

## **Sustainable Development, Environmental Degradation and Poverty: Exploring the Linkages**

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### **Abstract**

The present study tries to find out the linkage between sustainable development environmental degradation and poverty. The rapid pace of modernization, urbanization, and industrialization has led to serious environmental concerns in the developing countries like India. Over the past few decades, the natural resources have depleted remarkably resulting from accelerated pace of economic and social transformation. Economic changes such as large increases in population, agricultural output, industrial production, capital accumulation, and innovative technologies have transformed the country's natural resource base, both as a source of factor inputs and as a by product of pollution associated with economic activity. The continuously accelerated and unabated environmental degradation in the country is dangerous for people's health and livelihoods, the survival of species, and ecosystem services that are the foundation for long-term economic development. Economic development and poverty reduction efforts are increasingly constrained by environmental concerns, including degradation of forests and fisheries, lack of fresh water resources, and poor human health as a result of air and water pollution. Thus, the relationship between sustainable development, environmental degradation and poverty becomes the major issue and comes to the focal point of research.

**KEYWORDS:** Sustainable Development, Environmental Degradation, Poverty, Linkages

### **Introduction:**

Sustainable development may be defined as continuous increase in the socio-economic standard of living of a country's population, normally accomplished by increasing its stocks of physical and human capital and improving its technology and environment. Jalal (1993) argued that "*Sustainable development can be visualized in terms of a water tank having two leaks, one leak being 'poverty' and the other 'environmental degradation'. Sustainable development will thus remain a dream unless problems of poverty alleviation and control of environmental degradation are dealt with simultaneously*". To ensure the sustainable development of the economy environmental degradation should not increase with time but be reduced or at least remain constant. If it increases, the economy will move further away from sustainability, while if it decreases, the economy will move closer towards it. It is generally accepted that environmental degradation, rapid population growth and stagnant production are closely linked with the fast spread of acute poverty in many developing countries. In many of these countries poverty has assumed a highly complex character. Most often, a person with a very low income-a poor person-is also a person who is illiterate, in poor health, without decent shelter, and with virtually no access to productive resources.

### **Review of Literature:**

Adger and Brown (1998) emphasize the importance of conceptualizing livelihoods and well-being in terms which extend well beyond conventional income-based definitions of poverty. This study outlines new thinking on both of these

themes, and seeks to demonstrate how the forces driving poverty and environmental degradation may be mediated through local practices. In other words, it focuses attention on the ways, and institutions through which, specific groups of people access, control and manage specific environmental resources or services which are important to their wellbeing. The implications of this approach are firstly, to expand the policy field from questions of resource availability and sustainability, to encompass a dynamic approach to institutions, access and control. Second, it questions generalized solutions, whether to poverty or environmental degradation, instead highlighting how policy might support locally-specific, positive trajectories of change.

Since the United Nations Conference on the Human Environment (1972), the role of poverty in both causing and being caused by environmental degradation was acknowledged. This was confirmed in the Brundtland Commission, which reiterated the 'right to development' for poor nations to gain prosperity and hence avoid environmental degradation. 'Sustainable development' was defined in such terms by WCED as: development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The World Commission on Environment and Development (Brundtland Commission) wrote (1987): Poverty is a major cause and effect of global environmental problems. It is therefore futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international inequality. The links between poverty and environment were also seen to be self-enforcing. The Commission also wrote: Many parts of the world are caught in a vicious downwards spiral: poor people are forced to overuse environmental resources to survive from day to day, and their impoverishment of their environment further impoverishes them, making their survival ever more difficult and uncertain.

**Objectives:**

To study the concept of sustainable development and establishing an operational linkage between environment and poverty; and recommendations and policy conclusion.

**Methodology:**

This paper is primarily based on the data collection from various books, journals, magazines, research papers and the personal observations of the researchers. During the period of information collection, internet is frequently used so that relevant data can be obtained and used wherever necessary.

**Sustainable Development:**

Several definitions of sustainable development have been put forward as a result of the growing concern over economic growth and its consequences for the environment. The most widely known as well as most widely debated definition of sustainable development is that of the World Commission on Environment and Development (WCED; more popularly known as the Brundtland Commission), which defines sustainable development as a process in which the exploitation of resources, the direction of investment, and the orientation of technological development and institutional change meet the needs of the present generation without compromising the ability of future generations to meet their own needs. It implies, as the Overseas Development Administration sees it, "the handing down to successive generations not only of man-made wealth but also of natural wealth in sufficient amounts to allow a continuing improvement in the quality of life."<sup>3</sup> WCED recognized that unlimited growth is neither feasible nor desirable, that meeting the basic needs of all people

should be the goal of development, and that only a protected and carefully nurtured environment can sustain human aspirations. Waste and greed must give way to efficiency of resource use and equity in resource distribution.

Common among definitions of sustainable development is the reference to processes that must be undertaken so that future generations can enjoy what the present generation now enjoys. The difficulty arises when even the present generation is not in a position to satisfy its own needs. It can, therefore, be argued that sustainable development should make the present generation not want so much, such that the available resource stock can be utilized conservatively to afford others—those who at present are in want, and those who will come in the future—the same enjoyment. While the present generation recognizes the problem of what they will leave their descendants as an economic resource base, the present generation may be forced to borrow from the resources of the future generation just to satisfy present demands.

There is also the problem of reference to global actions to counter global environmental problems, when in fact humans, and communities for that matter, normally act within the purview of their surroundings. A farmer from a tropical developing country besieged with the problems of declining soil fertility and lack of irrigation water would find and implement solutions totally different from a farmer in a developed Western country who is beset with the problems of continuing transboundary movement of pollutants from a neighboring country's industrial center. However, both farmers would realize that each situation threatens agricultural productivity and the economic base, and that the problems should be dealt with accordingly. Although environmental issues should be treated conceptually in a holistic rather than in an isolated manner, efforts at sustainable development should be based in the context of the ways in which individual communities operate. This is appropriately expressed in the slogan "Think Globally, Act Locally."

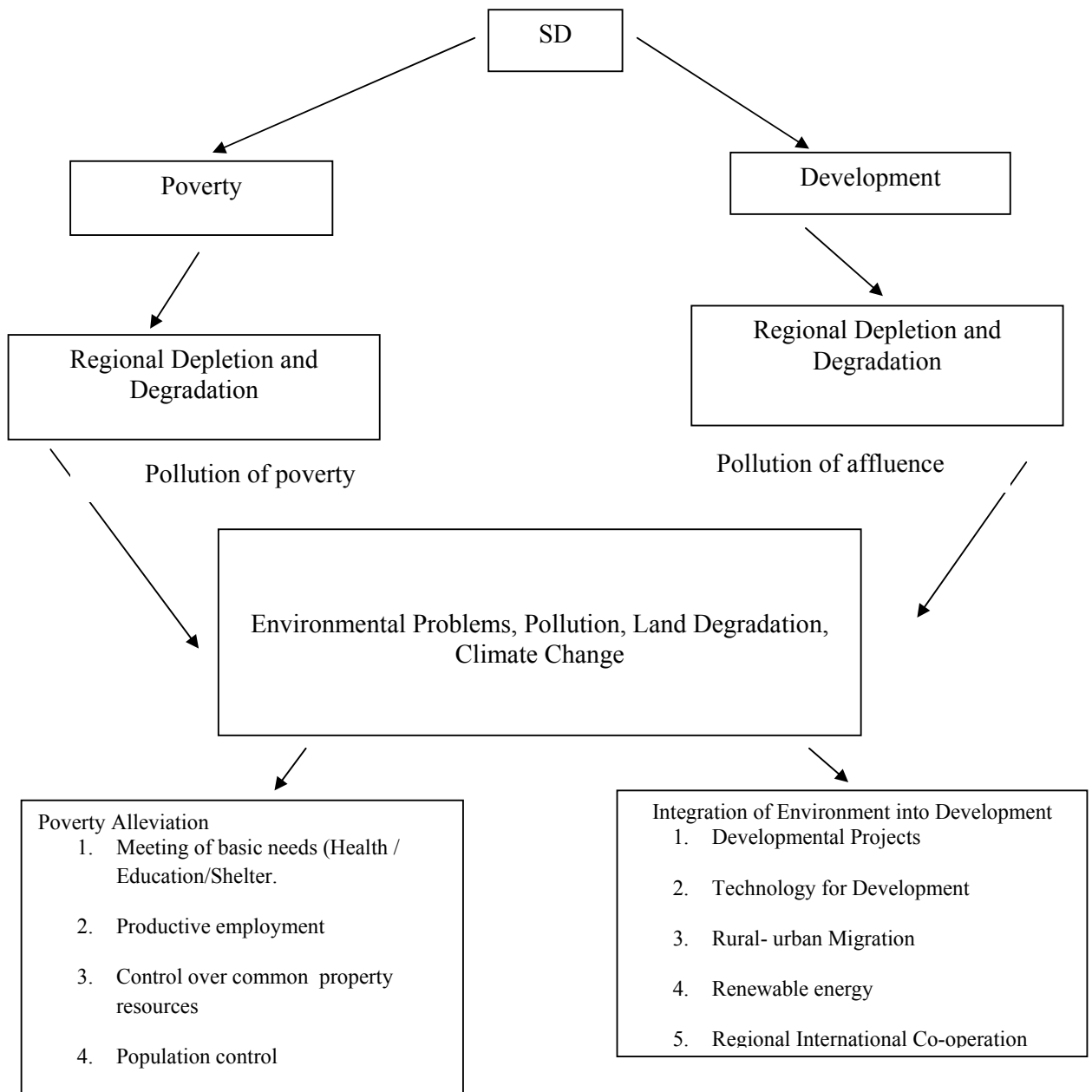
Unfortunately, the term "sustainable development" has also been interpreted by various groups of people to serve their own interest. In this regard, Mohammad Idris, an environmental activist from Malaysia, states: "The term 'sustainable' from the point of view of non-ecological elite means how to continue to sustain the supply of raw materials when existing sources of raw material run out." The argument against this definition obviously lies in the definition's indifference to the resource base and the opportunities for others to make full use of a resource, had it been conserved and rehabilitated. Nevertheless, it does reflect the selfish and greedy attitude of many profit-maximizers, who would continue "business as usual" under the rhetoric of sustainable development.

In 1990, the Bank completed a study and published the report *Economic Policies for Sustainable Development*. This report, a comprehensive set of seven DMC case studies searching for the causes of unsustainable development, concluded that factors vary from country to country, but that the most important common denominator in the process is poverty. Referring to country case studies, the report concludes: "All reports confirm the hypothesis put forward by the Brundtland Commission that amelioration of poverty is a necessary and central condition of any effective program to deal with environmental concern."

Sustainable development can be visualized in terms of a water tank having two leaks, one leak being "poverty" and the other "environmental degradation." Sustainable development will thus remain a dream unless problems of poverty alleviation and control of environmental degradation are dealt with simultaneously. The situation is illustrated in Figure 3, which suggests that it is necessary to break two

vicious circles-one of poverty-environment and the other of development-environment-to promote sustainable development. Both vicious circles of poverty and development are linked to environmental degradation by different patterns of resource utilization. The vicious circle of poverty is usually characterized by low productivity, low per capita income, a low literacy rate and high population density. These characteristics, for example, would discourage poor farmers from employing soil conservation measures, better irrigation methods and agricultural extension, which all are capital- or knowledge-intensive. These conditions also discourage the poor from participating in off-farm income-generating activities that could have contributed to poverty alleviation and environmental improvement, directly or indirectly.

**Figure 1: Linkages between SD, Environment and Poverty**



On the other hand, the vicious circle of development and environmental degradation can be characterized by the failure of institutions to undertake conventional growth activities that take into account the regenerative and adaptive capacities of the environment and that integrate in the development process measures to balance the need for development and the need to conserve the resource base. Institutions and individuals fail to recognize that the resources of the environment are also the resources vitally needed to sustain development. They fail to realize that environmental management does not refer to management of the environment per se, but more accurately refers to management of development activities within the assimilative capacity of the environment.

It is worth noting that for more than a decade, the Bank and its DMCs have made significant strides in integrating environmental considerations into major development programs and projects, in protecting the environment from onslaughts of pollution from major industries and urban centers, and in trying to curb deforestation and land degradation in the region. Yet, the number of people in the Asian-Pacific region whose basic needs are not met in terms of proper shelter, clean water, basic sanitation and nutritional levels and who are suffering from environment-related diseases has never been as large as it is today.

This suggests that greater attention is needed in dealing with poverty and lack of development as one of the two root causes of environmental problems.

#### **Linkage between Poverty-Environment:**

While the Banks and other international institutions have paid great deal of attention to poverty alleviation, the persistence and severity of poverty continue to confound many analysts. It may be useful to recall some of the basic features of poverty in Asia in order to better appreciate the possibilities for operationalizing the links between poverty alleviation and environment protection. It is generally accepted that environmental degradation, rapid population growth and stagnant production are closely linked with the fast spread of acute poverty in many countries of Asia. In many of these countries poverty has assumed a highly complex character. Most often, a person with a very low income-a poor person-is also a person who is illiterate, in poor health, without decent shelter, and with virtually no access to productive resources.

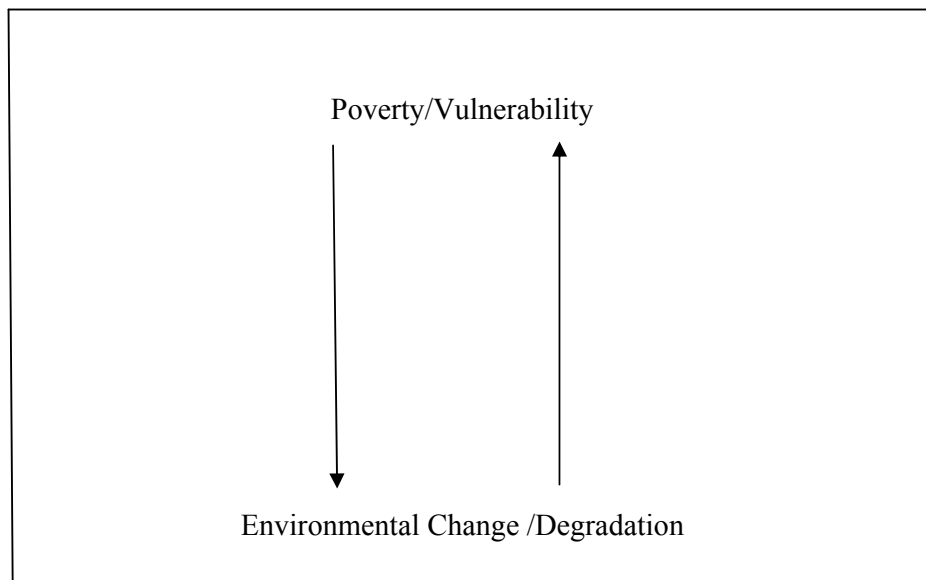
The rising incidence of unemployment and underemployment, which is the primary cause of rural poverty, is altering the urban landscape of the region. As work opportunities and quality of life in rural areas deteriorate, an increasingly larger number of rural-people are compelled to migrate to urban centers, exerting an enormous stress on already limited housing, transport and other basic services. Uprooted from families and traditional ways of life and with skills that are of limited demand in the urban economy, the rural poor merely convert themselves into urban poor.

Rapid population growth and the inability of the rural as well as the urban economy to absorb available labor have also placed pressure on marginal lands and coastal resources. A World Resources Institute study on the Philippines has indicated that during the energy crisis and sluggish growth of the urban economy during the mid-1970s to the early 1980s, large numbers of people migrated to forest lands and coastal areas, causing severe degradation of fragile natural resources in those areas. This is an additionally unfortunate situation in that the number of poor households is expected to increase while the exploited resources become increasingly marginalized, eventually providing migrants with low productivity occupations.

One of the most acute forms of poverty in many developing countries of the region is growing rural landlessness and reform introduced in many countries has not been able to arrest the process, partly because the reforms lack seriousness in terms of coverage and legal enforcement. At the same time, the problem remains intractable, as the process of landlessness appears to be quite unaffected by conventional measures to redistribute land. A bad harvest or a pressing social need, or even the so-called "green revolution," because of the associated intensive capital requirement and the increased risk of crop disaster, can overnight turn a marginal landowner into a landless laborer.

In Asia, at least four target groups of poor can be identified with programs that can be designed specifically to alleviate poverty in these groups. These are: (i) the poor who are dependent on fragile lands, where the needs are improved management of common property

**Figure 2: Linkage between Poverty and Environment**



resources and a combination of traditional wisdom with modern science and technology for increased biomass production and diversity; (ii) the poor enclaved in areas of good agricultural potential, where the needs are land redistribution, water resources in the control of the poor, and development of sustainable methods of pest and soil fertility management; (iii) the urban poor, for whom the needs are environmental sanitation and enhanced livelihood possibilities; and (iv) the coastal poor, for whom the needs are improved management of mangroves and fishery resources in the interest of sustainable livelihood.

For each of the above categories, projects should be designed to respond to people's actual needs, focusing on at least three specific issues: (i) sector planning and project design to incorporate women's concerns, institutional development, management skills, information dissemination, and a holistic view of resource management; (ii) resource mobilization, efficiency of project implementation and information dissemination; and (iii) technology development, building on traditional wisdom and a holistic view for low-cost urban sanitation, clean rural industry, water control and management, mangrove management, sustainable pest management, composting, etc.

A 1992 Bank study proposed poverty alleviation measures along the lines of several groups of public policies. One group of policies includes special credit programs, guaranteed producer support prices, and food subsidies and targeted nutrition programs aimed at reducing the dependence of the poor on the natural resource base of their immediate environment alone. A second group includes investment in social infrastructure, i.e., education, skill formation, and preventive health care to increase labor productivity of poor communities and thus contribute to lifting the poor out of the vicious cycle of poverty. A third group includes policies that improve the physical infrastructure of rural communities and link them more closely to market centers and increase the mobility of rural labor and capital, and thus reduce the direct economic dependence of the rural poor on their immediate natural resource base. A final group includes policies aimed at removing or reducing institutional constraints and market imperfections that prevent or reduce the access of the rural poor to productive natural resources. Land reforms, land distribution, input delivery systems, construction of neighborhood farm service centers, and systems to provide credit at reasonable rates to poor farmers and landless entrepreneurs are examples of such policies. Current approaches to poverty alleviation have not always been successful. Land reform has not worked well in many countries, including India (except Kerala and West Bengal), Nepal, Pakistan and the Philippines. In many DMCs, efforts such as the Integrated Rural Development Program (IRDP) and the Green Revolution have failed to benefit small farmers and landholders, with the result that as total agricultural production increased, so did the number of landless laborers. sizably, rural cooperatives have also been captured by the better-offs. Rural works and food-for-work programs frequently have neither alleviated poverty nor built any durable infrastructure, resulting in an increase in poor people's dependence on external assistance. Social forestry has in most instances been narrowly interpreted to mean tree plantations, such that those with larger landholdings have benefitted the most.

The Bank's 1992 Asian Development Outlook summarizes rural poverty as being associated with limited access to land and irrigation facilities; slowness of rural folks to adopt modern agricultural techniques, possibly the result of institutional barriers that limit access to appropriate technologies as well as lack of information and lack of access to credit; large family size with high dependency ratio; lack of assets such as human resources among poor families; concentration of the poor in areas with low quality of land, inadequate water control and limited integration into the market; and a high incidence of poverty among minority and ethnic groups.

Having substantially discussed the matter of poverty in rural Asia and its characteristics, the Bank is committed to pursuing policies that will ensure poverty reduction. These policies include ensuring that there is no anti-labor bias built into DMCs' policies or the Bank's project designs, so that employment opportunities are generated from growth, and giving target groups access to human resource development opportunities such as education, health and family planning services and making markets and credit available so that their opportunities for employment and thus income generation are improved, while at the same time increasing their productivity and the returns from their activity.

The above implies that to achieve the goal of poverty alleviation and sustainable development, a new set of planning criteria and approaches are necessary. There is a need to determine new indicators of progress that will help in overcoming the drawbacks of GNP as a traditional measure of human welfare. It is also necessary

to establish a stronger linkage between poverty alleviation and environment protection and environmental management concepts.

Natural resource accounting is one step which when coupled with environmental pollution accounting can help strengthen the measure of economic growth as an indicator of a society's well-being. It must be recognized, however, that this approach depends upon monetization of certain environmental costs and benefits, some of which are fundamentally at variance with basic human values. As a consequence there are severe limits to the utility of the natural resource accounting approach.

In addition to adjustments to the national income accounts, indicators such as the Human Development Index (HDI) and the Environmental Quality Index (EQI) can refocus attention on the quality of life, away from the exclusive concern for quantitative aspects of economic activity. Furthermore, making these indicators gender-specific and poverty-focused can spotlight progress in poverty alleviation.

A basic needs approach that invests surpluses in social infrastructure to alleviate poverty, improve quality of life, and reduce dependence on the world economy, with all its fluctuations and uncertainties, is also environmentally sound and sustainable. A growth-first strategy may not lead to improvements in the quality of life for the poor; this in turn can lead to environmental destruction.

It would be worth noting that except perhaps for Thailand, the countries in Asia and the Pacific with the most severe environmental problems are also the countries with the largest concentrations of poor people. As noted earlier, poverty alleviation and environmental protection generally go hand in hand, as income gap and environmental stress are closely linked. However, there may be cases in which poverty alleviation and environmental stress may appear to be in conflict. For example, transport and power projects may have a significant potential impact on the environment, and yet they provide the most effective opportunities for poverty alleviation through increasing opportunities for both on-farm and off-farm employment due to new possibility for development of rural industries, price leverage for local commodities and better opportunities for marketing, and higher standards of living and reduced possibility for fuelwood depletion.

One desirable policy would be attaching priority to traditional growth projects and carrying them out in complementarity with environmental and social norms. For the Bank this implies that projects such as those referred to above must fully integrate environmental considerations following the guidelines and procedures established by the Bank in order to minimize all types of adverse environmental effects of transport and power projects. It also means that public participation should be made an integral and important part of project planning and decision-making.

An important aspect in operationalizing the link between poverty alleviation and environment protection relates to the question of financing environmental programs and projects. A concern that emerges in all infrastructure and social development projects is whether they produce explicit and steady monetary benefits. The problem is compounded when these projects need huge investments, financed through development assistance but do not generate corresponding foreign exchange earnings to repay external debt. A similar argument could also be used against projects designed to alleviate poverty and promote environmental sustainability.

#### **Linkage between Development-Environment:**

In recent years, one paradigm that has emerged in the development-environment nexus essentially supports careful integration of environmental considerations into conventional growth-oriented projects in DMCs. The relationship

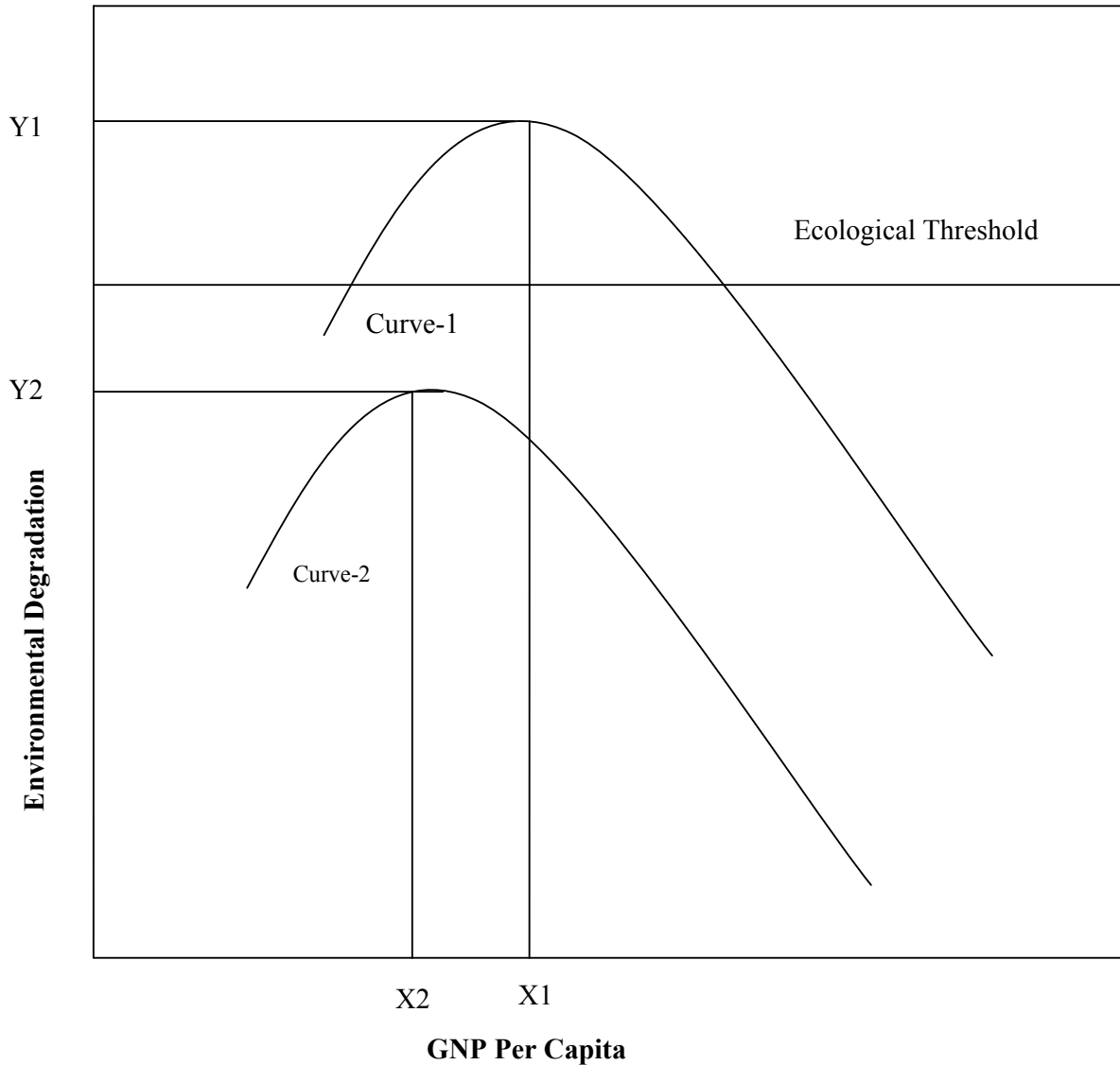


between the level of environmental degradation and GNP per capita is best described as an inverted U-shaped curve known as the environmental Kuznet's curve. The hypothesis, which has since been supported by data collected from both developed and developing countries, is that the level of environmental degradation first rises as GNP per capita rises, due to inadequate attention to environmental concerns, and then falls as more resources and greater attention are given to environmental concerns. As is well known today, the cities of Bangkok and Jakarta are more polluted now than 10-20 years ago, due to inadequate environmental controls. At the same time, cities in developed countries, such as Tokyo, Washington D.C., San Francisco, Geneva and Paris, are cleaner now than they were 10-20 years ago, due to public and private investment in environmental controls and technologies.

If the above hypothesis is true, the environmental Kuznet's curve suggests that the environmental degradation of DMCs during the economic take-off stage could be a temporary phenomenon. Based on this trend, efforts to push the type of development intended to improve environmental situation through stringent environmental control may not be appropriate unless a critical ecological threshold level (Figure 3) is reached, beyond which environmental degradation becomes irreparable.

Unfortunately, the absence of long time-series environmental statistics on one hand and a single environmental quality index on the other makes it difficult to determine how the environmental Kuznet's curve behaves under the influences of various states. For example, it would be interesting to explore how the shape of the curve changes under the influence of population control, withdrawal of environmentally unsound subsidies such as those on water and agrochemicals, restructuring of industries (in the form of less energy-intensive, more labor and technology-intensive industries), and strict environmental control measures before economic take-off. It would also be significant to determine case-by-case the level of per capita income and the corresponding level of environmental degradation where the hump of the Kuznet's lies.

**Figure 3: Environmental Kuznet's Curve**



X1 X2 represent GNP / capita beyond which environmental situation improves;  
 Y1 Y2 represent the worst situations in terms of environmental pollution and degradation.

Curve 1 Economic growth causing irreversible environmental damage  
 Curve 2 Economic growth causing environmental damage which is reversible

Panayotou (1992) and Rogers (1992); working independently, conducted empirical studies based on cross-sectional data from a sample of developed and developing countries and each came to the conclusion that depending upon the nature of the environmental problem, there is variation in the critical per capita income level at which the environmental situation begins to improve.

**Concluding remarks and recommendations:**

This study has reviewed recent research and debates about poverty–environment linkages in developing countries. It has not been able to summarize all findings and uncertainties in this vast topic, but has argued that orthodox beliefs in a downward spiral of poverty and environment degradation need to be replaced by a greater appreciation of the role of local institutions in mitigating both poverty and degradation, as summarized in the environmental entitlements approach. This section states the study’s findings in succinct form, and summarizes key debates for research and policy directions.

1. Conventional approaches to poverty and environment are dominated by two main concerns in international environmental negotiations. These are, firstly that poverty needs to be eradicated in developing countries before they can participate in environmental protection (as stated at the UNCHE and WCED); and secondly that currently identified pressing environmental problems in the international arena are not those that most affect poor people. Diarrhea and lack of clean water are arguably the world’s largest environmental problems from a poverty perspective rather than more popularly discussed topics such as deforestation. In addition, most conventional approaches to environment and poverty assumed that they are linked in a downward spiral, which does not acknowledge how local institutions may lessen both poverty or environmental degradation, or that environmental problems experienced by poor people may be different to those identified by international policy concerns.

2. As an alternative, this study has argued that such universalizing conceptions of environmental degradation are increasingly criticized for three main reasons: (a) they often do not match growing evidence for what actually constitutes environmental change in recent years either as a result of human activity or from biophysical processes not related to humans; and (b) the international concerns about environment often do not hold meaning or relevance for poor people in developing countries; and (c) poor people are often able to adopt many local organizational and land management practices which lessen impacts of population growth, environmental degradation or economic change.

3. A key part of this argument is that attempts to address problems of poverty and environment at the macro level or through universalizing descriptions of environmental problems (for example via ‘ecoregions’) may avoid the fact that environmental problems and poverty are experienced locally, and that much research on poverty has indicated that poverty exists when people are not included in such large-scale schemes. It also has to be acknowledged that both poverty and communities are heterogeneous, and may be differentiated on the grounds of gender, ethnicity, caste, age and other factors as well as wealth.

4. Local people may reduce the impact of demographic, economic and environmental change, and direct these processes in a positive way through local institutions that allow access to and management of environmental resources and services. The environmental entitlements so generated contribute and contribute towards so-called sustainable livelihoods. They may be generated through a variety of means which in rural areas include traditional farming practices, and also new off-farm activities which allow farmers to diversify income sources.

5. Yet in urban and industrial regions, the protection of poor people against environmental hazards may also imply increasing local access to emergency and other health services, and sanitation, which may be best supplied by national or international experts.

6. As a consequence, international frameworks for poverty and environment need to question the assumptions of the Brundtland Commission (1997) in asserting that

poverty alleviation is an essential part of avoiding environmental problems. This assumption might imply an acceptance of orthodox conceptions of environmental degradation, and therefore overlook potential environmental threats that currently affect poor people. Also, the macroeconomic drive for prosperity may also increase environmental hazards affecting poor people (in addition to other global concerns such as increasing greenhouse gas emissions) unless there is a more nuanced understanding of the different conceptions of environmental problems that may occur under poverty.

7. This is not, of course, to overlook the importance of poverty reduction for its own sake. Advances in understanding of policies to address poverty are crucial, and poverty reduction should rightly remain the overarching goal of development agencies. Indeed, we argue that there are risks of watering down research and policy efforts in poverty by hitching it too closely to environmental agendas through dubiously-conceived links.

8. Similarly, current international environmental agreements and policies seeking to address 'global' environmental problems in developing countries (such as the CDM) may create negative impacts in the South unless there are strong attempts to integrate such investment or policy into local concerns. The international investment in renewable energy technology is one such example where the precedence of global environmental concerns may result in reduced competitiveness of domestic companies in developing countries, and the potential lost opportunity to integrate new energy policies into local agricultural and environmental schemes.

9. Approaches centered on the role of the environmental entitlements are proposed as one way to integrate concerns about both poverty and environment at a variety of scales in developing countries and to show the potential for integrating local autonomous action with interventions by national and international institutions.

The overlapping implications of population growth and economic marginalization for poverty and environmental degradation have led to a belief in a negative downward spiral for poor communities in the face of economic and demographic change (see Durning, 1989; Simonis, 1992; Mink, 1993; Grepperud, 1997). To this may be added the additional impacts of environmental decay. Figure 1 illustrates this orthodox approach. It assumes that (a) there is an aggregate 'population' or 'community' which interacts with an aggregate 'environment'; (b) people's livelihoods are based more or less exclusively on the use and management of environmental resources; (c) poverty and environmental change have a direct causal relationship, and can feed each other in some kind of cumulative causation process, and that (d) poverty is the principal or only cause of environmental change, and vice versa. This mutual relationship therefore leads to a 'downward spiral' of poverty and environmental degradation.

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