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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 Problems³

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 aquifer 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 Desertification⁴

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

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