

ISSUE 6



Is Poverty Responsible for Global Environmental Degradation?

YES: J.B. (Hans) Opschoor, from "Environment and Poverty: Perspectives, Propositions, Policies," *ISS Working Paper 437* (Institute of Social Studies, Netherlands, 2007)

NO: John Ambler, from *Attacking Poverty While Improving the Environment: Towards Win-Win Policy Options* (East Asia Program Development, Social Science Research Council, New York, 2004)

Learning Outcomes

After reading this issue, you should be able to:

- Know how poverty can cause environmental degradation.
- Discuss how sustainable development relates to both ecological preservation and the need for development.
- Understand how the poverty-environment nexus relates to the environment-development system.
- Discuss the nature of the relationship between environmental protection and economic development.

ISSUE SUMMARY

YES: Professor J.B. (Hans) Opschoor of the Dutch Institute of Social Studies views the relationship between environmental quality and poverty within the wider context of the environment-development system. He sees poverty as both an agent of environmental degradation and a cause of deepened poverty.

NO: Researcher John Ambler, Director of East Asia Program Development, Social Science Research Council, dispels various myths on poverty and environmental degradation and points to how specific policies can produce a "win-win" situation.

Environmental degradation is the loss in environmental quality from pollutants and other activities and processes such as improper land use and natural disasters. The foundation upon which environmental degradation rests is

related to the dynamic interplay between socioeconomic, institutional, and technological activities. But, poverty remains a root cause of several environmental problems. The poor are often forced into unsustainable practices by farming on marginal lands; clearing tracts of rainforest for its timber value; and putting at risk fragile ecosystems for their basic survival. These destructive practices often lead to soil degradation, erosion, and landslides. It is argued that environmental conservation is a luxury that the poor cannot afford because their livelihood is at stake, and this produces an unsolved vicious circle of poverty and environmental degradation (Durraipappah, 1998). Marginalization of the poor is one of the factors that leads to socioeconomic or environmental change in both developed and developing countries. The adverse impact of population growth and economic marginalization produces a negative downward spiral for the poor. This results in unusual stress on natural resources and land use and often forces the relocation of the poor to less productive or marginal areas. This causes a radical alteration of the environment.

The role of poverty in fostering environmental degradation has been recognized by the United Nations. This linkage was not made to "blame the victim," the poor, but to show the connection between poverty and environmental degradation. According to this argument, if the livelihoods of the poor can be uplifted, then environmental quality will improve. This relates to the environmental Kuznets Curve where economic growth eventually produces better environmental quality.

The causes of environmental degradation, particularly in developing countries, are many and varied. Globalization can increase the wealth of developing countries but it can also produce environmental impacts. For instance, much highly polluting manufacturing has moved to emerging economies like China and India, but their products are consumed in the West, especially the United States. Hence, this produces a shift of environmental degradation from the West to poorer developing countries. Also, the West often uses developing countries as a source for waste disposal. It is well noted that electronic waste from the United States has been shipped overseas for "recycling," which adds to the environmental health problems in receiving countries.

Other factors cause environmental degradation in developing countries. The move to manufacturing and the increased demand for energy has placed a heavy emphasis on the use of fossil fuels, particularly coal. This causes an increase in atmospheric pollution. Coal-fueled thermal plants produce large amounts of sulfur byproduct, which combines with water to form acid rain. Menz et al. (2004) discussed how acid rain was a serious environmental problem in both Europe and the United States until strict environmental standards on power plants reduced the emission of sulfur. Also, a successful emission trading system was established in the United States to deal with this problem in the 1990 Clean Air Act. Before this policy reform, acid rain had a serious effect on aquatic ecosystems with the acidification of inland water bodies and groundwater. In the United States, acid rain gained attention with the reporting of acidic lakes in the Adirondack Mountain region in New York (Schofield, 1976). Today, acid rain is a global issue. The heavy reliance of China on coal-burning thermal plants is pushing sulfur across the Pacific to the western United States.

Urbanization is also having an impact on the environment in developing countries. Today, nearly 50 percent of the world's population lives in cities. By 2030, this percentage will increase to 60 percent and cities of the developing world are expected to absorb 95 percent of this growth as a result of rural-to-urban migration, transformation of rural settlements into urban ones, and natural population increase. Although comprising only 3 percent of the earth's land area, cities consume 75 percent of global energy, create 80 percent of global greenhouse gas emissions, and intensely concentrate industry, people, materials, and energy (Taylor, 2011). The ability to successfully plan for this urbanization will be one of the great challenges of the twenty-first century.

Effective public policy can increase environmental quality in developing countries. Robert Taylor in "The Key Role of Civil Society in Managing Environmental Sustainability in Asia" believes that the many environmental compliance systems in developing countries are modeled on Western systems and they do not work well in poorer countries. He states that in poorer countries the demands for economic growth outweigh concerns for environmental protection at the various levels of practical decision making. As a result, emerging market economies have two options. They can seek to strengthen their regulatory enforcement regimes so that environmental laws and standards, already in place in most emerging market countries, can actually produce a stabilized or reduced amount of environmental degradation. Or these same countries, especially ones that are so positioned with the necessary determinants, a robust democratic process, open print media, available and affordable communications technology, and active public participation in governance, can utilize a second option, a civil society environmental management regime. Taylor recommends that poorer countries include more civil society collaborations in their environmental management regimes.

Mukadasi Buyinza from the Faculty of Forestry and Nature Conservation at the University of Makerere in Uganda discusses how the problems of poverty and environmental degradation are closely related in developing countries (2010). He notes that developing countries have a high dependency on primary economic activities such as agriculture, mining, and forestry. This places the natural environment at more risk because it is the primary source of wealth. With population increase there has been more pressure on agricultural production in Uganda, which has led to the utilization of marginal lands. Cultivation of steep slopes has produced erosion and soil degradation. Poor farmers are forced into unsustainable farming practices on marginal land, while rich farmers are able to cultivate the most fertile land. He shows the linkages between land degradation and soil conservation on the poverty level of rural households in Uganda.

Today we see a number of schemes designed to elevate people out of poverty. Natural resources are often used by the poor in an unsustainable manner because it is their only source of income, that is, farming on marginal lands, illegal logging, etc. Through creative policy, natural resources can be used both as a source of income and as a means to protect the environment. This can be done through policies such as the Payment for Environmental Services (PES) scheme. The aim behind PES is that people should be given incentives to

provide environmental services, and those who use the service should pay the costs. Therefore, this will generate "net environmental income." PES would directly confront some of the reasons why environmental degradation occurs in developing countries, that is, lack of secured resource rights and lack of incentives to protect the environment.

In the YES selection, that poverty is responsible for global environmental degradation, Professor Hans Opschoor of the Dutch Institute of Social Studies views the relationship between environmental quality and poverty within the wider context of the environmental-development system. He examines the two popular views, first that poverty is a vector or agent of environmental degradation and the second that poverty causes a deepened poverty or the "poor as victim" perspective. He concludes that the two, added together in a dynamic setting, yield the vicious downward spiral that the Brundland Report stated needed to be addressed in its sustainable development agenda.

For the NO selection, that global environmental degradation is more attributable to poor governance, researcher John Rambler of the Social Science Research Council in New York states that too much emphasis has been placed on the relationship between poverty and the environment. Instead he believes that improved governance can break the "vicious cycle" of the poverty-environment nexus. He challenges two major assumptions relating to poverty-environment interactions. First, he attacks the assumption that poverty necessarily leads to environmental degradation. And second, he discards the notion that population growth necessarily leads to environmental degradation. He contends that specific policies can improve the lives of the poor while protecting the environment. These policies include: giving the poor control over key environmental resources; encouraging the development of democratic governance systems at all governmental levels, from local up to national; and providing a way to protect the current assets of the poor through insurance systems that use cash payments as incentives for environmental services.



These perspectives very often tend to take a 'bottom up'—approach starting from local/regional level analyses of manifestations of poverty-environment linkage.

Most (all but perhaps the capabilities approach) seem to stay close to commodification/market oriented views.

When it comes to agency and agents, post Johannesburg mainstream thinking on sustainable development (and poverty-environment within that) reflects the then embraced ideas of *partnerships* between the various categories of agents, where a more critical alternative might emphasize power asymmetries, differentiated access, etc.

One element of a broader strategy might be: enabling the poor to gain control over the resources and to capture a larger proportion of the potential revenues of them through the development of systems of marketing and payment for environmental services (PES). This commodification/market oriented view has been seen to bring in benefits as well as costs, to be an opportunity with several risks attached. Although the effectiveness of PES can be enhanced by auxiliary institutional changes (e.g. resource rights) and additional interventions (e.g. off-farm employment), it will remain vulnerable to all the asymmetries mentioned just above, as it opens up decision making on resource use to powerful market forces. That is why the international and macro-level processes need a place in the analyses as much as in the recipes. While the perspectives discussed above seem to still be very much on the drawing boards of the policy advisers, real development paths being pursued remain very close to a somewhat policy-couched and slightly more context-sensitive, market based, growth oriented, variant to the liberalization/industrialization/trade scenarios that are typical of the current stage in globalization.

All references for articles included in *Taking Sides: Clashing Views in Sustainability* can be found on the Web at www.mhhe.com/cis.



John Ambler



Attacking Poverty While Improving the Environment: Towards Win-Win Policy Options

Background

The poor in rural and urban areas rely on the environment for their livelihood and survival strategies and are affected by the way others around them use environmental resources. At the same time, because most natural resources are exhaustible or degradable, improved management techniques for environmental resources are needed for populations that continue to grow in both numbers and consumption habits.

Concern with the state of the environment often seems to pit environmentalists and policy-makers against the poor. Unfortunately, the link between poverty and environment is uncritically characterized as a "vicious circle" or a "downward spiral." Population growth and inadequate resources are presumed to lead to the migration of the poor to ever more fragile lands or more hazardous living sites, forcing them to overuse environmental resources. In turn, the degradation of these resources further impoverishes them. This does sometimes happen, but as an overarching model it is highly simplistic and often leads to policies that either reduce poverty at the expense of the environment, or protect the environment at the expense of the poor.

Well-planned actions can break this cycle. Based on experience from around the world, "win-win" options exist that can build better institutions and partnerships with poor people creating more robust livelihoods and healthier environments. These options simultaneously pursue two goals: reduced poverty and better social equity, and enhanced environmental protection. Improved governance is an important vehicle for achieving these goals.

Improving Assets for Win-Win Outcomes

While income and consumption are important, many policy options for addressing poverty-environment interactions focus on improving the asset base of the poor. Assets include natural capital (forests, water, land, fish, energy resources, and minerals), social capital (relationships of trust and reciprocity,

groups, networks, customary law), human capital (skills, knowledge, beliefs, attitudes, labor ability, and good health), physical capital (basic infrastructure), and financial capital (monetary resources). With improved access to and control over different types of assets, the poor are better able to meet their basic needs and to create more flexible livelihood options.

The concept of poverty is complex and the subject of much debate. In terms of how the government views it, the poor are usually defined as those falling below some standard and, therefore, form a target group for particular policies. Be that as it may, it is important to keep in mind that the location of poverty also influences policy options. For example, although rural non-farm income is rising in importance, the rural poor are usually very dependent upon natural resources. Attacking rural poverty thus relies heavily on improving poor people's ability to derive sustenance and income from these natural resources. In urban areas, the health of the poor is particularly affected by a degraded environment, one characterized by substandard housing, inadequate or polluted water, lack of sanitation systems, and outdoor and indoor air pollution. Ill health leads to a host of problems, including a decreased ability to work. Improving the urban environment positively impacts the health of the poor. Therefore, such improvements may well be a prerequisite for other poverty reduction measures.

Poverty is also a set of relationships. The poor compete with each other and with the non-poor for control over assets. Poverty can also differ within households. Women and children, especially girls, often have the least access to productive assets and are usually the most affected by pollution. Efforts to reduce poverty must also recognize this competition for resources and the differential impact of environmental degradation among and within households.

Revising the Understanding of Poverty-Environment Interactions

New experience with different resource management regimes involving the poor is challenging two major, entrenched assumptions about how the poor relate to the environment.

1. *Poverty does not necessarily lead to environmental degradation.* The linkages between poverty and the environment are complex and require locally specific analysis to be understood—there is no simple causal link. In many areas, the non-poor, commercial companies, and state agencies actually cause the majority of environmental damage through land-clearing, agro-chemical use, water appropriation and pollution. Sometimes privileged groups force the poor onto marginal lands, where, unable to afford conservation and regeneration measures, their land-use practices further damage an already degraded environment. But there are also many examples in which very poor people take care of the environment and invest in improving it. Thus, poverty can sometimes be associated with environmental degradation, but there is not necessarily a direct causal relationship.

2. *Population growth does not necessarily lead to environmental degradation.* Initially, degradation may occur as a population increases. But what happens

next is context-specific. Where people are too poor to invest now, or too poor to wait for the fruits of their investment, further degradation can occur. In other cases, as the cost of land relative to labor increases beyond a certain point, farmers can change their methods of managing plants and animals or make investment in the land to offset initial declines in productivity from more intensive use. In urban areas, some empirical evidence shows that good governance can maintain the environment even as cities grow. Thus, halting population growth or removing people from densely settled areas might improve neither productivity nor resource quality.

Resource Characteristics and Community-Based Action

Developing effective community-based institutions for the collective management of resources is a key factor in determining the success of efforts designed to aid the poor. However, the characteristics of the resource have important implications for building local management institutions. In general, institutional costs tend to be high for managing resources that are mobile (such as water, wild game, and fish), dispersed or vast, slow-growing or fragile, difficult to patrol or monitor, difficult to observe or measure, technically complex, accessed by many people or heterogeneous groups, or highly skewed in their distribution among stakeholders. Conversely, the institutional or organizational cost of collective action tends to be lower when the resource-to-user ratio is high, a common cause creates cohesion, the group is relatively homogeneous and isolated from disruptive external pressures, and access rights to the resource are secure. Well-conceived policy and strategic investment from the State can help reduce high organizational costs. But in all cases, the benefits of organizing must outweigh the costs of maintaining the organization. Efforts that fail to address the institutional issues consistently under-perform, no matter who is the manager.

Implementing Better Policy

Implementing pro-poor and pro-environment policy requires both conceptual and operational shifts, as well as better, specific policies. Some of these shifts are mentioned here.

Conceptual Shifts

Building partnerships with local communities is a new endeavor for many government agencies. It requires not only good will, but also a commitment to experimentation, fine-tuning solutions, and institution building. Some conceptual shifts include:

- empowering the poor to identify their problems and seek their own solutions—not assuming the poor are the problem;
- engaging poor people as partners, not as beneficiaries, and using people-centered frameworks for planning and implementation;

- creating incentives for the poor as well as for private-sector entrepreneurs to mobilize resources for poverty eradication, and move away from simply exhorting poor people to mobilize their resources or providing all the resources from the State; and
- seeing the value of giving the poor real rights and ownership of assets, not just a sense of ownership.

If governments take steps to make these shifts, experience has shown that poor people will be more inclined to view the government as a viable partner in development.

Operational Shifts

Changes in the nature of the environment-poverty nexus have as much to do with how different interests are negotiated and expressed as they do with policy failures. Counteracting the influence of power strongholds can only be achieved through governance reform, as expressed through improving accountability, transparency and representation. Policy and institutional fora must be open and inclusive, and support should be channeled to local institutions that effectively represent the needs and aspirations of marginalized groups. For decentralization to truly reflect the needs of the poor, however, it will be necessary to invest in local-level capacity; otherwise decentralization may place power in the hands of the local elite.

In parallel with partnership approaches, governments need to shift toward more pluralistic approaches to decision making. Such approaches can accommodate different interests and potential conflict, and do not require total consensus before being able to move matters forward. Pluralism has encouraged the development of innovative tools such as resource management contracts and codes of conduct. Such concepts raise issues such as how to achieve needed checks and balances and accountability, especially in the absence of absolute standards or single clear-cut solutions. When equity is also part of the desired solution, they also require weighting attention to the needs of the poor when not all interests can be accommodated equally.

Moving to decentralized planning facilitates participation and maximizes resource mobilization. In turn, this ensures that services will be more relevant to the needs of communities and households. Decentralization implies local plans of action, places accountability and responsibility at appropriate levels, and allows quick action following monitoring and problem solving. However, it cannot be presumed that decentralization is automatically beneficial for all groups. Communities cannot be seen as homogenous and non-hierarchical. Marginalized groups such as poor families and minority ethnic groups may be excluded even in decentralized processes. An understanding of norms, values, attitudes, rules and regulations underlying decentralized decision-making at the community level is necessary to ensure that vulnerable groups, such as women, children or the aged, are not further marginalized.

Experience has shown that decisions made by communities and households result in more sustainable solutions. Developing community-based decision-making and transparent dialogue cannot occur without political

will at the highest level. Governments need to help catalyze the formation of people's organizations through enhanced rights and building on local organizational forms. Mechanisms must be developed to ensure feedback of learning from local to national policy levels. The poor also need to be able to draw on networks and links with state, market or civil society actors who will help them to access, defend, and capitalize their assets.

Finally, effective implementation of poverty eradication programmes requires employing a gender analysis lens that takes specific note of the relationships between men and women, including division of responsibilities, labor, as well as access to and control over resources and decision-making. There needs to be a concern in the inherent constraints to the achievement of gender-equality goals in the institutions, structures and processes within each sector. Important information on the responsibilities of women and men gained at household and community levels needs to be fed back to develop macro-level policies, strategies and institutions. The strategy to increase women's involvement also needs to go beyond an analysis of their contribution to the sector relative to men, and to consider possibilities beyond the existing division of responsibilities.

Specific Policy Recommendations

Policy-makers can be constrained by certain global forces. For example, structural adjustment programmes may limit the ability to provide subsidies for the poor. Macroeconomic reform can help a country become more competitive, but investing in the fastest-growing sectors can draw resources away from long-term investment in the resources of the poor. Changing global markets can exert downward pressures on living standards. In some countries, these have obliged many poor people to increase their pressure on natural resources just to survive. Countries may be tempted to overexploit natural resources to handle balance-of-payment problems. And sometimes new and distant markets can encourage the depletion of local resources to the detriment of the poor.

But much can be done through sound national policy. Policies that support both enhanced livelihoods for the poor and more sustainable management of environmental resources—the win-win scenario—depend on the nature of the resource and the groups involved. Policies that are win-win for the environment and the poor can also mean the non-poor must forfeit some resources or perquisites, and this requires political will. In general, however, there are several categories of win-win policy options that can be pursued. Many promising experiments are still young and have yet to face second generation challenges. Still, enough research has been done and enough experience has been accumulated to suggest a few general principles and some concrete ways forward.

The strategic interventions that are appropriate for any country or region depend on the nature of the environment, the local characteristics of poverty, and the possibilities for developing and strengthening state and civil-society institutions. Not every policy option presented here is feasible or appropriate for all conditions. Most countries have diverse resource bases and face different conditions in different parts of the country and in different sectors. Poverty and environment have many faces, and diverse conditions call for varied and flexible policies.

Even where appropriate policies can be identified, financial or human resources constraints may limit the practical possibilities. The options presented here are intended to provide a menu of alternatives that can be used as a basis for adapting policies to local conditions and capabilities. Many of these options can be experimented with at a local level and scaled up to larger levels as experience is gained. However, almost all of these options require training, adaptation and transfer of new technologies, as well as the strengthening of institutions to be successful.

It is also important to note that many of the options presented here depend on reallocating investments toward the poor and not necessarily on raising investment levels overall. Although increased financing from the State is required in some cases, much can be accomplished immediately with existing human and financial resources. Reallocating existing financial resources to viable projects that benefit the poor is one way. The political process of reallocating funding toward projects that benefit the poor and the environment can be made easier if "pro-environment/pro-poor" guidelines are used for public investments. This includes properly valuing long-term environmental benefits ("greening the internal rate of return") and weighting investment criteria to recognize the fact that a particular monetary return on investment for the poor is more valuable for increasing net well-being than the same return on investment is for the non-poor. Allocating resources for the poor is also not a matter of giving handouts. Investing in the poor can be done in a way that helps them mobilize their own resources, thereby creating not only ownership by the poor, but much larger net gains for the society as a whole.

Access to Assets

Policy Option: Protecting the Current Asset Base of the Poor

In many cases, the poor already have the right to manage key environmental resources. But they are not able to protect their rights. Large-scale farmers may take excess irrigation water; trawlers may scour the fishing grounds of coastal villages; companies may obtain concessions to tribal forests; and municipal funds meant for improvements in poor areas may be siphoned off for other projects. Industrial pollution of rural resources by both large and small enterprises is a major cause of environmental degradation and rural poverty in some areas. The State often does not have the resources to monitor in a timely and effective manner the remote and dispersed resources that the poor depend upon. Corruption, incompetence and indifference can also deprive the poor of the rights they already theoretically enjoy.

The key to protecting the poor from these abuses is encouraging the development of democratic governance systems from local levels upward. The State needs to support representation by institutions that are accountable to the people, so that monitoring of action and enforcement of rights can take place at all levels. Citizen oversight boards, community-level review processes for State-initiated development plans, and ombudsman systems for dispute resolution are examples of such mechanisms. It is also important to strengthen the judicial system as an impartial and independent institution, and to foster the emergence of institutions of civil society that can mediate between different actors.

Another way of protecting the current assets of the poor is through insurance systems. Cash payments, in-kind provisions, or public-works employment for the poor during periods of drought, major crop failure, or natural disaster can provide subsistence needs while reducing the need to over-exploit natural resources. A corollary to this would be to establish formal arrangements for (limited) access to basic environmental resources for temporary migrants and refugees (e.g., from drought, disasters, or war), and to limit local over-exploitation and conflict. Regular programmes in which the poor are put to work improving the environment can be expanded during crisis times to provide a measure of insurance for those most affected.

Policy Option: Expanding the Asset Base of the Poor

A highly unequal distribution of assets often depresses subsequent rates of growth. Reducing income inequality tends to increase aggregate growth and further reduce poverty indirectly. Improving the access of the poor to natural resources and the productivity of those resources not only addresses directly the equity issue, but also provides new markets for other goods and services, thereby stimulating the economy as a whole.

Policy should focus on environmental entitlements. These include the broad set of social structures and networks that allow poor people access to a healthy environment and resources for sustainable livelihoods. This often involves turning resources over to the poor as individuals or to organizations composed of the poor.

Where land distribution is highly skewed, land reform can be one option. Because agricultural productivity and investments in agriculture per unit-area are usually negatively correlated with the size of holdings, in some cases, conducting land reform can both increase production and encourage environmental improvement. Another possibility is regulatory reform, including provisions of rental, lease or harvest (gleaning) agreements for both private and public lands. These can include longer-term rental contracts, explicit agreements about the distribution of benefits from resource improvements, or the granting of formal tenure rights to individuals or groups currently squatting on public lands or in urban areas, so that they can legitimately seek technical assistance, credit and other services and have incentives for conservation.

Historically, governments have had a difficult time with centrally managing dispersed resources in which local people also have a stake. Turnover of the resource to local groups can be one solution. Granting rights to groups involves establishing or strengthening local people's institutions. Where only State or private ownership is allowed by law, legal change may be necessary to accommodate multi-user tenure. Any program to assign rights to resources should be checked for overt or implicit barriers to women and the poor obtaining rights, in both design and implementation. For example, modifications in local property rights that accommodate common property management have been key elements in African "success stories" for land reclamation, forest management, local fisheries management, small-scale irrigation, resource protection, range management, and wetland cultivation.

Awarding resources to poor people sometimes can lead to environmental degradation, especially if their tenurial rights to the resource are not secure. But in numerous other cases, it has been shown that improving poor people's control over the environment provides a powerful incentive for them to protect it. But it is important to understand the local context and to promote equitable local organization. Resources that have been devolved to local levels for community management can be differentially captured by local elites, unless the State plays appropriate monitoring and enforcement roles.

Successful examples of turning over water rights to landless people or to local groups of farmers have been recorded, especially in Asia. In a number of cases, governments have turned over the rights to the forests to local groups, as in Nepal, which led to greater environmental benefits and more income for poor people. These efforts were most successful when the new arrangements built upon the management systems communities were already practicing. Ownership of resources can be fostered through the availability of locally based finance and credit schemes or through selective investments in the resource base at the time of turnover.

In urban areas, one of the key resources that can be awarded to the poor is the right to occupy the land they live on. Many urban poor live in illegal squatter villages where they are systematically denied access to municipal services. In such cases, poor people can benefit from more secure tenure to the land on which they build their houses. This not only permits public utilities to be extended and upgraded in their area, but also encourages the poor to make investments in their housing and surroundings.

The question can arise as to whether people have the technical knowledge to manage a resource well. When people move into new settings or when conditions change, then a period of learning and adaptation is needed. The poor may not always be immediately aware of the effects of gradual and sometimes imperceptible degradation. In general, however, evidence shows that the poor have an enormous store of indigenous technical knowledge and a body of customary law that provides a social platform for collective action. Scientists and extension workers have discovered that many indigenous technologies and management practices are suitable for dissemination or as the basis for improvements. These technologies and local organizational forms have already been ground-tested. Extra effort is needed on the part of government agencies to understand and appreciate this important body of local knowledge. Customary law is not always equitable, but it does constitute an important starting place for negotiating better rights for the poor. Customary rights are location-specific and highly dependent on negotiated solutions. Unless care is taken, poor groups and women can lose out as a result of policies and processes to formalize these relationships into forms recognizable by the State.

Asset Improvement

Policy Option: Co-managing Resources with the Poor

When a resource has multiple stakeholders with conflicting objectives and differential power, the government may wish to work out co-management

arrangements. The government seeks to strengthen local organizations, but also to provide technical assistance and to mediate the overlapping and conflicting claims on the resource. This approach is often favored by governments that wish to continue to exercise a regulatory role (important where there are environmental externalities associated with the use of the resource), and to retain control over components of the resource of direct value to the State. Typically, successful co-management partnerships give local people specific benefits in return for involvement in decision making and various duties related to the protection of the resource.

Co-management responses may be more successful than complete turnover when the capacity to manage at the community level has become eroded or broken. The high transaction costs associated with organizing fragmented communities to take on responsibilities within co-management systems require intensive and sustained involvement by external bodies. It is especially important to ensure that the poorest users of the resource are not excluded under any new arrangements.

The challenge in co-management efforts is to reconcile poor peoples' needs and environmental enhancement goals, and to channel the returns to those who bear the costs. Positive examples of forest co-management systems can be found in the Joint Forest Management program in India, and in the game park management efforts for the Campfire program in Zimbabwe. Co-management programmes in forestry have been most successful in villages bordering extensive tracts of degraded forests, where the forest-to-household ratio is relatively high, where ethnically homogeneous communities possess forestry knowledge, and when benefits accrue from minor forest products at a relatively early stage. Joint management has also been successful in the mangrove areas when the protection against flooding and erosion from improved management directly and immediately benefits local people.

For some large-scale or technically complex systems, the State may have some comparative advantage in management. Water supply and sanitation systems, large irrigation systems, and power-generation facilities, for example, all require specialized personnel. But while in many cases these personnel work for the State, better mechanisms of accountability can be set up so that they are more responsible to the people they serve. Efforts toward co-management can include setting up citizen oversight boards, linking salary adjustments to user-evaluated performance, or actually putting the technical staff in the employ of the user group.

Policy Option: Co-investing with the Poor

In other cases, transfer of ownership or management authority is not the issue. Instead, the State co-invests with the poor on the resources they already own. Co-investment with local communities or farmer organizations may be used to mobilize longer-term investments, such as soil conservation or improvement, irrigation and drainage infrastructure, grazing land rehabilitation, land-leveling, or micro-watershed re-vegetation. Notable examples of this can be seen in government programmes to assist hill irrigation systems in Nepal and Bhutan, the *irigasi desa* programmes in Indonesia, and various

tank rehabilitation and micro-watershed improvement programmes in India. In some projects, the villagers themselves contribute up to 90 percent of the value of the investments. The key to the success of these systems is the fact that farmers retain control of the authority and responsibility to manage their resources, and that investment from the State catalyzes the mobilization of additional resources from the farmers themselves.

In both rural and urban areas, improving access to better water supply, sanitation and energy services is critical for reducing the health effects associated with indoor-cooking smoke and poor hygiene, and for reducing the illiteracy frequently found in houses with poor lighting. But the poor often face high initial costs in the form of connection fees, the cost of LPG canisters, or other one-time costs. The government can help improve the poor's access to municipal services and modern energy technologies by subsidizing initial costs or by developing innovative financing mechanisms. Expanding the market for advanced technologies such as household lighting systems using photovoltaic technology or efficient biomass or LPG stoves for the poor will also help reduce unit costs. Subsidies may be used in the earliest phase of the program to generate interest and wide participation in unfamiliar technologies. But subsidies beyond management costs are neither necessary nor desirable. The poor can usually pay the monthly costs of electricity, gas and water. Indeed, they usually already pay more for poorer quality services. But the primary obstacle can be the high initial costs associated with better-quality services.

Infrastructure and Technology Development

Policy Option: Supporting Infrastructure Development for the Poor

People living in poor rural areas can benefit from state-financed or subsidized improvements such as rural electrification, feeder roads, irrigation development and long-term investments. It is important, however, to develop or work with local organizations to collaborate with the government on planning these investments, so that the cost of subsequent routine maintenance is largely carried by the users.

In urban areas, poor people suffer greatly from air pollution caused by inefficient transportation systems. Since transportation is one of the fastest-growing sectors of energy use in the developing world, and mobility is linked to access to jobs, the planning of efficient land-use patterns and transport corridors in urban areas will have significant long-term implications for both energy and poverty. Clean fuels and efficient public transportation systems can reduce pollution in urban areas, improving health dramatically. Zoning reform that allows the poor to live closer to the areas in which they work also can reduce pollution and the cost of transportation to the poor. Improved telecommunication systems have had the proven effect of cutting down on trips meant mainly to seek information.

Many accidental injuries, fires and health problems are linked to poor quality, overcrowded housing. Governments can improve the condition of housing for the poor, both through direct investments in construction and allied infrastructure, as well as through indirect means like credit provision and improving tenure rights on the land.

Strengthening the capacity of city and municipal governments to address the lack of sewers, drains, piped water supplies, garbage collection and health services is also a pre-condition for building the national institutional capacity to address air and water pollution, protect natural resources and reduce greenhouse gas emissions. Cities such as Ilo in Peru and Manizales in Colombia have developed local Agenda 21 plans that have brought major benefits for low-income people. Through more democratic local government, Porto Alegre in Brazil has provided nearly all its inhabitants with piped water, regular garbage collection and reasonable sanitation facilities. In these examples, innovative city government has been the driving force. In other cases NGOs have been able to play strong stimulating and intermediary roles in urban improvement efforts.

Policy Option: Developing Technologies That Benefit the Poor

Developing technologies and resource management systems that raise overall productivity and protect or improve the environment requires a conscious reallocation of research funds away from the most favored environments and toward the resources upon which the poor depend most—fragile and rainfed lands, livestock development, agro-forestry systems, and subsistence crops. Technologies need to be tailored for use on specific soil types and climates, requiring a heavy commitment to on-farm adaptive research. New institutional strategies are needed to reduce the cost of this research, by linking extension efforts and people's organizations.

In the energy sector, most countries have a regulatory environment that does not promote the adoption of innovative technologies and approaches. Instead, conventional energy supply options are favored. Policies must be designed to improve the access to energy services for poor people, with incentives offered to private power-developers to make use of the best-suited technology options. In some cases, where grid access is convenient and cost-effective, flat-rate yet low-cost billing can overcome costly metering. Similarly, many problems of theft can be avoided by encouraging local, self-governing institutions to manage distribution of energy services, for instance, through bulk sales to cooperatives.

To improve the health of the poor and reduce stress on the environment, innovation in sanitation and water treatment that does not use chemicals is required. Technical innovation (and changes in regulations) could better-enable human excreta to be recycled for both urban and rural agriculture. Ecological sanitation would prevent disease, conserve and protect water sources, and recover and recycle nutrients in a non-polluting way.

Employment and Compensation for the Poor

Policy Option: Employing the Poor

Some macro-environmental improvements, like watershed protection or nature reserves, are public goods whose benefits accrue only partially to poor local people. Many of these activities are labor-intensive, and offer an opportunity for public and private-sector organizations to provide paid employment to the poor. Longer-term livelihood opportunities for the poor may be

integrated into plans for environmental management, such as hiring poor or landless peoples as guards in community and national parks, forests, and biodiversity reserves; as people who can establish and protect wildlife corridors in agricultural regions; or as personnel to monitor local water quality.

Employment of the poor for large-scale resource improvements may be financed through municipal governments for such projects as the protection of water resources, or through temporary public works programmes intended for relief or employment generation. Thus, such employment programmes directly improve the environment in addition to providing direct income for the poor.

Direct employment projects appear most likely to be successful where there are well-established supervisory organizations, reliable funding arrangements, and where the people hired—and who will be using the resources over the long term—are involved in the process of the design and selection of interventions.

Policy Option: Compensating the Poor

In some cases, the rural poor may have few economic incentives to manage their natural resources more sustainably, but other groups have an abiding economic or environmental stake in maintaining or improving the resource. Here, it may be possible for governments or other institutions to develop mechanisms for them to be compensated for the costs incurred in changing their management or use of resources.

Examples of compensating the poor include systems to pay local farmers to control agricultural burning so as to achieve national or international carbon emission or air quality targets, or various tradable-rights systems. Municipal water companies may be able to reduce the cost of acquiring water by paying farmers to use water-conserving practices. Municipal authorities may also invest in watershed improvement to reduce erosion into reservoirs supplying urban areas.

Market and Planning Reform

Policy Option: Intervening to Overcome the Deficiencies of the Market

Market forces may lead to an efficient allocation of resources when maximizing short-term return is the goal. However, markets are not always environmentally friendly, and not always supportive of poor people. In many cases, markets barely reach poor and isolated communities. In other cases, integration of poor areas into national or international economies, or the popularization of products that were formerly consumed only locally, can create demand that outstrips sustainable supply. Resources that had been used only for local consumption can be suddenly over-exploited as markets increase, as happened in the case of the shrimp industry in Southeast Asia.

Trade for industrial or niche export markets often exposes rural households to high levels of risk. This is particularly true where the trade has encouraged people to move away from more diversified and less risky agriculture-based livelihoods. When the government promotes a certain market, it must also

avoid playing the middleman. It does this by obliging farmers to sell to government marketing bodies or to traders to whom concessions have been granted—or to compete in the same market from state-owned enterprises, many of whom receive various forms of subsidies.

Market development should be gradual and accompanied by efforts to help the poor adapt their institutions to new conditions. When government promotes products for industry, while the poor give priority to products that help meet subsistence and protection needs, market inefficiencies can appear and the poor can be vulnerable when subsidies are removed. For example, growing trees as cash crops has proved to be appropriate primarily for those who had other land for food or cash crops, or those who had off-farm income, not for the very poor.

Another element of market development is to provide a more competitive environment for the provision of goods and services used by the poor. In some cases, this has been accomplished by privatization schemes, such as for the provision of power and water. In such cases where a "natural monopoly" is given to the private sector, the State must still play a role in tightly regulating and supervising the sector. In other cases, healthy competition can be encouraged through allowing private companies to compete with the state sector in providing services used by the poor, such as in water supply, sanitation and energy services. When properly engineered, such programmes can improve the quality of the services the poor receive and lower their costs.

Policy Option: Eliminating Subsidies for the Non-Poor

In many countries, the non-poor receive substantial subsidies from the State. Removing these subsidies can be a source of funds for investment in the resources needed by the poor. For example, many governments give farmers in large-scale government-managed systems free or heavily subsidized water, while farmers managing their own systems can and do pay higher effective rates. Charging rates that more closely approximate the market price of water in many countries would generate millions of dollars of revenue and would lead to more efficient use of water.

Many countries set high import duties and taxes for energy technology and equipment, including those that are very energy efficient. However, many also offer subsidies to conventional energy, often to appease a particular industry or agricultural lobbies. Thus, many efficient energy technologies that could improve energy services and benefit the poor are placed out of their reach.

Furthermore, prices for most conventional energy technologies do not reflect social and environmental externalities. Subsidies are often associated with poor service, such as frequent voltage fluctuations, because energy suppliers find it difficult to generate enough revenue to maintain their equipment properly. If combined with appropriate financing schemes, end-users may be quite willing to use more efficient devices and also pay higher prices in exchange for assured quality of energy services that will lower their total energy consumption. The urban poor often pay more per-unit for energy services and water than the non-poor. Therefore, reducing subsidies for the non-poor and extending higher-quality services to the poor can be financially viable.

Policy Option: Reforming the Planning Procedures

Revising the investment criteria used for planning the State's investments may be needed. The conventional formula for calculating the internal rate of return, or net present value, heavily discounts future benefits and overvalues present consumption. As such, it devalues environmental benefits that might be felt only at some time in the future. "Greening the IRR," (revising the internal rate of return) to place more value on future benefits is one way forward. Similarly, using a "basic needs externalities" approach may be necessary for calculating the returns on investments made for the benefit of the poor. For example, certain basic social services (primary health care, basic education) may be valued at more than what the poor are willing to pay. But they can still be considered viable projects because of the larger benefits that accrue to society from such investments. Finally, investment criteria need to be adjusted to take into account that one dollar of increased income for a poor person is more valuable than one dollar increased income for a rich person. For example, a 7 percent return on an investment for the benefit of the poor may produce more added well-being than, say, a 10 percent return on an investment targeted toward the non-poor. Economists have developed weighted income measures that include such considerations.

Community-based ecosystem planning can help move from ecological poverty to ecosystem health through natural resource regeneration and maintenance of biodiversity, both on land and in aquatic environments. By linking urban biodegradable waste to agriculture and recycling its nutrients, food production can increase and degraded lands can be reclaimed. An urban policy framework can be comprehensive and eco-friendly if it integrates environmental concerns with natural resource management and problems of other sectors (e.g., agriculture and forestry). This requires better understanding of water and nutrient cycles as they pass through communities and households, and a good inventory of the current natural resource base. It also requires a better understanding of resource uses and users (i.e. who has which, and who has access to and control over them). Women's and men's different uses and knowledge of the ecosystem also must be taken into account.

Planning reform also needs a vision across time, and involves bringing in different groups of poor people in longer-term land-use planning efforts to ensure that both their existing use patterns and future needs can be met. Environmental enhancement and poverty eradication strategies also urgently need a spatial vision, so that the solutions for urban-related problems do not cause rural-related problems, and vice versa.

All references for articles included in *Taking Sides: Clashing Views in Sustainability* can be found on the Web at www.mhhe.com/cis.

EXPLORING THE ISSUE



Is Poverty Responsible for Global Environmental Degradation?

Critical Thinking and Reflection

1. What are the causes of environmental degradation? What policies or programs would you advocate that could reduce environmental degradation and improve the quality of the environment?
2. Is there any relationship between the environmental degradation and poverty in developing countries and the affluences of rich countries? If there is, explain how?
3. Discuss the basic elements of globalization and discuss whether it is good or bad for sustainability. How does globalization affect the environmental quality and economy of developing countries?
4. Can better management and policy reduce environmental degradation and poverty in developing countries? If they can, what policies and management strategies work better than other policies?
5. Can developing countries grow their way out of poverty without reducing environmental quality? Does this mean that the environmental Kuznets curve is a correct way to view the relationship between economic growth and environmental quality?

Is There Common Ground?

Developing economies often believe that they need to choose between sustainability and economic development. In some cases this is true. Cheap coal for energy in China and India often leads to air pollution and an increase in greenhouse gases, which leads to global warming. But, for these countries to seek a more sustainable path they would need to consider more expensive alternatives that could negatively impact their economy. Yet, there are many ways that developing countries can and do institute sustainable practices. Collecting rain water, using more natural drainage systems, composting, and recycling are all ways that developing countries can easily maintain a sustainable path. In reality, there are ways that both spur economic development while maintaining sustainability.

Poverty and weak governing institutions can often lead to corruption, which in turn can cause environmental degradation, particularly in developing economies where strong governing institutions are still ascending. Deterioration in natural resources directly affects the economic development as well as the livelihoods of the poor. A common ground is the development of policy at the macro level that connects indicators of both human and economic development, that is, education for women and incentives to farmers to maintain the environment and alleviate poverty.