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Environmental Degradation and Social Integration

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Summary

Human societies everywhere are closely linked to their natural surroundings. This paper examines the interrelationships between social integration and the environment: the impact that different patterns of social relations have on the state of the environment, and the influence of the environment—and especially environmental degradation—on social structures and institutions. Based largely on recent UNRISD research, the paper focuses primarily on rural areas in developing countries.

Patterns of social integration influence natural resource utilization, and thus affect the condition of the physical environment, in a number of ways. The dynamics involved range from micro-level phenomena that collectively have a large impact on environmental conditions, to changing national and international social and economic structures. Social changes affecting the performance of local level resource management systems include population growth, the spread of national and international markets, and changes in land tenure systems, particularly those that result in land concentration. These factors have undermined traditional mechanisms discouraging overexploitation of natural resources. In addition, inequitable social structures, including unequal control over resources on the basis of class or gender, have been implicated in environmental deterioration.

Environmental decline also impacts upon social structures. Social groups are affected differently: some may benefit from changes in price structures or in social relations that result from scarcities caused by environmental stress. More commonly, however, environmental decline adversely affects the health, well-being and livelihood opportunities of the individuals affected by pollution or natural resource depletion. Soil erosion, deforestation, the loss or depletion of animal and plant species limit the productive opportunities of vast numbers of people.

Individuals respond to environmental degradation in a variety of ways: they may adapt their customary production and consumption patterns to the new circumstances, search for alternative sources of income, migrate, or organize to undertake collective action to protect their livelihoods. Such individual responses, in the medium to long term, change social structures. When natural resource-dependent people intensify production, restrict or change consumption patterns, engage in new activities or migrate, they are changing their traditional societies, and participating in broader social transformations that will influence institutional change.

Policy responses to environmental degradation have taken three major forms: conservationism, “primary environmental care” and monetary cost-benefit approaches. Each of these has proven effective in certain circumstances, but each also has its limitations. Conservation measures have often been able to halt or reverse environmental decline, especially in developed countries. In developing countries, however, the effectiveness of conservationism has been limited, while its human costs have not always been adequately recognized. “Primary environmental care” focuses

on the needs of the individual resource user. This approach has been very effective in some areas, but requires an institutional capacity often lacking precisely where environmental degradation is most severe. The cost-benefit approach of mainstream environmental economics is also potentially useful, especially in industrialized countries. However, the reduction of environmental worth to monetary terms subsumes the livelihood concerns and the values of weaker social groups to those of stronger ones, and the environmental outcome is not necessarily positive.

The lesson derived from an examination of environmental degradation within the context of social integration is that it is essential to avoid fundamentalist policy approaches that isolate a single dimension of the social-environmental dynamic. The strengths and weaknesses of strategies to address environmental degradation—and the complementarities and contradictions between them—must be assessed in each context.

Introduction

Societies everywhere are closely and inextricably linked to the natural environment in which they are embedded. Human productive and social activities—and thus social structures and relations—are shaped to a significant degree by the natural resource mix available, by physical geography, by weather patterns, by the amenability of natural conditions to transformation, and by a variety of other characteristics of the environment. Environmental degradation, including depletion of renewable and non-renewable resources and pollution of air, water and soils, can be a significant source of stress upon societies (see box 1). It can act on social integration indirectly, through the constraints that it puts on productive activities, and it can also have more direct social impacts. Environmental decline may induce changes in settlement patterns and thus disrupt established social relations, it may accelerate social stratification or promote social solidarity and stimulate collective action.

At the same time, the environment has been, almost everywhere, considerably changed by human activity. Therefore, environmental degradation can only be understood within the context of the society that the environment supports. Changing patterns of social integration affect the ways in which natural resources are utilized by society, the value ascribed to nature, and the importance attached to environmental conservation and rehabilitation.

The interrelationships between society and nature, and the importance of environmental health to social health, have recently become widely acknowledged. “Sustainable development” has become a broadly accepted goal, and is seen as an essential element of social development. The term is variously and often rather vaguely defined, but as generally used it implies “positive” changes in social development that are linked with “positive” (or at least neutral) changes in the state of the environment. However, the term has also given rise to some controversy, because of substantial disagreement over what the goals of development ought to be.

The question of how to achieve sustainable development is also complicated by lack of agreement on what optimal environmental conditions are and at what point the environment becomes degraded (see box 2). In fact, because perceptions of the environment depend on the social context, and on the observer’s position within his or her society, the question is impossible to settle definitively. Some see the ideal environment as being as close as possible to a pristine state of nature, and believe that the biosphere has its own needs which must be respected independently of human needs: they argue that the “preservation of nature’s dignity” should be a primary consideration of resource use decisions.[1] At the opposite extreme, others see the value of the physical environment as resting primarily in its utility to humans: they stress resource utilization in their environmental analyses, and argue for efficient and environmentally sustainable resource

extraction not because nature has an intrinsic or independent worth, but because environmental degradation affects human welfare. Even the aesthetics of the environment are not agreed upon. While some people see beauty in uninhabited forests, others find it in cultivated croplands, and still others prefer the artifices of the city, and the buildings, pavement and lights of the spaces constructed for intensive human use.

There are inevitably tensions between these different perceptions of, and goals for, the environment. These tensions have been heightened as social change has accelerated and environmental degradation has increased. However, although there is no agreement regarding whose interests should be given priority when making resource use decisions, there is in large part a consensus at least on what would constitute a positive direction for environmental change; most would agree that polluted or degraded areas should be rehabilitated, for instance, and that unsustainable resource exploitation should be curtailed before it becomes irreversible. What remains to be established is how such positive environmental changes can be linked to positive social change—in other words, how to minimize the trade-offs between environmental health and social development, and maximize the complementarities between them.

Several years ago, it was observed that technical guidelines for solutions to environmental problems were common, but that only rarely did such guidelines "pose the political questions of who should take the relevant action, how they should do so, who should bear the cost, how effective the action of those agents may be expected to be, and what the response would be of the various social groups".[2] It is encouraging that, in the last decade or so, a substantial amount of work has addressed precisely these questions. The present paper draws on this body of research. It first examines separately each side of the linkage between social integration and the environment: the impact that patterns of social relations have on the state of the physical environment, and the influence of the environment on social structures and institutions. It then discusses the primary policy approaches to the problem of environmental degradation. It does not attempt to cover the full range of social issues associated with all types of environmental degradation. Instead, drawing particularly on UNRISD work, it focuses largely on the social impacts of and responses to environmental degradation in rural areas of the Third World.

Box 1: Principal Health and Productivity Consequences of Environmental Problems[3]

The World Bank has distinguished the effects of the major environmental problems on both health and productivity:

* **Water pollution and water scarcity:** More than two million deaths and billions of illnesses a year are attributable to water pollution; water scarcity compounds these health problems. Productivity is affected by the costs of providing safe water, by constraints on economic activity caused by water shortages, and by the adverse effects of water pollution and shortages on other environmental resources (for instance, declining fisheries and acquifer depletion leading to irreversible compaction).

* **Air pollution:** Urban air pollution is responsible for 300,000—700,000 deaths annually and creates chronic health problems for many more people; in addition, 400 million to 700 million people, primarily women and children in poor rural areas, are affected by smoky indoor air. Restrictions on vehicles and industrial activity during critical periods affect productivity, as does the effect of acid rain on forests and water bodies.

* **Solid and hazardous wastes:** Diseases are spread by uncollected garbage and blocked drains; the health risks from hazardous wastes are typically more localized, but often acute. Wastes affect productivity through the pollution of groundwater resources.

* **Soil degradation:** Depleted soils increase the risks of malnutrition for farmers. Productivity losses on tropical soils are estimated to be in the range of 0.5-1.5 per cent of GNP, while secondary productivity losses are due to siltation of reservoirs, transportation channels and other hydrologic investments.

* **Deforestation:** Death and disease can result from the localized flooding caused by deforestation. Loss of sustainable logging potential and of erosion prevention, watershed stability and carbon sequestration provided by forests are among the productivity impacts of deforestation.

* **Loss of biodiversity:** The extinction of plant and animal species will potentially affect the development of new drugs; it will reduce ecosystem adaptability and lead to the loss of genetic resources.

* **Atmospheric changes:** Ozone depletion is responsible for perhaps 300,000 additional cases of skin cancer a year and 1.7 million cases of cataracts. Global warming may lead to a shift in vector-borne diseases and increase the risk of climatic natural disasters. Productivity impacts may include sea-rise damage to coastal investments, regional changes in agricultural productivity and disruption of the marine food chain.

Box 2: Definitions and Estimates of Deforestation and Desertification[4]

Although in a technical sense the expression "deforestation" may denote a simple process of "depletion of forests", the term can have various meanings. One common view, accepted by the Food and Agriculture Organization of the United Nations (FAO), considers deforestation to be a "complete clearing of tree formations (closed or open) and their replacement by non-forest land uses". This definition implies that the removal of plant associations not classified as forest is not considered to be deforestation, and that serious forest damage caused by excessive logging, wood gathering for both domestic and commercial purposes, fire and livestock grazing is not considered to be deforestation unless it results in total conversion of forests to other land uses. Biologists, ecologists and conservation agencies, on the other hand, tend to consider deforestation in terms of the degradation of forest ecosystems, involving wildlife species, gene pools, climate and biomass stocks.

Given these diverse definitions of deforestation, it is not surprising that estimates of deforestation rates vary widely. FAO estimated the average annual rate of deforestation between 1971 and 1986 to be 0.4 per cent. One prominent ecologist, however, believes that by 1989 the global rate of tropical deforestation reached 1.8 per cent per year. Despite the lack of definitive figures, it seems clear that large areas of forests have been destroyed each year in developing countries. There is a wide consensus that by the early 1980s at least 100,000 square kilometres of closed tropical forests were being lost annually. Bangladesh, Haiti, mainland India and Sri Lanka have already lost nearly all of their primary forests. Projections by some observers suggest that, if present trends continue, much of the remaining accessible tropical forests will be cleared by the end of this century. Even at the rates estimated by FAO, Côte d'Ivoire, Madagascar, peninsular Malaysia, Nepal, Nigeria, the Philippines, Thailand and most Central American countries would have only little patches of forest by the year 2000.

Similarly, there are considerable differences of opinion about the definition and extent of desertification. The United Nations Environment Programme (UNEP) has defined desertification as "a complex process of land degradation in arid, semi-arid and sub-humid areas resulting mainly from adverse human impact". The United Nations Conference on Environment and Development (UNCED) broadened this definition to include degradation caused by climatic variations. However, land degradation is an elusive concept, implying a lessened capacity of the land to produce. Production and productivity, however, are socially defined. Hunter and gatherer societies have different perceptions of land degradation than those of peasant agriculturalists, and both groups

perceive degradation processes differently than do commercial farmers and other land managers in industrial societies. The issue becomes even more complex when factors of geographic area and time are considered. Eroded soil from a farmer's field may be deposited by wind or water on other fields and may benefit someone else; net degradation from erosion tends to decrease as the size of the area being analysed increases. In addition, some lands that are degraded by drought and by inappropriate human activities may bounce back to their previous productive potential rather quickly once these factors are eliminated, while in other cases recovery may require recuperation periods of decades or possibly millennia.

Estimates of desertification, like those of deforestation, vary widely. In the early 1980s, estimates suggested that over 30 million square kilometres suffered from at least moderate desertification. This amounted to about one fourth of the earth's land area and over two thirds of its dryland areas, excluding hyper-arid deserts. Most of these degraded drylands were in Africa and Asia and were rangelands. Desertification was estimated to be increasing at about 200,000 square kilometres annually. These estimates include not only areas of soil degradation, but also areas where there was a degradation of vegetative cover (involving a replacement of "climax" vegetation by other less desirable plant associations) without accompanying soil loss. If desertification is defined more narrowly to include only areas of degraded soils, the proportion of drylands defined as suffering desertification drops from two thirds to one fifth.

Social Changes Affecting the Environment

Patterns of social integration influence patterns of resource utilization, and thus affect the condition of the environment, in a number of ways. The dynamics involved range from micro-level phenomena, which collectively have a large impact on environmental conditions, to changing national and international social and economic structures and environmental regulating institutions.

Local Level Resource Management

In the 1950s and 1960s, faith in the powers of science and technology supported the widely held perception that "modernization" would improve all facets of life. In particular, traditional agricultural and resource management practices in developing countries were seen as backward and inefficient, and suffering from a lack of scientific rationality. In some cases, traditional ways of resource management were portrayed as being an obstacle to improved productivity, while in others rural agricultural practices were actually regarded as being destructive and the cause of severe soil degradation or resource depletion. This was the case, for instance, in eastern and southern Africa, and in many parts of the world where shifting agriculture was practised.

In recent years, however, much research has been done that demonstrates the existence of a wide variety of local level resource management systems that are both environmentally sustainable and efficient, given the physical and social constraints limiting the productive options available. It has been documented that these resource management systems are often very intricate, and allow for resource regeneration, social insurance and often social equity as well. They are maintained by social management mechanisms that form the basis of wider structures of social organization. Of course, not all societies have been successful in developing sustainable resource management practices—but those that have not can suffer heavy social costs, up to and including the extinction of their society. The decline or disappearance of a number of civilizations, from those of pre-Columbian Central America to that of ancient Greece, has been hypothesized to have resulted at least in part from environmental decline due to mismanagement. In general, however, a model that assumes environmentally rational traditional societies has displaced earlier perceptions that traditional societies are wasteful and inefficient utilizers of natural resources.

The research documenting the sustainability, efficiency and adaptability of local systems of resource management in a wide variety of locales has generated interest in the possibility of reviving such systems where they have been displaced. In a limited number of cases, such a revival seems to be a possibility. However, the capacity and flexibility of traditional resource management systems have often been stretched to their limits, and they have become unable to handle successfully the environmental challenges with which they are now faced.

In many cases, population pressure has been a crucial component of this transition. The increased needs of a growing population have meant that traditional resource management practices, where they have been maintained, now yield a declining level of resources per capita. However, population growth is only one of the elements putting pressure on the ability of traditional resource management schemes to continue to maintain societies as they have in the past (see box 3). The growth and spread of national and global markets and the resulting increasing demand for traded commodities mean that traditional mechanisms discouraging overexploitation and accumulation are losing their force. Changes in tenure systems, and land concentration in particular, have similarly disrupted previously sustainable local management practices. In addition, migration and cultural homogenization mean that traditional management systems, and the social norms necessary to sustain them, are being forgotten. In other words, the processes described as "globalization" have had important environmental consequences at the local level.

Influences on Local Level Resource Management

It is thus important to look at the factors that influence people's options for resource management on the local level. One of the most obvious limiting factors is poverty, and there is an observed correlation between environmental degradation and poverty in a wide variety of settings. This linkage has been exhaustively discussed, and the thinking on it has evolved similarly to that on local level resource management. After first blaming environmental degradation on the ignorance and wastefulness of the poor, conventional wisdom has turned to the explanation that the poor are forced to overexploit the environment by factors outside of their control.

The simple version of this argument explains the linkage between poverty and environmental degradation in terms of two main processes. First, environmental degradation is said to cause poverty because, by definition, degradation involves the erosion of the resource base upon which the poor often depend for their livelihood, while the adverse impacts of environmental decline on people's health further limits their productive potential. Second, poverty is said to cause environmental degradation because the poor are forced into marginal resource areas: they are driven out of the best agricultural lands, for instance, and into fragile and unproductive ecosystems. In addition, the poor do not have sufficient security to invest in the maintenance activities necessary for long-term environmental health: their need for sufficient agricultural yields in the current season, for instance, means that they cannot afford to undertake soil conservation works, which are labour intensive and reduce short-term land productivity. In short, it is argued that environmental conservation is a luxury that the poor cannot afford because their livelihood or even their immediate survival is at stake, and that the two processes together create a vicious circle, so that poverty and environmental degradation must be attacked simultaneously.

Because of its emphasis on simultaneous poverty reduction and environmental rehabilitation, this argument has served to draw together people whose primary concern is environmental with those whose focus is on equitable development. It has been able to forge this coalition between the people-centred development lobby and environmentalists by asserting that the trade-offs between environmental rehabilitation and poverty alleviation are minimal: "an important conclusion of the links between environmental degradation and poverty is that there is no general conflict between

environmental protection and economic development in developing countries, particularly not where the poorest people are concerned".[5]

Partially as a consequence of this broad coalition, there has been a marked increase in the amount of attention paid to environmental concerns over the last few years. In addition, the rationale for poverty alleviation has been advanced, at least in theory, by linking poor people's livelihood to the environmental concerns of the rich. However, hopes that promoting the environmental cause would advance the actual implementation of equitable development appear to have been unfounded. In spite of the repeated assertions that poverty prevents environmental improvement, the implementation of strategies to eliminate poverty seems no closer to reality than before. In fact, a positive correlation between poverty and environmental degradation is not inevitable: there is evidence from some regions in developing countries that periods of deforestation and environmental degradation can coincide both with periods of poverty alleviation, and with simultaneous economic growth and increasing poverty.[6]

In response to such empirical observations, the poverty-environment argument has recently become more sophisticated, accepting that "the links between poverty and environmental change are mediated by a diverse set of factors that affect the decisions that poor people make"[7]—poverty alleviation will not automatically result from environmental rehabilitation, and environmental improvement is not the inevitable consequence of poverty reduction.

The extent to which environmental degradation can be avoided in the process of development is itself a matter of contention. The governments of many developing countries assert that stringent environmental regulations would impede economic growth and thus slow poverty alleviation—and many economists agree. One theoretical model asserts that environmental degradation necessarily increases with the initial stages of economic growth, and then begins to decline at a certain threshold of economic development. This is described as the "environmental-Kuznets curve".[8] This theory assumes that growth which begins from a low level of economic development must be resource intensive, and cannot yet afford to invest in pollution-reducing technology.

Some empirical support has been found for this model, and it has been argued that the "environmental Kuznets curve is an empirical reality, and an inevitable result of structural change accompanying economic growth".[9] However, other environmental economists argue that the evidence for an environmental Kuznets curve is a result of statistical artefacts. The model assumes that conventional measures of GNP provide realistic estimates of economic growth, that currently accepted indicators of environmental degradation adequately reflect its negative impacts, and that damage to the environment is reversible. All of these assumptions are questionable. It is widely accepted, for instance, that GNP growth as conventionally measured fails to account for the depreciation of natural resources. In addition, it should not be assumed that the environmental improvement often observed at the national level in late stages of economic growth reflects global environmental improvement. In many cases, environmental problems are exported to less developed areas of the world, rather than eliminated, as countries become more wealthy.[10]

Social structures largely determine the outcome of social-environmental relations. In particular, the implications of land tenure systems for environmental degradation are clearly crucial. Early theoretical models emphasized the importance of private property for creating incentives for long-term environmental management. They drew on the "tragedy of the commons" scenario, which emphasizes the lack of incentives for individuals to restrain their resource extraction from a common pool, and concluded that overexploitation was the inevitable result of communal ownership. The primary policy implication was that communally held resources should be

privatized. However, empirical work has established that communal resource control can be efficiently maintained, and furthermore that it often fulfils an important insurance function by spreading the risks of poor productivity in a given season across the whole community.

Empirical work has also established that, within social and economic structures that encourage land concentration and capital accumulation, private land ownership and unrestricted land markets can be very damaging to the environment. This process is particularly obvious in parts of Latin America, where land accumulation and economic policies can create incentives for speculation and "throw away" patterns of resource exploitation, in which resources are mined for short-term profit. Policies that decrease security of tenure for small farmers have also been implicated in environmental damage. Increasingly large numbers of people alienated from their land often migrate to areas which may be forested or more ecologically fragile.

Social structures determining gender relations also have a significant impact on environmental change; this relation is discussed in box 4. The role of women in managing natural resources has increasingly been discussed. Although it would be overgeneralizing to assume that women are always more protective of the environment than are men, it is evident that gender disparities, including unequal tenure rights, often aggravate environmental degradation or make environmental rehabilitation more difficult.

Box 3: Population, Environment and Development[11]

Recent comparative research involving case studies from Costa Rica, Pakistan and Uganda has documented the complexities of the linkages between population, environment and development. The fertility rate in Costa Rica has declined dramatically, while that of Pakistan has remained static, and that of Uganda has risen. Costa Rica's demographic transition has been attributed largely to a dynamic economy and government efforts to improve education, health and sanitation. Demographic policies have played a secondary role in the process.

High rates of deforestation in Pakistan and Uganda would seem to support the common perception that population pressure exacerbates environmental degradation. However, Costa Rica's environmental problems, which include deforestation and soil erosion, are also significant, and result not so much from the incremental pressure of population growth as from large-scale land clearing for pasture and export crops. In fact, when environmental and social dynamics are examined at the village level, it becomes clear that reducing all emerging environmental issues to simple local population growth is unhelpful. Environmental problems develop as a result of the combined impact of many socio-economic, political, demographic and ecological processes. Except in a few villages studied in Pakistan and Uganda where rising population density has had an exacerbating influence, demographic dynamics have not generally been determinant in environmental change. Indeed, the Costa Rican case studies have indicated that rapid environmental degradation such as deforestation and soil erosion can occur without having a high population density. This is also consistent with the findings in Uganda's semi-arid Mbarara district, which has one of the lowest levels of population density, but where current environmental problems include deforestation, pasture degradation and soil erosion.

Local communities have made various attempts to accommodate not only environmental changes but also population levels and livelihoods. People have generally been well informed about the scale and the impact of such problems as deforestation and soil erosion in their localities, as well as the need for tree planting, social conservation, forest protection and other environmental rehabilitation initiatives. In certain locations, such as Costa Rica's Pacific zone or Pakistan's northern villages, some positive environmental initiatives have taken place, promoted by NGOs and other external actors. However,

even there, environmental concerns have rarely led to initiatives at the level required to maintain the ecological balance and quality of production systems.

Local Level Responses to Environmental Degradation[12]

Previous sections outlined the various ways in which individual and social behaviour affects the environment. In turn, environmental decline elicits social responses at the local, national and international levels. However the relation here is complex: in most cases, the social impacts of degradation are largely determined by the same ongoing socio-economic processes and institutions that are causing the environment to be degraded.

Environmental degradation has impacts that are divergent for various social groups, and for different contexts. Some groups may benefit from changes in price structures or in social relations that result from scarcities caused by environmental stress. More commonly, however, environmental decline adversely affects the health, well-being and livelihood opportunities of the individuals affected by pollution or natural resource depletion. Soil erosion, deforestation and the loss or depletion of animal and plant species limit the productive opportunities of vast numbers of people. The health hazards posed by pollution and reduced water availability, as well as by a decline in nutritional status, are substantial in many areas. In addition, environmental damage caused by humans has led to an increased risk of "natural" disasters such as flooding and drought.

The responses to environmental degradation by local people who are negatively affected can be grouped under four general headings. First, individuals and households can adapt customary production and consumption patterns to the new circumstances. Second, they can attempt to find alternative sources of livelihood in the same locality (such as engaging in commerce, services or wage labour, often made available by the same processes that caused the degradation). Third, they can migrate temporarily to supplement family livelihoods with income from elsewhere, or migrate with their families permanently to find alternative livelihoods elsewhere. Fourth, they can organize collectively to undertake production and investment activities that would not be feasible individually, as well as to protect their livelihoods by resisting environmental degradation caused by outsiders.

In the medium to long term, such individual responses contribute to changing social structures. When natural resource-dependent people intensify production, restrict and change consumption, engage in new activities or migrate, they are changing their traditional societies in one way or another. They are also participating in broader social transformations that will sooner or later influence institutions and policies.

Box 4: Gender and Environmental Degradation[13]

There is a great deal of literature, in part scholarly, in part polemical, on the relation between women and the environment. The debate has tended to be polarized between two approaches: a "women and environment" and an "ecofeminist" school. The first emphasizes the importance of women as environmental resource managers, their vulnerability to declines in resource availabilities, and the need to develop environmental programmes directed at assisting women, essentially in parallel to, and separately from, men's programmes. The ecofeminist school has a different, ideologically driven flavour. It derives from a philosophy of feminism grounded in women's affinity with the forces of nature, as opposed to men's urge to control and manipulate the natural world. It advocates respect and support for women's efforts to conserve the environment, and also stresses the active initiatives displayed by women in defence of environmental

resources in various Third World settings.

Although both of these approaches have had the merit of drawing attention to women's activism and their interest in environmental resources, they have an inflexible and narrow conceptualization of social relations, and a limited appreciation of the complexities and interactions between the genders in their pursuit of livelihoods. Thus the women and environment approach assumes, unproblematically, that there is an unvarying identity of interests between conservation of local resources and women's concerns. It can also be criticized for down-playing the economic value to women of productive activities that are not natural resource-based, and for ignoring the fact that demands on women's time have constraining consequences on women's ability to dedicate labour to environmental conservation and regeneration. The ecofeminist school is vulnerable to two main criticisms. First, it mystifies the role that women have played in social environmental conservation movements—overstating, for instance, women's role in the Chipko movement. Second, its title is misleading: it is a fundamentally regressive and contradictory expression of feminism. In proposing that the affinity between women and nature is biologically grounded, it denies the determining function of social relations in allocating differing spheres of competence and familiarity to the two genders, and ignores the argument that women's general subordination is a consequence of this process.

A "developmentalist" perspective is a corrective to the shortcomings of both types of approach. While acknowledging that in many situations women do have primary responsibility for use of natural resources, this perspective notes that these tasks are not universally ascribed to women. The question it addresses is how, and under what circumstances, variations occur and how women's interests are affected.

Case studies taking this perspective, carried out Kenya, Malaysia and Mexico, identified certain gender-based asymmetries and restrictions on individuals' control over resources in the study areas which, by privileging men's interests, may result in less-than-optimal management of environmental resources. In the area of Kenya studied, women are particularly exposed to the negative consequences of environmental decline, but property and effective land use rights limit women's ability to take corrective action. In particular, property restrictions on holdings managed by women militate against the optimal planting of trees. In the Limbang district of Malaysia, increased commercial logging activities have had adverse effects on both men and women, but have also increased employment opportunities for men. Women's livelihoods remain much more resource-based. Conflicts of interest over the management of natural resources may follow, in which women are disadvantaged—and thus sustainable resource use prejudiced—by their lack of autonomy in access to cash. In Xochimilco, Mexico, women and men are both affected by health problems due to polluted water and air. Because the task of water provision is strictly gender segregated, women act as "environmental risk managers", taking decisions about the risk that water pollution presents and the actions necessary to protect their families. It was found that a woman's success in dealing with health hazards (as measured by morbidity) is positively related to her household's socio-economic status, her level of education, and the presence of other adult women in the household to assist with preventative measures.

Adaptation

Faced with dwindling resources, people frequently attempt to reduce their consumption while intensifying crop, livestock and other productive activities. At the same time, they often try to maintain their traditional systems of sustainable resource management, usually against tremendous odds. This kind of integrated and environmentally benign defensive response seems most likely to occur in relatively densely and long-settled areas with robust community organization, a recent history of relatively secure tenure rights, and an important degree of autonomy in resource management.

However, these conditions are the exception rather than the rule in most natural resource-dependent communities. Communities relying on shifting cultivation, indigenous hunting and gathering, or semi-nomadic livestock raising, for instance, are usually less densely populated than are those depending on settled agriculture. The same is true of most forest frontier settlements. Large agricultural estates producing agro-exports usually allow little scope for autonomy in resource management by their workers or tenants. Extensive cattle ranches are lightly populated and their workers are anything but autonomous.

In such situations, production and consumption adjustments to growing scarcities of natural resources are less likely to be motivated by long-term environmental concerns. Soil, forest or water resources are frequently considered to be abundant and of low value compared to labour and capital. Moreover, in large estate systems, not only are natural resources usually implicitly undervalued, but there is little concern for equity. Where terms of access to resources are highly unequal among present users, it can hardly be expected that the claims of unborn generations will be considered a priority.

Alternative Livelihood Strategies

Faced with growing land scarcity, diminishing agricultural productivity and a diminution of traditional products from forests and other natural resources, local people may turn to other activities. These often involve engaging in petty trade, providing services to neighbours with more animals or crops, or finding employment in mining, road construction or urban development. Only occasionally, however, has generation of alternative sources of income locally offered a solution for those whose livelihoods are threatened by environmental degradation. These opportunities generally depend on an expanding local economy, which is likely to be curtailed by the environmental degradation itself.

In the Brazilian Amazon region, for instance, many riverine cultivators and fisherfolk, as well as rubber tappers and others extracting forest products such as Brazil nuts, found employment in road construction, mining and urban development when their traditional livelihoods were threatened. These jobs, however, were mostly temporary and low paid. New penniless immigrants arrived in large numbers, depressing wages and making employment uncertain. Moreover, the new non-agricultural and non-forest employment depended on a continuous inflow of state and private investment funds that were by no means always forthcoming. In short, the sustainability of new service and industrial activities in Amazonia has not been more assured than that of its primary agricultural and forest production.

Migration

When environmental damage reaches the point where it leads to a reduction in people's standard of living, out-migration from the area is a common response. There is a range of social and environmental ramifications of such population movements. First, there are environmental impacts in the areas to which people move. Whether they go to cities or to new ecological frontiers, these ecosystems must adapt to a rate of population growth which far exceeds the rate of natural increase. In addition, social organization in areas of in-migration must cope with the influx of people: social systems may become unstable, with social rifts developing or conflict intensifying. Even if instability does not develop, social institutions in areas of heavy in-migration must evolve rapidly, and many traditions are lost in the process.

Second, population movements have social and environmental implications in areas of out-migration. Migration from densely settled rural areas can help to reduce pressures on the local environment. Migration may provide remittances, enabling rural communities receiving them to

undertake productive activities other than overexploiting natural resources. Remittances also enable the migrants' families to meet livelihood needs by purchasing necessities. Again, social institutions must evolve rapidly in areas of out-migration. The desertion of rural communities whose inhabitants were previously managing their resources sustainably may accelerate environmental degradation because traditions of natural resource management and knowledge of local ecosystems are lost.

These considerations suggest that the role of permanent and temporary migration merits special attention in any discussion of environmental dynamics. Under what circumstances is migration an important grassroots response to hardships induced by resource scarcity, deforestation or other types of environmental decline? What are its effects on the livelihoods of the migrants and of those who remain in their home communities? What are its impacts on processes of environmental degradation? What are the social consequences for earlier residents in areas receiving the migrants?

A set of case studies on the social dynamics of deforestation suggests that the answers to these questions are extremely varied and often contradictory in different contexts. The researchers encountered three principal reasons for migratory movements affecting deforestation processes. First, there were forced migrations because of war, political persecution or eviction following land alienation or loss of employment. Residents evicted to make way for reservoirs and other large-scale development projects were found in all the regions studied. Second, there were so-called ecological refugees, who left their homes to seek other lands or incomes when their forests and soils become too degraded for them to maintain their customary livelihoods. Third, many left temporarily or permanently merely to improve their opportunities and incomes, or to lessen their own and their families' poverty. In practice, it is often impossible to distinguish clearly between so-called "push" and "pull" factors as they usually operate simultaneously.

Collective Action

Collective actions of those being prejudiced by environmental degradation processes can sometimes enable such groups to increase their control over resources and regulatory institutions, although they can also be very risky for those undertaking them. Perhaps the most important aspect of organized collective efforts by the weak to protect their resources, or merely to improve their livelihoods, is that such organization sometimes compels the powerful to take them seriously as social actors in their own right. Without autonomous grassroots organization by the people most affected, it is easy for representatives of the state, the timber industry, large landowners and others seeking to exploit their resources to see such people as mere objects of "development". When collectively organized with some degree of autonomy, however, they are more likely to be seen as potential allies or opponents whose interests must be taken into account. In many circumstances, collective organization provides the weak with greater bargaining power, although in others it may prompt harsh reprisals (see box 5).

Effective collective action by local communities to protect their resources from seizure by more powerful groups is always difficult—and can be extremely dangerous. Some individuals and households will inevitably have divergent interests from others. The greater the social stratification in a community, and especially market-induced stratification, the more likely it is that contradictory interests will arise, and be fomented by outsiders wanting access to community lands.

Collective initiatives are further constrained by the fact that there is often not only a clash of interests, but also a clash of cultures between different groups interested in utilizing natural resources. Cultural differences are in turn associated with different modes of production and resource use. Hunters and gatherers have competed for land and forest resources with nomadic

pastoralists and settled small cultivators in many regions of the world for centuries. Now, almost everywhere, these pre-industrial modes of resource use are being overwhelmed by industrial-based systems of production and exchange. Local societies are increasingly being incorporated into a single world system.

Box 5: Social Action and the Environment in Developing Countries[14]

A recent set of case studies of social action centring on environmental concerns illustrates the conflict generated by competition between local communities and state and capitalist interests over control and use of natural resources. This conflict results from the inequity, social injustice and environmental degradation that are too often the products of conventional approaches to development. In Kerala, India, trawler owners, backed by state subsidies, seriously depleted marine resources and thus jeopardized the livelihood of the traditional fishing community. With the help of outside social workers and church groups, the fishing community responded to the crisis by creating a trade union-type organization to exert pressure on the government to change its fisheries policies and to undertake collective action to improve traditional technology and better manage marine resources.

In the Himalayas, logging contractors and energy companies, with state support, threaten the life support systems of the forest dwellers. Two well-known environmental movements have resulted: the Chipko movement and the movement against the Tehri dam. In both cases, the driving force behind the movement was the threat posed to local livelihood. The Chipko movement's determination to resist commercial and state interest in logging was reinforced by its growing consciousness of the wider deleterious effects of deforestation in the mountainous areas. In this the local communities were strengthened by support from scientific research and the increasingly powerful domestic and international constituency for environmental conservation. Resistance to the Tehri dam was similarly supported by scientific research showing the destructive potential of such a dam, which helped to mobilize both grassroots action and external support.

An urban movement studied in Durango, Mexico, began as a revolutionary movement that had, as one of its aims, the acquisition of new settlements for its members through invasions and occupation of land. The movement's specifically environmental concerns originated with the necessity of confronting the polluters of the community water supply, and the success of this initial environmental activity was followed by the establishment of a wider campaign to raise environmental consciousness.

These and other studies demonstrate how local communities organize for environmental preservation and resist environmentally destructive practices. Such resistance is seldom in defence of "environment" in the abstract, but rather is inspired by people's need to safeguard their livelihood and, in a broader sense, their way of life. The record of such movements is a mixed one. In some cases, the people's claims have been recognized and their goals largely met, in others there have been partial victories, while the resistance put up by local communities has sometimes been to no avail.

Certain conditions are generally conducive to the successful articulation of local environmental concerns through grassroots movements, although these vary according to social and political contexts. Of cardinal importance is the unity, strength and perseverance of organizations of marginalized groups, as well as the development and maintenance of participatory structures within such organizations. External support from sympathetic individuals and institutions has been critical in most cases, with pressure from international sources becoming an increasingly important factor in the outcome of struggles over resources. Such support may also increase the likelihood that the state tolerates organizational activity. The studies also demonstrate the importance, for the successful pursuit of environmental and livelihood objectives, of forging broad-based alliances with other supportive groups such as workers' and peasants' associations, social activists, religious bodies, national and international environmental societies, the

scientific community, political parties and the media.

Wider Level Responses

Environmental degradation places stress not only on community level social structures, but also on societal institutions which function at a broader level. The social changes brought about by individual responses to environmental damage modify the balance of rural-urban relations, and increase the contact—and sometimes the competition and conflict—between different ethnic groups or cultural traditions. The state faces new demands and new challenges as a result of these changes.

Environmental degradation also sometimes triggers new forms of organization at the regional, national or international level. Regional coalitions may form in response to a perceived environmental threat. At times, greater reliance is placed on state powers to regulate environmental activities. In addition, completely new forms of social organization, including non-governmental organizations and broad-based social movements, are increasingly being established as a consequence of environmental damage or environmental concerns.

The perceived threat of environmental degradation has also helped to create an international ideology of conservation, which has helped to forge links and alliances between previously unconnected groups—between Northern middle class groups and Southern indigenous peoples, for instance. In some cases, the threat of environmental degradation has led to greater visibility of, and increased sympathy for, the livelihood concerns of such groups. In other cases, however, the impacts of conservation projects have been disastrous for local people (see box 6).

The recent United Nations Conference on Environment and Development, which was preceded by more than two decades of international work on environment, was an institutionalized global response to problems of environment and development. As is inevitable with such meetings, the UNCED process left many people dissatisfied. For those who believe that consumption patterns in the North are the root cause of environmental degradation, the meeting changed little: as then-President Bush remarked, "the life style of the U.S. would not be up for discussion at Rio", and indeed it was not.[15]

In addition, many people, especially from the South, viewed with suspicion UNCED's emphasis on the "management" of "our common resources", noting that such terminology indicates the North's appropriation of the right to make decisions regarding the resources of the South, while making few concessions of its own: it has been claimed that what the North was saying at UNCED, in effect, was that "what's yours is mine, what's mine is mine".[16]

Others were much more optimistic about the UNCED conference, believing that it was an important step which may lead to more substantial international agreements in the future. While some countries of the South see environmental regulation as a luxury they cannot afford, in fact the absence of internationally agreed environmental standards, enforced at the national level, is generally detrimental to developing countries. It allows transnational industries to use the threat of relocation to win concessions on national environmental standards. It is the poorest countries that are most vulnerable to such manipulation, and the poorest people within these countries who are the worst affected by both everyday pollution and environmental disasters.

Box 6: Protected Areas and Indigenous Peoples[17]

Few conservation agencies continue to believe that the establishment of protected areas will, by itself, assure the preservation of biological diversity: while protected areas attempt to isolate threatened areas from the forces destroying surrounding zones, they do not address the root causes of this destruction. Nevertheless, the creation and extension of protected areas absorb most of the funds of non-governmental conservation bodies. Protected areas also remain a priority for many international funding agencies as the most practical way of conserving the greatest amount of biodiversity.

The ethic underlying the conservation of biological diversity is that it is for the global good and the needs and rights of future generations. Yet, in practice, conservation has had to make itself pay by promoting non-damaging forms of use. This raises the question—never far from the forefront of indigenous people's minds when they learn that their lands are to be developed for conservation—conservation for whom? Because an unhappy truth, which conservationists have only recently come to admit, is that the establishment of most national parks and protected areas has had negative effects on their prior inhabitants. So powerful has been the notion that conservation is about preserving wilderness that conservationists have been intensely reluctant to admit that indigenous peoples and other local residents have any rights in protected areas.

However, most protected areas are inhabited, and forced relocations are not a thing of the past. In Uganda, for example, mass expulsions of forest dwellers and peasant settlers were recently carried out to create a wildlife corridor. Some 30,000 indigenous people living in the area were expelled without warning, leading to serious human rights violations, mass impoverishment, burning, looting, the killing of livestock, and deaths of indigenous people.

Materially, most oustees are substantially worse off following removal from their original areas. The fact that compensation is usually inadequate is compounded by the fact that cash compensation is often squandered improvidently: indigenous people, unaccustomed to dealing with land as a saleable commodity, frequently fall prey to the unscrupulous.

It is far from clear whether the social, political and environmental problems caused by transplanting people out of protected areas are justified even in strictly environmental terms. Not only do relocations create a difficult political environment for the protected area to function within, but they also disrupt the neighbouring environments into which the people have been displaced.

People are confined to small and inappropriate land areas; traditional social institutions and patterns of land management and tenure, which previously regulated access to resources, are undermined. The net result is environmental degradation. The establishment of protected areas without taking into account the needs, aspirations and rights of local people may create ultimately insoluble social problems, thus threatening the long-term viability of the parks as much as the perceived threats which caused them to be established in the first place.

Policy Approaches to Environmental Degradation

There are three primary variants of the policy approaches commonly taken to address environmental degradation, although these often overlap. The first is conservationism, an environment-centred approach that is based largely on the assumption that human activities are detrimental to nature, and that thus seeks to control those activities. Second, a more people-centred approach, emphasizing the human costs of environmental degradation, has been advanced in recent years. This approach, often called "primary environmental care" (PEC), assumes that human activity is not necessarily or inherently detrimental to nature, and that, given the opportunity, people will often manage their environment sustainably because it is in their best interests to do so.

Third, a range of tax, pricing and accounting-based policies has been implemented or proposed with the intention of creating incentives for behaviour that is positive or neutral for the environment, and creating disincentives for environmentally destructive behaviour. Often, although not always, such market-based policy proposals define their goals in terms of balancing the trade-offs between human activity and environmental conditions in order to achieve maximum economic efficiency. These three approaches, then, can be broadly distinguished as "environmentalism for nature", "environmentalism for people", and "environmentalism for profits".[18]

Conservationism

The idea that human activity is detrimental to the natural environment, and that nature should be conserved by keeping areas free from human contact, has been influencing environmental policy since at least the mid-nineteenth century, when the first national parks were established in the United States. Similar protected areas were subsequently set up in other regions, with a marked growth in the number of national parks and protected areas created since 1950. With adequate maintenance and support, protected areas can be very successful in preserving ecosystems that would otherwise be threatened with disruption. However, when the needs of people residing in areas to be "conserved" are not acknowledged, the human costs of this kind of environmental protection can be unacceptably high (see box 6).

Nature conservation may also take the form of regulations limiting or prohibiting the exploitation of certain animal or plant species, mandating environmental protection measures to be carried out in conjunction with productive activities (for instance, requiring small farmers to undertake soil conservation activities) or prohibiting various activities that contribute to air, water or soil pollution. Such conservation policies can, in some circumstances, make a significant contribution to environmental health. In developed countries especially, environmental decline has often been halted or reversed through the implementation of conservation measures.

However, the accomplishments of the conservation approach, especially in developing countries, have been limited by what has been called the problem of "coherency".[19] All too often, contradictory policies are implemented: governments simultaneously promote conservation and environmental degradation, and the result is "one step forward and two steps back". At the local level, attempts to promote rural conservation works have been hampered by lack of time, materials and resources on the part of the local people, who are usually the ones expected to carry out such work. At the national level, the failure to integrate environmental policies and programmes with broader development questions is particularly evident. Environmental protection strategies must go hand in hand with development strategies that attempt to transform the specific patterns of accumulation and human settlement underpinning environmental degradation—notably certain forms of agricultural expansion, infrastructural development, land concentration and the colonization of agrarian frontier areas.

At the international level, the contradiction between conservation initiatives and other policy proposals is even more pronounced. Nations are being urged by the international community to put their ecological house in order, yet they have also come under tremendous pressure to slash government spending and credit, seriously curtailing the effectiveness of environmental and extension agencies. In addition, the requirements of many structural adjustment programmes encouraging the rapid growth of agro-export agriculture have also had negative environmental effects. The implementation of such programmes has led, in some cases, to increased deforestation and the use of agrochemicals, to the destruction of certain peasant farming systems that had historically yielded important environmental, social and cultural benefits, and to the displacement of small producers to more ecologically fragile areas.

Primary Environmental Care (PEC)

The experience that traditional conservationists have gained on the ground has often brought with it a degree of social awareness. Several environmental groups that originally assumed a purely "conservationist" stance have come to realize that environmental protection must go hand in hand with development policies and programmes that provide alternative livelihood opportunities for the rural poor.

The approach to environmental degradation that has emerged from such renewed attention to the poor, and that therefore calls for investing in local level resource management, is referred to as "primary environmental care" or PEC. This approach rests on the assumption that it is "essential to focus on the grassroots or community level when making sustainable development operational".[20] There is no claim, however, that PEC alone is the answer to today's environmental dilemmas: "primary environmental care is as little able to solve all environmental and poverty problems ... as primary health care can solve all health related problems". However, like primary health care, primary environmental care is supposed to address the roots of the problem, and thus be more efficient than a curative or "disaster relief" approach to environmental problems.

The PEC approach stresses the "empowerment" of communities, locating the source of many environmental problems in people's inability to adequately control their resources. The approach is a welcome development, because it serves to focus attention on external factors which inhibit sustainable local level resource use. It also emphasizes the fact that the binding constraint limiting the ability of people to successfully manage resources is usually not ignorance of appropriate techniques or a lack of understanding of the importance of the environment. Too often in the past, teaching people to "respect" the environment was considered essential for environmental conservation, while the importance of giving people the opportunities and the means that are the prerequisites of such "respect" was ignored.

However, the implementation of the PEC approach involves institutional dimensions which have not yet been adequately explored. PEC requires organization and collective activity that is much more feasible in some places than in others and, arguably, the potential for such organization is declining. Local level social regulating institutions are facing a crisis of legitimacy and authority caused by factors such as population growth and mobility, the spread of markets and the advance of the state system. The decline in the responsibility of local level institutions is linked to changes taking place at the global level: the power of traditional and local authority structures in general has been eroded as larger, external structures become more important to local people. This crisis of local institutions occurs as part of the same dynamic which led to the decline of traditional resource management mechanisms.

As a consequence of local level institutional changes, the adaptability of local social structures—their ability to develop and enforce changing resource management structures in response to changing ecological conditions—declines. And it is precisely institutional adaptability that is crucial in the context of rapid social and environmental change, and upon which the implementation of PEC depends. Thus the potential contribution of PEC to environmental rehabilitation or the prevention of environmental decline is still relatively circumscribed.

Monetary Cost-Benefit Approaches

In general terms, both the worst forms of environmental degradation, and the worst social impacts of such damage, occur when the individuals or groups benefiting from the overexploitation of natural resources or overuse of environmental sinks are not the ones who suffer the adverse effects

of environmental decline. It is perhaps obvious that, if those who damage the environment were forced to bear the full costs of their activities, a great many types of environmental exploitation would cease to be profitable, and environmental degradation would slow considerably. In economic terminology, this process of rationalizing decisions by matching total costs to benefits is referred to as "internalizing the externalities".

There is little disagreement concerning the need for a more rational and equitable distribution of environmental costs and benefits. However, how to bring about such an internalization of externalities is a much more complex question. The study of environmental economics has been used to incorporate such environmental concerns into economic decision-making: within the current mainstream in this field "the underlying basis of this approach is economic optimization and efficient resource allocation".[21] The main techniques used are methods for valuing the environment. The cost of environmental degradation is assessed on the basis of its effects on production and health, on the future costs of restoring environmental assets, or by comparisons with the market value of a substitute for an environmental good. These costs are then set against the estimated benefits of proposed economic policies to determine their advisability. The proposals advanced by environmental economists often take the form of taxation and pricing policies, support for market mechanisms, or accounting techniques that emphasize the costs associated with natural resource exploitation.

Such an approach promises to be useful in certain contexts. Certainly, the reduction of consumption in the North, deemed essential by many ecologists, is more likely to result from the tax and price incentives proposed by environmental economists than from moral exhortation urging Northern consumers to live more sustainably. One report modelling the effects of an annual 5 per cent increase in the price of gasoline, for instance, suggests that in such a situation highly fuel-efficient cars would soon be developed, alternative and renewable sources of fuel would enter the market, within 20 years infrastructure would be in place that would provide a realistic alternative to daily car use, and within 42 years gasoline would have increased in price eight-fold and virtually disappeared from the market.[22]

There are limits to this approach, however. Although proposals for reforms to take better account of social and environmental costs are laudable because they help bring out some of the previously hidden socio-political issues, in fact conflicting perceptions of and interests in environmental degradation cannot be resolved by reducing them to a calculus of monetary costs and benefits as indicated by price relationships in national and world markets. On the contrary, such a reduction to monetary terms subsumes the livelihood concerns and the values of weaker social groups to those of stronger ones. While such an approach seems to offer an attractive technocratic solution to environmental problems, these problems often involve essentially political issues about the distribution of resources and power that monetary cost-benefit calculations, on their own, cannot adequately address.[23]

Currently, an emphasis on market-based mechanisms is fashionable—thus environmental economists propose setting up "markets" for pollution, whereby countries could trade in their quotas of clean air or water. Similarly, it is thought that rural dwellers in the Third World can be provided with incentives to conserve the ecosystems in which they live if the health of ecosystem becomes a commodity that can be traded to safari operators or "ecotourists". The market-based approach to environmental problems should be used cautiously, however. Market failures are far from rare, even with more tangible commodities, and the failure of the market to set an adequate value on clean air, for instance—which could happen because of an imbalance of power among the

groups trading, or because future generations do not have a seat at the bargaining table—could be catastrophic.

Part of the danger of market-oriented solutions lies in the fact that an idealized "free market" is commonly perceived as having an existence independently of the social systems within which it operates. In fact, of course, markets are themselves institutions: they are social constructs whose existence, form and outcome depend upon social rules and norms regulating, among other things, the enforcement of contracts, the sharing of information and the ability of groups to participate on equal terms.

Conclusions

This paper has attempted to document the many complex linkages between human society and the natural environment. It is because of these linkages that it is impossible to choose between "environmentalism for nature", "environmentalism for people", and "environmentalism for profits": people cannot be isolated from the environment, and people's environmental concerns cannot be isolated from their economic concerns.

The lesson derived from an examination of environmental degradation within the context of social integration is that it is essential to avoid fundamentalist policy approaches that isolate and emphasize a single dimension of the social-environmental dynamic. Environmental problems must be understood as part of the larger social framework, as an integral part of social integration, and must be addressed from this perspective. Much can be done at the local level to address the problems of environmental degradation, but local level action will be ineffectual unless it is carried out within a context of supportive institutions at the local, national and global levels, and unless explicit efforts are made to ensure policy coherency at these difficult levels. The strengths and weaknesses of the major types of policy approaches to environmental degradation—and the complementarities and contradictions between them—must be assessed separately in each context. Treating the various dimensions of the environment-development relationship in isolation will obscure as much as it reveals.

Bibliography

Barraclough, Solon
Social Dimensions of Desertification: A Review of Key Issues Emerging from the Literature, paper prepared by UNRISD for the United Nations Environmental Programme's Desertification Control Programme Activity Centre, mimeo, UNRISD, Geneva, 1993.

_____
Social Dimensions of Desertification, mimeo, UNRISD, Geneva, 1994.

_____and Krishna Ghimire
The Social Dynamics of Deforestation in Developing Countries: Principal Issues and Research Priorities, Discussion Paper No. 16, UNRISD, Geneva, December 1990.

_____and Krishna Ghimire
Forests and Livelihoods: The Social Dynamics of Deforestation in Developing Countries, Macmillan, London, forthcoming.

Colchester, Marcus

Salvaging Nature: Indigenous Peoples, Protected Areas and Biodiversity Conservation, Discussion Paper No. 55, UNRISD, Geneva, September 1994.

Ghai, Dharam and Jessica M. Vivian
"Introduction", in Dharam Ghai and Jessica M. Vivian (eds.), **Grassroots Environmental Action: People's Participation in Sustainable Development**, Routledge, London, 1992, pp. 1-22.

Ghimire, Krishna B.
Linkages between Population, Environment and Development: Case Studies from Costa Rica, Pakistan and Uganda, UNRISD, Geneva, 1993.

Holmberg, Johan and Richard Sandbrook
"Sustainable development: What is to be done?", in Johan Holmberg (ed.), **Policies for a Small Planet from the International Institute for Environment and Development**, Earthscan, London, 1992.

Joekes, Susan, with Noeleen Heyzer, Ruth Oniang'o and Vania Salles
"Gender, Environment and Population", in Dharam Ghai (ed.), **Development and Environment: Sustaining People and Nature**, Blackwell Publishers, Oxford, 1994.

Leach, Melissa and Robin Mearns
Poverty and Environment in Developing Countries: An Overview Study, report to the Economic and Social Research Council and the Overseas Development Administration, Institute of Development Studies, Brighton, 1991.

Munasinghe, Mohan
"The economist's approach to sustainable development", **Finance and Development**, Vol. 30, No. 4, December 1993, pp. 16-19.

Panayatou, Theodore
Empirical Tests and Policy Analysis of Environmental Degradation at Different Stages of Economic Growth, World Employment Programme Working Paper, ILO, Geneva, January 1993.

Robins, Nick and Alex Trisoglio
"Restructuring industry for sustainable development", in Johan Holmberg (ed.), **Policies for a Small Planet from the International Institute for Environment and Development**, Earthscan, London, 1992.

Sachs, Wolfgang
"Global ecology and the shadow of 'development'", in Wolfgang Sachs (ed.), **Global Ecology: A New Arena of Political Conflict**, Zed Books, London, 1993.

Shiva, Vandana
"The greening of the global reach", in Wolfgang Sachs (ed.), **Global Ecology: A New Arena of Political Conflict**, Zed Books, London, 1993.

Tham, Carl
"Poverty, environment and development", in Üner Kirdar (ed.), **Change: Threat or Opportunity for Human Progress? Volume V, Ecological Change**, UNDP, New York, 1992.

Utting, Peter
Trees, People and Power: Social Dimensions of Deforestation and Forest Protection in Central America, Earthscan, London, 1993.

_____
"Social and political dimensions of environmental protection in Central America", in Dharam Ghai (ed.), **Development and Environment: Sustaining People and Nature**, Blackwell Publishers, London, 1994.

Wolfe, Marshall
"The environment in the political arena", **CEPAL Review**, No. 12, 1980, pp. 85-101.

World Bank
World Development Report 1992: Development and the Environment, Oxford University Press, New York, 1992.

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[1] Sachs, 1993.
[2] Wolfe, 1980.
[3] Adapted from World Bank, 1992, p. 4.
[4] Adapted from Barraclough and Ghimire, 1990; and Barraclough, 1993.
[5] Tham, 1992.
[6] Utting, 1993.
[7] Leach and Mearns, 1991.
[8] The original Kuznets curve described a similar relationship between inequality and economic growth.
[9] Panayoutou, 1993. He found such a relationship between GDP per capita and both deforestation and air pollution using late 1980s data from both developed and developing countries.
[10] Barraclough and Ghimire, forthcoming.
[11] Adapted from Ghimire, 1993.
[12] This section is adapted from Barraclough and Ghimire, forthcoming.
[13] Adapted from Joekes et al., 1994.
[14] Adapted from Ghai and Vivian, 1992.
[15] Quoted in Sachs, 1993.
[16] Shiva, 1993.
[17] Adapted from Colchester, 1994.
[18] Utting, 1994.
[19] The following is adapted from Utting, 1994.
[20] Holmberg and Sandbrook, 1992.
[21] Munasinghe, 1993.
[22] Robins and Trisoglio, 1992.
[23] Barraclough, 1994.