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MACROECONOMICS FOR SUSTAINABLE DEVELOPMENT PROGRAM OFFICE

M/P/O

POVERTY ENVIRONMENT

Developing and Applying Poverty Environment Indicators




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POVERTY ENVIRONMENT

Developing and Applying Poverty Environment Indicators

Presentation

For over a decade, WWF's Macroeconomics Program Office (MPO) has analyzed and tried to influence the impact of macroeconomic reforms on the environment and the rural poor in more than 20 developing countries. Our analytical work, shared through book-length publications, numerous monographs, and diverse articles, has contributed to shaping public policy regarding the content and implementation of macroeconomic instruments.[1] More recently, strategic interventions to support poverty reduction and improved natural resource management[2] in five developing countries (China, Indonesia, El Salvador, South Africa, and Zambia) under the umbrella of the Economic Change, Poverty and the Environment project resulted in significant change at local, meso, and macro levels.

Our continued efforts to gauge the impact of macroeconomic and institutional reforms on the poverty-environment nexus (P-E nexus) have led us to examine closely the concept of poverty-environment indicators (P-E indicators). The use of P-E indicators is increasingly accepted among development agencies, NGOs, and developing country governments as a tool for designing, planning, and evaluating strategies and programs at various intervention levels. Our experience, through analysis and direct interventions, shows, however, that key drivers of the P-E nexus are often inadequately reflected in the indicator frameworks used by these institutions. The drivers that have frequently been left aside include, among others, the role of institutions, macroeconomic policies, regulatory regimes, and the exercise of power and privilege.

As the MPO reviewed ways of correcting this shortcoming, we were obliged to recognize that we are, fundamentally, a user of indicators, not a producer of indicators. We do not have the ability to produce or collect new data on many of the issues we deem important or the institutional capacity to conduct analysis and comparisons across a broad range of countries or ecoregions. Consequently, we recognize that our contribution, as a user, is limited primarily to identifying information and information systems that can help us analyze the most important facets of the poverty-environment dynamic as it pertains to major changes taking place in developing countries.

WWF-MPO's approach to developing and using P-E indicators is tied to our institutional mission. Foremost, we seek to protect the integrity of ecosystems

while ensuring improved well-being for the rural poor. Specifically, the WWF/MPO seeks to identify and remove key obstacles that prevent the rural poor from managing their natural resources sustainably and improving their livelihoods. From this perspective, we are concerned not only with using indicators to monitor conditions and changes, but also with how to guide interventions that seek to improve management of the P-E nexus. This activist orientation ultimately aims to put in place policies, institutions, or regulatory systems that will strengthen environmental management and improve rural livelihoods.

Developing an information system and indicators to serve these purposes poses considerable challenges. Those challenges include identifying a limited set of indicators that can capture the essence of poverty-environment dynamics in rural and peri-urban areas undergoing significant economic and institutional change. These indicators should serve the needs of key stakeholders-primarily local groups-by helping them understand and respond more effectively to the conditions in which they live. In addition to being cost-effective, indicators also need to be adaptable to a wide range of natural and social environments.

This document focuses on the design and implementation of a poverty-environment information system and the indicators that flow from that system. It consists of four complementary parts. In the first section, A Word of Caution, we highlight a number of considerations that we believe should be taken into account in designing an information system for the poverty-environment nexus. The second section, Review of Previous Initiatives to Develop Poverty-Environment Indicators, highlights the recent contributions from UK's Department for International Development (DFID) and the World Bank. In the third section, WWF-MPO's Approach to Poverty-Environment Indicators, we offer the specific elements of an information system and indicators to be applied in localities of developing countries. In the final section we discuss opportunities for applying the WWF approach to specific contexts in the developing world.

Using Indicators

These indicators should serve the needs of key stakeholders-primarily local groups-by helping them understand and respond more effectively to the conditions in which they live.

A WORD OF CAUTION

It is with caution that we approach the challenge of proposing a set of indicators for monitoring the poverty-environment nexus. Our caution arises primarily from the all too frequent misuse of indicators for purposes that they cannot realistically fulfill.

For the sake of clarity, we begin by distinguishing between more general data sets and specific indicators. Data sets are intended to be broad, inclusive quantified information about a given socio-economic context or change process. As such, data sets are often designed for use by a wide range of potential clients who may have equally diverse purposes in using the data, ranging from analysis to strategic planning at multiple levels. We encourage, whenever possible, production of rigorous, multidisciplinary data sets over extended periods to help analysts understand the characteristics and drivers of social change and enable them to design more effective programs to address specific problems.

In contrast, indicators are the small or focused end of a complex, multidimensional system of information about a given social experience. Indicators reduce this complex information system, including data sets, into a narrow band or specific type of information that reflects a selected part of a far more sophisticated web of experience. Indicators should be carefully chosen measures that reflect important aspects of processes of change taking place in a given locality or country. As condensed measures, indicators should attempt to provide, through a limited number of categories, significant information about a much larger societal dynamic.

Our second prefatory note regards the political nature of indicators and interventions that flow from their application. We raise this concern because of the alleged "neutrality" or "scientific" basis ascribed by some institutions to the particular set of indicators they choose to use. Poverty and environmental disruption do not occur as natural or neutral phenomena. Regardless of the country or local context, the P-E nexus is shaped by institutions and political arrangements that reflect the interests of competing social groups. Quite frequently, prevailing institutional arrangements allow natural resources and rural communities to produce wealth for more powerful elites. In this context, we become quite concerned when agencies propose sets of indicators that employ dozens of measures as a means of being "balanced" and inclusive. While such broad sets of indicators may provide a general understanding of a given situation, the very breadth of coverage may mask the most important problems facing the poor and the environment in a given locality. In fact, inclusion of too many indicators can allow worsening problems to pass as insignificant.

A third note of caution regards the dangers of creating and applying generic indicators. WWF has designed this approach to P-E indicators primarily for use with and by local stakeholders to analyze the impacts of direct interventions on social, economic, and ecological conditions at local, meso, and macro levels. Given our belief that indicators must be designed to address the needs of specific stakeholders, we are reluctant to suggest that there are generic indicators that can capture the basic poverty-environment dynamics in a

wide range of situations. Certainly, some agencies or research institutes may want to develop generic P-E indicators for conducting cross-country conditions. We must caution, however, that these higher level indicators may have little applied utility for local stakeholders seeking to improve local conditions through specific interventions.

Finally, the process of designing indicators can be as important as their actual implementation. The process of designing indicators can help local users in three distinct ways:

- Clarifying the purposes of interventions
- Refining the design of interventions and the activities to be undertaken during intervention
- Clarifying the resources to be used in undertaking the interventions.

All too frequently the process of designing indicators and associated information systems is delegated to "experts" and agents external to a process of change. If indicators and information systems are to be used to support the empowerment of local stakeholders, the design process provides a unique opportunity to strengthen local capacity and build social capital. WWF-MPO hopes that appropriately designed indicators become tools used with local partners in a process of empowering them as they seek solutions to P-E dynamics in a given locality or country.

We find that many of these issues can be addressed in large measure if the designers of indicators are explicit about the specific uses of indicators and if they are equally transparent about how the indicators are to be applied. Such transparency includes clarifying the relationship between the designers of indicators and the social groups or institutions that are the intended users and beneficiaries.

Seeking Solutions

WWF-MPO hopes that appropriately designed indicators become tools used with local partners in a process of empowering them as they seek solutions to P-E dynamics in a given locality or country.

RECENT INITIATIVES

A Review of Recent Initiatives to Develop Poverty-Environment Indicators

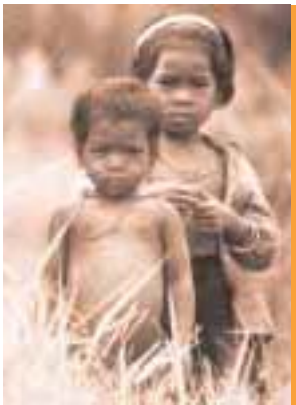
Development of P-E indicators is a relatively recent process that builds on the previous work of many diverse organizations, work that treated indicators on poverty and on the environment as separate issues. Development of P-E indicators, that is, measures that capture the complex dynamic between these two arenas, received considerable impetus in the late 1990s from the Poverty Environment Partnership created by leading development institutions. As part of our attempt to understand current P-E indicators, we reviewed recent studies including those of the UK's Department for International Development (DFID) and the World Bank. The review and critique in this section focuses on the framework or approach that was used to develop the set of indicators, rather than on specific indicators.

The World Bank's 2002 Study

The stated purpose of the World Bank's 2002 study, Poverty-Environment Indicators, is to "identify indicators that can be used to assess poverty environment interactions."[3] From the Bank's perspective, it seeks to develop indicators that can be applied "from local to global levels" and that can also be used to monitor changes "globally," that is, through cross-country comparison.

The proposed indicators covered two distinct, albeit complementary, fields. The first category it addresses is the relationship between environmental conditions (such as quality of water supply and levels of pollution and wastes) and human health. The indicators suggest a direct causal relationship between surrounding environmental conditions and the health of sectors of society determined by income level.

The second category of P-E indicators monitors the impact of resource loss as a determinant of poverty, measuring how the loss of access to resources "affect the well being of the poor." While recognizing the complexity of poverty-environment dynamics, the World Bank study examines only "how resource loss can act as a determinant of poverty." In this perspective, the proposed indicators monitor how issues of deforestation, water scarcity, overfishing, and land degradation affect the well-being of the poor. In exploring this relationship, the World Bank draws on and expands the OECD's Pressure-State-Response (PSR) model by adding a fourth dimension-poverty-making it a Pressure-State-Poverty-Response (PRPR) model. In this approach, not only should the indicators examine the pressures



acting on the environment, they should also examine the impact on the poor and, thereafter, the responses of the human community to those environmental and poverty problems. The Bank's study also encourages the use of poverty-environment maps to add a geographic dimension to the monitoring process.

The publication leaves little doubt that the approach is designed for use in cross-country analysis by international development agencies to track changes across a series of general poverty-environment themes. The indicators are information-intensive and require a fairly complex information system to support their effective use. For this reason, they do not seem well-suited for local users or even national agencies in most developing countries. Despite the author's suggestion to the contrary, the indicators seem most appropriate for assessing the design of generic programs such as PRSPs as they relate to the poverty-environment nexus but not for helping local organizations or government agencies strengthen their intervention strategies to reduce poverty and improve natural resource management.

Moreover, as the author recognized, these indicators do not look at the complexity of poverty-environment dynamics, including circular causality, feedback loops, and the impact of poverty on the environment. Rather the indicators look at the one directional change, that is, how the environment affects the poor, not how the poor affect the environmental assets on which their sustenance and livelihoods depend. In this sense, the indicators do not reveal how pressures from new development policies and programs, including economic reforms, reforms in natural resource management, and poverty alleviation strategies, influence the poverty-environment dynamic. While the Bank's approach has the merit of shifting the emphasis from just the poor and just the environment to monitoring the interaction between the two issues areas, its utility seems restricted to a limited number of large institutions as they examine one important part of the poverty-environment nexus.

DFID's study, Poverty and the Environment: Measuring the Links, further contributes to the development of generic poverty-environment indicators for cross-country analysis.[4] The study states from the outset that it seeks to "identify a generic set of indicators" suggesting that the information should contribute to strengthening the activities of development agencies working under the auspices of the OECD's Development Assistance Committee. By providing examples through summaries of applications in three developing countries, the study encourages adaptation to local contexts and to different users in developing countries.

The starting point of DFID's proposal is identification of the following priority areas to be covered by the P-E indicators.

- Environment and health
- Forest cover
- Soil degradation
- Water quality and quantity
- Fisheries
- Natural disasters
- Tenure and property rights
- Sanitation

Under each of these priority areas, multiple indicators were developed, including (1) proportion of poor with secure land use rights for farming (tenure and property rights); (2) hours spent collecting water by rural women and children (water quality and quantity); and (3) percentage of population living in areas prone to flooding (natural disasters).

A key strength of the DFID study is that it goes beyond indicators that monitor aspects related only to the environment or poverty, in an effort to examine the relationship between the two. The study underscores the diversity of poverty-environment dynamics

in developing countries and underscores the need to adapt the approach to local contexts. Second, the study does not limit itself to proposing a set of indicators, but evaluates relevance and data availability across a range of developing country contexts. The testing of these indicators in applications in Uganda, Nepal, and Nicaragua highlight the complexities of applying generic indicators in specific countries and the challenges of applying them in cross-country analysis. While the generic indicators offered by DFID do not suggest ways to ensure adaptation to local conditions, the accompanying case studies provide insights into how such adaptation was necessary in the three countries.

An Assessment

Overall, we believe that both studies contributed significantly toward developing effective P-E indicators. They both break out of a one-dimensional analysis of changes in the status of the environment and the conditions besetting the poor, and attempt to capture part of the complex dynamic linking poverty to the environment. They also suggest a framework and approach that can be used across many countries and contexts. For these reasons, we owe an intellectual debt to the work of these two institutions.

Viewed from the perspective of a civil society organization trying to change poverty-environment dynamics in developing countries, we believe that the World Bank and DFID approaches embody two important limitations. The first limitation is that both approaches fall short of providing information that would allow an evaluation team to begin deciphering why changes, be they desired or undesired, are occurring. In raising this concern, we recognize that indicators in and of themselves, are not intended to explain why certain changes are, or are not, taking place. The interpretation of causality of change is fundamentally the responsibility of an evaluation or assessment team that deciphers the data following its collection. However, indicators and the information system on which indicators are built can be designed to collect data that will help the evaluation team understand the causalities and dynamics of changes that are occurring in a given locality by offering evidence about the underlying causes of change.

Enhancing the explanatory power and applicability of the two approaches could be accomplished through three refinements. First, indicators could be organized in relation to a series of factors along a probable chain of causality, in order to confirm or disprove the role of these factors as the drivers of observed changes in poverty-environment dynamics. Linking indicators to these causal factors, rather than simply to outcomes, can help an assessment team understand underlying drivers of changes. Second, ensuring that data collection and indicators are applied over an extended period can enhance indicators' explanatory power. Both the magnitude and pace of changes can be tracked more easily. In addition, correlating the magnitude and pace of change to a suspected chain of causality can provide considerable insight into the underlying dynamics of change in a given locality, region, or country. This data and relations of causality can then be the focus of supplemental analysis and interpretation. The third and perhaps most obvious suggestion is to include the stakeholders directly in the assessment process that follows application of the indicators. Nothing can compare with the explanatory power of the primary stakeholders themselves and certainly this dimension should be given a prominent place in both the World Bank and DFID approaches.

In making this recommendation we recognize that increasing the explanatory power of indicators may well conflict with the two institutions' desire to develop generic indicators that can measure changes

across many countries. However, without increased explanatory ability built into the information systems, and without clear guarantees that a wide range of views, including direct stakeholders, will be included in the assessment processes, we are concerned that the interests and perspectives of the two institutions will be the main analytical perspective for interpreting the data. In other words, there is a strong probability that the indicators will become a mechanism for justifying and reproducing the programs and intervention strategies already employed by the development institutions in what they consider to be they best ways to help the poor and the environment in the developing world.

The second limitation that concerns us is that neither study is geared to helping the poor increase their ability to change the political economy of poverty and ecological disruption. The two approaches do not necessarily involve the poor, and they do not provide information that would allow the poor to become more effective in improving livelihoods and resource management. What our own experience has taught us is that generating fundamental changes in P-E dynamics requires reordering policies and institutions so that the poor can exert far greater control over both their resources and the institutions that determine how those resources are used. Moreover, these changes must improve the access of the poor to a range of factors that would allow them to improve resource management and increase their productivity.

As a consequence of this experience, we find that a useful information system and accompanying indicators about the P-E nexus must collect information about these underlying fundamental social factors to complement other data. We recognize that the indicators and information system we propose below may have certain limits in carrying out cross-country comparison. Nonetheless, it is the focus on providing tools and information to the poor, their partners at many levels, and appropriate government agencies that remains at the center of our concern. It is this imperative that has pushed us to develop the approach presented below.

Explanatory Power

Nothing can compare with the explanatory power of the primary stakeholders themselves and certainly this dimension should be given a prominent place in both the World Bank and DFID approaches.

WWF-MPO'S APPROACH

WWF-MPO's Approach to Poverty-Environment Indicators

The WWF-MPO approach to developing a P-E information and indicator system builds on analytical work conducted over the past decade and on experience derived from direct strategic interventions in rural areas of developing countries. Through this approach, we have attempted to capture the most significant factors that are required to remove obstacles and ultimately exploit opportunities for bringing about positive changes in the P-E dynamic in specific localities or countries. While WWF generally focuses on rural environments and populations living in rural areas, the boundaries between rural, peri-urban, and urban cannot be sharply drawn in many developing countries. Though designed initially for the rural milieu, we believe that this approach to P-E indicators can be readily adapted to capture dynamics in urban and peri-urban contexts as well.

The business of developing indicators is inherently a political one, that is, a process directly shaped by the values, analytical perspective, and strategic priorities of groups that develop and use indicators. WWF-MPO's approach to addressing the P-E nexus is grounded in the view that to bring about fundamental change in rural areas, it is necessary to understand and change the interactions and behavior of individuals, social groups, and the state as they compete for economic wealth and political influence. As a conservation organization, WWF-MPO pays particular attention to understanding how this competition among groups and the state in the exercise of power translates into strengthening or weakening the environmental fabric on which both wealth and social well-being depend. In this perspective, we reiterate the importance of using the development and application of indicators as part of the process of building the capabilities of the poor to improve resource management and improve livelihoods.

The approach we offer below consists of three distinct categories of P-E indicators that grow directly from our field experiences in many countries around the world: (1) status indicators, (2) enabling conditions indicators, and (3) social capital indicators.

Status indicators

Status indicators are the most widely accepted and used type of indicator for poverty, for the environment, and for poverty-environment dynamics. Status indicators provide a quantitative snapshot of the status of critical issues in the poverty-environment nexus. They tell what is happening on the

ground-at the local level-where users of resources interact with the diverse natural resources. Status indicators include, for example, hectares of forested land, per capita availability of freshwater, the number of households without access to land titles, and so on. Below are just a few of the potential status indicators designed to reflect the current state of the environment and poverty-environment relations:

Environment

- Resource quantity and quality-indicators that reflect the physical extent, condition, and productivity of resources (for example, size of fish stocks, soil organic matter levels, biochemical oxygen demand of rivers).

- Rate of resource degradation or improvement-indicators relating to rate of loss or gain or lowering or improvement of quality (for example, rate of forest land conversion, topsoil erosion rates).

Poverty-environment

- Access to resources-per capita availability of resources (for example, fresh water, fuel wood), distance and time to collect forest products, percentage of income derived from non-timber forest products.

- Level of vulnerability-exposure to and impact of natural disasters and declining or improving environmental quality (for example, number of individuals affected by flood and drought, incidence of acute respiratory illnesses).

Enabling conditions indicators

The improved understanding of poverty-environment dynamics over the past years has allowed concerned parties, including WWF, to identify enabling conditions that encourage more direct and comprehensive strategies for addressing the P-E nexus in specific localities. Enabling conditions indicators reflect societal responses to environmental problems, to conditions of poverty, and to poverty-environment dynamics. Among those enabling conditions are: development of national sustainability strategies that integrate the environment into economic growth plans; strategic environmental analysis instruments that anticipate changes and impacts on vulnerable populations and the environment; a host of regulatory mechanisms that establish performance standards; and new financing mechanisms that offer incentives for sustainable environmental management and compensation to providers of environmental services.

Indicators of enabling conditions can be grouped into three basic categories: institutional arrangements, economic policies, and ecological management capacity. While generalized to a certain degree, these indicators do need to be tailored to the specific conditions in each locality.

Institutional arrangements

Institutional indicators measure the scope, characteristics and capabilities of institutions that influence P-E dynamics

- Institutional reforms-existence of reforms that encourage resource management institutions to be responsive and adaptable; degree of transfer of power to appropriate entities; degree of accountability and transparency in decisionmaking.

- Legal-regulatory framework-availability of incentives that protect the environment; steps taken to enhance access to resources among the poor; ease of adjudicating disputes related to environmental issues; enforcement mechanisms.

- Participatory processes and empowerment-existence of policies or regulations that encourage the poor, particularly women and minorities, to participate; training and capacity-building programs; extent of accountability and transparency in environmental planning and policymaking.

Economic policies and incentives

Economic indicators measure the magnitude of financial resources, the impact of specific market dynamics and the influence of policy reforms that shape the P-E nexus.

- Budgetary allocation and investment trends-share of spending on P-E projects relative to other sectors; investment programs for infrastructure, extractive industries, and energy generation that have environmental and social impacts; investments focused on repairing and restoring damaged natural resources.

- Addressing market failures-existence of efforts to value and monetize externalities; relative importance given to financial versus economic criteria in planning; availability of incentives and schemes to make payments to the poor by the rest of society for their environmental stewardship role.

- Addressing impacts of recent economic change-level of effort to measure and respond to the dislocations associated with economic reforms, including availability of safety nets, retraining programs, and compensation plans; attempts to predict and mitigate impacts of global trade agreements, shocks in global market trends, and exogenous interests on the national P-E nexus.

Ecological management capacity

Ecological management indicators measure the ability of institutions to prepare for and respond to anticipated trends and unexpected environmental shocks.

- Monitoring ecological dynamics-existence of plans and projects to track long-term changes in the biophysical environment; efforts to examine impacts of current and emerging technologies on the P-E nexus (for example, genetically modified crops, aquaculture).

- Environmental risk mitigation-existence of management systems to support adjustments to external environmental shocks; existence of planning procedures to adjust to impacts of anticipated environmental changes (for example, Environmental Impact Assessments or Strategic Environmental Analysis for major projects and structural reform programs, respectively); application of safe minimum environmental standards; steps to protect the poor from any unintended consequences.

Social capital indicators

Social capital includes the organizations, networks, norms, relationships, and other mechanisms that enable communities to undertake collective action. Social capital is the capacity of local populations to influence basic decisions and institutional arrangements that shape their livelihoods and natural resource use. As we implemented strategic interventions over the past four years with local partners in five developing countries to change P-E dynamics, we found that the main determinant of the success of the interventions was the ability of local communities, supported by other partners, to influence institutions and policies at local, meso, and national levels. The depth and breadth of changes generated through interventions were directly related to the organizational and political capacity of local communities and partners acting effectively in their own interests. In the absence of their ability to drive change, no fundamental and enduring change seemed possible.

We give particular emphasis to social capital because privately held capital, in its many forms, is often scarce in rural areas of the developing world. In the absence of diverse and widely available private capital, improving the living conditions of the rural poor depends heavily on building institutions and embarking on collective actions to improve the welfare of broad groups of inhabitants.

This point is central to WWF-MPO's concerns because our objective is to help remove the obstacles that prevent the rural poor from improving their liveli-

hoods and natural resource management. Unless social capital and the ability of local communities to shape their lives and livelihoods are placed at the center of the development of indicators, we believe that attention will be diverted from the most central problem in rural areas. Rural P-E dynamics do not happen in a vacuum. They unfold in a context of competition for resources and opportunities. The rural poor, with few exceptions around the world, have been pushed to the margins of national decisionmaking and have been deprived of the means and mechanisms for influencing the policies and institutions that shape their lives.

In light of these political economy considerations, we believe we need to complement the set of quantitative indicators for monitoring drivers of P-E change in rural areas with qualitative assessments based on a framework that has the concept of social capital at its core. In the context of P-E dynamics, we believe the evaluative framework should focus on four main points:

- *Can the rural poor influence institutions at various levels that are linked to the management of rural livelihoods and environmental resources?* Qualitative assessments should identify the most important institutions shaping rural livelihoods and natural resource use and should assess the ability of the poor to engage in the operation and decisionmaking of those institutions. Frequency of interactions, level of influence, points of influence, outcomes, and other measures could capture these dynamics. Also needed is an assessment of whether the voices of the poor are influencing decisionmaking.

- *Can the rural poor respond to economic policies and incentives that affect rural livelihoods and environmental management?* Qualitative assessments should identify the most important economic forces and factors that shape rural livelihoods and natural resource use. They should identify the requirements for responding to those economic factors and the capacity of the rural poor to respond. The assessment should review the capacity to mobilize investment and productive resources, gain access to information, gain market access, and acquire technology. Indicators should assess how current participation has led to livelihood improvements.

- *Can the rural poor manage the environmental resources on which their livelihoods depend?* In capturing this ability, the emphasis should be on assessing the effectiveness of existing and innovative management systems to positively influence the P-E nexus. Of interest here is the existence of systems for co-management, payments for ecosystem services, innovative land-tenure systems, and assessments of how well they are functioning.

- *Can the rural poor mobilize supplemental resources (investment capital, adaptation funds, information) to help them improve their access to, control of, and management of environmental resources?* Measures should identify the avenues by which the rural poor can mobilize resources that are required to improve livelihoods and resource management. These measures should not only include established government mechanisms but also extend to include access to private sector resources, development agencies, and diverse civil society organizations.

If properly designed, the qualitative assessments regarding social capital, coupled with data from status and enabling conditions indicators, can provide useful insights into the processes of change unfolding in a given locality. This information can help users understand what constraints continue to hamper efforts to improve natural resource management and poverty alleviation and what additional measures must be undertaken by users to accomplish their goals. We must underscore the importance of organizing an assessment team that brings different skills and perspectives, perhaps from economic, institutional, and ecological vantage points, that can interpret the information in complementary ways. Of course, direct users of the information system must be included so that observations, conclusions, and recommendations can be used by stakeholders to support their stated objectives.

DIVERSE CONTEXTS

Applying This Approach in Diverse Contexts

We have continually emphasized the importance of developing an information system and indicators that can be used by direct stakeholders, that are cost effective, and that are geared to promoting change. To meet these standards we have suggested limiting the number of indicators and coupling quantitative measures with qualitative assessments designed to gauge the ability of the poor to respond to major events and institutions that shape their lives.

Application in Yunnan Province

In closing we give an example of how these indicators can be applied in a local context, a forest reserve in Yunnan Province, China, where WWF and a district government are developing a co-management regime between the government forest service and local communities inside the forest reserve. The project evolved from a convergence of many factors including the negative poverty impacts associated with the Chinese government's logging ban imposed on upland areas in 1998, and the need to manage the forest reserve sustainably while addressing the income and survival needs of villages in and around the reserve.

Given the limited ability of both WWF and the government to gather information, and our shared need to assess the success of the new co-management regime in maintaining healthy forests while raising local incomes, the following indicators system is proposed.

1. Status indicators

Indicator 1: rate of degradation or improvement of forested area.

Indicator 2: change in percentage of family income derived from forest resources.

2. Enabling conditions indicators

Indicator 1: change in country, district, and provincial government expenditures in supporting forest reserve management

Indicator 2: change in country, district, and provincial government expenditures for poverty reduction activities

3. Social capital indicators

Indicator 1: influence on decisionmaking in the co-management system: What is the ability of the rural communities to participate in and influence the decisionmaking bodies that decide how to manage the forest reserve? This assessment will include a review of the ability of the communities to determine what productive activities can take place inside the reserve.

Indicator 2: influence on economic opportunities: What is the ability of the communities to develop and respond to economic opportunities and incentives? This assessment will include willingness of the forest reserve staff to work with communities to develop economic opportunities that support sustainable forest management.

This limited information system is designed to provide to the co-management team critical data and analysis on which basic decisions can be made about adjusting the forest management system to address emerging economic, social, and ecological dimensions of the P-E nexus.

Use by Development Agencies and Others

It is our hope that civil society organizations and development agencies alike will be open to adopting the basic elements of this approach. It is focused, cost-effective, change oriented, and can be adapted to meet the purposes of each specific intervention. Moreover, the time and information demands required to deliver data that can help reshape a specific intervention approach or strategy are relatively modest.

We also believe that its focus on the most important aspects of a change process involving the poor and its modest information demands render this approach particularly attractive. Prevailing approaches to eliminating poverty consistently underscore the importance of involving local stakeholders. The indicators offered above not only provide a means of reflecting the ability of the poor to drive favorable change processes but also actually strengthen their ability to shape interventions alleged to serve their interests.

The design of the information system and selection of indicators is a political process, a process that is based on values, past experiences, and aspirations. We hope the premise is accepted that there is no information system or set of indicators that can claim impartiality, neutrality, or lack of bias, regardless of its scientific or quantitative veneer. From our point of view, the only acceptable response to the question of bias is to be very clear about one's interests and orientation, to subject one's work to public review and comment, and to demonstrate the reasonableness of one's decisions and choices. The final test of the value and validity of a P-E information system and indicators is the direct contribution to strengthening the interests and capacities of the poor whom the system is intended to serve.

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1 See Reed, D (ed). 1992. Structural Adjustment and the Environment, Westview Press, Boulder, CO; Reed, D (ed). 1996. Structural Adjustment, the Environment and Sustainable Development. Earthscan Publications, London. 387 pp., and Reed, D. 2001. Economic change, governance and natural resource wealth - The political economy of change in southern Africa. Earthscan publications, London. 168 pp. Also see Gutman, P. 2001. Forest Conservation and the Rural Poor: A call to broaden the research agenda. A viewpoint series on poverty and the environment. WWF-MPO, Washington, D.C., December 2001. 12 pp.; Reed, D. and Sheng, F. 1998. Macroeconomic Policies, Poverty and the Environment. Washington, D.C., and Reed, D. 2002. Poverty is not a number, the environment is not a butterfly. A viewpoint series on poverty and the environment. WWF-MPO, Washington, D.C. May 2002. 17pp.

2 Economic Change, Poverty and the Environment project funded by the European Commission, Dutch Ministry of Development Cooperation and the Swedish International Development Agency.

3 Shyamsundar, P. 2002. Poverty-Environment indicators. Environmental Economics Series. Paper no 84. World Bank, Washington, D.C. January, 32 pp. available at: http://lnweb18.worldbank.org/essd/essdext.nsf/44ByDocName/PovertyandEnvironmentIndicators2002189KPDF/$FILE/PovertyandEnvironmentIndicators2002.pdf

4 Nunan, F. et al. 2002. A study of poverty-environment indicators with case studies from Nepal, Nicaragua and Uganda. Environment Policy Department, Issue paper No 2. February, United Kingdom Department for International Development, London. 71 pp.

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