The Aquatic Biodiversity Conservation Project and the Fourth Fisheries project were other projects which were supported by the World Bank (to be completed in 2005 and 2006). The bank provided assistance in the preparation and implementation of the strategy along with strengthening community management of fisheries. This move also led to the development of the government's draft inland capture fisheries strategy. The Bank also prepared to support regional collaboration to develop a strategic action plan for the management of marine and coastal resources in the Bay of Bengal (Bangladesh Development Series, 2006).

Prawn cultivation promoted by both the World Bank and the ADB in the coastal regions has set an example of ecocide. Aquaculture practices, especially stocking programs with exotic fishes have been threatening the indigenous marshlands species. There are many more examples to cite.

4.4. Revision of policies by the International Organisations

The international donors after the debacles and the failure to safeguard the people and the environment made special efforts to include environment as an essential component in their development programmes. Big schemes do alter environment, traditional customs and economies. Before any major project is contemplated there is a need to find out about the capacity of the soil, water, ecology and about the indigenous societies capacity to absorb change and to adapt when the requirements arise, once a project is in place (O'riordan, 1990).

For more than 50 years, the World Bank shared the task of building the economy of poor underdeveloped and developing countries. After the failure of many projects in

some of the countries, the bank felt the need for a re-evaluation of its projects. It felt the need to strengthen the institutions as essential component for the success of the projects.

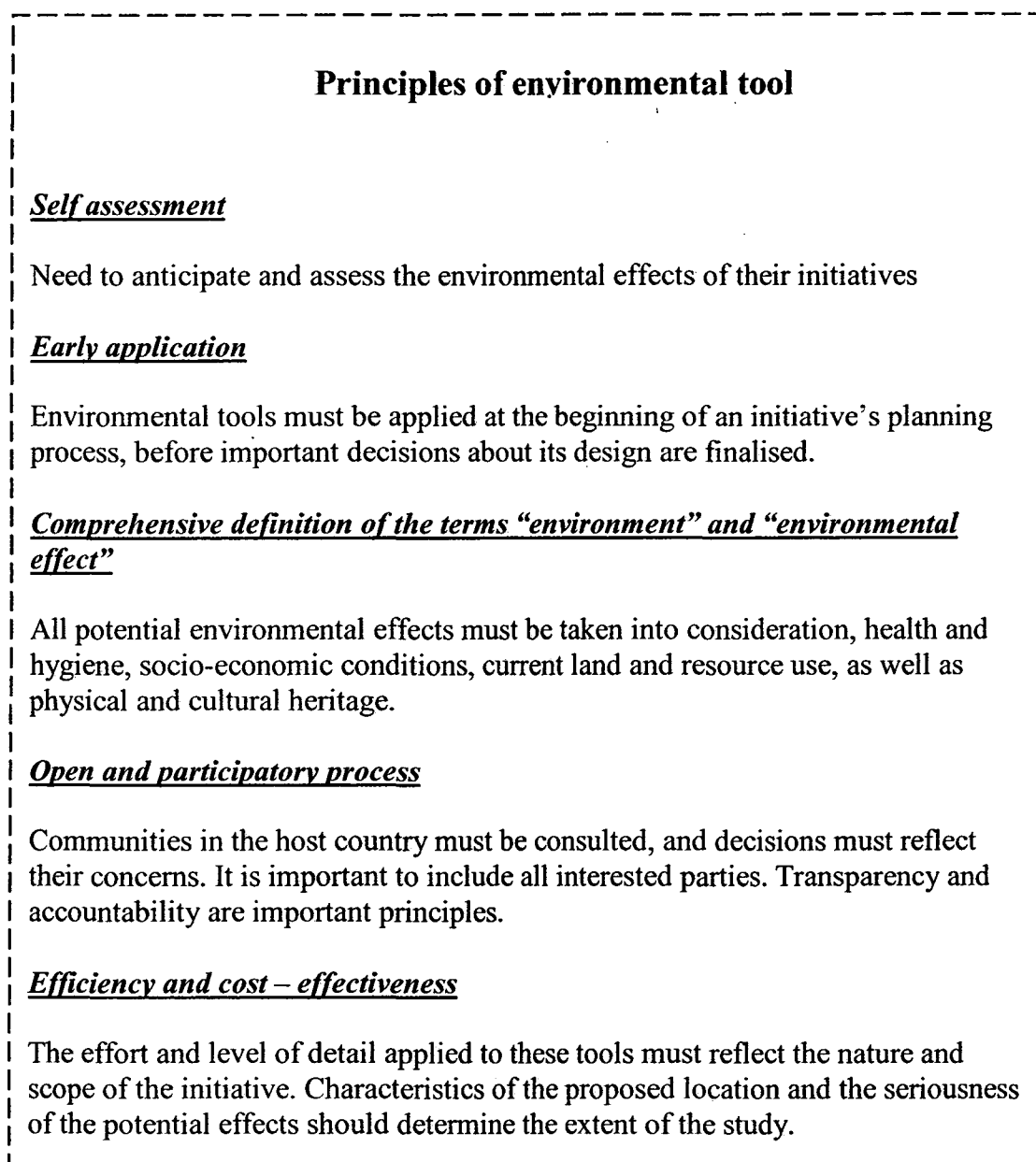
In the nineties, the Bank made special effort to ensure that the projects proposed (in case of developing countries) for bank financing would not lead to turbulent environmental outcomes. The Bank started providing assistance to the borrower in the preparation of the project plan or in carrying out the environmental analyses. Earlier many of the projects undertaken by the Bank in developing countries were found to benefit the economy at the cost of environment resulting in the degradation of the biosphere. The large scale criticism made the Bank take steps in designing measures needed to prevent or mitigate any environmental impacts.

To make the development projects environmentally sustainable, the Bank adopted a triple- alliance approach that has been successfully implemented in many countries like Indonesia, India, China, Thailand, Mexico, Brazil and Argentina and it seeks to ensure environmental quality while pursuing a project. The triple alliance approach includes-

- A project in-house environmental unit, supported by
A modest environmental unit may be created within the organisation or project ministry to bring out sustainable development.
- strengthen the Ministry of Environment or equivalent , assist the government or the sponsoring ministry with procedures, legislations, guidelines or regulations besides training , laboratories equipment and staff positions
- Finally, setting up of an independent review panel to see the impact of the project on environment (Goodland, 1990).

Figure 4.2. shows some of the principle environmental tools that can be used by the international organisations and development agencies while they undertake a development project. The tools will help to assess the environmental impact of the policies and programmes on the specified area or location, livelihoods and on the resource bank.

Fig. 4.2. Principles of Environmental Tool



Source: Canadian International Development Agency (2005)

The donor funded project interventions in areas of land, forest, water, resources, and fisheries are concerning. Although these international bodies have made efforts to save the natural stands in the mangroves and other natural resources in Bangladesh, yet critics in Bangladesh are sceptical about the so called environment projects like the Khulna –Jessore Drainage Rehabilitation(ADB), Green Belt project(World Bank), Forestry Resource Management project(World Bank), Air Quality Management project(World Bank), Sunderban Biodiversity Conservation project(ADB) etc.

because they have been funded by the same institutions who have caused major damages to the environment itself.

The environmental measures later included in the development schemes of the World Bank and ADB were often implemented during the construction or operation of the project. At several points the weak implementation of well-designed environmental measures has led to the failure of many projects. The Bank has been unable to scrutinise each individual project at the time of the execution of the project.

4.5. Civil society institutions

Civil society and grassroots organisations have played prominent role in unveiling the ineffectiveness of state and international organisations in their attempt to reduce poverty. Negligence of the government policies along with the execution of wrong policies by both the government and international organisations has increased the vulnerabilities of the poor by limiting the environmental resource bases.

The civil society organisation is an important source of social capital. It includes Non-Governmental Organisations (NGOs), Community- Based Organisations (CBOs), and civic or professional organisations (Deolalikar et al. 2002).

The growth of NGOs and CBOs in many aid-recipient countries has received widespread attention because of their advocacy efforts in bringing justice and opportunities to the poor people. These organisations have grown widely in the 1980s mainly supported by donor funds. The main task carried out was in the area of credit, income generation and developing the potential of poor people to challenge structural inequalities through education, organisation and mobilisation (Lewis, 1997).

The reasons the NGOs have become popular are many, however two key interrelated factors that have played a continuous role in determining the development of the NGO sector are:

- The influence of foreign aid in the form of resources , ideas and personnel

They have been widely recognised as the vehicles for service delivery by the donors. As service providers they have initiated livelihood, credit and health projects in the developing countries.

- Secondly, the changing nature of state-society relations and specifically the inability of the state to provide sufficient services to the growing population

Development NGOs have sought to meet both short term and medium poverty reduction goals through the following initiatives:

- Socio-economic empowerment of poor communities through holistic sectoral and community organising
- Delivery of services needed for enterprises and cooperative development
- Development of models and technologies in enterprising development for poor communities
- Advocacy against environmentally destructive and wasteful business/ industry practises
- Advocacy for pro-poor economic strategies and approaches
- Checking unsustainable and inequitable economic development strategies (Deolalikar et al. 2002).

The non- governmental organisation has stepped in to provide credit to the people for carrying out non- farm and agricultural activities that would earn income as well as protect the environment.

Proshika, an NGO in Bangladesh began working with the strategy of providing credit resources without collateral with which low-income household members could begin to generate income through non-land, small-scale economic activities such as animal husbandary and petty trading (Devine, 2003).

The World Bank has made an attempt to rope in the NGOs through its alliance approach for ensuring the socio-economic development of Bangladesh by reaching out to a significant amount of poor people in ways that the government could not. The World Bank report shows that there has been large increase in funds going to NGOs

from US\$120 million in 1991 to US\$188 million in 1994-95. It also reveals that almost 70 per cent of all funds are consumed by 10 largest Bangladeshi NGOs (Devine, 2003).

While these NGOs have extended to new areas, for finances they had to depend on donor funds. These donor agencies wanted to retain maximum influence over NGO outputs and performance. A lot of freedom of these NGOs was curtailed and they had to devise programmes and design projects that benefited the donors and their own sustainability. In the 1990's most of the NGOs funding were heavily influenced by criteria such as efficiency, value added, effectiveness, and output / performance orientations. The need for sustainability had seen many NGOs undergo a profound transformation in their original objectives of mobilising and empowering the poor which have been replaced with much narrower concerns. They have become much inward looking and worried over their own survival. Even their credibility in terms of providing unconditional support to the poor has raised doubts (Lewis, 1997). NGOs have diversified their resource mobilisation strategies by engaging in a wide range of profit-seeking activities. They have got involved in banking, garment manufacturing, retail outlets, and telecommunications other than the traditional activities that includes fisheries projects, fertilisers supply, animal husbandry services and handicrafts.

A case study of the World Bank's Silk Development project in Bangladesh explores the potential relevance of organisational culture in development projects seeking poverty reduction through income generation and empowerment of so - called organisations of the poor. The project has been successful on many counts in raising not only the income of small-silk producers , most of whom are poor woman through introducing improved technology and creating institutional and policy improvements designed to encourage sustainable development of the silk sector. The second aim was to address the institutional, economic, and technical constraints that area affecting silk development in Bangladesh. Also the project helped in empowering the community by enhancing the silkworm-rearing productivity among the women. Critics have drawn to the question of sustainability, particularly in relation to the roles of NGOs and grassroots groups and of the environment as well.

Sustainability of the NGOs has been of much concern throughout the years. The NGOs know that their long-term success is intrinsically tied with the ability to establish sustainable relations with their members. There has been a shift in their activities, putting more attention to micro-credit programs over social development activities. The NGOs were supposed to bring benefits to the poor, but that doesn't hold true anymore. The credit sources for the poor remain highly exploitative and the poor turn to short – term goals to generate income by risking the natural resources (Devine, 2003).

The development schemes pursued all through the years have failed to root out poverty in Bangladesh and till date a huge percentage of people live in abject poverty. The poor, who were the guardians of the nature, have abandoned their lands leaving them to more exploitative hands. Environmental degradation is taking place in a vast scale, diminishing even little that was left behind. The rural poor are unable to take care of the natural resources due to pressures exerted from poverty. Government agencies, donors and the NGOs have all forwarded their interest in the name of social development.

The role played by the NGOs, donor agencies in improving the conditions of the poor or alleviating poverty is seen to be of paramount importance. If these bodies help to preserve the natural environment from which the poor generate their environmental income, than the resource base of the poor improves which can alleviate poverty and in turn strengthens their capability to enrich their environment.

4.6. Partnership between NGOs, donors and government agencies

The concept of partnership is quite in fashion among policymakers and practitioners in building the social capital. The links between the government agencies, NGOs and multilateral bodies has helped to make efficient use of scarce resources and increasing the institutional sustainability. Moreover creating links between government agencies and NGOs may have implications for strengthening transparency in administration and challenging prevailing top-down institutional culture.

One example of the partnership between the international organisations, NGO's and government is the aquaculture project in Bangladesh. The project involved three government agencies, the ARI (Aquaculture Research Institute), the DOF (Department of Fisheries) and the BARC (Bangladesh Agriculture Research Council) and five Bangladeshi NGOs and financial support from the donors. The project sought to develop and provide low-cost, low-input aquaculture technologies mainly pond management techniques, including fish-stocking densities, feeding regimes, pond preparation, and appropriate species mixes that can be readily used by low-income rural households toward their income generation activity portfolios.

The rationale behind the partnership in the project was firstly, limitations to the governments' aquaculture extension efforts in terms of numbers of staff, coverage, and their mobility. Secondly, absence of research and extension linkages in aquaculture between NGOs and government agencies, combined with the need for more appropriate technology packages for low-income farmers.

To overcome the constraints of the government extension system, the project invited NGOs to act as additional extension agents, working with the DOF to distribute the technology to their own target groups. By late 1994, a total of 3563 farmers (of whom 2029 were woman) had been trained, 900 ponds had been cultivated using the proposed new technology package, and the technology appeared to be effective when applied by the farmers.

Although the project was successful, yet there were problems encountered at different stages of the project. Tensions brewed between the large national and small local NGOs which went against the effective sharing of learning and experiences. The partnership went under crisis. A need was felt to view the partnership not as a simple functional relationship but as a process in which mechanisms, goals, and outcomes must be continually reviewed by all those involved in the project (Lewis, 1997).

To weed off poverty from the country coordination between the different agencies is essential. Several projects and schemes were taken up by all the succeeding governments in partnership with donors and civil society institutions. Some of the

projects although were initiated with the goal of attaining sustainable development, gradually got concentrated on earning greater income.

The administrators and policy makers thought that excessive concern with the environment could dampen the effort of poverty alleviation and were reluctant to undertake an environmental monitoring or attributing much attention to the environmental factors. To scale up their growth low-income countries like Bangladesh took help from the donor agencies for funding their projects, which further led to their exploitation and dominance. NGOs have also partnered with the donor agencies in furthering the interest of the profit making bodies.

Capital tends to be environmentally exploitative, it looks for profitability. Functioning on the premise that nature's bounty is part wealth and part health, and that environmental health can be sustained only by adding new wealth to the world's people has frankly only led to the deterioration of the environment. It has become inevitable with time that capital creates more environmental destruction than social and economic benefits, unless environmental safeguards are incorporated from the initial stages of the projects (O'Riordan, 1990).

Depletion of the resource base in Bangladesh has increased the vulnerabilities of the poor, as they lost the ownership of their lands; excessive fertiliser use has led to the degeneration of land and crops leaving the rural poor with a minimal share of resources.

In Bangladesh excessive population pressure affects the sustainability of agricultural development. Regeneration of agricultural resources includes multi-sectoral programs and family planning services. The NGOs have contributed in a great way in creating awareness on family planning that could help directly the goal of achieving poverty reduction.

The Grameen bank of Bangladesh which provides credit to the poorest of the poor has contributed significantly in improving the socio-economic conditions of the poor. The Bank has set an example for all the donor agencies, and NGOs operating in less developed countries to take up the poverty alleviation programmes by the group

lending methods that use joint liability and peer selection, rather than physical collateral, to overcome informational constraints. The bank provides loans exclusively to the poor who possess not more than a half acre of land or assets not exceeding the value of one acre of medium cultivable land. In furthering the interest of the poor and training them with the basics of healthy and sustainable living the bank has also found a dignified way to prosper.

Over the years Bangladesh has also experienced growth of many alternatives Microfinance Institutions (MFI). MFI models differ in the degree of involvement in providing financial services and helping the poor restore the natural environment by undertaking grassroots projects for their local development. The rural banking institution provides a range of financial and non-financial services and empowering the female population. In 2000, an estimated 16.5 billion taka of loans was disbursed by 582 NGOs to invest in various sectors of the rural economy: small business (14 percent), livestock (21 percent), crop production (13 percent), and food processing (7 percent) (World Bank, 2002).

Bangladesh's National Strategy for Accelerated Poverty Reduction has found that the linkages in the balancing act between economic growth and environment work in both directions: Not only can economic growth compromise environmental protection, but environmental degradation could threaten economic growth as well (World Bank, 2006).

Conclusion

The development policies should be designed in a manner that it stimulates growth letting the poor maximize the value and also ensure the protection of the natural and common property resources that is an important source of livelihood for poor households in Bangladesh (World Bank, 2002).

Global environmental problems have even started to hurt the average citizen and brought the donor bodies under the critical eye. Criticisms of the functions and intentions of the international donors have forced the bodies to undergo a re-evaluation of their policies in the developing countries. After much examination the

big donors like World Bank found that the environmental dimension must be integrated both in the economic dialogue with borrowers and into all practical economic calculations. It was felt that International organisations need a shift in their goal from quantitative growth to a level that results in qualitatively sustainable growth.

Sustainability implies a transition from economic growth based on depletion of non resources towards preserving the renewable resources. Agricultural sustainability is of great significance in countries like Bangladesh where a large population is depended on agriculture for their livelihood and income. Sustainability needs resilience, the ability to return to an initial state, resistance or ability to cope with change and persistence, which means that the agro-ecosystem succeeds for a long time (Goodland, 1990).

Considering economic growth essential in reducing poverty, the Country Environmental Analysis (CEA) by World Bank puts forth the message that a careful balancing act must be orchestrated where economic growth is maximised without compromising environmental protection (World Bank, 2006).

CONCLUSION:

In the developing world, poverty poses a major challenge to the economic growth and progress of many countries. Lack of understanding of the concept of poverty and inadequate resources are the core reasons behind the government's inability to tackle poverty. The absence of capital, knowledge and technological know-how are the additional bottlenecks in rooting out poverty from the poor regions.

The concept of poverty has undergone many changes over time. There has been a shift from a *physiological model of deprivation*, focused on the non-fulfilment of basic material or biological needs to a *social model of deprivation*, focused on such elements as lack of autonomy, powerlessness, lack of self-respect/dignity, etc. Further an emphasis has been laid on the concept of vulnerability and its relationship to poverty, the inequality aspect and the understanding of the human face of development. In the recent era, a new concept of poverty has taken shape in the light of the threats emanating from global warming and poor nations falling victims to climate change. The *environmental poverty* has come to draw much attention from the global world and has made way into major policy decisions. Taking into account the present challenges emerging from poverty, this research study has been undertaken to find ways in which developing countries can achieve holistic growth.

The study explores the inter-relationship between poverty and environment in South Asia, with special reference to Bangladesh. The main objective of this research is to examine the bi-directional relationship between poverty and environment and focus attention on the impact that poverty can have on environment. The role of various international and civil agencies in Bangladesh for achieving both poverty reduction and environmental protection has been analysed in detail to give an insight on the manner in which development programmes are implemented in the poor and marginalised economies.

The thesis begins with a discussion on the various shifts that have taken place in the definition and meaning of poverty in order to bring out the evolution of the concept of *environment poverty* in the present decade. The physiological model has been the most widely used approaches to poverty analysis in the developing world. The two

main poverty approach which rely on the physiological model are: the *Income/Consumption*⁹ *Poverty approach* and some versions of the *Basic Human Needs (BHN) Approach*. Across the world the income, consumption approach has been used as a prominent indicator to define poverty. On that basis the poverty percentages were mapped. Although this method has been widely acceptable in developed regions, experts in the developing countries have critiqued the method as it failed to estimate the inequality and social deprivation¹⁰ aspects.

Poverty is viewed as not only the lack of necessities of material well-being, but also the denial of opportunities for living a tolerable life. It has been found that in the developing countries the human deprivation and social exclusion were integral factors for a comprehensive understanding of poverty. Elements of deprivation include health, security, self-respect, justice, access to goods and services, family and social life etc.

Inequality and lack of access to resources are significant factors that deprive the poor of the means of livelihood. The Bruntland commission drew global attention towards the environmental aspect of poverty. Experts emphasised that poverty was a major cause of environmental degradation as the poor in the pretext of meeting the short term goals carry unsustainable practices that lead to the degeneration of the environment.

A brief understanding of absolute poverty brought out that the marginalised poor caught up in an endless cycle of hunger, illiteracy, exploitation and disease do not have time to worry about the global environmental trends and hence carry out cultivation and forest clearing activities to survive against the odds and thus that leads to massive environmental degradation.

Our analysis establishes that poverty and environment share a bi-causal relation. The poverty – environment nexus is cyclical in nature where poverty affects environment

⁹ The I/C approach to poverty is used extensively in applied welfare economics.

¹⁰ The social deprivation model challenges the physiological deprivation model on two different levels: first, it rejects the representation of relevant aspects of well-being in terms of equivalent income/consumption (income/consumption approach) or basic need goods/services and achievements (basic human needs approach); second, it rejects the specification of a need adequacy levels in terms of basic physiological deprivation in both income/consumption and basic human needs approaches

through various ways. The two way relationship however has multiple dimensions to it and the combined affect of poverty-environment is evident on people, their decisions, participation, ownership and rights, health, awareness and knowledge etc.

The important role played by Common Pool Resources (CPRs) in providing goods and income to the poor is suitably emphasised in understanding the poverty-environment relation. The study found that lack of access to the CPRs and incomplete ownership and landlessness deprives the poor of the benefits and hence the poor are forced to conduct activities which are harmful to the environment as well as economically unsustainable.

Due to the increasing focus on the urgency of reducing poverty and achieving growth, the developing countries have been more oriented towards building the "cash" economy. As a consequence Informal economies within communities and the productivity of ecosystems have been largely ignored while undertaking development activities in the regions.

The research in this study found that the environment causes of poverty will attain primacy in the coming decades. According to estimates by 2020 about 70% of the 414 million (20% of population) extreme and 62% of the 1,632 million (40% of population) moderate poor (based on the \$1 and \$2 international poverty lines) will live in areas where the environment is the primary cause of poverty.

Our research through a descriptive study of the historical evolution of poverty and environment has shown that poverty has come to threaten the environment immensely through the activities adopted by the poor for meeting economic needs that went against nature. The poor being at the edge of survival have knowingly or unknowingly conducted unsustainable activities for their own good. In fact, given that the natural environment is the only resource which is "free" the poor ought to take better care of it. With the variation in atmospheric pressures, disasters have become a common phenomenon. The environmental resources by offering people means of sustenance provide the basis of coping strategies in ecologically vulnerable environments.

The study presents a detailed picture of the nexus between poverty and environment in South Asia. As has been mentioned, in the developing countries poverty and environment share an integral relationship. In almost all the countries of South Asia, poverty levels are very high even in terms of absolute poverty. For example in India, Bangladesh, Nepal, Pakistan, Sri Lanka, huge amount of population are living in the most pitiable conditions and face abject poverty. Most of rural population are also the absolute poor and live in extremely fragile areas. Isolation, alienation, technological deprivation, dependence and lack of assets all lead to endemic poverty. The poor in the region face multiple deprivations and ineffective governance has further worsened their conditions.

Simultaneously the region has witnessed growth between 1998 and 2004. On average, even though the GDP growth rates of above 6 per cent per year were achieved, poverty still scales high. Excessive population, low incomes, landlessness, illiteracy, ignorance are significant factors that force the poor in the region to degrade the same environment that provides them wealth.

Erosion of the common pool resources limits the choices of the poor leaving them completely vulnerable. When the local lands have completely lost their fertility or production capacity the rural poor move to urban areas in search of a good life. This leads to the growing population in the developing countries which poses several challenges to the growth of the region. High amount of internal migration are taking place in South Asia due to poverty and the depletion of the local reserves. However the condition of the rural poor in the urban areas instead of getting better becomes worse. In this context preventing environmental degradation becomes essential in South Asia in order to avoid human catastrophes.

Massive exploitation of environment in South Asia took place during the colonial times. The study brought notes how the plantations of timber, fuel wood were increasingly promoted by the rulers as that satisfied the needs of the parent country. Almost all the countries in South Asia were under colonial rule and massive exploitation of resources took place in the 18th and 19th century. This later continued in the form of neo-colonialism when the dominant capitalist forces capturing the markets of developing South Asia ventured into development programmes and

supported the production and cultivation of those products that were useful for their growth. The demand for some commodities led to the dependence of the region on external trade. The poor who were the worst affected had to fight for their survival and therefore encroached on unauthorised forest lands, taking up cultivation on environmentally sensitive areas. Through several cases continued exploitation of the land and masses in Bangladesh has been highlighted in the study.

The study also showed that in almost all the regions, India, Pakistan, Nepal, Sri Lanka and Bangladesh the rural population depended on farming activities, either directly as producers or hired workers, or indirectly as workers in sectors that derive their existence from farming activities such as trading, transportation and processing. Improvements in the wellbeing of the rural population in the short term and their ability to escape poverty in the long term depend largely on high agricultural growth that has a broad base across the region. Agricultural growth creates income and employment opportunities and reduces poverty of the farming population. However unsustainable production, misguided policies and institutional weaknesses in South Asia has stifled rural development and increased poverty, inequality and vulnerability to shocks.

While examining the nexus between poverty and environment in Bangladesh in the third chapter, it has been revealed that Bangladesh inspite of an increase in its GDP and declining poverty rate faced the most egregious situation. Almost half of the population of Bangladesh live under poverty and even though NGOs and donors have worked extensively to alleviate the livings standards of people, the percentages remained alarmingly high.

Agriculture is the primary source of livelihood for the rural population and the largest sector of employment in Bangladesh. Growth in non-farm activities has helped in reducing poverty; however unsustainable agricultural production in land and coastal areas had brought massive deterioration of the eco-systems which has adversely affected the marginalised poor. Landlessness, population, illiteracy and incorrect policies have brought enough imbalances in the natural system.

The existing inequity in the distribution of physical, human and other assets and the economy's structural characteristics have also widely influenced the growth prospects in the country. A more equitable process of growth in Bangladesh would be possible by pursuing more "asset building" policies so that the poor get access to growth.

With the help of historical evidences and factual data it has been found that most of the development projects undertaken in Bangladesh were highly unyielding for the poor as they were uprooted from their lands and left at the mercy of nature, which in itself was stressed to the level beyond repair. The green revolution or technology that brought the new high-yielding staple crop varieties and inorganic fertilizer regimes also did not work for the poor.

The findings of the study show that the Community Based Forest Management (CBFM) system has worked extensively to attain the poverty reduction as well as sustainable resource management in Bangladesh. In Bangladesh and South Asia the need is to adopt more sustainable or regenerative technologies that will conserve and improve farm resources like nutrients, water, and soils, or introduce new elements (for example, nitrogen-fixing crops, agroforestry, water harvesting structures, and predators of pests). Increasing agricultural productivity is an entry point toward both improving incomes and conserving the environment ultimately leading to declining poverty.

In response to the Millennium Development Goals (MDG), many multilateral and bilateral donors have accorded high priority to poverty reduction in the developing and underdeveloped countries. The World Bank, Asian Development Bank, UNDP, UNEP undertook several development projects in Bangladesh. Some brought positive changes by expanding the scope of opportunities and growth for the poor, whereas some programmes led to drastic ecological changes, affecting many livelihoods. Development programmes have in effect been captured by vested interests and this took place both due to the absence of people's organizations that actively promote the welfare of the poor as well as due to the incapability of the NGOs in carrying out social-welfare activities without the support of the donors.

The hypothesis that whether the international organisations and NGOs have played an effective role in reducing poverty and ensuring environmental protection holds true partially. A few case studies analysed in this study establish the fact that the international donors along with the government agencies and NGOs in undertaking have undertaken many development projects in Bangladesh. But due to vested interest there were breakdowns in the coordination. The dependence of the NGOs on donors led to the negative transformation in the objective of the social welfare schemes. As such in many places the development projects were halted or pursued without taking into consideration the impact on the environment.

However, the role played by the international agencies cannot be negated since they were the bodies that offered technical and financial support to the Government of Bangladesh in carrying out programmes that were meant for the welfare of the poor. The root cause of the problem lay with the intention and the mechanisms through which the programmes were coordinated. In the 1990s, the World Bank and other agencies felt the need for a re-evaluation of their activities, as much criticism was accorded to the manner and intention of the programmes.

The self evaluation process within these organisations brought out the need for integrating environment in economic policy making. The need for monitoring of the programmes at various levels was sought. The research found that the international organisations played a positive role by bringing environment into policy decisions and advising the governments to incorporate environmental factors into national planning process and also by supporting the government to frame Poverty Reduction Strategy Papers.

The role of the NGOs has been found to be very crucial in the poverty-environment nexus in Bangladesh. Several case studies support, the argument that the NGOs played a very significant role in mediating with the grassroots and the donors, and also in reaching out to the local commons and generate awareness on social issues like family planning, overpopulation, education, health - maternal and child deaths.

The research also explores the role played by the community organisations and Microfinance Institutions (MFI) and finds them to have played pivotal role in

providing credit to marginalised and poor farmers and rural woman. The MFIs which offer microfinance or credit to the poor helps the marginalised groups to explore the non-farm activities and also provides them with social incentives like education and health benefits. The empowerment of the rural masses with tools, methods and training in sustainable farming and agriculture goes a long way to alleviate the conditions of the poor. Also facilitating more investment in agricultural will support the poor to escalate their lives. By this way they will also be able to improve their conditions and discovered ways to increase their household income. Protecting the environment will definitely help the poor to avert the risk attached to poverty.

The dissertation brought forth many areas that need immediate attention and action. Indigenous peoples have very intimate knowledge of the local resources and it is important to give legal recognition to their collective, intergenerational rights to the territories that they have always inhabited and the natural resources that they have always used.

The international community, NGOs and community organisations recognises the interrelatedness of poverty and the environment, and views environmental quality as a key factor for achieving sustainable development.

The contribution of environment to livelihoods, resilience, health and economic development are clearly visible. Besides providing income, better environmental conditions can also reduce health risk like exposure to chemicals, pollution, unhygienic and unhealthy living conditions further bringing an improvement in livelihoods, economic development and resilience.

Poor people are more vulnerable to natural disasters such as floods and droughts and other environmental shocks threatening their livelihoods and undermining food security. Improving the ways in which environmental resources, such as forests, are managed increases the resilience of poor people and their livelihoods to environmental risks.

An important question that emerged during the course of this research was whether including environment as a component in economic planning would help to address

poverty. It was found that including environment into planning process would help practitioners and policy makers to identify priorities and craft the arguments necessary to have an impact on the targeted policy process. At the same time institutional and capacity strengthening - building would also be strengthened.

Another key research objective was to analyze whether secure land tenure and desirable land use patterns would solve the complexities faced by the poor and benefit both the rural economy as well as the environment. It has been noted above in previous chapters that landlessness generates limited choices for the poor, which forces them to overuse or exploit the resources. Incomplete property rights reinforce the vicious poverty-environment circle.

Persistent, widespread poverty and environmental degradation are two common factors that can transform a natural hazard into a major disaster. Thus it becomes more than essential to incorporate environmental component into economic planning process. The role played by the international organisations and NGOs also becomes very crucial to this process.

With the financial crisis and consequent global economic slowdown present economic conditions have become grave posing thus a challenge to the UN Millennium Goals. Eradicating poverty and hunger by 2015 has also become a cumbersome act. Most of the developing countries have been badly hit due to the crisis, as many economically advanced nations are likely to cut down on the development aid. Experts and global leaders are concerned about the current situation where poverty reduction and environmental protection have received a setback in poor, underdeveloped regions.

Thus after analysing the impact of poverty on environment this research study emphasises the need for an integrated approach with an understanding of the marginalisation process in developing economies of South Asia and Bangladesh in particular.

Development programmes that are undertaken in these economies by the government, international organisations and NGOs must address both poverty reduction and

environmental conservation at the same time so that the future generations are given a secure and green future.

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