



USAID
FROM THE AMERICAN PEOPLE

ISSUES IN POVERTY REDUCTION AND NATURAL RESOURCE MANAGEMENT



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The relation between poverty and natural resources is complex and dynamic. This publication does not pretend to be the definitive work on the topic. It is a work in progress, and comments, contributions, and suggestions are welcomed.

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ISSUES IN POVERTY REDUCTION AND NATURAL RESOURCE MANAGEMENT

ACRONYMS

ACOPOF	Community Forestry Association of the Peten (Guatemala)
CBNRM	Community-Based Natural Resources Management
CIFOR	Center for International Forestry Research
CONAP	Consejo Nacional de Areas Protegidas (Guatemala's Council on Protected Areas)
ES	Environmental Service
FAO	United Nations Food and Agriculture Organization
FEWS NET	Famine Early Warning System Network
FPIC	Free, Prior, and Informed Consent
GIS	Geographic Information System
IMF	International Monetary Fund
LFA	Less-Favored Area
LIFE	Living in a Finite Environment Program (Namibia)
LRMT	USAID Land Resources Management Team
MACH	Management of Aquatic Ecosystems through Community Husbandry (Bangladesh)
MBR	Maya Biosphere Reserve
MDG	Millennium Development Goal
NGO	Nongovernmental Organization
NRIC	Natural Resources Information Clearinghouse
NRM	Natural Resources Management
PASSN	USAID Poverty Analysis and Social Safety Net team
PES	Payment for Environmental Service
PR	Poverty Reduction
PRSP	Poverty Reduction Strategy Paper
TFCA	Transfrontier Conservation Area
UN	United Nations
UNEP	United Nations Environment Programme
USAID	U.S. Agency for International Development
WRI	World Resources Institute

CONTENTS

SECTION I:	
Introduction	I
SECTION II:	
Natural Resources and the Poor	3
SECTION III:	
Governance and Social Dimensions	11
CASE STUDY: Guatemala Forestry Concessions	16
SECTION IV:	
Risk, Vulnerability, and Poverty Traps	19
SECTION V:	
Markets and Trade	23
SECTION VI:	
Marginal Lands and Migration	27
CASE STUDY: Bangladesh Fisheries Management	32
SECTION VII:	
Corruption and Conflict	35
SECTION VIII:	
Distribution of Environmental Costs and Benefits	39
CASE STUDY: Namibia Wildlife Conservancies	42
SECTION IX:	
Conclusion	45
APPENDIX A:	
Additional Suggested Readings and References	A-1
APPENDIX B:	
List of Presenters	B-1

CONTENTS

TABLES

TABLE 1: Contribution of Forest Management Operations to Income of Members of Community Concessions and Cooperatives	17
TABLE 2: Returns on Investments in China—Impacts on Poverty Reduction (Persons/10,000 Yuan Invested)	28

FIGURES

FIGURE 1: Nature, Wealth, and Power—Definitions and Links	4
FIGURE 2: Annual Deforestation Rates for the Peten Region of Guatemala	17
FIGURE 3: Herd Size Thresholds and Poverty Traps	20
FIGURE 4: Role of Remittances in Foreign Investment	29
FIGURE 5: Fish Yield and Fish Sanctuaries in MACH Sites	33
FIGURE 6: Micro-credit Support Through MACH	33
FIGURE 7: Increases in Income in MACH Sites	33
FIGURE 8: Increase in Wildlife Populations in Namibian Conservancies	43
FIGURE 9: CBNRM Spending Versus Contribution to Namibian Net National Income	43

SECTION I: INTRODUCTION

Poverty is a global problem that affects citizens around the world. About 1.1 billion people earn less than one dollar per day, and they face daily risks and hardships that determine their very survival. The development community, including government agencies, banks, and nongovernmental organizations (NGOs), seeks to improve the livelihoods of impoverished citizens through poverty reduction strategies that address the root causes of poverty and its crippling effect on people trapped in adverse situations. But after years of implementing programs to solve these issues, poverty remains a multi-dimensional problem with many faces.

Issues in Poverty Reduction and Natural Resource Management defines the links between poverty reduction and natural resources. About three in four poor people live in rural areas, where they depend on natural resources for their livelihoods, and about 90 percent of them depend on forests for at least some part of their income. This report explores the connection between poverty reduction and natural resources management (NRM)—it describes how the world's poorest citizens depend on forests, fisheries, water, land, and other natural resources for their livelihoods; examines the governance, economic, and social factors that determine this vital relationship; and shows how wise use of

About three in four poor people live in rural areas, where they depend on natural resources for their livelihoods.

these resources can serve as the basis for effective poverty reduction strategies. The report also examines the relationships among resource management—or mismanagement—and global trade, human migrations, and regional conflicts.

The report is organized around the following topics:

Section II: Natural Resources and the Poor discusses the causes and drivers of poverty as they relate to natural resources, and examines the complex relationship between poor populations in developing countries and natural resources management.

Section III: Governance and Social Dimensions explores the impacts that effective—and ineffective—governance, institutions, and legal and social processes have on poverty reduction.

Section IV: Risk, Vulnerability, and Poverty Traps analyzes the differences between the transitory poor and the chronically poor, and strategies that may help these two populations recover from poverty or reduce their vulnerability to setbacks.

Section V: Markets and Trade looks at both the positive and negative impacts that trading and market structures can have on poor populations.

Section VI: Marginal Lands and Migration describes the disadvantages faced by rural poor populations who live in less-favored areas (LFAs); strategies these populations use to cope with their circumstances; and how appropriate investments in these areas can be an important poverty reduction tool.

Section VII: Corruption and Conflict examines the impacts of corruption in the private and public sectors on the rural poor, and how competition over natural resources can fuel or sustain both low-level and violent conflicts. It also reviews the opportunities to incorporate environmental considerations into peace-making efforts.

Section VIII: Distribution of Environmental Costs and Benefits analyzes the effects that the equitable or inequitable distribution of environmental costs and benefits has on

poor populations, and its implications for poverty reduction efforts.

Section IX: Conclusion synthesizes the report's recommendations for using NRM policies and processes to reduce poverty.

To highlight examples of these cross-cutting themes and issues, this report presents the following three case studies:

Guatemala Forestry Concessions.

Small-scale timber and forest product operations take advantage of emerging markets or certification schemes that add market value.

Bangladesh Fisheries Management.

Community fishery management organizations secure access to the resource and focus on implementing best practices.

Namibia Wildlife Conservancies.

Community wildlife conservancies generate revenue for local communities from wildlife management and conservation programs.

Suggested readings and references relevant to each section are presented at the end of those sections, as well as in Appendix A.

Issues in Poverty Reduction and Natural Resources Management was prepared by the Natural Resources Information Clearinghouse (NRIC) for the U.S. Agency for International Development's (USAID) Natural Resources Management and Poverty Reduction Offices. The report draws on material presented at a USAID/NRM- and USAID/PR/PASSN-sponsored seminar series devoted to these topics, presented between October 2004 and March 2005 at USAID in Washington, DC.

The report's eight sections correspond to the topics delivered at the seminar series. These sections summarize and synthesize concepts, findings, and recommendations provided by the seminar speakers and gathered from important literature in the poverty reduction field. Rather than documenting each reference, the report provides a reading list at the end of each section to provide interested readers links to the most important sources. More detailed presentations, speaker sketches, reading lists, and other resources can be viewed at: www.nric.net.

This report is aimed at professionals working in programs related to poverty reduction, economic growth, and NRM and conservation. USAID hopes it will improve understanding of the links among these disciplines and enable decision makers and program managers to integrate these relationships into programs and strategies in their departments and agencies. ■

SECTION II:

NATURAL RESOURCES AND THE POOR

Natural resources play a special role in the life of the poor. More than 1.3 billion people depend on fisheries, forests, and agriculture for employment—close to half of all jobs worldwide. According to the World Bank, in 2002, 90 percent of the world's 1.1 billion poor—those living on less than \$1 per day—depended on forests for at least some part of their income. In 2002, international development agencies estimated that more than 90 percent of the 15 million people working on the world's waters were small-scale fishers, most of them poor, not including the tens of millions of poor who fish inland rivers, lakes, and even rice paddies for protein.

While all human societies are linked to ecological processes and healthy ecosystems that produce the requirements for life, rural poor people depend significantly more on natural capital than do other parts of the population. In Africa, more than seven in ten poor people live in rural regions, with most engaged in resource-dependent activities such as small-scale farming, livestock production, fishing, hunting, artisanal mining, and logging. Poor people rely on related harvests as a primary source of income and fall back on natural resources when other sources of income fail.

The development agenda is being driven by a few key approaches and

More than 1.3 billion people depend on fisheries, forests, and agriculture for employment—close to half of all jobs worldwide.
— FAO 2004

policies. These include the United Nations (UN) Millennium Development Goals (MDGs) and the World Bank Poverty Reduction Strategy Papers (PRSPs). Yet these approaches may not fully account for the links between resource management and poverty reduction, and subsequently fail to realize the full potential of natural resources (goods and services) as wealth-generating assets for the poor. This section characterizes the dependence of the poor on natural resources and reviews NRM-poverty linkages in the policies of leading development agencies.

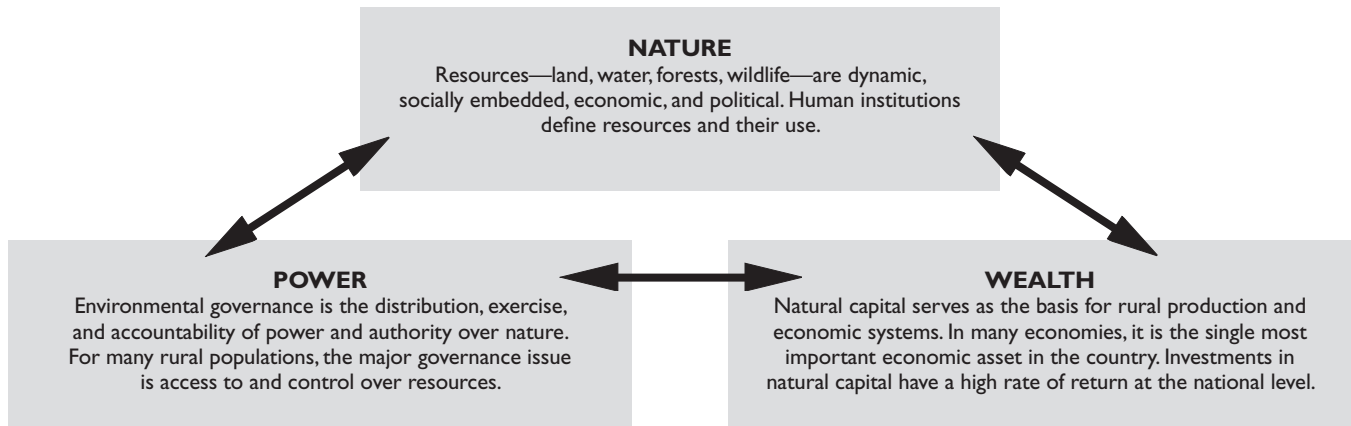
Environmental Values and Income

Natural ecosystems have several characteristics that make them attractive and accessible as a source of income to the rural poor. Environmental resources are renewable, widely dispersed, and often found in common property areas where the poor can access them without owning the land. Ecosystem goods and services can act as community assets, whose benefits reach beyond household cash in-

comes. Rural communities are often bound together by professions based on harvest or exploitation of natural systems. From shared use comes a community “sense of place,” spiritual and aesthetic values, and health benefits related to a clean, healthy, functioning ecosystem. For the rural poor, natural resources foster cohesion and strengthen the safety net for the whole community.

In general, the poor have limited access to physical and financial capital. In addition, rich and poor people use natural resources in different ways. The rich often derive more environmental income, in absolute terms, from natural resources than the poor, but the poor derive a higher percentage of their income from natural resources. Several studies show that small-scale activities in the forest, fishing, agriculture, livestock, and mining sectors can contribute 15 to 70 percent of rural household cash incomes and even greater values for subsistence. Because they have greater political power, the rich are able to exercise stronger control over access to resources. Without wage incomes and lacking cash, the rural poor often

FIGURE 1: NATURE, WEALTH, AND POWER—DEFINITIONS AND LINKS



SOURCE: *Nature, Wealth, and Power*, USAID, 2002.

have no other choice than to depend on “common pool resources” for food, firewood, and medicines. With lower vulnerability to risk, the rich can selectively concentrate on one or two activities, such as grazing and agriculture, to optimize their investments, while the poor often diversify their livelihood strategies to include a wider range of activities, such as collecting wild foods, wood carving, and collecting firewood and construction materials partly as a risk mitigation strategy.

Poverty and Natural Resources Interactions

There are several views of the interaction between poverty and natural resources management. Some view growing populations as adversely affecting finite natural resources, with technology mitigating the type and degree of impact. In this context, poverty is sometimes seen as a source or “driver” of biodiversity loss and environmental degradation. Conservationists and government officials often see the poor as part of the natural resources problem and as the cause of deforestation, degraded landscapes, and dwindling wildlife populations. A poor person’s inability

to accumulate wealth from these resources may lead to overexploitation and environmental degradation. This “downward spiral thesis” relates population growth and economic marginalization to worsening environmental quality and declining resources, resulting in long-term declines in food consumption, human health, and food security. This view assumes that poverty leads to cycles of further environmental degradation and ever-increasing poverty.

Others view population growth as a source of economic expansion and innovation that leads to greater wealth and better resources management. Research findings describe a great deal of variability in the causes of environmental degradation, ranging from adverse or catastrophic natural events to corrupt local institutions. Evidence from the field also reports a wide range of environmental and social outcomes where the poor exercise management control. Variability in poverty-environment interactions contributed to the development of the asset-based approach to poverty reduction. This approach defines poverty as a multidimensional phenomenon in time and space and

proposes strategies to reduce the risks and vulnerability facing poor households, and to enhance their ability to participate in and benefit from new economic opportunities by focusing on their assets.

Forestry and Livelihoods

Forests contribute to people’s livelihoods in a variety of ways, including:

Capital assets. Flexible, multi-output assets that can be converted into financial, physical, human, and more valuable natural capital

Subsistence safety nets. Forest foods to meet dietary shortfalls; fodder for livestock; and construction materials, household goods, fuel, and medicine

Sources of employment. Forestry, wood industries, furniture, and pulp and paper; small-scale forest products processing

Cash income. Non-timber forest products; timber and small-diameter wood products; and ecosystem services

SOURCE: Scherr, White, and Kaimowitz (2004)

The poor are most affected by environmental degradation. Findings from the recently completed Millennium Ecosystem Assessment in 2005 confirm that the burden of environmental decline already falls heaviest on the poor and that further degradation will increase the numbers of poor people. People living in poverty have little cushion or security against external shocks; therefore, hurricanes, earthquakes, famines, tsunamis, and floods as well as macroeconomic crises and mismanagement affect poor people most. Such a pattern could lead to migrations or even greater unsustainable exploitation resulting in overfishing, soil depletion, desertification, deforestation, or species extinction, potentially perpetuating a poverty-environmental degradation cycle (see Section VI).

The Asset-Based Approach

Poverty involves more than money and income. It is a complicated and multifaceted deprivation that affects individuals' different capabilities and their overall well-being. Access to land, education, health, justice, family and community support, credit, and other productive resources, and a voice in institutions, are all important in developing sustainable livelihoods. Poverty has been described as the deprivation of different types of "freedoms"—economic, political, social, and choices that affect livelihoods. For example, political freedom can help secure better resource rights regimes, leading to greater wealth and equity. In this context, freedom is both the ends and means of development.

Types of Assets/Capital

Financial assets. Cash, savings, deposits, and other "paper" assets that people use to make purchases and to accumulate liquid wealth.

Human capital. Skills, knowledge, and health status of household members that enable them to pursue livelihood objectives. Human capital is required to make use of the other five asset categories.

Natural capital. Natural resources—both renewable and non-renewable—such as land, forests, water, air quality, and biodiversity. Natural capital includes both public and private goods and is central to the livelihoods of many poor rural households that depend on a natural resource base. Resources are dynamic, changing greatly in value over time and woven within the social fabric of a community.

Physical capital. Tools and equipment owned by households and businesses, as well as infrastructure such as roads, power, communications networks, and water and sani-

tation systems. Housing and jewelry are other forms of physical capital important to many poor households.

Social capital. Social resources such as kinship systems and community organizations that people draw upon in their livelihood strategies. Social capital is based on trust, reciprocity, and networks, and includes cultural values that link individuals to a long heritage of collective choices and sets the context for all the other interactions. Social capital can have dramatic influences on other forms of capital and incomes.

Political capital. The power relationships that control poor people's access to assets. The exercise of political capital shapes institutions and defines the formal and informal rules or norms of a society. Political capital is the most valuable in unequal societies where the voices of the poor are rarely heard. As a newly defined category to describe poverty, the concept of political capital continues to evolve.

The poor themselves often take a broad view of poverty that not only includes income, consumption, and physical assets, but also non-tangible social and political assets such as kinship systems, a sense of community, the ability to participate in decision-making, and the ability to influence factors that affect livelihoods. Poor people, like others, may seek to gain additional security from crime and conflict, representing yet another dimension of poverty reduction.

The asset-based approach to poverty reduction focuses on developing the stock of wealth available to the poor, and on their ability to manage risk

and vulnerability and to achieve sustainable long-term improvements in well-being. The importance of natural capital, within the total stock of capital available to households, tends to vary inversely with levels of income. The poorer the country or the population, the more significant the role natural capital plays in determining poverty outcomes. Natural resources contribute to livelihoods by providing a buffer against temporary dietary and economic shortfalls, serving as sources of cash income and employment in times of crisis, and serving as a readily convertible capital asset.

The poor, like others, strategically manage their complex asset portfolios, balancing the feasibility, relative costs, trade-offs, and expected returns in considering each option. Powerful complements exist across various assets: investing in education when future returns in wage labor appear significant; seeking out secure savings mechanisms and investing in social capital as hedges against future risks; and using homes to generate revenue by renting out rooms or running micro and small enterprises.

Causes and Drivers of Poverty

Poverty results from multiple factors that work together to create and maintain conditions of poverty. These factors interact over various scales of time and space, but they include issues related to governance, economics, and cultural and human rights.

Governance, Social Dimensions, and NRM. The link between natural resources management and poverty reduction depends on the systems of governance. Pro-poor growth and sustainable resource management will require a fundamental change in governance. In general, the wisest and most equitable decisions about natural resource use are made openly and transparently. Those who are most affected by these decisions should have access to information, be able to participate in decision-making processes, and have access to recourse.

Effective institutions have long been recognized as integral to poverty reduction. The “rules of the game” that institutions define can influence a country’s rate of economic growth,

how that growth is distributed, and how quickly and effectively poverty can be reduced. Bad economic policy can not only slow growth and poverty reduction, but also reduce the value of household assets through inflation and shift household livelihood strategies from wealth creation to wealth protection. In the asset-based approach, the emphasis is placed on the role of institutions in influencing the access of poor households to assets, the benefits derived from their assets, and incentives for developing assets. To meet poverty reduction goals, governance systems must build effective institutions, reduce corruption, and empower local communities to manage their own resources. Local people are more likely to conserve resources if they understand how their choices will increase their resilience to threats and improve their well-being (see Section III).

Economics, Risk, and Poverty Traps. Economic growth can create differences in economic prosperity, with some groups benefiting more from increasing wealth and environmental improvement while others are excluded from these gains. This kind of skewed income distribution often overlooks the poor and leaves them even more vulnerable to increasing poverty and environmental degradation; moreover, the problem seems to get worse in future generations. Faced with social inequality and left out of the benefits of economic growth, resource-poor often populations attempt to avoid risk, make only short-term plans, and fail to invest in the future. This can create a “poverty trap” in which escape from poverty is extremely difficult and could extend to future genera-

tions. Spatial poverty traps are related to isolation, low-production-potential areas, economic marginalization, and political exclusion. To ensure that the benefits of economic growth reach the poor, it is important to address the underlying issues of exclusion and inequality that often accompany it. Though economic growth is a necessary means for reducing these pockets of poverty, it is not sufficient in and of itself (see Section IV).

Functioning markets and secure resource rights are key for poverty reduction strategies. Markets provide choices and represent important social assets for the poor; but they do not work well where property rights are not clear and enforced. Moreover, a lack of resource rights for local people diminishes economic opportunities available to them. Property rights must not only be clear and enforced but equitably (not necessarily equally) distributed (see Section III).

As a pathway out of poverty, natural resources present opportunities as well as challenges. In an apparent paradox, countries with rich natural resources often experience low or negative growth rates, particularly those with non-renewable resources such as oil and diamonds. This is known as the “natural resource curse” because it can lead to conditions that limit growth in export revenues. In resource-rich countries, high commodity prices can create conditions that stall local manufacturing and limit value-added industries. This can effectively reduce the potential of natural resources as a strategy for local poverty reduction; however, environmentally sustainable resource-based industries that leave significant shares of revenue in the local community can provide real

Ecosystem and Poverty Reduction Links

Some contemporary policies attempt to link ecosystems to poverty reduction. Unfortunately, contemporary poverty assessments and poverty reduction strategies often underestimate rural incomes from natural resources management and undervalue ecosystem services as an asset for the poor. In the past, development often emphasized high-input, export-driven use of natural resources and government-sponsored industrialization. These efforts unfortunately were not particularly pro-poor. In the case of forestry, large-scale concessions and plantations followed a strategy that deprived the poor of access to essential resources and ultimately has not contributed to national development goals. Recent reviews of the World Bank, International Monetary Fund (IMF), and United Nations reveal an ambivalent endorsement of the value of healthy ecosystems as an asset for the poor. Consider recent reviews of the UN Millennium Development Goals and the Poverty Reduction Strategy Papers required by the World Bank and IMF in exchange for debt relief and assistance.

Millennium Development Goals

The UN 2000 Millennium Declaration is a global agenda of eight development goals including MDG 1: Cut world poverty in half by 2015. The innovative approach to achieving this infuses accountability by establishing quantified, time-bound targets and measurable indicators to track progress. MDG 7, ensuring environmental sustainability, has three targets and eight indicators to link poverty and environment. Some observers criticize the targets as too vague and missing the cross-cutting nature of the environment's relevance to the other eight goals, such as eradicating hunger, disease, and child mortality, and promoting gender equality and sustainable development. These critics suggest stronger recognition of the ecosystem-based and NRM approach as the foundation for poverty reduction; moreover, they suggest more specific targets to measure ecosystem integrity and capacity to provide ecosystem services. In this context, indicators should reflect the importance of communal areas and expand the extent and condition of common pool resources. Other indicators should be expanded to monitor land tenure, resource access, and access to information.

Poverty Reduction Strategy Papers

Countries seeking debt relief and concessional loans from the World Bank and IMF must prepare a PRSP—a document detailing the nation's strategic approach and plan to reduce poverty. They have emerged as important policy mechanisms to help developing countries implement MDGs. Begun in 1999, PRSPs introduced a participatory, results-oriented approach that allowed countries to decide for themselves how to shape policies, develop plans, and set budget priorities for poverty reduction. Early PRSPs emphasized the social

sectors, then increasingly focused on economic growth and other aspects of poverty. By 2005, about 70 countries were expected to have prepared PRSPs, with 39 full PRSPs and 14 preliminary versions prepared to date.

Some progress has been made under the PRSP process. It has led to better analysis and understanding of poverty at a national level, increased government transparency, helped create better institutions to serve the poor, and provided greater opportunities for civil society input and citizen participation. Critics of the PRSP process identify problems related to vague commitments and ambiguous outcomes that do not specifically target poor populations or establish provisions to monitor and evaluate results.

An important criticism of PRSPs has been their failure to adequately “mainstream” environmental and natural resources management issues into the lives of the poor and to realize the potential contribution of environmental income to sustainable livelihoods. Although PRSPs emphasize technical issues related to poverty-environment issues, they often fail to address more controversial issues related to access, ownership, control, and the rights of poor people related to natural resources. An opportunity to use natural capital as an important pro-poor growth area has often been missed.

The World Resources Institute (WRI) suggests seven steps to more strongly integrate environmental assets into poverty reduction efforts:

- **Ecosystem orientation and environmental income.** Emphasize the ecosystem approach and value ecosystem services as a source of income for the poor.
- **Sustainability of income over time.** Take a long-term approach and consider the consequence of developing agriculture, fishery, and forestry sectors.
- **Tenure and access to resources.** Recognize the central importance of land tenure to reducing rural poverty.
- **Decentralization and Community-Based NRM (CBNRM).** Devolve power over resource management to competent local authorities and community groups.
- **Participation, procedural rights, and gender equality.** Ground the strategies in broad-based participation by civil society. Emphasize free, prior, and informed consent by local communities in economic development projects.
- **Environmental monitoring.** Include plans to monitor environmental conditions to track impacts of economic growth on environmental income.
- **Targets, indicators, and assessments.** Specify poverty and environmental indicators to evaluate performance and allow for adaptive management.

benefits and pathways out of poverty (see Section IV).

Culture and Human Rights. Efforts to map poverty consistently show that households living in pockets of poverty or spatial poverty traps are subject to some form of exclusion based on factors such as ethnicity, race, language, and customs. As a result, these people are left out from the benefits of economic growth, improved market access, and better governance. One way to ensure that the benefits of economic growth reach the poor is to explore the close interaction among natural resources, economic growth, poverty reduction, and governance and rights. For example, investments in labor-intensive natural resources management may yield not only high returns on investments, but also provide jobs and income to society's poorest people (see Section VI). Migration resulting from conflicts or natural disasters can have positive or negative impacts on the poor; however, labor migration to higher-wage areas often means remittances from domestic and foreign migrants to home countries and populations. These play an increasingly important role in rural livelihoods (see Section VI). Conflicts usually affect the poor most adversely and create waves of refugees who move into poverty. Corruption steals benefits from the poorest people and leads to losses of assets and freedoms that cripple rural livelihoods (see Section VII). ■

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ANALYTICAL TOOLS:

STAKEHOLDER ANALYSIS

Stakeholder analysis uses a range of tools for assessing stakeholder interests. A program manager conducts a stakeholder analysis to understand whose interests should be taken into account and why. Such an analysis is particularly useful when formulating policies or program implementation strategies. It can be helpful for confirming or broadening a program manager's perception of stakeholders or for understanding the context in which policy changes will be implemented.

Depending on the amount of time and information available and desired, several different matrices have been developed and used to conduct stakeholder analyses. Information collected ranges from a stakeholder's ability to impact processes necessary for implementation of a program to levels of interest and ability to mobilize available resources.

Whatever the focus, the following are recommendations from USAID's Women in Development Office for conducting a stakeholder analysis:

- Sometimes the interests of stakeholders are difficult to define or are hidden. Note that each stakeholder may have several interests.
- The interests of different stakeholders can often be drawn out by holding action planning meetings with local communities during project design to better understand the agendas of different groups of stakeholders, to arrive at compromises, and to stave off conflict.
- Separate meetings with different categories of stakeholders might be needed to facilitate open and honest discussion.
- Key stakeholders with high influence and importance are potential partners in project planning and implementation.
- Sometimes key representatives of local NGOs are members of the elite or "patron" class and may have dual agendas.
- Information on primary stakeholders should be available from social analysis.
- Confirm that a gender analysis has been used to identify different types of female stakeholders (at both primary and secondary levels).
- Check that the interests of vulnerable groups (especially the poor) have been identified.
- Assess the likely impact of the project on each of the interest groups (positive, negative, or unknown).
- Each stakeholder should have a clear idea of the problems that the project is trying to address (at the design phase) or of the project's established objectives (if the project is underway).

SECTION III:

GOVERNANCE AND SOCIAL DIMENSIONS

Governance refers to the distribution, exercise, and limits of power. Good governance implies the ability and desire to maintain social peace, guarantee law and order, promote or create conditions necessary for economic growth, assure equity and social justice, protect rights (civil, political, economic, social, and cultural), and ensure a minimum level of social security. Some additional elements of good governance include citizen participation, transparency, efficiency, equity, accountability, and gender sensitivity. Power differs from authority in that while power is the ability to cause change, authority is limited to the use of legitimate power.

Environmental governance systems link natural resources and poverty by determining ownership, access, decisions about use, and control over resources that include forests, fisheries, and land. These “rules of the game” include laws, institutions, political systems, social networks, cultural values, and policies that define use, ownership, and control of key resources. To address poor governance, responsible authorities use these rules to check power and limit authority. Good governance leads to improved efficiency, effectiveness, and equity. Prevailing governance systems usually reflect the local culture and people. For example, land tenure rules define land ownership, but they can be for-

Dimensions of good governance include citizen participation, transparency, efficiency, equity, accountability, and gender sensitivity.

mal, written laws enforced by a state, or traditional communal practices based on social networks and informal agreements based on cultural values. Pro-poor governance policies maintain effective institutions, secure land tenure, decentralize power, and ensure broad citizen access to information, participation, and justice.

Corruption refers to the misuse of public power for private gain and implies a failure of good governance. It is widely accepted that governments that are less corrupt have more efficient bureaucracies and produce more effective policy. Corruption, however, is not a synonym for poor governance and should be distinguished from incompetence and inequity. It often has complex, indirect impacts on the poor and natural resources (see Section VIII).

Good governance ensures the rights of all citizens to access information, participate in decisions, and have speedy recourse to justice. Despite their significant reliance on natural resources, the poor often have had relatively little impact on environmental decisions. This section dis-

cusses the importance of governance systems and shows the possible links between environmental governance policies and poverty reduction strategies.

Institutions

Effective institutions are essential to reduce poverty and create sustainable livelihood strategies. Institutions affect access to assets in a variety of ways. If land ownership rules are ambiguous and/or conflicting due to weak property rights institutions, households face the possibility of losing access to land and resources. In this context, they might adopt strategies that emphasize the short term (often low-return asset uses), ignoring longer-term investments that may be more productive but more risky. In this way, institutions can affect further returns on assets and incentives to accumulate them. Complex government procedures that discourage the poor from obtaining property titles limit their ability to make full use of this asset (e.g., using it as collateral for a bank loan) and can weaken their commitment to improve

their natural resource holdings (e.g., adopting soil conservation measures).

The ability of the poor to influence their institutional surrounding, or their political capital, is important. In general terms, the relationship of the poor to public and private institutions often reflects their position in society—one of limited power and influence. These limitations often result in a series of related problems:

- Poor people may have little trust and low expectations of the institutions that shape their livelihood options
- Public institutions might provide no or inadequate services to the poor, and most services go to those with greater power and wealth
- The poor are unable to make the most productive use of their assets, thus remaining unable to improve their financial situation
- The poor lack incentives to sustainably manage their own resources and make informed decisions about resource use
- Asset accumulation is difficult since confiscation or asset stripping is a constant threat

Resource Tenure and Property Rights

Legally, tenure refers to a bundle of rights and obligations to own, hold, and use resources. It has been defined as the “ability to call upon a collective to back one’s claim to a benefit stream.” This definition emphasizes that there can be several sources of legitimacy for tenure claims. In addition to ownership, tenure refers to the rights to use the land and have access to resources. In other words, tenure defines property and what a

person can do with it; i.e., their property rights. Tenure rights and obligations usually include:

- The right to use the resource (the “usufruct” right) or to control how it will be used
- The right to exclude others from unauthorized use
- The right to derive income from the resource
- The right to sell all or some of these rights to others, either permanently or for a limited time through a lease
- The right to pass these rights down to one’s successors
- Protection from illegal expropriation of the resource
- An obligation not to use the resource in a way that harms others
- An obligation to surrender these rights through lawful action

Tenure can be in the form of formal laws or traditional practices and social networks that govern ownership and access to resources. This is especially true for communal resources that are owned by villages or tribes, who often allocate fishing grounds, forests, or grazing lands informally to selected members of the community. Secure tenure enables poor landowners to invest in their property and optimize its use over a long period. It allows the poor to transform nature into an economic asset. On the other hand, insecure land tenure allows elite groups or conflict to push powerless landowners off the resource base without recourse or compensation, and is a disincentive to sustainable management measures. In many countries, poor and indigenous people may be excluded from traditional forests and their rights to access may

be ignored or not recognized by government laws, often resulting in gross inequalities in land distribution. In this context, there are two issues relevant to pro-poor tenure policies: (1) tenure must be secure; and (2) land distribution must be equitable. Unequal access to land and other productive resources is a defining feature of persistent poverty.

Since they rely heavily on natural resources for their livelihoods, poor people suffer most from insecure and inequitable tenure laws. The lack of assets and clear property rights is a major source of continuing poverty since it does not allow the poor to use their land assets for collateral and credit, thus effectively barring them from productive investments at economics of scale.

Two large-scale trends that result from growing global integration affect resource tenure. First, globalization tends to favor private property and private responsibility, with government assuming a lesser role with respect to the private sector and civil society. Second, decentralization encourages local, indigenous, and community-level institutions to become more assertive in the management of local resources. These two trends promise to transform the capacity of the poor to earn environmental income from natural resources.

Secure tenure can be defined as the certainty that a person’s rights to continuous use of land or resources will be recognized and protected against challenges from individuals and the state. Tenure reform is distinct from land reform in that it does not redistribute parcels of land per se, but rather makes adjustments in the rights to hold and use land. Pro-poor

policies can include transforming state-issued permits for specific land uses into leases that provide more protection for users of the land.

Decentralization

Decentralization refers to a process by which a central government transfers some of its powers or functions to a lower level of government or to a local leader or institution. For example, local groups can assume responsibility to manage a tract of forest or an irrigation system, or they can create village councils or “conservancies” to manage wildlife and run commercial ecotourism operations. Decentralized management systems control the flow of revenues and delivery of services at the local level. Advocates of decentralization cite the potential for greater efficiency, equity, and accountability when local people participate in key decisions over local resources. The theoretical benefits of decentralization include:

- *Democracy.* Decentralization promotes greater participation in public decision-making.
- *Efficiency.* Decentralization increases economic and managerial efficiency.
- *Equity.* Decentralization provides for greater retention and more democratic distribution of benefits.
- *Accountability.* Decentralization brings public decision-making closer to the people.

Decentralization has in fact had mixed results. Sometimes failed or partial decentralizations result from bad choices about institutions and their subsequent misuse of authority. In some cases where central govern-

ments transfer responsibility for resource management without also transferring adequate financial resources or revenue-collecting authority. Without authority to collect taxes and revenues, local bodies cannot provide services and exercise control, and they lose credibility and power. Moreover, elite groups or corrupt officials can dominate local institutions and manage their resources without accountability. Local elites can slant the electoral process or create special deals with private companies that exclude the poor. In these cases decentralization can harm the poor in the following ways:

- *No real control.* No meaningful decentralization, but rather retention of central government control.
- *Lack of financial resources.* Limited or no local power to generate revenue.
- *Elite dominance.* Powerful groups control elections, participation, and decisions.
- *Inadequate participation.* Little or no representation of the poor in decentralized bodies.
- *Gender inequality.* Imbalance in decision-making and participatory institutions.

To succeed, decentralization should be based on democratic principles. In this context, good decentralized governance requires a clear line of accountability from decision makers to the local population. Most of the benefits of decentralization are believed to arise from increased participation. Effective local authorities should bring local people into the decision-making process and establish mechanisms to integrate their knowledge, needs, and aspirations

into management decisions affecting natural resources. In this context, decision makers are accountable to the people. This accountability obligates representatives to answer for their actions and subjects them to sanction if they do not meet public expectations. Without accountability, governments have little incentive to improve performance, deliver on promises, or even provide basic services.

Information, Participation, and Justice

In 1992, at the Earth Summit in Rio de Janeiro, 178 nations adopted Principle 10, which committed signatories to provide citizens with greater access to information about the environment, opportunities to participate in decision-making processes affecting the environment, and access to redress and remedy (i.e., justice) to protect their rights. These three rights—access to information, participation, and justice—are often referred to as procedural rights (and the Access Principles), and they help determine the characteristics of good governance.

Improved access to information allows poor households to take advantage of new opportunities, respond to market prices, find out about activities with potentially harmful effects on them (e.g., siting of dams and roads, land use changes), and take advantage of government-sponsored training and assistance programs. Access to public information such as laws and accounts of government services and expenses provides accountability tools for the poor to press their claims. Moreover, access to information technologies such as radio, television, and increasingly, the

Internet, provide platforms for citizen participation.

Participation in decision-making allows the poor to affect outcomes directly related to their livelihoods. For example, poor farmers can and should help shape agricultural research agendas, review poverty reduction strategies, and help set priorities for planning and budgeting. Pro-poor policies should design participatory methods and outreach efforts to include all stakeholders. These include citizen meetings to review programs, and community-based management committees to review government performance, resolve conflicts, and/or build consensus.

Access to the legal and justice systems enables the poor to secure and enforce their rights to use natural resources. Poor people often lack knowledge of land laws, legal institutions, and processes to advance their claims. Intimidation by local elites and government officials can further reduce the poor's influence. In this context, pro-poor policies can include translations of policies and regulations into local languages, training in rights, provision of paralegals and legal advice, simple land tenure provisions, and efficient procedural processes. Government institutions should be transparent, fair, and timely in handling land titling and registration and should provide effective local mechanisms for resolving conflicts. Poor people should be able to participate in fair permitting and licensing procedures and should be able to obtain licenses and registrations without undue costs or deliberate obstruction.

Considerations for Planning and Implementation

Empower Citizen Participation. Lack of control over available resources and inability to participate in decision-making processes often limit the poor's their ability to use natural resources in a sustainable manner to accumulate wealth.

Strengthen Land Tenure. Regardless of the form of tenure, rights over resources, especially land, are often the most fundamental building blocks of prosperity for the poor. Resource rights reform lies at the heart of pro-poor policies for those dependent on natural resources. By understanding the plural nature of tenure systems—formal and informal agreements—and the dynamic aspect of ownership, policy makers can balance customary systems with modern legal definitions. This requires policy makers to:

- Create a well-defined system of recording, transferring, and enforcing resource rights
- Improve weak government institutions that create excessive land regulations, legal labyrinths, and complicated registration procedures that reduce poor people's access to land titles and resource use
- Translate laws and policies into local languages, and provide rights training and legal advice
- Recognize and honor preexisting local rights over resources

Encourage Accountability and Democratic Processes. To implement effective governance, local authorities should be accountable through open and fair elections or other mechanisms, such as civil service

rules. These officials should provide demand-driven services based on participatory, democratic processes. Qualifying institutions need to receive adequate resources and discretionary authority to set priorities and implement development projects; however, they need to demonstrate financial competence. Local institutions should also build in pro-poor policies into resource management plans. ■

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ANALYTICAL TOOLS:

EARLY WARNING SYSTEMS

Natural resource degradation, conflict, natural disasters, and economic crises increase the risk of some people falling below the poverty line. Some man-made and natural crises come without warning, but decision makers can prepare and take preventative action to deal with those disasters that unfold gradually. Poor people depend on natural resources more than any other group and are therefore more likely to be negatively affected by natural disasters. Early warning systems can provide information on threats and provide context for decision makers to take preventative action and plan disaster response. For example, USAID's Famine Early Warning System Network (FEWS NET) provides information relevant to preparedness and planning to reduce food insecurity. Initially focused on Africa, FEWS NET has expanded to include countries in Central America, as well as Haiti and Afghanistan.

FEWS NET's approach to reducing food insecurity involves producing information to predict disasters/crises, strengthen contingency and response planning, develop sustainable networks, understand the underlying causes of food insecurity, identify long-term development needs, and develop and disseminate early warning tools and methods. The range of prod-

ucts and services available through the early warning system include:

- Food security updates and briefings providing the latest information on food security threats
- Data dissemination and analysis for remotely sensed and ground-based information
- Baseline vulnerability assessments using a livelihoods perspective
- Technical assistance to national and regional early warning systems in early warning techniques and tools, food security and vulnerability assessment methods, and contingency and response planning

The livelihoods approach employed by FEWS NET provides information about how and why people survive difficult times. Products of a livelihoods analysis range from a national livelihood zone map to profiles of livelihood patterns among different wealth groups in a selected zone. Since the livelihoods analysis provides information about people's ability to procure resources necessary to survive a shock, analysts use the livelihoods framework as a guide for interpreting early warning information.

More information can be found at: <http://www.fews.net>.

CASE STUDY: Guatemala Forestry Concessions



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A craftsman paints a sign for marketing the boundary of a community forest concession in Guatemala's Peten region.

Situated in the Peten region of northern Guatemala and covering an area of 1.5 million hectares, the Maya Biosphere Reserve (MBR) is the country's largest protected area. Years of conflict and migration into the area from the overpopulated highlands south of the region have led to high deforestation rates. Additional threats to the natural resources in the area include oil concessions, illegal logging, and forest fires stemming from drought and slash-and-burn agriculture.

In response to these challenges, the Guatemalan government established community forestry concessions, beginning in 1994, to encourage low-intensity logging and the sustainable harvest of non-timber forest products in the government-owned forests of the MBR. These concessions have a 25-year renewable contract and require long-term management plans for conservation and the sustainable production of products such as chicle, allspice, and xate (a palm whose fronds are used in flower arrangements).

Through a series of projects in the MBR, USAID has provided technical assistance to communities receiving concessions that focuses on consolidating community organiza-

tions; improving forest management, certification, and environmental impact mitigation; processing forestry products; and strengthening community enterprises.

Community forest concessions have made significant contributions to natural resources management and the welfare of the local poor, including:

Better forest management.

Guatemala's Council on Protected Areas Management (CONAP) has awarded more than 600,000 hectares in concessions to community (approximately 400,000 hectares) and industry groups to secure access to tenure rights to responsible groups. Ninety-three percent of these concessions have been certified using Forest Stewardship Council and World Bank standards.

Increased revenue from forest enterprises. Since 1990 when USAID funding to the MBR began, community revenues have increased more than 100 percent (see Table 1). In 2003, forest operations in community concessions generated 51,309 person-days of work.

New community enterprises.

In addition to forestry activities, community management plans include strategies to develop non-

timber forest products and eco-tourism activities, especially around the Tikal Mayan sites. Smartwood is working to develop partnerships between local communities and private industries.

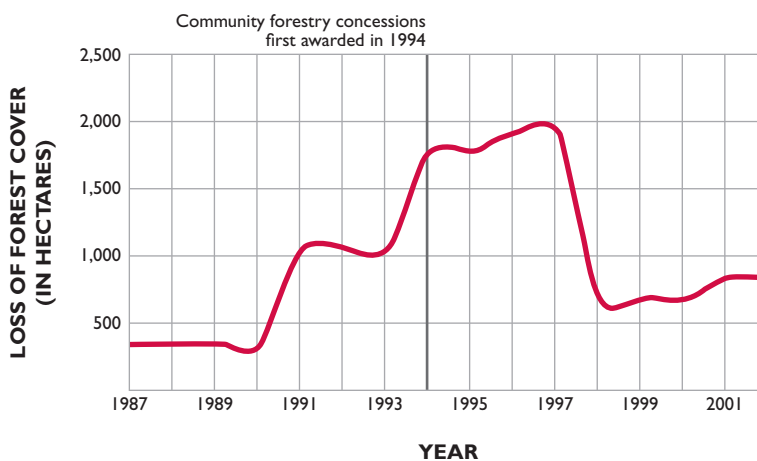
Information and markets. Local leaders established the Community Forestry Association of the Peten (ACOPOF) to increase information flow about forestry markets and to promote other species besides mahogany and cedrus. A community-sponsored international buyers' conference in Guatemala generated \$4 million in deals with global buyers.

TABLE I: CONTRIBUTION OF FOREST MANAGEMENT OPERATIONS TO INCOME OF MEMBERS OF COMMUNITY CONCESSIONS AND COOPERATIVES

Community	Number of Members	Annual Income Per Member (US\$)	Annual Person Day of Labor Per Member
AFISAP	178	381	36
Arbole Verde	344	725	23
Bethel	57	855	31
Camilita	88	2,063	63
Cruce Colorada	65	263	28
Custodios	96	2,588	70
El Esfuerzo	41	3,341	162
Laborantes	96	572	61
La Colorada	40	146	18
La Palotada	30	191	9
La Pasadita	74	668	16
La Tecnica	43	2,422	9
Uaxactun	225	593	22
UMI	172	394	3
	1,549 Total	1,140 Average	39 Average

SOURCE: Chemonics International, 2003.

FIGURE 2: ANNUAL DEFORESTATION RATES FOR THE PETEN REGION OF GUATEMALA



SOURCE: Chemonics International, 2003.

SECTION IV:

RISK, VULNERABILITY, AND POVERTY TRAPS

Vulnerability is a key dimension of poverty. The rich tend to be much less susceptible to risk than the poor, although some exposures can be similar. Once forced below a certain threshold, people recover very slowly and may find themselves in a “poverty trap”: a situation wherein poverty continues for many generations. Consider, for example, the adverse impacts on poor populations after Hurricane Katrina in 2005. With less access to health and education, these people will likely suffer long-term setbacks in future income, since the child of an uneducated parent is less likely to receive an education.

Poor people with limited assets are more vulnerable than others. They face risks from a number of factors such as drought, disease (especially HIV/AIDS), tsunamis, conflicts, and other shocks that threaten their livelihoods. Illness or injury can suddenly place an entire family in economic jeopardy, and they may have to liquidate assets to deal with the crisis. Regular events such as a harvest failure, fluctuations in commodity prices, and the loss of a job can not only eliminate current household assets, but also lock several generations into future poverty. In a broader social context, man-made crises like conflicts, financial and economic collapse, market failure, hyperinflation, radical policy shifts, and expropria-

With limited assets, the poor risk falling into poverty traps, wherein several generations may be locked into poverty.

tion can rapidly erode kinship networks and other relationships. This results in an important loss of social capital and reduced capacity to withstand future shocks.

The “vulnerability context” defines this environment of external risk. It can be characterized by shocks, trends, seasonal cycles, and other dynamic events that define thresholds for poverty and survival. Trends refer to changes over the medium- to long-term. They may be positive or negative, and may include a wide array of factors such as population growth, improved governance, and natural resource degradation. Shocks refer to sudden, short-term changes that are harmful and that place household assets and their utilization at risk. Examples include natural disasters, conflicts, and economic crises. Seasonality takes into account the dependency of many poor households on seasonal fluctuations in prices, employment opportunities, and production. The vulnerability context highlights the fragility of poor households with limited resources to respond to shocks and adverse trends.

Risk and Diversification

Like all people, poor populations manage their assets to reduce risks, and will exchange financial, social, and human assets to pursue livelihood strategies that limit their exposure to risk. Perhaps the most common means of reducing risk is to diversify livelihoods. By having alternatives for generating income, poor people can shift or borrow assets to avoid destitution. Even migration presents a livelihood option: some individuals or households may move to places of greater opportunity, and might then send money back home.

Generally, however, poor people have low levels of assets that generate low returns on investments. In many cases, they lack of access to insurance and credit systems that protect against shocks and allow them to rebuild assets. Also, certain groups may be isolated from networks and kinship systems that provide informal mechanisms of credit, insurance, and other buffers against the adverse impacts of poverty. Diversification and other risk minimization strategies are normal family choices given the options poor households have available

to them. These strategies, however, can slow the accumulation of productive assets by poor households and perpetuate their poverty. This occurs because many of these risk management strategies are built upon low-risk, low-return activities. Under these conditions, people may get caught in a poverty trap and their families may stay poor for several generations.

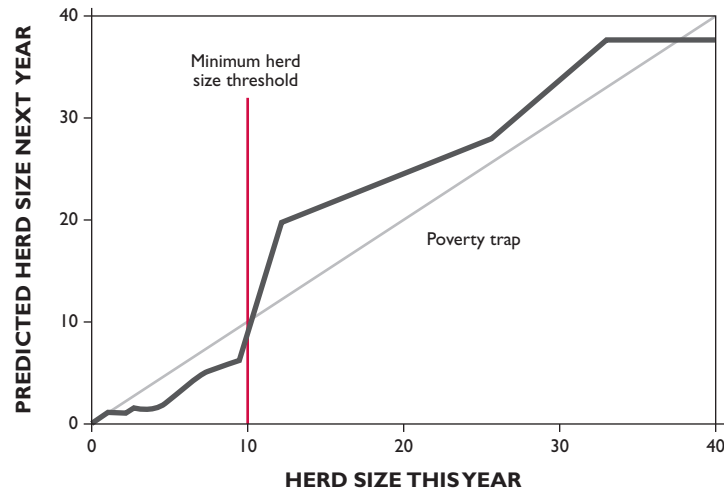
Poverty Traps

Poverty traps refer to conditions or circumstances that keep people poor. Since these conditions change over time and space, people face dynamic thresholds that determine their poverty status. It is useful to distinguish between the transitory poor—those individuals or households that are temporarily poor and that will move out of poverty—and the chronic poor—those who will remain poor over their entire lifetimes and who will pass poverty on to succeeding generations. At a certain threshold level of assets, people tend to accumulate even more assets and move out of poverty; below this asset threshold, other people fall into chronic poverty and face further vulnerability to risks and shocks.

In technical terms, this critical level of assets represents a poverty threshold, and wealth dynamics diverge at this point. Since asset levels change over time and space, welfare economists define a “dynamic asset poverty line” that represents a threshold between those households expected to accumulate wealth and move forward and those who are caught in the trap of persistent poverty.

By distinguishing the transitory or “stochastic” poor from the chronic or “structurally” poor and using

FIGURE 3: HERD SIZE THRESHOLDS AND POVERTY TRAPS



The red line indicates the herd-size threshold for escaping the poverty trap. Below the threshold, negative growth from year to year can be expected. Above this threshold, increases in herd size are expected, as indicated by the black curve being above the gray diagonal line.

Source: Lybert, T., et al's 2004 study of Ethiopian pastoralists

thresholds to separate them, policy makers can apply appropriate interventions for each group. Safety nets such as emergency food aid, disaster assistance, or emergency crop insurance can help the transitory poor stay above the poverty line for short periods. These temporary measures contrast with “cargo nets” that define longer-term policies and structural changes to lift the chronically poor out of poverty, and include such strategies as land reform, microfinance, and agricultural subsidy programs.

In this context, there are two ways to get out of poverty. First, poor people can move above the poverty threshold by accessing microfinance, credit, insurance, or other programs that provide a ladder out of a temporary condition. Second, programs can shift the entire poverty threshold downward through macro policies that establish more favorable terms of trade, secure land rights, or create conditions of greater public welfare. Such policies enable people to use existing assets to stay out of poverty over long periods.

The Example of Ethiopian Pastoralists

Since a large proportion of poor people depend on agro-ecological systems, the status and management of natural resources directly affect poverty dynamics. Most biological systems that support agriculture, livestock, wildlife, fisheries, and forestry activities can be described with non-linear, S-shaped curves that relate resource amounts or status with productivity. For example, biological systems models often define a minimum population size to determine maximum sustainable levels of harvest or species renewal. When these resources, or assets, become depleted below a critical threshold, they provide diminishing returns on remaining stocks and ensure poverty traps defined by low asset levels.

A classic example of rural poverty traps comes from Ethiopian pastoralists who depend on livestock herds for their wealth and survival. Several studies tracked herd sizes and human welfare over cycles of abundance,

drought, starvation, recovery, and rebuilding in a semi-arid range landscape. Research findings show that herd size, and subsequent human welfare, usually settle on two equilibrium states: one or few cows; or many, but not too many. People with only one cow have minimal assets and no chance to escape their condition. Those with many cows can rebuild their stocks; reduce risk from future drought; migrate to other areas; save for education and health care; invest in new technologies, or otherwise improve their livelihood strategies.

Considerations for Planning and Implementation

Target Interventions to the Chronically Poor. Support agencies typically target aid to the poorest members of a population for income support and related interventions. This helps those beneath the poverty threshold move closer or beyond it. Optimal interventions depend on the cost-effectiveness of alternatives to stimulate self-reinforcing asset accumulation and productivity growth among recipients. Sample policy options include cash payments, food distribution, free schooling for children, and access to land.

Target Interventions to the Transitory Poor. In addition to targeting the most poor, policy makers can support those people close to the poverty threshold. Such targeting provides a safety net to non-poor who need short-term help to get back on their feet. By preventing non-poor from slipping into a poverty trap, targeted interventions can be cost-effective when compared to other programs designed to lift chronic poor

out of abject poverty. This kind of targeting supports critical thresholds for assets that appear to be the most important to maintain the capacity to recover. Typical policy options include childhood immunization, nutritional supplements, child health programs, keeping children in school, and agricultural support, which can also help the chronically poor.

Respond Appropriately to Different Shocks and Trends. The effectiveness of interventions can be improved by diagnosing the kind of shock or trend that occurred and applying remedies to match the problem. For example, shocks can be rapid or slow-onset; they can adversely impact selected individuals or whole groups or regions. When individual households experience a shock, informal transfers and social support systems often provide important support, but social exclusion may leave holes in the social safety net. Public employment and conditional cash transfer schemes also offer valuable supplements to social safety nets. Access to credit and insurance represents the real key to individual household risk management. With access to credit, households can access funds needed to rebuild lost assets, recover, and move onto a natural growth trajectory. Policy makers should provide programs in microfinance, credit, insurance, and financial institution capacity-building.

Anticipate Crisis. In large-scale shocks or long-term trends, large groups of people face crisis conditions. In these cases, affected populations often depend on an inflow of resources from outside donors. For slow-onset shocks such as droughts, commercial insurance products may be useful if NGOs and multilateral

agencies can respond in time to secure prompt payouts. Early warning systems, such as FEWS NET (see Analytical Tools: Early Warning Systems), use triggers to help forecast risks and allow agencies to plan and prepare appropriate interventions.

Strengthen Market and Financial Institutions. Natural resources management represents investment choices that relate to incentives, institutions, information, and infrastructure. These factors can work together to reduce risk and vulnerability and keep more people from falling into long-term poverty traps. Effective policies can maintain high productivities of natural resources and ensure a high return on these assets to lower-income groups. Effective economic policies can increase the productivity of assets by ensuring access to functioning markets and investing in appropriate technologies. To strengthen pro-poor financial institutions, exclusionary mechanisms that prevent poor people from gaining access to credit, land rights, insurance, and social networks must be identified and removed. ■

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SECTION V:

MARKETS AND TRADE

Effective, functioning markets represent an important asset for the poor. Markets provide the mechanism to turn natural capital into financial assets and create choices that enable people to withstand shocks and limit vulnerability in times of change or crisis. For example, rural markets allow collectors of nuts, berries, medicinal plants, and other non-timber forest products to exchange these natural assets into cash and savings. And effective markets allow rural pastoralists to sell their herds at fair prices and avoid the consequences of livestock loss due to impending drought conditions. Open financial markets and access to credit and insurance enable poor people to make optimal investments that cushion shocks and ensure long-term asset accumulation. Effective markets provide the engine to distribute the benefits of growth resulting from international trade.

Along with functioning markets, global trade holds great promise for the growth of rural wealth. Recent studies link trade with increased growth and poverty reduction. Data from developing countries with large increases in trade show a corresponding increase in gross domestic product without increasing the inequality of wealth distribution. Moreover, most of these countries have recorded fewer people living in poverty. However, several factors suggest caution

Effective markets allow the poor to turn their natural resource assets into income.

in assuming that trade openness benefits the poor. For example, some countries benefit from regional geographies with better market access, yet domestic policies may have growth characteristics that confuse the direct impacts of trade.

Impact of Trade on the Poor

Trade liberalization can help the poor, but it can also hurt them. It can lead to growth and increased incomes and may also result in better access to clean water, health care, communications, and transportation. Some trade agreements are linked to improvements in infrastructure or social reforms that may indirectly help poor populations. However, trade liberalization and economic growth do not necessarily lead to poverty reduction or environmental stability. While increased aggregate incomes may reduce the absolute numbers of poor, the percentage of poor might remain stable or even increase. The poor often suffer most in transitions to open markets in the absence of appropriate government programs and policies, and strong institutions.

Greater trade may adversely impact the different dimensions of well-being. Trade liberalization creates a series of impacts that move through a network of interconnected links. Referred to as an “impact pathway,” this chain of causes and effects may have direct and indirect consequences for the poor. Freer trade may raise prices and exclude the poor from previously affordable goods and services. Foreign trade also can limit a government’s willingness to regulate in the public interest if foreign investment interests compete with local needs. In the context of natural resources, trade liberalization without strong environmental management and enforcement may result in resource degradation and subsequent adverse impacts on poor people who depend on forests, fisheries, and other natural resources for their livelihoods. Thus, these impacts may aggravate income inequality and can even further skew income distribution in a country.

Reforms taking into account differentiated need should tailor the rights and obligations of developing countries to meet the needs of both their citizens and international trading partners. To achieve these goals,

developing countries should embrace globalization on their own terms and maintain an independent policy space to meet their specific needs. Simultaneously, the international architecture and processes need to be reviewed.

Problems of Market Failure

While growth is necessary to reduce poverty, it is not sufficient. To evenly distribute growing wealth resulting from greater trade, developing countries need to establish and maintain effective domestic markets. Policies and programs that address market failures can help rural populations compete in regional and international markets. To capture the value of natural resources, the poor require efficient and well-functioning (perfect) local markets. Unfortunately, small, isolated, low-volume, and low-quality rural markets can often fail or work against the rural poor. Important factors of market failure include:

- *Lack of Information.* Rural populations often have limited or no knowledge about international prices and allow outside traders to reap large profits outside the community. This is referred to as “asymmetrical market information.”
- *Market Segmentation and Exclusion.* Some rural markets are open only to selected groups or special interests.
- *Barriers to Market Entry.* Bureaucratic requirements or elite groups may limit market participation based on the size or capital of traders or may require complex licenses, fees, or even bribes to participate in market trades.
- *Local-level Monopolies and Collusion.* The lack of competition among both buyers and sellers may distort prices and limit market access to selected groups and elite traders.
- *Lack of Clear Property Rights.* Ambiguous ownership rules can prevent trading and create undue risk for buyers and sellers.
- *Weak Local Organizations.* Lack of strong local organizations may limit the ability of individual sellers to achieve economies of scale.
- *Downward Push of Risk to Lower Levels.* Buyers can distort or close local markets when large-scale changes or crises create risks at regional or international levels.
- *Pricing and Tax Policies.* Government subsidies, taxes, fees, or licenses can distort fair market prices and open participation.

To make markets work for the poor, government policies must address and overcome these problems.

Forests for the Poor

The forestry sector provides a good example of trade impacts, since forest products can play an important role for the rural poor. More than 90 percent of poor people depend fully or in part on forest products for their livelihoods. Yet the dominant models of forest management are based on large-scale logging in commercial forest concessions, industrial forest plantations, and public protected areas that deprive poor peoples of forest lands and related livelihoods.

Changes in forest resources, markets, and governance systems hold promise for alleviating poverty, and

many successful business models currently integrate local communities, sustainable resources, and markets for forest products (see Case Study: Guatemala Forestry Concessions in Section III). Global, highly dynamic markets provide both barriers and opportunities for local communities, and success depends not only on appropriate products delivered to selected markets, but also on organized user groups, secure land tenure, adequate business skills, and other factors to keep revenues in the local community.

Increased community ownership and control of forest resources enable low-income producers to secure competitive advantages in certain markets and open up new opportunities resulting from certification, payment for environmental services (PESs), and other changing market forces. Current studies define significant income potential for selected market niches for commodity wood, high-value timber, certified wood, processed wood products, industrial pulpwood, non-timber forest products, and payments to protect valuable ecosystem services.

To tap rapidly changing global forest markets, rural communities must compete against large industrial suppliers with vertically integrated commodity chains and easy access to markets. Such factors keep prices low for most commodities and squeeze profit margins for independent, rural producers. However, local communities can compete in global markets with business models developed for specific products, markets, and local conditions that identify comparative advantages in the marketplace. For example, local producers can develop

production systems and pro-poor commodity chains for selected products based on community knowledge of the forest. Local business leaders can choose from among several successful business models best suited for keeping revenues in the local community. These may include: (1) community management of their own forests; (2) access and right to use public forests; and (3) private, small-scale agro-forestry plantations to grow trees. (For an example of community-based forestry concessions, see Case Study: Guatemala Forestry Concessions in Section III.)

Considerations for Planning and Implementation

Strengthened institutions and governance frameworks in developing countries and internationally can help to assure benefits and mitigate negative impacts on low-income groups. Some considerations for developing effective pro-poor trade policies include:

Tighten the Value Chain. To keep revenues in the local community, commodity value chains should include reliable, honest local buyers who pay fair market prices for local products. Market analysts can evaluate NRM commodity chains to assess inefficiencies and inequalities. Government policies can help establish fair commissions for traders and middlemen.

Build Strong Local Organizations. Trade associations, producer and community groups, and effective partnerships with businesses, NGOs, and government groups can give low-income producers greater market

Environmental Services

Environmental services refer to the human benefits provided by healthy and functioning ecosystems. These include carbon sequestration from intact forests, biodiversity from pristine areas, water quality from healthy watersheds, and landscape beauty from diverse public and private lands. As an evolving resource management strategy, PESs enables a donor, NGO, or other buyer to purchase these services from local communities or other sellers. PES is a conditional, voluntary sale of an environmental service. The environmental service is often a change in land use, such as not harvesting trees, and payment is conditional on specific restrictions. Common examples include conservation concessions, easements, protected catchments, or forest-carbon sequestration plantations. Others are product-based schemes where consumers pay a “green premium” on top of the market price for a certified production process.

While PES mechanisms grow in importance, policy makers should consider several factors to determine their impact on the poor.

Participation. Do the poor have access to market share in PES schemes?

Effects on environmental service (ES) sellers. How does the PES affect poor household livelihoods?

Effects on non-sellers. How do PESs affect people who do not participate in or sell ESs?

Various conditions determine how PES impacts the poor, including scale of the project, associated transaction costs, and how land use changes result in lost opportunities and livelihoods. Recent studies present some general conclusions:

Net gains for ES sellers. Gains include non-income benefits, particularly for moderately poor households.

Participation obstacles. Some access rules and structural constraints hamper participation by the poor, while others are in their favor.

Mixed results. PES has mixed effects on impoverished non-sellers, but landless poor engaged in environmentally degrading activity could lose out significantly.

Scale issues. Small-scale PES applications may leave out the poor, especially if they do not own land.

knowledge and improved negotiating positions. Organized groups of small business persons can create economies of scale related to input supply and output marketing

Develop Greater Skills and Knowledge. To compete globally, local communities will require training, capacity-building, and/or partnerships that provide or share management, marketing, and technical skills, especially

for meeting the growing demands of private and government standards and certification schemes.

Catalyze Better Governance. Governments and NGOs can promote reforms to ensure more profitable market participation by low-income people. The most important policy actions include: (1) securing resource and use rights; (2) minimizing regulatory burdens; (3) leveling the play-

ing field by reducing subsidies and providing easy access for all market participants; (4) ensuring active involvement of local producers in forest governance and policy negotiation; and (5) correcting the problems of market failure.

Conduct Market Analysis. Due to the complex effects of markets and trade on poverty reduction, NRM programs should analyze specific market conditions and gain an understanding how market dynamics affect poor populations and natural capital. ■

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SECTION VI:

MARGINAL LANDS AND MIGRATION

About one billion people—approximately two-thirds of the global rural population—live in marginal and LFAs. They face conditions of low agricultural productivity, poverty, and natural resource degradation. In many cases these areas are geographically isolated, weakly integrated into markets, and politically marginalized. These circumstances can give rise to conflict, emigration, disease, and related problems for the poor. Despite development and investment programs in more productive, or favored, regions, populations continue to grow in LFAs, often under conditions of increasing poverty and increasing environmental pressure.

Marginal lands and LFAs are characterized by having low agricultural productivity and limited access to infrastructure and markets. Low agricultural productivity can be due to limited rainfall, poor soils, steep slopes, or other biophysical constraints. These areas are also often considered fragile—less resilient to human activities and more prone to desertification in dry areas, erosion from mountains and hillsides, and other forms of degradation. A remote location and socioeconomic factors also define an LFA, and these regions often lack roads, irrigation, and communication infrastructure. They have limited access to markets and lack effective institutions and governance mechanisms.

Approximately two-thirds of the global rural population live in less favored areas. By 2020, if current conditions persist, more than 800 million people will live in LFAs.

Less-favored areas exist in many countries, even in developed nations such as the United States. At a larger scale, LFAs include:

- Semi-arid and arid tropics of Asia and Africa
- Mountain areas of Asia, Latin America, and Africa
- Hillside areas in Central America and Asia
- Forest margins of humid and sub-humid tropics of Africa, Latin America, and Asia

Agricultural development programs, such as the Green Revolution, largely bypassed LFAs in favor of higher-productivity areas or “high-potential” areas characterized by adequate water, good soil, often high population densities, political importance, and access to markets. It was assumed that investments in these areas would be more effective and efficient and that benefits from such processes of increased food production, greater incomes, more foreign exchange, and larger returns on investments would eventually spread to the rural poor

through lower food prices and migration to favored areas, and environmental degradation rates would slow as migrations reduced pressure on fragile resources in LFAs. Public investment programs still tend to favor more productive areas with favorable credit programs, pricing policies, and agricultural services, including extension and research. As a result, people living in LFAs are often neglected and invisible to policy makers and may be overlooked for infrastructure development, education and training, and agricultural research programs.

Poor environmental conditions, coupled with low investment levels, can create a downward spiral of resource degradation, poverty, and migration. These conditions can create spatial poverty traps that concentrate poor people in certain places and prevent them from escaping their condition.

Investments and Institutions

Recent studies show that investment in marginal lands may provide sig-

TABLE 2: RETURNS ON INVESTMENTS IN CHINA—IMPACTS ON POVERTY REDUCTION (PERSONS/10,000 YUAN INVESTED)

Investment	Coastal	Central	Western
Research and Development	3.72	12.96	24.03
Irrigation	1.08	2.16	5.02
Roads	2.68	8.38	10.03
Education	5.03	13.90	18.93
Electricity	.04	5.71	7.78
Telephone	1.99	8.10	13.94

SOURCE: Pender, J. 2005.

nificant returns to local communities and serve as long-term drivers of rural development. Investment in marginal lands may produce larger impacts on poverty reduction and environmental protection than in high-potential areas partly because of the higher percentage of poor people there and the greater susceptibility to degradation. Further, it now appears that economic returns on investments may be even higher in LFAs than in high-potential areas. Although past investments have been biased toward more productive areas, public investment in LFAs may generate equal or greater returns and larger agricultural growth on the margin; moreover, these investments yield a greater social return in terms of poverty reduction and environmental protection. Investments in LFAs have the potential to achieve sustainable growth at acceptable cost and achieve a substantial reduction in poverty. Empirical studies of investment in LFAs in both India and China found public spending on such activities as agricultural research and development, road construction, and electrification produced significantly higher returns than similar investments in favored areas.

Other studies compared investments in rain-fed areas versus irrigated

production environments and found that many types of investments in low-potential rain-fed areas yielded the highest returns. These impacts vary across various land use types and regions. Access to markets greatly improves the economic value of marginal lands and road construction is often a key intervention. New road construction in China, for example, produced greater rates of return to LFAs in Western China compared to more developed coastal areas (see Table 2).

In addition to poor infrastructure, LFAs often lack effective markets for goods and services in the rural economy. Weak institutions and improper regulatory frameworks often lead to inefficient rural agricultural markets. Weak markets result in high transaction costs that restrict specialization, growth, and trade in LFAs. Structural imperfections in rural markets include high transportation and other transaction costs, shortage of information, absence of capital and insurance markets, and lack of secure property rights. Few markets capture the fair price of environmental services and externalities. These imperfections distort prices from their socially optimal values and may lead to further poverty.

Improved agricultural techniques such as the use of fertilizers can improve productivity in LFAs. But farmers may be unwilling to apply these techniques due to climate variability, weak tenure systems, and unstable prices. To encourage farmers to apply the latest techniques, public investments can help improve infrastructure, build effective markets, and provide training.

Differentiated Policies Based on Rural Diversity

Earlier rural development efforts such as the Green Revolution succeeded in the context of relative homogeneity among households and communities with access to appropriate goods and services. This homogeneity facilitated the rapid adoption and spread of modern agricultural techniques; however, LFAs are often characterized by diversity among rural households and heterogeneity among communities. Rural households in LFAs are characterized by a diversity of resources, activities, and access to markets. Moreover, rural communities are heterogeneous in terms of assets, wealth, and power. Within LFAs, biophysical conditions vary among and within agricultural areas. As a result, various development pathways will exist at different scales and optimal development strategies may take place at different rhythms and paces. These pathways will be determined by factors underlying local comparative advantages such as agricultural potential, access to markets and infrastructure, and population density.

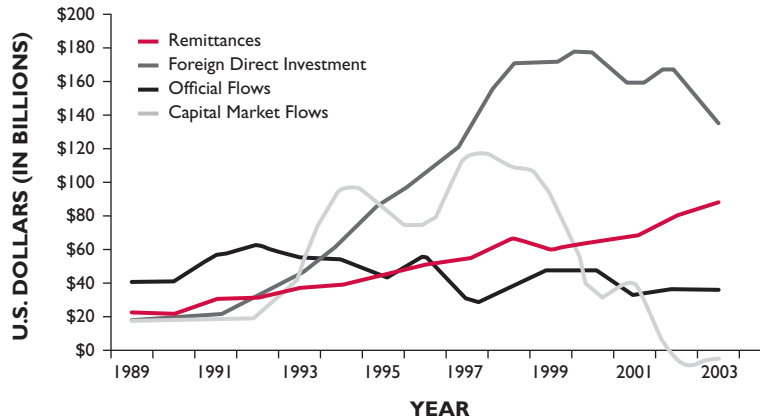
Local conditions need careful assessment, and differentiated interventions need to be designed to improve

production systems and reduce risk for each area. Effective policies should exploit comparative advantages based on agricultural potential, access, and population density. Careful analysis can identify the potential and shape of development pathways and lead to geographic targeting for infrastructure and communications investments. Appropriate investments take into account heterogeneous resource and socioeconomic conditions and find balances across different land use types.

Multi-Location Households and “Environmental” Refugees

People migrate from LFAs for a number of reasons, including the search for better economic opportunities and integration into a political mainstream. In addition, resource degradation is widely credited as having created a large number of “environmental refugees,” wherein adverse environmental conditions can no longer support household livelihoods. Households may split apart to work in several locations; abandon their homelands on a semi-permanent or permanent basis due to drought, soil erosion, desertification, or deforestation; and even be displaced by conservation efforts. Estimates for people displaced by environmental degradation range from 10 million to 35 million people total worldwide. However, researchers cannot accurately define all of the causes of migration due to the complexity of factors and the lack of good social data. There are likely more environmental refugees than refugees displaced by war and political repression combined. By

FIGURE 4: ROLE OF REMITTANCES IN FOREIGN INVESTMENT



SOURCE: Ratha, D. 2004.

2010, estimates show that the number of environmental refugees could grow to 50 million, with as many as 150 million by 2050.

To illustrate this crisis, in 2002, rains in Kenya displaced more than 150,000 people, while more than 800,000 Chinese were affected by the country’s most severe drought in more than a century. Over the past 20 years, floods and other weather-related disasters were among the factors that caused about 10 million people to migrate from Bangladesh to India. Millions of people worldwide, who are uprooted by more gradual environmental change, receive little support and are not recognized as refugees, with the associated benefits of national and international programs. As an example of gradual environmental changes, in China, the Gobi desert “expands” more than 4,000 square miles per year, threatening many villages. In Turkey, soil erosion affects 62,000 square miles of farmland. Global climate change promises to exacerbate the displacement and increase the number of environmental refugees.

Migration in the World Economy and Environment

Migration has a significant impact on development and patterns of poverty, yet there remains contentious debate over the positive and negative impacts of migration. On the positive side, migration leads to remittances from national or international migrants who send money home from cities, high-potential areas, or foreign countries. On the negative side, migrants can cause social, economic, and environmental hardship in their new locales.

Remittances play an increasingly significant role in the economy of many developing countries, often more important than official development assistance (see Figure 4). Studies estimate that remittance received by developing countries exceeded \$93 billion in 2003, with about two-thirds in unofficial transactions. This source of income is second only to foreign direct investment (approximately \$133 billion) as a source of external finance for developing countries.

Such remittances generate a significant and steady source of capital that can help reduce the poverty of recipients. In the aftermath of the devastating Hurricane Mitch in 1999, the government of El Salvador asked the U.S. government not for additional humanitarian aid but for extended permission for Salvadoran immigrants to stay legally in the United States so that they could send money home to relatives affected by the storm.

Remittances, however, are not without their drawbacks. Some migration experts observe that remittances provide little improvement to developing countries because their citizens have marginal success in converting remittance income into productive capacity. This lack of investment reflects not only poor families' immediate consumption needs, which may be the first priority of remittance, use but also the weak local investment climate where the poor reside.

Considerations for Planning and Implementation

Focus on Less-Favored Areas. Do not overlook LFAs in development programming. Investments in LFAs can have clear environmental and poverty reduction benefits, and in some cases the economic returns can equal or be higher than those earned in high-potential areas.

Recognize the Differentiated Nature of Rural Livelihoods. Identify the most-limiting resource constraints and market limitations and design a specific, local, and demand-driven strategy that considers different co-existing livelihood strategies.

Such a strategy based on community-driven development requires decentralization of authority and public finance.

Make Public Investments. Optimal portfolios will be a mix of public investments in infrastructure and technology development, access to markets, and growth in off-farm employment as major incentives for resource intensification. Investments should be targeted to roads, agricultural research, and education and training. To mitigate market risks, investment strategies should help reduce and stabilize transport costs, improve physical security through rural law and order, and encourage new entry to stimulate competition.

Strengthen Institutions. Local governments, agricultural extension services, and NGOs should work together to increase the availability and knowledge of suitable and productive technologies, secure tenure and land rights, provide equal access to local institutions and their programs, support pro-poor macroeconomic policies, and enable communities to mobilize additional resources to improve alternative livelihood strategies. Such institutions should also develop systems to manage risks and common property.

Consider Innovative Policy Options. To support pro-poor sustainable development, programs should allow communities to choose from a menu of incentives based on specific opportunities. These incentives could include well-known activities such as emergency food aid, food for credit, and education and training. Decision makers also may consider novel or more controversial instruments such as creating new

markets for environmental services, establishing new land and water allocation systems, and creating institutional arrangements improve links to markets.

Facilitate Remittances and Their Productive Reinvestment. Transaction costs such as bank wire transfers often eat up remittances, and financial products may not be available locally. While immediate consumption is a legitimate use of remittances, it is important to create opportunities for reinvestment. Of particular importance may be reinvestment in natural resource stewardship. ■

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ANALYTICAL TOOLS: KNOWLEDGE MANAGEMENT

Program planning, implementation, monitoring, and decision-making are all knowledge intensive and in many cases, knowledge more than financial resources is key to spurring rural development. Knowledge management is an attempt to support systematic transfer, exchange, and synthesis of ideas, expertise, and lessons learned through not only the compilation of facts and best practices but also by bringing together those with expertise and experience to share information and evaluate its utility. It can be difficult to make such communities work for a variety of reasons: difficulty finding common ground, self-selecting membership, too narrow or broad a focus. The following are recommendations for improving information and knowledge management systems to support the planning and implementation of NRM and poverty reduction programs:

Improve data and information use and support the use of new techniques and linkages to classical and local information tools. New information tools such as remote sensing, geographic information systems (GIS), and decision support tools can be used for better information. These techniques should be carefully integrated with classical techniques (inventories and ground surveys) and with local monitoring.

Develop networks and communities of practice. Communities of practice have proven to be powerful tools for sharing experience, capitalizing on empirical data, building capacity, and lobbying. They are particularly useful for bringing out tacit or informal knowledge. Human dynamics and not technology are the most important aspect of sharing and managing knowledge.

Develop monitoring and evaluation at all levels. Monitoring and feedback is essential for good management and planning. Monitoring should be of sufficient depth to capture information needed for adaptive management and social learning.

Use science as a support tool and to set limits—not to set objectives. The biophysical sciences are powerful tools for setting limits and defining possibilities in NRM programs. Setting objectives, however, is a social process.

Capitalize on field experience. A wealth of field experiences exists for development programs. Learning from what has already happened (both positive and negative) helps managers and planners build successful programs.

Increase transparency and access to resources. Availability of information is key to sound planning, monitoring, and management. Access is needed to not only technical but also economic, legal, and policy information.

Knowledge and information management tools and communities in poverty reduction and natural resources management include:

- FRAME: <http://www.frameweb.org>
- USAID's Poverty Frontiers: <http://www.poverty-frontiers.org>
- CBNRM Network: <http://www.cbnrm.net>

CASE STUDY: Bangladesh Fisheries Management



Community members map resources associated with the fish sanctuary that they manage.



Two men identify and count fish in a community-managed wetland.

In the vast wetlands of Bangladesh, inland fisheries provide food and income for perhaps 70 million rural households. Here, the extensive rivers and floodplain wetlands of the Ganges-Brahmaputra delta rank third in global freshwater fish production behind China and India. In the 1990s, several projects working with the Department of Fisheries and national NGOs began addressing two negative trends affecting the wetlands: a decrease in area due to environmental degradation in the watershed, and the concentration of income among a handful of leaseholders.

Since 1998, USAID has supported sustainable wetland resource management through the Management of Aquatic Ecosystems through Community Husbandry (MACH) project (MACH translates as “fish” in Bengali). The project helped establish 16 community resource management organizations that are registered with the government and have secured access for 10 years to certain water bodies.

To assist these organizations in adopting best practices for wetland management, the MACH project followed a community development

model that included the following key steps:

- Mobilize communities to register organizations that are empowered to conserve local wetland resources
- Establish co-management committees comprising local government officials and community leaders to oversee wetland resource management
- Help communities develop resource management maps and plans
- Undertake habitat restoration activities
- Adopt conservation measures for sustainable harvesting
- Provide training and credit to generate alternative income activities to reduce harvest pressure

These community organizations have adopted best practices such as: (1) creating 72 fish sanctuaries; (2) adopting harvest restrictions during fish breeding season; and (3) implementing habitat restoration projects to improve fish passage, increase water movement, and create perennial fish refuges. These community-based efforts and conservation strategies have produced measurable improvements in key indicators:

Increased fish catch and consumption. Between 1999 and 2004, catch per hectare grew 140 percent and fish consumption increased 52 percent, providing an important source of protein to rural communities.

Improved biodiversity and watershed management. Contour planting of about 600,000 trees stabilized river banks to reduce sedimentation, improve soil fertility, and restore rare local species.

Enhanced incomes for wetland resource users. Over the five-year period, fishers gained US\$4.7 million due to higher catches, earned an extra US\$0.8 million from new enterprises, and raised daily per capita incomes from US\$1 to US\$1.34.

These benefits accrued mostly to the poor and to the 85 percent of households involved in the fishing sector. By 2005, almost 4,000 families had increased their annual incomes by 65 percent, and were able to leave the fishery sector for other opportunities.

FIGURE 5: FISHYIELD AND FISH SANCTUARIES IN MACH SITES

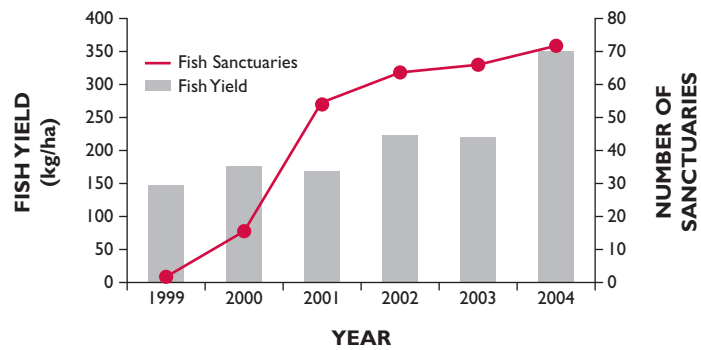


FIGURE 6: MICRO-CREDIT SUPPORT THROUGH MACH

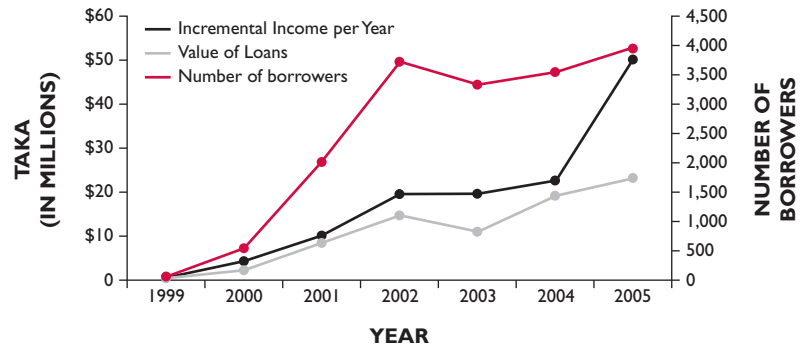
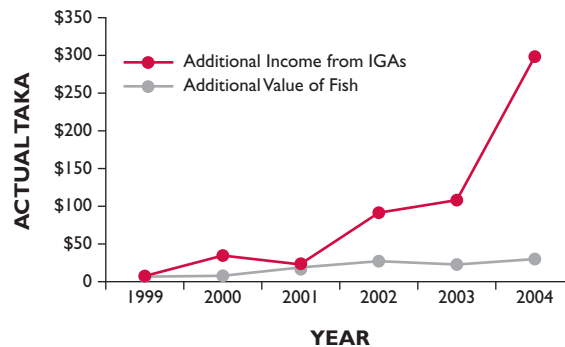


FIGURE 7: INCREASES IN INCOME IN MACH SITES



SOURCE for Figures 5, 6, and 7: USAID/MACH Field Report. Winrock International.

SECTION VII:

CORRUPTION AND CONFLICT

Overview of Corruption

Since natural resources have high, multiple values, they are often the subject of intense competition. Resource use is best managed by rules, norms, and laws, but when these practices fail, competition may evolve into forms of corruption. Corruption can be defined as the misuse of entrusted public power for private gain. It includes stealing, fraud, bribery, kickbacks, favoritism, and patronage. A person may defraud others in the name of an employer or deceive an employer to profit themselves or others. Bribery may occur to gain access to scarce resources, such as securing a forest concession; receive discretionary favors, such as avoiding prosecution for a forest offense; or receive incidental benefits such as winning a timber transit permit. A corrupt official may award a concession to his own firm (self-dealing) or facilitate nepotism and cronyism. Finally, several different forms of kickbacks may result: direct payments to officials; excessive gifts and hospitality; and payments from subordinates.

There are various ways to categorize corruption. It is useful to understand who is abusing authority and the legality of associated actions. Corruption occurs at several scales, such as:

- Lobbying or overarching corruption wherein a corporation may bribe a government body to re-

shape forestry or land use laws to its benefit

- Grand, or high-level, corruption (for instance, a head of state awards a major forest concession to a family member's firm)
- Petty corruption (for example, a forest guard who has a small salary extracts bribes to feed his family)

Regardless of its cause and magnitude, corruption may divert money from the natural resource sector to elite groups, thereby depriving governments and local people of critical revenue.

Governance and Corruption

Forests represent enormous natural capital and supply legal and illegal markets around the world. The World Bank estimates that practices like illegal logging cause annual losses of \$10 billion to \$15 billion in developing countries. Countries such as Indonesia, Malaysia, Brazil, and Russia often produce up to half their logs illegally. In such cases, government corruption plays an important role

Corruption and conflict can lead to the degradation of natural resources that the rural poor depend on for their livelihoods.

with poorly enforced quotas, concessions given to friends, and bribes driving most harvest, trade, and export operations. In this context, legal producers face an unfair advantage and governments lose large amounts of legitimate tax income to corrupt officials. Often conducted by “hit-and-run” bandit companies, illegal harvests also threaten the livelihoods of local communities and destroy natural resources and critical habitats. Government corruption contributes to other forms of environmental degradation, and several studies link it to drastic declines of forests, elephants, and rhinos in Africa. In addition to forestry, this kind of corruption also characterizes other extractive industries such as minerals, oil, diamonds, and gold.

For these reasons, funding agencies work to develop and enforce codes of conduct and strengthen forest and wildlife protection law enforcement. In response to this problem, many organizations and countries have developed local governance bodies to monitor forest activity, implemented certification and chain-of-custody

requirements, and signed international agreements with NGOs and private companies in wood markets. Several donors, NGOs, and watchdog groups such as Transparency International (Integrity Network), International Tropical Timber Organization, Center for International Forestry Research (CIFOR), and USAID (Congo Basin Initiative) have developed measures to assess corruption in governance. For example, the Extractive Industry Transparency Initiative attempts to curb corruption in these sectors by promoting financial transparency. The World Bank and the Millennium Challenge Corporation also have policies to link good governance and corruption to wise resource use in extractive industry sectors.

However, these governance measures usually track indicators of corruption at the national level—they fail to account for corruption at other levels across private and public sectors. Recent studies stress the complexity of corruption and emphasize that it has direct and indirect links to environmental and socioeconomic outcomes. As a result, corruption does not necessarily lead to environmental degradation and does not always have a direct cause-and-effect connection. For example, when public officials extract bribes to facilitate illegal exploitation, resource use may actually decline. Moreover, if political corruption favors urban areas and leads to rural-to-urban migration patterns, it may also discourage natural resource exploitation. On the other hand, countries with good governance scores may allow financial contributions or other forms of lobbying to establish permissive extraction policies that lead to resource decline. For these

reasons, policy makers should seek to understand causal mechanisms relating corruption and resource use, and avoid simplistic models that only link poor governance to environmental degradation.

In 2005, USAID launched an anti-corruption strategy to develop better ways to address both grand corruption and lower-level, administrative corruption. In many poor countries, corruption in the natural resource sector takes on special significance because of the overwhelming importance of these resources as sources of wealth and growth. USAID's approach focuses on preventing corruption and on civil aspects of enforcement by giving technical assistance to countries to address the causes of corruption and to change behaviors and incentives. For example, in Madagascar, USAID recently supported the new Ministry of Environment's campaign to clean up logging permits. A coalition comprising the National Forest Service, the National Forest Observatory, and several conservation organizations surveyed the various types of permits and canceled any that were irregular, or that had not paid the required fees. This resulted in the revocation of 300 out of 380 permits.

Environment and Conflict

The development community is giving increased attention to the relationship between natural resources and conflict. In many recent conflicts, valuable or scarce resources, such as land, timber, or minerals, have played a role in both causing and sustaining conflict. For example, illegal timber products in Liberia and

Cambodia have financed civil wars and military campaigns. Diamonds and other minerals have been implicated in conflicts in Liberia, Sierra Leone, and Democratic Republic of the Congo. Forests have provided refuge and food for armed groups.

Conflicts arise due to many factors, including competition for scarce resources, ethnic or religious tensions, competition over political power, dissatisfaction or desperation on the part of marginalized groups, or deliberate attempts by the state to subjugate particular groups or extract resources where there are competing claims. There are also several links between environment and conflict. One link focuses on resource scarcity as a cause for insecurity and conflict. Migrations, expulsions, economic decline, and environmental degradation often result from decreasing quality and quantity of natural resources, population growth, and unequal resource access. These factors ultimately lead to weakened states and further adverse impacts on the poor. Weakened states see more ethnic conflicts, coups d'état, and situations wherein elite groups extend control over productive resources and displace poorer communities.

Other conflicts result from environmental abundance. Markets for forests, diamonds, gold, water, and fisheries and trade in endangered species represent valuable resources worth fighting for. These resources are portable, lucrative, and easy to trade on legal and illegal markets. Studies indicate that countries with high rates of poverty, low growth, and abundant primary commodities face a dramatically higher risk of conflict than other poor countries. Ironically, resource

abundance can be more important than ethnic animosities or weak political systems in causing conflicts.

Conflicts also result from economic and social transitions from a subsistence to a market economy. In this context, conflict often occurs in remote areas where local communities resist resource exploitation by large-scale development projects. These conflicts can be mitigated by strengthening local markets and community-based resource management models.

Regardless of the various causes, conflict can foster negative livelihood strategies that lead to criminal activities such as illegal logging, wildlife poaching and smuggling, and large-scale overexploitation of forest and fishery resources. Large-scale violent conflict, sometimes called “development in reverse,” also has devastating long-term impacts on national and individual well being. In some sense, conflict is pervasive and sometimes necessary for change. Under the right conditions, “bounded conflict” can be a positive force for change. To effectively manage conflicts and produce positive outcomes, however, governments and communities require mechanisms and structures to resolve tensions, administer justice, and build consensus strategies at the affected levels of society.

Conflict, Environment, and Pathways to Peace

Recent conflicts and resolutions show that there are opportunities to focus on environmental problems as part of a broader peacemaking effort. Since environmental resources such as river basins, forests, and protected

areas often cross national boundaries, they present important topics for regional and international dialogues about their use and shared access. Moreover, the interdependence of diverse groups on these resources offers strategic venues to foster dialogue and transform tensions and insecurities into peaceful relationships among nations and civil societies within and across national boundaries. Examples include the Peace Parks or Transfrontier Conservation Areas (TFCAs) in Southern Africa and the jointly managed conservation areas on the Peru-Ecuador border. Jointly managed river basins such as the Okavango in Southern Africa, the Nile in Eastern Africa, the Indus in Asia, and the Amazon in South America provide other examples that require transboundary management strategies. Effective programs in these areas can help build consensus around environmental resources and address other concerns facing neighbors in the region. For these reasons, environmental cooperation and joint natural resources management can be a proactive conflict prevention or mitigation strategy.

Considerations for Planning and Implementation

Understand the Mechanisms of Corruption. Since corruption can occur in multiple forms at several levels of society, developing good policy depends on understanding the sources, motivations, and impacts of corruption in that society.

Strengthen Enforcement. Many developing countries have sound NRM laws, but lack the political will or resources to enforce them.

Development programs should stress the importance of enforcing existing laws and avoiding cooperation with individuals and institutions unwilling to carry out enforcement mandates. Effective governance systems should encourage fair and transparent law enforcement.

Enforce Regulations in the Financial Sector. Weak financial regulations support illegal markets and money laundering schemes. Tighter oversight, monitoring, and reporting of commercial transactions could reduce the profitability of illegal resource trade.

Promote Sustainable Management. Certification programs can strengthen governance, increase transparency, and increase equity among stakeholders.

Improve Governance Institutions. Effective institutions can provide conflict mitigation and prevention mechanisms at different levels and scales of conflict. Participatory decision-making by all stakeholders should promote solutions that diffuse tensions and share benefits. Strengthening institutions at national, local, and even international levels can also help. Partnerships with international NGOs can help implement programs for conflict mitigation and management strategies.

Integrate Livelihood Strategies. Interventions that broaden the range of alternative livelihoods, ensure fair prices, and distribute benefits equitably to the poor should be part of long-term conflict prevention and mitigation strategies.

Strengthen Resource Rights. Government officials should clearly define resource ownership, use, and ac-

cess rights to forests, land, and water. These resource tenure rules are pre-conditions for peaceful co-existence in resource-rich areas.

Do No Harm. Governments and NGOs should integrate “conflict sensitivity” and contingency planning into conservation operations and make sure that their activities “do no harm.” This means that aid should not exacerbate or contribute to the sources of violence and weaken the opportunities for peaceful conflict resolution. Policy makers should be flexible in budgets and workplans for conflict-related programs and they should be able to respond to changing conditions and crises. ■

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SECTION VIII:

DISTRIBUTION OF ENVIRONMENTAL COSTS AND BENEFITS

Equity and Distribution of Environmental Benefits

The distribution of environmental costs and benefits (environmental distributions) is determined largely by government policies and practices, including environmental regulations (distribution policies). Environmental distribution is a common and powerful instrument used by governments around the world to create economic, political, and other incentives to support various national objectives and public interests.

In Nigeria, the distribution of oil revenues is a constitutional matter. Following decades of violent conflict, including the Biafra separatist movement, the federal government recently increased the oil derivation—from two percent to 13 percent—to the nine oil-producing states, principally to reduce conflict. In Cameroon, provincial governments receive 40 percent of the annual area tax collected on forest concessions in their jurisdiction, and another 10 percent is passed on to the communities adjacent to the concessions.

Equitable distribution has also been an incentive for sound environmental management. In Kenya, 25 percent of the entrance fees to national parks

are reinvested in development initiatives in the adjacent communities—those most adversely affected by the parks. In Uganda, the park derivation recently rose from 12 to 20 percent to further encourage surrounding communities to support conservation. In India, the 25 percent share of profits from wood sales to local communities has created incentives for better forest management, and has reduced chronic violent conflict between communities and the Indian Forest Service. To strengthen the negotiating positions of communities, including for derivation, NGOs are leading efforts to provide local peoples with the authority of free, prior, and informed consent (FPIC).

Environmental justice is the fair distribution of environmental costs and benefits, but in many countries, policies that dictate the distribution of environmental benefits favor better-off regions and people. Typically as resources gain value (usually through commercialization), the elite, sometimes with the government, benefit most. In many countries, current dis-

tribution policies contradict poverty reduction, environmental management, and other national objectives. Environmental distribution policies are often enriching the political and economic elite and ensuring that disproportionately large shares of environmental and other costs are passed on to the poor.

Some researchers claim that inequity promotes economic growth because profits are reinvested in new productive ventures to create income-generating opportunities, yet current development literature argues that inequity retards growth when income is reinvested abroad, consumed as luxury goods, or used for political patronage. Much of this literature concludes that more equitable distribution of income and assets, including environmental goods, can foster growth, whereas high inequity retards it. Thus, reducing inequities can benefit the poor by increasing their assets and enabling their participation in emerging economic opportunities while promoting overall economic growth.

The equitable distribution of environmental costs and benefits is key to reducing poverty.

In contrast, exclusion and inequality can lead to resentment, violent conflict, and separatist movements as has occurred in Angola, Indonesia, Nigeria, Sudan, and Zaire. Inequity linked with high poverty and authoritarian regimes is particularly volatile. Without opportunities to share views and influence public policy, people may turn to civil disobedience and other non-democratic means to make their opinions known. Ensuring fair distribution of natural resources and benefits to remedy justice, especially after a period of conflict, can relieve tensions and allow for a more stable society. In this way, distribution can be central to any peace-building or reconstruction program and can be undertaken in concert with democratization efforts to ensure a more balanced distribution of power.

Increases in income and/or changes in asset distribution can reduce poverty. Lacking access to services (infrastructure, markets, education) and resources (finances, equipment, land), the poor cannot participate in or benefit from economic opportunities. While inequality is persistent, policies that are sensitive about distribution can greatly enhance poverty reduction—especially for the poorest. In high-inequity, high-poverty countries (most are in Africa and Latin America), research shows that equitable distributions can be more effective than economic growth alone in reducing poverty. In these cases, the inequity effect on poverty is a greater determinant of poverty than the growth effect. Even small distributional changes can have a large effect on building the assets of the poor and on reducing poverty. Increased benefits can also create incentives for citizens and local governments

to manage natural resources in a sustainable way rather than disrupting the use of resources, for instance, by sabotaging oil and gas pipelines.

Environmental distribution is particularly effective for poverty reduction and natural resources management when household and national economies are dependent on resources. Research shows that the poorer the country, the more significant natural capital is in determining the overall distribution of wealth. In such nations, the rural poor are more dependent on ecosystems than the urban wealthy (although the wealthy tend to use more resources per capita). With fewer options, the poor are more vulnerable to environmental degradation and the loss of access to natural resources. Further, productive land and high-value resources are neither evenly distributed geographically nor accessible to all citizens. In the absence of distribution policies, resource-rich regions and people with access to productive lands may prosper while those with no valuable resources or with access only to low-value resources remain in poverty. Of the three principle types of productive assets—natural, human/social, and physical—only existing stocks of natural capital can be distributed quickly and relatively easily, partly because many natural resources are already “local.” Given the slow rates of industrialization and persistent weak manufacturing sectors in most developing countries, intensive use of natural resources will likely continue to drive economies for generations. Ensuring that these resources are managed in a sustainable manner and that their benefits are fairly distributed is central to poverty reduction.

Commercial Profits

The distribution of revenues/profits among sectors along a commodity chain from the source to the domestic or international market has significant impacts on poverty. The choice of local institutions is key to devolving revenue-generating and other authorities that have potential implications for environmental management and poverty reduction. Public policies contribute to determining the profit captured by the various actors. For many commodities, regulatory policies ensure that benefits are concentrated and captured by the elite. There is a need to increase the return on the poor’s natural resource assets and enable them to capture more profits as direct income. More equitable access to domestic and global markets can go a long way toward increasing retention of local benefits. The key is opening profitable activities to rural populations by improving access to labor, processing, and trade opportunities in the local arena and higher up in the marketing chain. Further, increasing local revenues from harvesting and sale of natural resources also increases local government revenues by expanding the tax base.

Public Revenues

Inter-jurisdictional equity is the equity across districts within a nation, and intra-jurisdictional equity is the equity across communities within levels of public administration below the central government. Inter-jurisdictional equity is often a function of the willingness of the central state to engage in distribution among regions. Intra-jurisdictional distribution is considered a function of decentralization, but recent research concludes

that responsiveness to the poor is a rare outcome. Local authorities are often thought to be more effective than the central state at serving the poor, but evidence shows that this is often not the case. Positive outcomes are mainly associated with strong commitments by national governments or ruling parties to promote the interests of the poor. The distribution criteria (distribution through central government expenditures on public services, transfers to local authorities, disbursements to citizens) used by central and local governments in allocating public revenues from natural resources rarely depends on whether they promote poverty reduction and sound environmental management. FPIC is important for promoting distributional equity in countries that do not have fully consolidated democratic governance systems.

Considerations for Planning and Implementation

Focus on policies that impact distribution as well as production/productivity. Policies that increase production and productivity of natural resource systems alone may not be enough to reduce poverty. These policies have to be targeted towards the poor and the assets of the poor—usually land, labor, and social networks. In addition, the distribution of assets and revenue is critical. Policies that encourage a fair distribution of productive assets and revenue can help stimulate growth as well as be pro-poor.

Understand how natural resource commodity chains impact the poor. Linking producers to markets is a powerful poverty reduction tool.

However, sometimes low-income producers are disadvantaged by commodity chains, especially if they lack access to information, credit, insurance, competing buyers, and other factors. It is important to understand the distribution of benefits within the commodity chain and its poverty impacts. Good tools exist for commodity chain analysis. It is also important to understand and plan for the broader environment of the chain—including ecological and governance (political and social) impacts.

Promote transparency and fairness in the allocation of public revenues generated from natural resources. Governments often directly or indirectly generate significant revenues from the exploitation of natural resources. The way this revenue is reinvested has key poverty impacts. Public administrations can often use support to optimize pro-poor impacts of public expenditures and to make allocations in a transparent and fair manner.

Strengthen multi-stakeholder negotiation platforms and conflict management. Natural resources, either through scarcity or through value, often generate multiple interests and competition. It is useful to support mechanisms that allow fair negotiation of this multi-stakeholder interest and competition. To the extent possible, these negotiations should include all interested partners and the playing field should be leveled. ■

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CASE STUDY: Namibia Wildlife Conservancies



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Torra Conservancy Community Game Guards fill in data sheets for wildlife sightings as part of the conservancy's wildlife monitoring program.

Located in southwestern Africa, Namibia is home to 32 species of large mammals, including game species such as oryx, springbok, kudu, warthog, buffalo, and bushpig. Historically, wildlife populations have been owned and controlled by the state. In 1968, as wildlife populations declined, the Government of Namibia granted rights to commercial farmers to manage and benefit from wildlife on their lands.

While wildlife populations on commercial lands increased, populations on communal lands (42 percent of the land area in Namibia) continued to decline. Local residents had little incentive to conserve wildlife, particularly animals that threatened livestock and livelihoods. In the 1980s, herds of springbok, zebra, and gemsbok consisted of fewer than 1,000 animals each. In 1996, the Namibian government passed legislation granting rights to communal farmers to manage wildlife on their lands through community-

based conservancies. To qualify, communities were required to:

- Define the conservancy boundary
- Elect a committee of representatives
- Negotiate a legal constitution
- Prove financial responsibility
- Produce a plan for equitable distribution of wildlife-related benefits

The Living in a Finite Environment (LIFE) program, supported by the Namibian Ministry of Environment and Tourism, USAID, and World Wildlife Fund, helped communities establish conservancies, set up sustainable management programs, and facilitate the return of social and economic benefits to these communities.

Between 1998 and 2004, legally recognized conservancies rose in number from four to 31. Active conservancy members play a hands-on role in natural resources management. They collect and analyze wildlife population data, develop networks of citizen monitors, and participate in the decision-making

process through formal meetings and established management mechanisms. Results of this community-based approach to wildlife management include:

Increased wildlife populations.

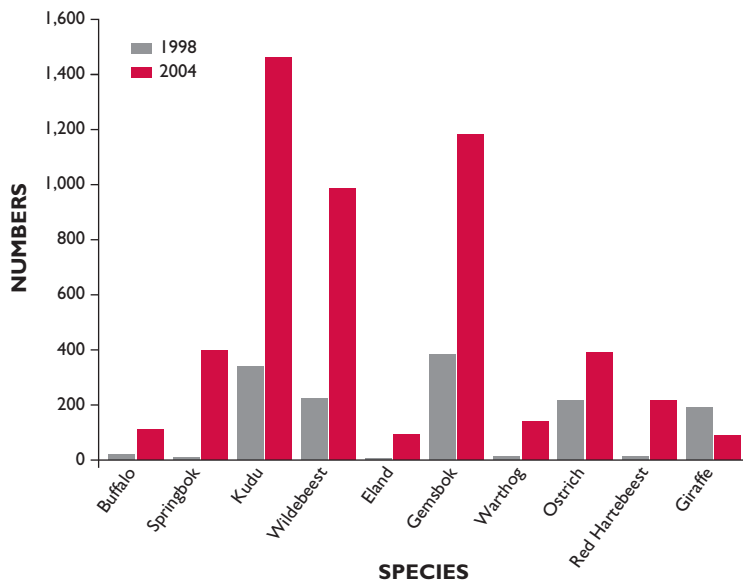
Between 1998 and 2004 populations of buffalo, springbok, kudu, wildebeest, eland, gemsbok, warthog, ostrich, and red hartebeest increased, sometimes dramatically.

New jobs. New jobs in the sport hunting, ecotourism, guide services, handicraft, and lodging industries employed members of local communities in 547 full-time and 3,250 part-time positions.

Increased income. Total income from 18 conservancies grew from N\$1.1 million in 1998 to N\$14.1 million in 2004.

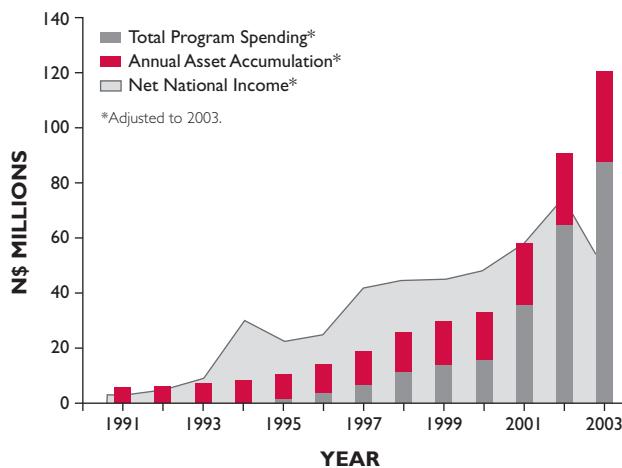
Community investment. Several conservancies have used income to build schools and water systems and establish training programs.

FIGURE 8: INCREASE IN WILDLIFE POPULATIONS IN NAMIBIAN CONSERVANCIES



SOURCE: Adapted from WWF/LIFE Project. AMPR Update, 2005.

FIGURE 9: CBNRM SPENDING VERSUS CONTRIBUTION TO NAMIBIAN NET NATIONAL INCOME



SOURCE: WWF/LIFE Project. AMPR Update, 2005.

ANALYTICAL TOOLS: POVERTY MAPPING

Poverty maps are spatial representations of indicators related to poverty and human well-being. Indicators may be economic (per capita income, daily subsistence levels), social (child mortality, literacy, access to health care), or environmental (distribution of and access to natural resources). Poverty maps allow for comparison of indicators across sectors as well as analysis based on administrative or ecological boundaries. In the NRM sector, poverty maps can be used to analyze the relationship between poverty and water pollution, access to natural resources, natural hazards, and land tenure. Mapping efforts can help answer program and planning questions such as:

- Where are the poor?
- Which areas provide what amount of ecosystem services?

- How does the location of poverty compare to the distribution of ecosystem services?
- Who has access to the resources, who benefits, who bears the costs, and what are policy makers doing to improve the situation?

A study conducted by WRI and UNEP/GRID-Arendal that examines uses and impacts of poverty maps in 14 countries. Highlights of the case studies include the use of poverty maps to implement national and international poverty reduction strategies, improve targeting of public expenditures, coordinate emergency response and food aid programs, contribute to state- and local-level decision-making, and increase transparency of public decision-making. The study is available at WRI's Web site: <http://www.wri.org>.

SECTION IX:

CONCLUSION

Poor people and poor countries tend to be dependent to a large extent on natural resources for growth, poverty reduction, and empowerment. The relationship between natural resources management and poverty is complex and dynamic. It is difficult to synthesize these relationships in a few paragraphs; what follows here are some general considerations to better integrate natural resources and poverty reduction in development programs and strategies.

Recognize the Importance of Natural Resources for Poor Countries and Poor Households. Most poor countries and most poor communities are dependent on natural resources. Natural capital is a much greater share of wealth for the poor than for the rich. Poor countries generally have small service and industrial sectors and poor people have limited access to financial and produced capital. Thus, natural resources must be recognized as a major—if not *the* major—asset of the poor. This understanding should be integrated into country strategies and programs, including through PRSPs, approaches to the MDGs, USAID Mission strategies, decentralization policies, and other economic and political instruments; governments, NGOs, and other institutions must give careful consideration when developing such programs. Given the

Natural resources must be recognized as a major—if not *the* major—asset of the poor.

importance of natural capital in the economic portfolio of the poor, both economic growth and poverty reduction programs must focus on improving the poor's access to and use of natural resources.

Focus on the Talents, Challenges, and Opportunities of Poor Rural Households. The portfolios of the poor are dominated by human, social, and natural capital. Pro-poor approaches focus on these assets and increase the poor's return from labor, institutions, and natural resources. The asset-based approach starts and ends with poor households. Understanding what poor households need to succeed, how local institutions and markets need to be restructured to allow these households to participate, and how policies and institutions can be used to adjust the incentives in these markets are key questions that drive the design of asset-based development.

Strengthen Pro-Poor Systems of Access to and Control Over Natural Assets. Both procedural and property rights are important for systems of control and access. Lack of control over available resources and inability

to participate in decision-making processes often limit the poor's ability to use natural resources in a sustainable manner to accumulate wealth. Regardless of the resource or form of tenure, rights over resources (including secure use rights and property rights), especially land, are often the most fundamental building blocks of prosperity for the poor. Resource rights reform lies at the heart of pro-poor policies for those dependent on natural resources. Policies and programs should reflect that tenure systems are complex, plural, and dynamic. Currently, many poor households lack formal titles to their property, and for this reason, operate their businesses outside the formal economy. With little or no access to the formal economy, the poor lack contact to financial services and contractual mechanisms that would allow them to exchange goods and obtain services in the expanded market. Hence, an integral component of an effective poverty reduction framework is to ensure that poor households have entrée to expanding economic opportunities through greater access to formal markets. This contact will allow poor households

to make better use of their assets and receive improved economic returns from their investments. Better formal recognition of the capital assets of the poor can contribute to this opening. Further, systems of accountability, transparency, and democratic processes should be strengthened as well as the poor's access to such systems.

Strong Local Organizations Are the Backbone of Pro-Poor Growth.

Trade associations, producer and community groups, and effective partnerships with businesses, NGOs, and government groups can give low-income producers greater voice, increased market knowledge, and improved negotiating positions. Local organizations also affect economies of scale in input supply and output marketing. Local communities require training, capacity-building, and partnerships that provide or share management, marketing, and technical skills.

Corruption and Conflict Significantly Impact the Poor. Since corruption can occur in multiple forms at several levels of society, good policy depends on understanding sources, motivations, and impacts of corruption in society. In addition, good laws and regulatory frameworks are often not enough—fair and transparent enforcement of existing laws and implementation of rules and regulations is important. Conflict-sensitive development approaches also need to be systematically considered for all programs.

An Asset-Based Framework for Poverty Reduction Improves Social Benefits. An asset-based framework for poverty reduction encourages the development and strengthening of social capital—networks, systems of

reciprocity, and trust—which contributes to growth and resilience and is essential to the livelihood strategies of most poor households.

Natural Resource Economic Structures, Policies, and Institutions Must Work for the Poor. Economic structures, policy, and institutions can negatively affect or bypass the productivity and production of the poor. Equally important is that these elements impact the distribution of benefits and costs, sometimes to the detriment of the poor. The poor need better access to and control over the mechanisms that translate natural resources into wealth. Programmatic interventions need to include a focus on redistribution and better allocation of growth opportunities and outcomes.

Effective Policies Are Critical to Effective and Beneficial Natural Resources Management. Effective economic policies can increase the productivity of assets by ensuring access to functioning markets and investing in appropriate technologies. To strengthen pro-poor financial institutions, exclusionary mechanisms that prevent poor people from gaining access to credit, land rights, insurance, and social networks must be identified and removed. Due to the complex effects of markets and trade on poverty reduction, NRM programs should analyze specific market conditions and gain an understanding of how market dynamics affect both poor populations and natural capital. Interventions to strengthen markets and reduce transaction costs can employ several options. To mitigate risks from thin markets, investment strategies should help reduce and stabilize transport costs, improve

physical security through rural law and order, and encourage new entry to stimulate competition.

Protect and Enhance the Poor's Return on Investments. In addition to protecting assets, steps need to be taken to enable poor households to enhance the returns they earn from assets they currently control and to acquire new assets. Pro-poor policies and an effective institutional environment are central to ensuring that the poor optimize returns on their assets. Pro-poor policies can range from sound macroeconomic policies to incentives for poor households to invest in the education of their children.

Build Resilience to Risk, Shocks, and Vulnerability. Fostering resilience, or reducing risk and vulnerability, is a relatively new concern in poverty reduction programs. Shocks are a critical component of poverty. Building resilience to shocks and mitigating risk and vulnerability must be part of any pro-poor intervention. The effectiveness of interventions can be improved by diagnosing the kind of shock, or trend, and applying appropriate remedies. Shocks can be rapid or slow onset; they can adversely impact some individuals or whole groups or regions. When individual households experience a shock, informal transfers and social support systems often provide important but incomplete support. Public employment and conditional cash transfer schemes offer valuable supplements.

Consider Various Options to Promote Resilience. There are many options to consider in an effort to promote the resilience of poor households. Access to life and health insurance, participation in pension funds, and access to secure savings instru-

ments are a few examples. Less direct measures, such as protecting access to common areas, may also be considered. Such efforts enhance the security of poor households and reduce their vulnerability to external shocks. With increased security and reduced vulnerability, poor households will have a stronger foundation for building a better future.

Access to Credit and Insurance Are Key to Individual Household Risk Management. With access to credit, households can access funds needed to rebuild lost assets, recover, and move onto a natural growth trajectory. In this context, policy makers should provide programs in microfinance, credit, insurance, and financial institution capacity.

Focus on Less-Favored Areas in Development Programming. Investments in LFAs can have clear environmental and poverty reduction benefits, and in some cases the economic returns can equal or be higher than those earned in high-potential areas. It is important to recognize the differentiated nature of rural livelihoods, identify the most-limiting resource constraints and market limitations, and design a demand-led framework that considers different co-existing livelihood strategies. Such a framework—based on community-driven development—requires decentralization of authority and public finance. It is also important to facilitate the flow of remittances and their productive re-investment.

Encourage Complementary Pro-poor Investments. Optimal portfolios will be a mix of public investments in infrastructure and technology development, access to assets, and engagement in off-farm employ-

ment as major incentives for resource intensification. Investments should be targeted to roads, agricultural research, and education. Investment strategies should help reduce and stabilize transport costs, improve physical security through rural law and order, and build the capacity of the rural poor to integrate tomorrow's economy and governance. ■

APPENDIX A:

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APPENDIX B:

LIST OF PRESENTERS

Chris Barrett is International Professor of Applied Economics and Management in the Department of Applied Economics and Management at Cornell University.

Jan Bojö is an Advisor in the World Bank's Office of the Vice President for Environmentally and Socially Sustainable Development.

Aaron Cosbey is an environmental economist specializing in the areas of trade and sustainable development, investment, climate change, and international environmental governance. He is Associate and Senior Advisor, Trade & Investment and Associate, Climate Change & Energy at the International Institute for Sustainable Development, Winnipeg.

Geoff Dabelko directs the Environmental Change and Security Project (ECSP), a nonpartisan policy forum on environment, population, and security issues located in Washington, D.C., at the Woodrow Wilson International Center for Scholars.

Gary Eilerts was a Peace Corps volunteer in Ivory Coast before receiving his Bachelor's degree in Geography, and a Master's degree in Regional Planning from the UCLA School of African Studies. In 2002, he joined USAID's Office of Food for Peace as the FEWS NET Program Manager, and opened new FEWS NET activities in Afghanistan, Central America, and Haiti.

Norbert Henninger is Deputy Director of the World Resources Institute's Global Information Program.

Nalin Kishor has worked on economic development and poverty reduction issues for more than 15 years, including more than 12 years at the World Bank.

John Lamb is an agricultural trade expert specializing in sector/sub-sector policy and strategies for value chain, supply chain, and cluster development, particularly for non-traditional export products. He is Principal Associate (Agribusiness) at Abt Associates Inc.

Ruth Meinzen-Dick is a Senior Research Fellow in the Division of Environment and Production Technology at the International Food Policy Research Institute.

Augusta Molnar is Director of the Community and Markets Program at Forest Trends.

Kevin O'Neil is an Associate Policy Analyst at the Migration Policy Institute (MPI), where he focuses on European Asylum and Migration Policy and on the North American Borders and Migration Agenda, as well as migration and economic development.

John Pender leads the International Food Policy Research Institute's research program on policies for sustainable development of less-favored lands.

C. Anthony Pryor is a Senior Manager at the International Resources Group, Ltd. (IRG).

Sara Scherr is an agricultural and natural resource economist specializing in land and forest management policy in tropical developing countries.

Miguel Schloss is a Managing Partner at DAMConsult, Ltd. in Washington D.C., where he works with strategic planning; policy, regulatory, and governance issues; quality assurance and internal control arrangements; financial and organizational structuring; and resource mobilization.

Dan Tunstall is Director for the Global Information Program at World Resources Institute.

Peter Veit is Regional Director for Africa in the Institutions and Governance Program at the World Resources Institute.

Andrew Warner is the Senior Economist at the Millennium Challenge Corporation, a new U.S. foreign assistance corporation established by an Act of Congress in January 2004.

Katherine “Kadi” Warner is the Managing Director of the Forestry & Natural Resource Management Unit at Winrock International, a nonprofit organization that works with people around the world to increase economic opportunity, sustain natural resources, and protect the environment.

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