

RESPONSE STRATEGIES

Do decision makers hear and respond to what the poor say about poverty and the environment? Recent Experience from Pakistan

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Introduction

This case study analyzes two parallel processes that came together through a combination of luck and opportunity in advocating the inclusion of poverty–environment concerns in Pakistan’s Poverty Reduction Strategy Paper (PRSP). Much is now known about the significance of the poverty–environment nexus, and its ascendancy in the international arena. However, the discourse and processes that brought the poverty–environment nexus to the forefront of policy debates in Pakistan has received little analysis. The first section, therefore, delineates the context of the two processes: (i) the increasing awareness in Pakistan of the multiple causes of poverty in general, and (ii) the links between poverty and environment in particular. The section goes on to introduce two processes that have been instrumental in putting the poverty–environment agenda on the policy map—the International Union for Conservation of Nature (IUCN) Pakistan-led advocacy on Pakistan’s PRSP, and the United Kingdom’s Department for International Development (DFID)-sponsored Pakistan Participatory Poverty Assessment (PPA).

THE ORIGINS OF POVERTY–ENVIRONMENT DISCOURSE IN PAKISTAN

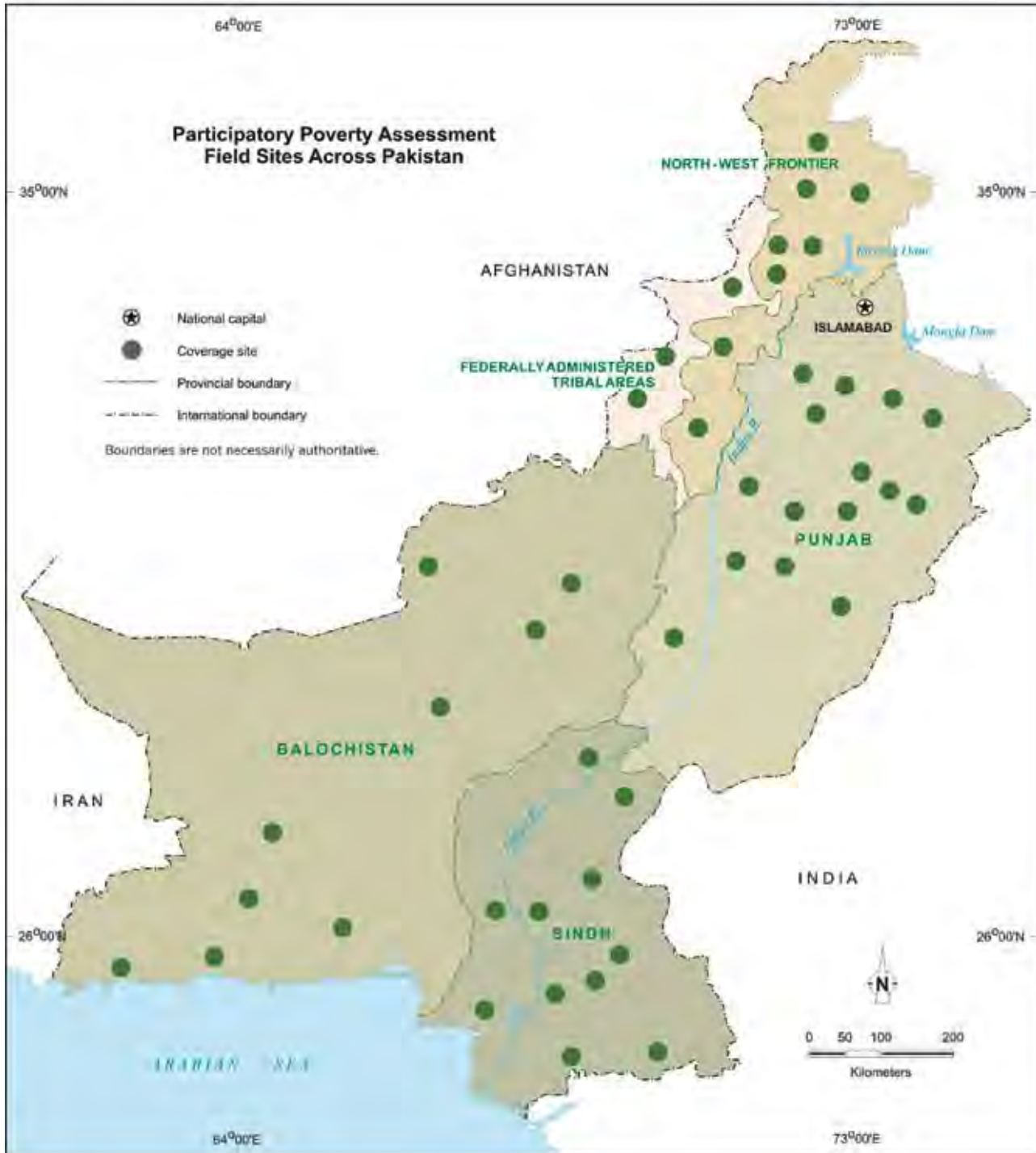
The genesis of poverty–environment discourse in Pakistan is not found in mainstream environmental strategies. The origin arguably is rooted in the

evolution of alternative development discourse in Pakistan, particularly in the community-based initiatives of the 1980s. The most notable among them are the Aga Khan Rural Support Program (AKRSP), the Kalam Integrated Development Project (KIDP), and the Orangi Pilot Project (OPP). The initial focus of these initiatives differed. AKRSP started as a rural development program that began integrating natural resource management. KIDP was a forestry project that evolved to integrate rural development concerns. OPP brought the community-based approach to an urban setting through the provision of urban environmental services. Nevertheless, the common thread in all these initiatives was the participatory process. Participation of poor communities—albeit in pilot, small-scale program and project interventions—began to unearth something logical, yet remarkable, to its proponents: that the poor are concerned predominantly with the maintenance of their natural resource base and environmental quality to ensure livelihood security, positive health outcomes, and reduced vulnerability. In a way, participatory processes facilitated the nascent ascendancy of poverty–environment discourse in Pakistan. These initiatives, as it turns out, can be seen as efforts to help the poor overcome their vulnerability by (i) developing their individual and collective capacities; (ii) providing access to credit and encouraging savings; and (iii) investing in skills, human resources, natural resource management and, most importantly, collective institutions.

PARTICIPATORY PROCESSES

In the late 1980s, participatory processes went through an important twist of fate, as Pakistan initiated, for the first time, a participatory strategy development process in formulating its National

Map 10



Source: Planning Commission, Government of Pakistan, Islamabad.

Conservation Strategy (NCS).³² The product, the NCS document, has been described as “one of the best-known national conservation strategies, externally admired for its vision and potential at the time it was adopted” (Hanson et al., 2000). The NCS document also was recognized for being extensive in its attempt “to meet the needs of a country faced with multiple challenges of population growth, poverty, issues of governance and decades of war and turbulence along its borders... and wisely focused on issues of sustainable natural resource use and environmental protection” (Hanson et al., 2000).

However, it is the participatory process that has been exemplary in highlighting the interaction between environment and development. What the process embodies is the (i) framework provided; (ii) baseline information collected; (iii) model of participatory strategy development introduced; and (iv) network of stakeholders mobilized such as government, civil society organizations, private sector, and funding agencies. Collectively, the process and the document brought to the forefront the need to transform the way “development is undertaken, to ensure that it is not destructive of the natural resource base on which it rests” (Hanson et al., 2000). Arguably, the diversity of stakeholder views during the NCS process brought out aspects of the poverty–environment nexus at a more macroscale, namely the need for a poor country to ensure the maintenance of its natural resource base for the current and future well-being of its people and economy.

The remarkable success of the NCS participatory process greatly influenced subsequent conservation strategies and action plans. This is particularly applicable to the Sarhad Provincial Conservation Strategy, the Balochistan Conservation Strategy, and the Biodiversity Action Plan. In these three cases, the processes were instrumental in accumulating and advancing poverty–environment thinking. To quote the Sarhad Provincial Conservation Strategy: “improving the social and economic conditions of the rural and low-income urban poor requires integrated rural development initiatives, including sustainable natural resource management, provision of basic services, extension of more education and health facilities, and skills training, with a heavy emphasis on community involvement” (Government of North-West Frontier Province (NWFP) and IUCN, 1996).

As a result of this, poverty–environment links began to take a more prominent position in mainstream environmental strategies, plans, and policies.

The National Environmental Action Plan gave the poverty–environment discourse another boost. Here, advancement of key poverty–environment links became prominent, such as poor people’s access to timber and fuelwood supplies and increasing deforestation, safe drinking water and sanitation, and exposure to water and air pollution.

Two funding agency reports further illuminated the current thinking on poverty–environment links. ADB published *Poverty in Pakistan: Issues, Causes, and Institutional Responses*, which was finalized through a broad-based consultative process. In addition, DFID supported the study *Participatory Poverty Assessment in Pakistan* (Government of Pakistan, Planning Commission, 2003), which was the first exercise of its kind to capture the analysis by the poor on how they experience poverty. *Pakistan National Human Development Report 2003* (Akmal et al., 2003) also deserves mention for highlighting health as a critical factor in pushing marginal and poor households into deeper poverty. These reports not only substantiated the already developed poverty–environment discourse in Pakistan, such as the crucial role the environment plays in the lives of the poor, particularly in securing livelihood opportunities and protecting health. They also added a new, critical dimension to the poverty–environment language: the vulnerability of the poor to environmental stresses and shocks.

THE IMPETUS FOR PARTICIPATION

One of the important outcomes of participatory processes in Pakistan has been the development of goodwill and partnerships among government agencies, the private sector, and civil society organizations (CSOs). Arguably, much of the drive toward such actions has come from CSOs. In turn, advocacy emerged around participatory processes and, over time, the Government has become more accepting and granted more space to explore participatory policy and strategy initiatives. Hence, with concern growing on the part of funding agencies, civil society, and the Government about the rising levels of poverty in the 1990s, the PPA process was initiated.

In 1997, the Planning and Development Division of the Government decided to conduct a PPA in Pakistan. In 1998, a PPA design mission was formed

³²According to Banuri and Khan (2001), two clear aspects of the community development model can be found in the National Conservation Strategy (NCS): “the strengthening of individual institutions/organizations; and the strengthening of what could be called ‘issue networks’ or ‘policy communities’ ” (p. 16).

consisting of government and civil society representatives, bringing together expertise in poverty analysis, policy making, and participatory inquiry. The mission consulted with local communities in some of the poorer areas of Pakistan, government officials at the provincial and federal levels, and CSOs. During the consultations, a consensus was reached on the need for a PPA. The objectives, design, and outputs of Pakistan's PPA were based on these consultations.

Essentially, PPA is a process for including poor people's views in the analysis of poverty, and in the design of strategies to reduce it. Hence, the poor are considered the key, primary stakeholders, while other primary stakeholders include policy makers at the federal, provincial, and district government levels, as well as CSOs. PPA considers public opinion, the media, researchers, and academics secondary stakeholders. The objectives of PPAs are to potentially strengthen poverty reduction programs in a number of ways, for example, by (i) enriching and broadening the understanding of poverty through analysis by the poor themselves, (ii) safeguarding the conclusions drawn from quantitative studies, and (iii) involving the poor in a process of engagement with government and civil society to bring a pro-poor focus to policies and programs. In the long term, the PPA process can create new relationships between policy makers and poor communities.

More importantly, the Pakistan PPA signaled for the first time the use of a participatory process on mainstream development strategies in the country. After all, the information collected from PPA was to be fed into poverty reduction strategies. Hence, the Government began to develop Pakistan's PRSP in 2000. In general, PRSPs outline a national program for poverty reduction, which is the foundation of lending programs of the International Monetary Fund (IMF) and the World Bank. The World Bank and IMF developed the PRSP approach to respond to weaknesses in relations between poor countries and the Bretton Woods Institutions, particularly the lack of poverty focus and country ownership of reforms. The development of Pakistan's PRSP also entailed the adoption of the participatory process, as the following core principles of PRSPs demonstrate:

- Country-driven — involving broad-based participation by civil society and the private sector in all operational steps;
- Results-oriented — focusing on outcomes that benefit the poor;

- Comprehensive in recognizing the multidimensional nature of poverty;
- Partnership-oriented — involving coordinated participation of development partners (bilateral, multilateral, and nongovernmental); and
- Based on a long-term perspective of poverty reduction.

As is apparent, the environmental community in government and CSOs was more conversant and experienced with participatory processes. However, the same did not apply to the mainstream development community, meaning the development of Pakistan's PRSP was expected to generate its own setup problems. Consequently, the stage was set for the IUCN Pakistan-led advocacy process within these modalities of PRSP. The approach of this process, which is explained in this case study, involved building strategic alliances with the Government, civil society, and the influential Environmental Donor Coordination Group (EDCG) of Pakistan.

The PPA process—institutional framework, fieldwork, and follow-up

INSTITUTIONAL FRAMEWORK

PPAs were carried out in all four provinces of Pakistan, as well as in Federally Administered Tribal Areas, Northern Areas, and Azad Jammu and Kashmir. In January 2001, steps were taken to set up the institutional mechanism for implementing the PPA in Pakistan. Provincial and national steering committees were established with the responsibility for macro-level oversight of PPA. To provide hands-on support to the process, particularly during the fieldwork, a management committee was set up in each province. This committee comprised government representatives and the nongovernment organization (NGO) involved in the fieldwork. The management committees reported to the provincial and national steering committees.

The institutional framework aimed to bring primary public and private stakeholders together. The federal Planning and Development Division was the lead institutional player. In each province, a lead NGO was selected to manage the training and fieldwork, and to document PPA findings. Shirkat Gah—an NGO with a long record in participatory research and action, poverty reduction, and policy-level activities—was named the coordinating NGO in Punjab Province. In Sindh, Shirkat Gah was responsible for documenting the PPA

and preparing the Sindh PPA report. Each provincial government also appointed a PPA focal point from their planning and development departments.

A significant feature of the exercise was the close collaboration between the Government and the NGOs. Each field team of five members included a government representative. This exposed some government officials directly to extreme conditions in the field, thereby ensuring government ownership of the PPA. Elected representatives, particularly *nazims* and *naib nazims*, in various districts assisted in the fieldwork process and were involved in site selections in their districts.

FIELDWORK FRAMEWORK

The second stage of the PPA involved training, pilot testing of the fieldwork guide, fieldwork, and its documentation in each of Pakistan's provinces and administrative regions.

Basic research questions that the Pakistan PPA sought to address were

- Who are the poor within each site, and who are better off?
- What have been the principal changes affecting the area over different periods, and what factors have influenced these processes?
- What resources, socioeconomic and gender relationships, organizations, and institutions are relevant to the area or group?

Field teams used detailed tables of themes and issues on sustainable livelihood to facilitate discussion and analysis among local participants, and to examine the way policies and institutions affect them. Since reaching the very poor and enabling them to share the analysis of their realities were overarching aims of the PPA, views were sought separately from young and old men, women, children, and minority groups. A single "community" view on an issue was not assumed. The primary approach and methodology used for the field research was participatory reflection and action (PRA). This included specific tools, such as social and natural resource mapping, well-being ranking, network and Venn diagramming, seasonal calendars, historical time lines, etc. As a secondary support method for the triangulation of findings, some basic quantitative data were generated on the PPA sites using a specially designed questionnaire, which enabled the PRA-based site studies to be located statistically within the wider province or area.

Shirkat Gah and other NGOs facilitating the PPA, as well as the field researchers, were unaware of what the study would reveal since this was the first exercise of its kind and scale. The fieldwork consisted of several stages, beginning with a thorough selection process to identify fieldworkers, a 2-week intensive training of the field teams, and a week-long pilot to apply the training in the field. This was followed by 3 months of fieldwork in each province. Teams of two women and three men spent approximately 24 days in each site, with 12 days each in poor and better-off subsites. At the end of the fieldwork, a site report was prepared. When all were completed, a synthesis workshop was held to share the findings.

For the analysis, PPA used the livelihood framework, which facilitates analysis by examining the assets and capital that the poor mobilize in devising livelihood strategies. These include natural capital, produced capital (including physical infrastructure and credit), human capital (nutrition, health, education, and local knowledge), social capital (social institutions and support systems), and political capital related to influence and powerlessness. Thus, natural resources were among the key issues discussed with the communities.

The number of sites for each province (51 in all) was determined in advance based on the province's size and population, and districts were selected to ensure the inclusion of different agro-ecological zones. A selection of urban and rural sites (at a rural-urban ratio of 2:1) within the districts then was made. In each district, the poorest site covering up to 200 households was selected for the study. This involved steps at the provincial, district, and union council levels, using the PRA tool of well-being ranking. All union councils in a selected district were ranked under the categories of well-off, better-off, poor, and very poor. Once the union councils were selected, a similar process of participatory analysis was conducted at the union council level to select two subsites: the poorest and the relatively better-off. This selection was designed to allow a comparative analysis of poverty.

In the final stage, key findings were disseminated and followed up at the provincial, area, and national levels through a public dissemination program. This case study will elaborate on this process, and reflect on the outcome and response to the PPA results.

The PPA has proven to be a successful tool, ensuring analysis by the poor of their own conditions, providing rich insights, and incorporating the

complex links that are at the root of poverty. The Pakistan PPA reaffirmed the multidimensional nature of poverty and pointed to the priorities of the poor. It also provided possible answers on how to improve public policies, institutions, and regulatory frameworks, and how to bring about changes to increase the opportunities available to the poor.

Recent estimates classify one third of Pakistan's population of 140 million as poor. An analysis of the survey data confirmed that poverty and extreme poverty, especially in the rural areas, are widespread in Pakistan. In all provinces, large numbers of people earn and consume very little and suffer from low human development indicators. Women and children endure much of the worst poverty, and members of minority groups are overrepresented among the poorest. For Pakistan as a whole, income poverty dropped substantially in the 1980s. This, however, was not sustained in the 1990s, and several key social indicators have shown little or no improvement since then.

EXPERIENCES IN THE FIELD

The field teams consisted of people from urban and rural backgrounds. Although many were familiar with the conditions in rural areas, they nevertheless were surprised at the conditions they saw and experienced in villages where the poorest of the poor lived. Witnessing poverty with the poor and encountering daily hardship was a difficult experience for all team members, who often were deeply moved and expressed shock at the ground realities of the poor. At the same time, the hospitality of the communities and their gratitude left a lasting impression on the field teams.

Generally, local communities welcomed the PPA teams warmly. In most cases, since the sites were villages where the poorest of the poor lived, the community seldom experienced visits from outsiders. Difficulties faced by the teams varied from site to site. In some, teams had difficulty finding people with time to participate in the analysis, especially women. In Punjab, women employed in domestic service and paid embroidery work were preoccupied with the pressure of earning, and had little time to spare. Daily wage earners from village and urban sites were absent all day, returning home late in the evenings. However, because teams were living in the research locations, they were able to adjust timings to suit different groups.

Scattered populations put additional pressure on the teams as they traveled, often on foot, to reach different, mostly remote, settlements. Illness (some-

times leading to short absences or dropouts), stress, and the pressure of personal commitments created strong bonds among team members. Despite these problems, however, generally all teams completed the fieldwork on schedule.

At the same time, the fieldwork raised expectations among communities, particularly on what the PPA would bring them. This was accompanied by a fear that the PPA process would assess their incomes, allowing the Government to levy taxes on them. In other places, such as Punjab and Sindh, security was an issue that required special arrangements to ensure the safety of the field team.

WHAT THE PPA REVEALED

The 51 sites of the Pakistan PPA, spread across all provinces and administrative regions of the country, provide an insightful account and analysis of poverty from the perspective of the poor. The PPA does not define the poor; the poor themselves define and describe poverty. "Across Pakistan, the language that poor people used to describe themselves, both in Urdu and in local languages, clearly expressed not just their lack of financial or material assets, but also their sense of helplessness, vulnerability, powerlessness, and lack of respect (Government of Pakistan, Planning Commission, 2003)." Similarly, the definitions of poverty blended into a description of their assets. In Sindh, for example, a poor man was said to be one who had "one acre of land and one cow." Furthermore, while economic dimensions of poverty, such as the lack of income or material resources, were important, the perceptions of poverty went beyond to encompass nonmaterial concerns with social, political, and cultural identity. The poor had a multidimensional perception of poverty.

The most important finding of PPA was that even the richest district could have pockets of abject poverty. Moreover, PPA found that poverty has structural roots; environmental resources are critical for the livelihood of the poor; and the physical capacity of the poor is perhaps the only asset they possess, which means good health is one of the imperative elements required to emerge from poverty.

THE POVERTY-HEALTH-ENVIRONMENT NEXUS

As noted, PPA defined the environment in terms of natural capital, which in turn was defined as land, water, marine, and wild resources. Therefore, the term "natural capital environment" was defined in the PPA as environmental goods and services.

In the PPA, the poor viewed forests, wildlife, land, water, and domestic livestock as vital assets. Any natural disaster or policy actions that destroyed or degraded natural resources were seen to have a major impact on their livelihood. In many areas covered by PPA, the poor emphasized the declining size and quality of the natural resource base. In the northern areas of Pakistan, for example, forests are declining; while in Sindh, livestock is decreasing due to the shortage of fodder. In other provinces, household landholdings were becoming smaller and fragmented.

Seasonal changes impacted livelihood directly in terms of loss of production and income. Each season brought its own specific stress factors that affected people's livelihoods in different ways, leading to temporary falls into poverty of poor households at particular times of the year, with risks of permanent impoverishment. In rural Punjab, for instance, winter livestock deaths were more common, made worse by shortages of animal fodder and fuelwood, and frequent illnesses. In summer, human illnesses increased, milk yields from livestock fell, livestock diseases increased, and the lack of rain resulted in crop failure.

Access to land and water emerged as a particularly high priority, with people expressing an urgent call for the protection of natural resources. Ownership of cultivable land was critical to farmers, while the quality and fertility of land determined its significance in the eyes of the poor, who relied heavily on their land and livestock for their livelihood. Villagers in a particularly infertile village of Punjab said in despair, "Our business is to sit on heaps of sand and eat sand" (Old man, Thal Punjab). In another village in Sindh, the landless noted resignedly: "The villagers don't own any land. They have land only for their graves" (Male analysts in Hasso Dako, Ghotki district, Sindh).

The poor identified water as the most important natural resource: "We long for sweet water" (Poor men and women in Sindh). Across Pakistan, repeated droughts have reduced the availability and quality of water, which has had a major impact on the livelihood and vulnerability of the poor. In Punjab, droughts and floods, especially in the arid regions of south Punjab and in the rain-fed areas of the north, have resulted in the continuous decline in agricultural productivity, with land becoming barren and drinking water supplies difficult to ensure. In urban and rural areas, easy access to safe drinking water was identified as vital to ensuring good health and reducing the burden on women.

In irrigated areas of central Punjab, the decline in land fertility over the last decade has degraded the livelihood of the local poor. Similarly, people in Badin District, Sindh, raised the issue of hunger. The main diet of the poor is *roti* (made of rice flour and eaten with pulses, prawns, and fish). No vegetables are grown in the village. Due to the shortage of livestock, little milk and butter are available. The poor felt that they were weak and unhealthy because of the lack of food, and saw their predicament as being at the interface of shrinking natural resources and increasing vulnerability.

In the rain-fed barani areas of northern Punjab, and other areas where the value of land depends on the availability of water, rain assumes an even greater significance. "Our livelihood totally depends upon rainfall. If there is reasonable rain, we have good crop production. We have been living from hand-to-mouth over the last 3 years" (Old women, Thanda Thal, Punjab). "We can only produce crops if it rains. Our livelihood is connected to rainfall" (Woman, Nawabwala, Punjab).

An increase in the periods of drought, as well as the unequal distribution of available water due to better-off people appropriating more than their share, meant that the poor had even less access to water. In Sindh, landlords control peasants by rationing water supplies for irrigation and drinking. The poor, thus, identified equal and fair provision of water to farmers and the development of alternative irrigation options as solutions to their needs.

The drastic decline in natural forest cover also has affected the poor due to the reduced availability of fuel and fodder, which in turn has reduced the number of livestock that are often the backbone of household economies. For instance, in Chak 12 in Khanewal, south Punjab, the Government imposed entry restrictions to the nearby forest, stopping women who traditionally foraged there for food and fodder. In a dry and dusty remote village, where men migrate to nearby towns for employment, women are left behind to rely on their livestock for sustenance. The water is brackish, the only crop grown is wheat, and the village suffers from environmental degradation, which exposes the poor to stresses, shocks, and vulnerability.

Natural capital traditionally has been a primary—and usually free—asset of the rural poor, who have built their livelihood upon these resources. The PPA confirmed that the poorest people depend heavily on natural resources. Further, it revealed a direct

correlation between the decline in natural capital and the vulnerability of the poor, leaving them with unmet basic livelihood needs and heavy dependence on loans that often lead to lifelong bondage. PPA also highlighted graphically the impact of the structural roots of the poor's deprivation.

The concentration of landholdings in the hands of powerful landlords was seen as being directly responsible for restricting the poor's access to resources, increasing their poverty, and making them more vulnerable to exploitation and risks. In many areas of the PPA, the rural labor force is landless and lives on the margins of the community in extreme conditions of poverty and is completely dependent on the vagaries of local landlords. The prevalent social structures prevent development and democratization, and curtail fundamental human rights.

The poor identified health-care institutions as the most important and critical to their lives. However, it was also the area where the poor felt most disappointed with current state provisions. Indeed, PPA identified a large gap between what the Government is supposed to provide and what poor communities actually receive, and presented a depressing picture of the health status of the poor and health-care services. It also highlights the remarkably close links between health, livelihood, and vulnerability. Across many sites, poor health strained the meager income and resources of the poor and poorest. "I had twins in my womb, I had blood in my mouth, but no one was there to take me to a hospital" (Poor woman, Urla, Punjab).

Repeatedly, findings from various sites highlighted the significance of good health as the primary means of meeting basic needs. Prolonged illness—and the related expenses for medical care—was singled out as the most important factor that could plunge a relatively better-off family into poverty. As the PPA national report states: "Ill health, physical weakness, and low nutritional status deplete the levels of human capital of the poor and adversely affect their ability to improve their well-being" (Government of Pakistan, Planning Commission, 2003).

The unavailability of government health-care services, even with the minimum of basic facilities, equipment, medicine, and staff (and limited access to whatever was available) added to the misery of the poor in PPA sites. In the absence of adequate or accessible services, the poor are forced to turn to private medical care that is usually beyond their means. In any case, the private practitioners were mostly unqualified in far-flung rural communities.

In Sindh, common health problems were linked to water issues. For example, the most common water-related disease named by the poor was diarrhea. In Jacobabad, Sindh, the lack of water affected the health of humans and animals. In urban Punjab PPA sites, people cited the polluted environment as the root cause of weaknesses and various diseases in humans. In urban Rawalpindi, people reported that flooding of the open drain during the rainy season, combined with the polluted environment and shortage of clean drinking water, had caused chronic health problems and the spread of tuberculosis. In Sindh and Punjab, women had to walk long distances in search of drinking water, and in many cases when water was available it was not potable.

PPA established beyond doubt the interrelationship between social conditions and stratification, natural resources, policy making, and governance. Further, it confirmed that a combination of factors has resulted in endemic poverty in Pakistan, and prevented the poor from lifting themselves out of it. PPA also included mitigation measures and solutions suggested by the poor.

Recent local government reforms provide the opportunity for the Government and funding agencies to review past failures with respect to the remodeling of basic social services, including the provision of much-needed health services. However, the problem relates not only to the management of services provided. The low level of investment in basic services and infrastructure will have to be increased significantly, and the voices of the poor will have to be taken into account in decision making, for real changes to occur.

PRSP advocacy process in action

This section elaborates on and analyzes the IUCN Pakistan-led participatory advocacy process for the inclusion of poverty–environment concerns in the PRSP. Any participatory process, such as this one and the PPAs, is not a monolith; it is imbued with dynamism and complexities. Hence, this process took on a dimension of its own, and its impetus came after the Ministry of Finance circulated the Pakistan interim PRSP in 2001.

From the outset, the interim PRSP process unsurprisingly met with criticism because of its weak participatory approach. After all, the actors involved in the development of the interim PRSP were not well-versed in participatory processes. The input of

the Ministry of Environment, for example, was not even solicited. Civil society and the academe latched onto the weakness of the participatory process, criticizing the tokenistic approach and emphasizing that the interim PRSP is a combination of the enhanced structural adjustment facility conditionalities and a few poverty reduction measures. The net result, they concluded, was increased rather than reduced poverty.

Mainstream critics of the interim PRSP focused on three critical missing dimensions—environmental considerations, gender integration, and employment generation. From the point of view of the Government of Pakistan, however, the primary purpose of the interim PRSP was to secure concessionary funding from Bretton Woods institutions under the Poverty Reduction and Growth Facility, and to negotiate with bilateral funding agencies and other international financial institutions from a position of strength. As the criticisms started to reverberate within Government, funding agencies, and civil society circles, opportunities for addressing the gaps in interim PRSP opened up. IUCN Pakistan entered the mainstream criticism as a result of a strategic approach, soliciting the influential Pakistan EDCG. The EDCG had been created for purposes of linking and coordinating environmental funding in Pakistan. The entry into the advocacy process came at the suggestion of IUCN Pakistan in the form of a letter written by the EDCG to the PRSP Secretariat, Ministry of Finance.

The Government of Pakistan was keen to address the criticisms leveled against the interim PRSP and negotiate concessionary financing with funding agencies. Thus, the Government requested that funding agencies provide technical expertise to include environmental considerations in the PRSP (as well as to cover other identified gaps). IUCN Pakistan continued its advocacy role by linking funding agencies with the Ministry of Finance, which paid dividends. This led to a DFID-funded technical assistance project on the integration of environmental concerns into the PRSP. Capturing the relationship developed with DFID during this time led to the constitution of an environment consortium comprising IUCN Pakistan, Environmental Resources Management (UK), and GHK International (UK). The Canadian International Development Agency and the International Labour Organisation facilitated similar agreements with consultant groups on gender integration and employment generation.

PARTICIPATORY PROCESS ON THE INCLUSION OF ENVIRONMENTAL CONCERNS

The stage was set for the IUCN Pakistan-led advocacy process. The environment consortium, which gathered to develop a strategy on the best approach to technical assistance, felt that the project had to be seen more specifically as an advocacy process. IUCN Pakistan's key strength and experience is in undertaking participatory, multistakeholder processes through engagement with the Ministry of Environment and "green" sector institutions, and the provision of technical assistance. However, since IUCN Pakistan did not have much experience in engaging mainstream development agencies, a shift in its strategic approach and partnerships with the Ministry of Finance and the Planning Commission of Pakistan was required. The idea was to come up with a mutual, common understanding of the issues and recommendations, focusing on the interface of development and environment.

The environment consortium also established contact with consultant groups on gender integration and employment generation to build an integrated approach and harness advocacy, knowing that poverty–environment concerns cut across these groups' themes. Under the environment consortium, IUCN Pakistan took the PRSP consultative process to all four provinces and two subnational regions (Northern Areas and Azad Kashmir). The provincial governments led the process, with the federal Government as an invitee. Public representatives, NGOs, and representatives of the private sector were included as equal dialogue partners in the process.

It was essential to supplant the impression that PRSP was only a federal Government process and product by emphasizing that PRSP offered a variety of actors, sectors, and scales the opportunity to provide their input, contribute to a broader understanding of the causes of poverty, and recommend relevant solutions. This is what began to emerge. Generally, participants discussed the links between environment, livelihood, health, and vulnerability of the poor, and the need for PRSP to be cognizant of environmental factors. Specific provincial and local poverty–environment links also emerged, for example, drought in Balochistan, deforestation in the North–West Frontier Provinces and Northern Areas, and water scarcity and seawater intrusion in lower Sindh. Further highlighting the PRSP's shortcomings, these examples

prompted broader coalition building for the inclusion of poverty–environment concerns.

Most critically, PPA findings also surfaced during this time, with poor people identifying poverty–environment concerns as vital. This was a crucial input to the PRSP process, and meant that the PPA and PRSP processes coincided. To that point, Pakistan’s capacity and advocacy on poverty–environment concerns were limited largely to theories. The research and the statements of the poor substantiated much of what was being theorized. Equally important was the PPA process of the final national level PRSP workshop, which allowed the key PPA consultant to present the findings highlighting poverty–environment concerns. At that time, a framework for incorporating these concerns into the PRSP also was developed and presented.

As the consultations progressed, the Ministry of Environment saw a key role for itself in the PRSP, and requested a stand-alone section on poverty–environment links in the PRSP. This, in turn, would mean increased budgetary allocations and importance for the environment sector, something the Ministry of Environment keenly sought. The Ministry of Finance had no objection to a stand-alone section, but was more interested in poverty–environment indicators as part of the PRSP performance appraisal. However, the Ministry of Environment, which would have the responsibility of monitoring poverty–environment indicators, was hesitant and felt they had limited capacity to monitor and report. IUCN Pakistan and its constituency, on the other hand, wanted to integrate poverty–environment concerns across the PRSP.

A compromise was reached, taking into account all three approaches. Since sectoral contributions still were being developed for the final PRSP and were not available, the first step was to develop a stand-alone section and poverty–environment indicators. Later, when sectoral contributions and a final draft PRSP were available, IUCN Pakistan carried out an informal strategic environmental assessment. This fulfilled the objectives of IUCN Pakistan and its constituency to attempt to integrate environmental concerns across the PRSP.

CHALLENGES TO INTEGRATING POVERTY–ENVIRONMENT CONCERNS

This initiative faced several daunting challenges, particularly relating to basic attitudes and mind-sets. For example, like many economic planners in the developing world, the Ministry of Finance’s economic team

believed in economic growth today and environmental protection tomorrow. Moreover, the Ministry of Finance, as the interim PRSP demonstrated, lacked awareness and knowledge on environmental factors exacerbating poverty. In the minds of these planners, environmental protection was a luxury that Pakistan could not afford.

Not surprisingly, therefore, the Ministry of Finance, the Ministry of Water and Power, and the Ministry of Petroleum and Natural Resources suspected that the environmental community, through the PRSP, would retard business of economic development. The partnerships and dialogue with the Ministry of Finance and the Planning Commission, along with the PPA findings, went a long way in defending the argument that environmental management can play a key role in economic development and poverty reduction.

Another dominant view was that poor people damage and degrade the environment. Less appreciated was how environmental degradation resulted in the loss of livelihood, deteriorating health, and increased vulnerability of the poor. Again, the findings of the PPA—specifically, that the poor would give such high priority to environmental conditions—astonished many in the environment and development communities.

While successful advocacy did result in a mammoth change to the PRSP, long-term challenges remain. The integration of poverty–environment concerns in the PRSP could be seen as a requirement of external funding agencies, prompting the respective ministries and sectors to go about their business as usual. Hence, advocacy on the PRSP process must continue, and implementation on the environment front will require sustained commitment and capacity.

LESSONS LEARNED FROM THE PRSP PROCESS

This subsection highlights the key lessons learned during the PRSP process. One of the key lessons emerging from this initiative has been that policy processes are not neat, linear, rational cycles, but haphazard and chaotic. This implies that environmentalists need to be strategic and take advantage of changing events. Through luck and opportunity, this process brought together the growing criticism of the interim PRSP, the established EDCG and funding agency concerns, the objective of the Ministry of Finance to prepare a sound PRSP and request technical assistance, and the PPA findings. However, IUCN Pakistan still had to act on these conditions.

The strategic and simultaneous engagements with the Ministry of Finance, the Planning Commission, the Ministry of Environment, and the EDCG turned out to be a critical factor in the advocacy process. This facilitated, among other things, access to the mainstream development arena and meant that IUCN Pakistan and the environment consortium had to be taken seriously. The arrangement also worked as a buffer, preventing the interests of any one party from taking precedence over another. Instead, the concerns of all parties contributed to the provision of sound technical advice. Finally, the recognition that the Ministry of Environment should not be the only counterpart on poverty–environment links in general and on PRSP in particular was vital. The Ministry of Finance and the Planning Commission are equally important counterparts on poverty–environment links.

Participatory processes are complex and require innovation, patience, long-term commitment, and sensitive handling. For example, this initiative necessitated unique arrangements among public, private, and civil society sectors in a project framework. This highlighted unusual and difficult circumstances because of differences in work culture, staff quality, time management, governance, and decision making. For these partnerships to be successful, general mistrust among these sectors had to be overcome and partnerships had to be built through political management, consistent and dynamic engagement, and dialogue. The advocacy must continue to ensure that identified links are implemented.

Perhaps the most important success of the initiative was supplanting the impression that the PRSP was only a federal government process and product. Bringing the process to a diversified set of actors (provincial governments, civil society, funding agencies, etc.), sectors, and scales meant that these actors mattered and had something to contribute. In some sense, this created a relationship with the PRSP and acted as a driver of change.

Where are we now?

This final section raises a basic question: were the two processes worth undertaking? The answer—as this case study has demonstrated—has to take note of the rationale of participatory processes. Thus, a more apt question is: have participatory processes made such a difference that decision makers hear, and respond to what the poor say about poverty and the environment? The short answer can be broken

into two parts. First, decision makers are arguably more aware of the situation of the poor. Second, the response to this awareness is not as clear, however, since aspects on how to help the poor cope better and make their livelihood sustainable will depend on a number of factors, such as research, policies, legislation, projects and programs, capacity building, and implementation.

More systematically, this section examines processes and determines the extent to which the objectives of the PPA and the IUCN Pakistan-led advocacy were achieved and the recommendations reflected in the PRSP. Since advocacy campaign outcomes take time to manifest themselves, this section also analyzes the provincial PRSPs of Sindh and Punjab—the two provinces where Shirkat Gah was directly responsible for the PPAs, and where provincial PRSPs have been drafted—to see whether the awareness and advocacy filtered through to these documents. The section concludes with an examination of the institutional issues to identify the gaps between policy and on-the-ground realities.

PRSP AND PPA

The Ministry of Finance released Pakistan's PRSP, *Accelerating Economic Growth and Reducing Poverty: The Road Ahead*, in December 2003. The document outlines “the broad framework and the strategy of poverty reduction based on four pillars: (a) accelerating economic growth while maintaining macroeconomic stability; (b) improving governance; (c) investing in human capital; and (d) targeting the poor and the vulnerable. PRSP also highlights the programs and policies of the Government under each of these pillars and proposed indicators to monitor the outcomes of these policies as well as intermediate indicators for social sectors.”

A preliminary analysis of PRSP shows that the main focus is on economic growth, with a few direct references to the PPA, and a few indirect references to the information generated by the PPA. PRSP recognizes the PPA as a tool to supplement the discussions with communities, and refers to the key findings of the PPA. However, it also states that “the sampling of the PPA fieldwork was statistically not representative and care must be taken in drawing conclusions from it. PPA can point to the existence of common concerns or problems that the poor may be facing across communities, but the statistical distribution of these problems can only be verified through a proper survey.”

PPA also is reflected in the section Environment–Poverty Nexus, which states: “Pakistan’s goal of achieving sustained economic growth for poverty reduction includes environmental sustainability.” This section also mentions the PPA’s results and recommendations from the field on working toward poverty reduction through environmental management. Access to resources is recognized, as is the dependency of the poor on the natural resource base and assets, such as land and water, which the poor identified as natural capital in the PPA.

The link between environment and health, and the effects on women and children, are emphasized. PRSP also includes the vulnerability of the poor to environmental disaster, conflict, and the shrinking natural resource base. PRSP notes that the government is aware of the poverty–environment links in Pakistan, and has taken efforts over the last 2 decades to create institutions and adopt policy measures to address these problems.

The provincial PRSPs also were supposed to include the PPA findings in their respective strategy papers. The Sindh PRSP has been drafted, but has not been released officially.

The Planning and Development Board of Punjab completed the Punjab PRSP in October 2003. This document refers to the Punjab PPA in a number of places. The main findings of PPA are mentioned in the overview of poverty in the province. Lack of access to main roads, salinity, water logging, drought, flood and rainwater drainage, and lack of basic services for schools and health centers are mentioned as factors emerging from PPA. PRSP also states that “these correlations along with the characteristics of poverty provide the indicative framework for the effective targeting of scarce resources within the poverty reduction strategy for Punjab.”

The PPA process and the framework of issues discussed, as well as their main findings, have been incorporated in the document. However, the strategies and objectives for the health sector only mention improvements in management structure, reorganization of health facilities, multilevel referral systems, and more reliance on the private sector. The Punjab PRSP does not mention access to health care through improved roads and transport system, which was the primary concern of the poor. It does include the building of a road network, however.

For the environment sector, the links between poverty, environment, and health are recognized. While not all issues that emerged from PPA are

included in PRSP, the policies clearly have been informed by the insights in PRSP, as well as in subsequent official documents, such as the *Medium-Term Development Framework 2005–2010*, the Government’s program and policy document for the next 5 years that subsumes PRSP.

Conclusion

The federal and provincial PRSPs specifically mention poverty, health, and environment links. In this sense, these PRSPs have come a long way in understanding the multifaceted dimensions of poverty and, at least on paper, they have begun to address these links. However, it is premature to judge PRSP’s impact on poverty. PPA took 3 years from design to implementation, and the poverty–environment concerns were included only recently through IUCN-led advocacy. Nonetheless, a crucial start has been made, which might be sufficient justification for the PPA and the IUCN Pakistan-led PRSP processes. Moreover, interesting changes are taking place on the ground. In a number of sites in Sindh and Punjab, local authorities have addressed some priority issues that emerged during the PPA fieldwork and are continuing to do so particularly in the follow-up stage of PPA. Plans are also in place in some Punjab districts to use the PPA methodology across the districts to identify people’s perceptions of social services and their recommendations for addressing the needs.

Real change or impact on poverty emanating from the strategy remains to be seen. It will depend heavily on factors, which include (i) further research on the specifics of poverty–health–environment links; (ii) amendments to macroeconomic and sectoral policies supportive of environmental management; (iii) legislation that protects and provides access to the poor; (iv) capacity building of government, civil society, and private sectors on pro-poor approaches; and perhaps most importantly, (v) implementation of pro-poor projects and programs. In this sense, devolution in Pakistan holds promise in the harmonization of policy and on-the-ground realities. More importantly, devolution can set in motion the operation and implementation of PRSPs through devolved local levels of government that can be more responsive and are better placed to address the specific poverty–environment links of poor inhabitants. For this to be effective, the devolution of powers to local governments needs to be successful as a project in itself. In turn, local governments must have

the capacity to address the needs of the poor, and be responsible and accountable for doing so.

This case study has shown that participatory processes have been instrumental in highlighting, addressing, and implementing poverty, health, and environment links across scales and sectors, and will continue to hold appeal for future harmonization.

Overcoming Gender Inequities in Access to Natural Resources in Asia

Silke Reichrath

Natural resources, from agricultural land to forests and fisheries, underpin nutrition and income for rural populations in many Asian countries. They also supply fodder for domestic animals, fuel for cooking and heating, medicines, and construction materials. The importance of each resource varies between locations, socioeconomic and ethnic groups, and men and women. Common property resources (CPRs) that can be gathered in forests, collected from the margins of fields, or fished in lakes and coastal areas tend to be most important to poorer households, and to more remote communities with less access to alternative incomes through wage employment or agriculture. This implies their particular importance to Asia, where two thirds of the world's poor live (International Fund for Agricultural Development [IFAD], 2002).

CPRs hold a particular significance for women. Women tend to be the primary gatherers since they are responsible for supplying household needs such as food, fuel, fodder, and medicine. At the same time, they are less likely to own private land for cultivating these resources. They also tend to be overrepresented among the poor, especially if they are (i) heads of households; (ii) belong to ethnic minorities, indigenous groups, or scheduled castes; and/or (iii) live in remote hilly, mountainous, dryland, or coastal areas. Moreover, women from these social groups and in these disadvantaged geographic locations depend more on natural resources than their wealthier counterparts in more favorable locations and from majority social groups. This heavy dependence is rooted in their lack of easy access to alternative livelihood through education, employment, markets, and government services.

Access to natural resources is determined by ownership and management regimes of varying complexity. These range from exclusive state or private ownership to systems of overlapping and sometimes contradictory customary and statutory access, use, management,

and ownership rights. Access and property rights are stratified by gender, economic group, occupation, and ethnicity. For example, the poor might have gathering rights to dropped fruit and grain on the fields of wealthier neighbors; women might cultivate gardens on their husbands' land; and ethnic minorities might gather firewood and medicinal plants from state forests. These rights are subject to continuous renegotiation at the community and national levels. The ability of each user group to influence the outcome of these renegotiations depends on their relative bargaining position. This bargaining position is determined by a range of factors, including access to decision-making forums, information, level of education, access to courts and other mediators, connections to state officials or NGOs, financial resources, material assets, and historical claims. This section will focus on gender differences in access to natural resources under various property and management regimes, and gender differentials in bargaining power over these resources.

The importance of common property resources

CPRs add about \$5 billion a year to the incomes of poor rural households in India, about 12% of their income, and twice the foreign direct investment or official development aid to India in 1996. CPRs are defined as “resources accessible to the whole community of a village and to which no individual has exclusive property rights.” They can include—depending on the ecosystem—pastures, forests, wastelands, common threshing grounds, waste dumps, watershed drainages, ponds, tanks, rivers, etc. found on state, communal, or private lands. They provide households with “food, fuel, fodder, fiber, small timber, manure, bamboo, medicinal herbs, oils, materials for house building and handicraft, resin, gum, honey, spices,” etc. Fuel and fodder are the most important CPRs for household use (Beck and Ghosh, 2000). Remote communities in particular get most of their daily needs for food, fuel, fodder, medicine, and construction materials from the forests, rangelands, water bodies, and other areas around them.

For example, among minority groups in the upland areas of Viet Nam, traditional communal resource-use patterns based on the combination of paddy cultivation, swidden agriculture, and resource gathering continue today. Better-off families use forest products (firewood, rats, bamboo, wood, and palm) mostly as supplementary food and income

sources. Poorer families, however, depend heavily on forest products to alleviate food shortages and to earn income. They sell broom grass, medicinal plants, and bamboo, as well as collect wild tubers for consumption. Poor and middle-income families rely on swidden agriculture for food. Swidden agriculture and gathering of forest products are predominantly women's work, while men focus more on paddy rice cultivation and the care of large animals (Ireson-Doolittle and Ireson, 1999).

Medicinal plants are particularly important to ethnic minority communities in the highlands, where 70% of medicinal plants in Viet Nam's markets originate. Traders along the entire market chain are largely women. Collectors do the initial processing and then sell to middle-women, who in turn sell to female merchants in Hanoi or the People's Republic of China (PRC). Herbal medicine is important in Viet Nam, where the largely rural population has limited access to modern medicine and the Government has promoted traditional medicine. Demand for herbal medicines has increased further with the reduction of government subsidies for modern health care. However, the increased demand creates the risk of overexploitation of medicinal plants. Secure tenure rights for women might provide the incentive and necessary decision-making authority to cultivate medicinal plants for long-term supply (Sowerwine, 1999).

The option to derive food, income, construction materials, fuel, and medicine from CPRs has multiple impacts on the health of user populations. Where CPRs provide a mainstay of the daily menu, they can reduce malnutrition. Where they are used mainly as side dishes or sauces, they add valuable nutrients to a diet otherwise based largely on starches and staple foods. Access to clean water is indispensable for a healthy community. Properly constructed housing can reduce the incidence of mosquito-borne diseases or respiratory diseases, depending on the climate. Medicinal plants can alleviate many common ailments, and are indispensable where modern medical care is not accessible. Finally, income derived from the sale of CPRs can be used to obtain health care services where these are available.

CPRs are particularly important to the poor, especially in times of scarcity. Women and children are the primary gatherers in most cases. Traditionally, community institutions have managed CPRs by establishing flexible rules to allow for regeneration of the resource and for, more or less, equitable access by community members. Women were usually excluded

from decision-making institutions for CPRs, though some traditional institutions included female elders. The management of CPRs is thus "an indigenous system which works through unequal power structures to provide significant benefits to the poor" (Beck and Nesmith, 2001).

Privatization, encroachment, agricultural intensification, productive ventures such as plantations, overexploitation, and degradation due to population pressure are eroding access to CPRs (Beck and Nesmith, 2001). Agricultural intensification has led to the reclamation of wastelands, pastures, and marshes; the privatization or enclosure of common areas; and the degradation of forests. Increased collection of CPRs due to a growing population, or in cases where CPRs acquire a market value, has resulted in unsustainable levels of gathering. Such degradation often triggers stricter access limitations to allow resources to recuperate.

The implications of changes in access to natural resources are greater for women who are responsible for obtaining the resources. In some cases, they have completely lost their access to CPRs. A reduction or loss of access to these resources increases the time they spend gathering, reducing time available for other income-generating activities, child care, trips to health centers, and other essential activities. It undermines the health of women, who have to carry heavy loads over longer distances, as well as their families, who lose access to nutritional foods and herbal medicines. It also leads to the decline of indigenous knowledge about traditional foods and medicines. Further, it increases poverty because of the loss of income from marketable CPRs, and the additional expense of purchasing replacements (Beck and Ghosh, 2000; Li, 1993). Increased poverty has negative repercussions for a family's health, given the lack of resources to access health care, nutritious food, and clean water.

In Viet Nam, for example, forests designated as village commons sometimes are allocated to households, especially if they are barren lands designated for reforestation. Combined with the commercial exploitation of timber and population pressures, this reduces access to CPRs. Less access to forest areas for swidden agriculture means less fallow time and lower yields. This implies more work for women, who have to cultivate more land, often farther away, to produce the same amount of food. The loss of access to forests and barren lands also means women have to spend more time foraging over greater distances,

or planting gardens to substitute for wild plants (Ireson-Doolittle and Ireson, 1999).

Individual property

Traditionally, the government has owned most CPRs in Asia since state ownership covered all land that was not privately owned. In practice, the local communities managed this common land and established sustainable use patterns. Over time, however, natural resources such as timber, minerals, and hydropower, became more attractive on international markets and more accessible due to technological advancements. Since governments legally owned the land, they granted logging and mining licenses, and established hydropower and plantation projects on these lands. Local communities were not consulted, and lost access to some or all natural resources on which they depended. Informal and state-sponsored migration rapidly increased the population, brought in newcomers who were not subject to community-based regulations of natural resource use, and led to degradation of CPRs.

The loss of local livelihood and degradation of natural resources were linked to the local communities' insecurity of land tenure. In response, many governments in South and Southeast Asia embarked on reforms of their property rights systems. Usually, the need for secure tenure has been addressed through land titling and registration. In addition to encouraging sustainable resource management and protecting local livelihood, titling is meant to create more liquid land markets, enable owners to use the land as collateral for credit, facilitate government planning, raise productivity, and encourage investments. Several governments went beyond titling and redistributed use and/or ownership rights to agricultural or forest land to increase productivity, and provided landless poor or rural communities with access to land. For example, in the former communist countries of Southeast Asia, long-term use rights to state-owned land have been allocated to households. In South Asia, communal lands or large estates have been subdivided and registered as household property.

Exclusive individual ownership is clearly the most secure form of tenure. However, the introduction or strengthening of individual or household property rights often reduces women's access to natural resources. Under customary rules, women might not have the right to buy or inherit land directly, though

they have management and use rights. However, in land titling processes, land usually is registered in the name of the head of the household, who is assumed to be male. Even where women have legal rights to a joint registration of user rights (e.g., in Viet Nam), women are not always aware of their rights, the bureaucratic processes, and the potential implications of not claiming their rights (Tinker, 1999). Women in ethnic minority communities face additional hurdles because they do not speak the official language and are sometimes explicitly excluded due to cultural norms (Sowerwine, 1999).

For example, the PRC, Lao People's Democratic Republic (Lao PDR), and Viet Nam have shifted from a system of collective natural resource management and agricultural production to a system based on household responsibility and long-term user rights. User rights were assigned to households based on the number of household members. Even though women are equal before the law, land is usually registered in the name of the male head of the household. Households are now the main units of production, which has given the head of the household a prominent role in decision making about household resources, family labor, the sale of products, and the use of the proceeds. The result has been a return to more patriarchal gender roles and power relations within the household (Anh, 1999; Zongmin, 1999). This is the case even in matrilineal lowland the Lao PDR, where daughters traditionally inherit the parental home and land in return for caring for the parents in their old age (Ireson-Doolittle, 1999; Viravong, 1999).

While women typically have the right to use the land registered in their father's or husband's name, this arrangement becomes problematic at times of marriage, divorce, death of the husband, or male out-migration. A newly married bride cannot bring the land assigned to her father's household in her name to her new household. Hence, she is landless in her own right, and her use of her husband's land reduces the amount of land available per family member. Similarly, a divorced woman cannot take her share in her husband's household land with her, and becomes landless until the next redistribution of land-use rights (Anh, 1999). When the head of the household migrates for employment, family members remaining behind are unable to use the land-use right registration as collateral for credit (Song and Jiggins, 2000; Zongmin, 1999).

These issues are gradually being recognized and addressed. For example, Viet Nam has introduced

legislation that makes the joint registration of family assets and land-use rights in both spouses' names mandatory, accompanied by public information campaigns and initiatives to reissue land-use certificates that had been issued in the name of the male head of household (World Bank, 2002). In future initiatives, joint titling should be built into the design of land policies at their inception, including the use of registration forms requesting both spouses' names, clear instructions to land registration personnel, and public awareness campaigns about the importance of joint registration.

Customary resource management regimes

Even where land titles are registered in the name of both spouses, land titling still means a loss of the subsidiary usufruct rights existing under customary regimes. Many customary tenure systems give women and men different levels of use rights to diverse plants or products of a plant, depending on the seasons on the same plot of land. Even where women obtain titles to land of their own, or joint registration with their spouse, the subsidiary rights of poorer and/or minority women are extinguished. The complex bundles of gathering rights and proprietary rights to the various categories of resources on the same land usually are not reflected in legal codes, individual land titles, or even formal definitions of common property. Individual ownership rights, thus, tend to be much more inequitable than the multiple overlapping use rights of customary systems (Razavi, 2002; Rocheleau, Thomas-Slayter, and Wangari, 1996).

Customary regimes are by no means egalitarian. They usually involve a local authority (e.g., a council of elders or religious leaders) distributing different use rights to community lands and resources based on need, ecological factors, and usage history. Women usually are excluded from decision-making institutions, though some include female elders (Rocheleau and Edmunds, 1997; Beck and Nesmith, 2001).

In other cases, customary use patterns have evolved over time through a continuing negotiation between users, without a central authority assigning rights. This is the case especially for CPRs on or around private property, and for the distribution of use rights within households. In these instances, the range of what can be negotiated depends on wealth, identity group, age, marital status, and gender. Men from dominant social groups have more influence in

shaping these access regimes than women from poor households and ethnic minorities. However, they cannot exclude any resident from resource access entirely (Rocheleau and Edmunds, 1997).

Women's spaces in these customary regimes often are between fields, along roads and fences, around men's trees, or on wastelands, where they collect firewood, medicinal plants, wild foods, and grasses for weaving and thatching. Their customary rights allow mostly for renewable use (planting crops, harvesting leaves, gathering deadwood), rather than consumptive use (cutting trees, selling land, diverting water), and do not confer control over the resource. Customary rights vary between countries, ecosystems, ethnic groups, kinship groups, and villages. They depend on historical precedent and daily use patterns, relationships, gender roles, and the investment of labor. This makes them highly complex, negotiable, and responsive to ecological, economic, and social changes (Rocheleau and Edmunds, 1997). However, they are often conferred through gendered institutions, such as marriage and inheritance. Thus, they depend on women's relationships with men (Rocheleau, Thomas-Slayter, and Wangari, 1996).

Rather than calling for individual property rights for women or joint titles, which still eliminates the subsidiary rights of poor or marginalized women, flexibility is needed in many situations to design natural resource management systems that recognize multiple overlapping bundles of user rights. These systems should strengthen rather than eliminate subsidiary rights, adapt to changing environmental and socio-economic conditions, and emphasize sustainable and renewable uses. While they can incorporate elements of customary regimes, they also can improve on them by introducing modern scientific and technological knowledge, and encouraging women's equitable access to resources and participation in decision making. Such systems can be developed only with the participation of all resource users, which is required to understand the local social relations of resource use, preserve and strengthen subsidiary rights, and ensure the legitimacy of the resulting tenure system (Nichols and Komjathy, 2002; Rocheleau and Edmunds, 1997).

Comanagement of natural resources

Building on these customary resource management regimes, government agencies, international funding

agencies, and nongovernmental development organizations have established comanagement or community-based natural resource management programs in many Asian countries. Comanagement is “the sharing of power, responsibilities, and benefits with respect to the management of natural resources (including their exploitation and conservation) among government and individual or collective users.” A wide variety of comanagement arrangements exist, some with more local decision-making authority and others with more government authority. Examples include stewardship contracts (usufruct rights to state lands), extractive reserves, and lease contracts with communities (Persoon and Van Est, 2003). Community-based natural resource management also can involve agreements between community-based user groups and government counterparts to restrict the use of natural resources, reforest deforested areas, or use more sustainable harvesting or agricultural practices in exchange for alternative income-generating options, employment, or cash payments.

Under formal comanagement or community-based management programs, organized user groups mediate access to resources. Membership rights often are restricted to the male heads of households (Sundar, 2000), or based on the ability to contribute financially and/or in kind through participation in communal labor. Women often do not have their own money to contribute, or the time and mobility to join patrols, which disqualifies them from sharing in the benefits of the program.

Women usually constitute less than 10% of most forest user groups in government-initiated programs in India and Nepal, and are absent from most locally initiated groups. In earlier government-organized groups, only one member per household was allowed to be a member, which was almost always a senior male. More recently, a shift has occurred toward the inclusion of one man and one woman per household, which still excludes younger household members. Only three Indian states allow all adults to be members. In Nepal, only heads of households can be registered as forest user group members. Even where women are included in forest user groups, many are not active or effective. “Only a small percentage usually attend the meetings. If they do attend, they rarely speak up; and if they speak, their opinions carry little weight” (Agarwal, 2001). Differentials in influence, wealth, education, information, and mobility between women and men from different socioeconomic groups lead to imbalances

in decision making about the resource within the user groups.

Hence, women seldom are consulted when forest management plans and rules are negotiated, despite their superior knowledge about many plant species and the local environment because they are the main fuel and fodder collectors. This has important implications for women’s citizenship rights and empowerment, the effectiveness of the management plans, and equity in resource access. Women have less chance of learning leadership skills or “acquiring new knowledge, such as about new silviculture practices, since they are rarely part of the teams that receive such training.” The failure to take women’s greater knowledge of forest resources into consideration when planning forest development and new planting reduces the prospects for biodiversity conservation and effective regeneration. Rehabilitation measures are harder to enforce when women are not involved in designing them since they are perceived as unfair. All-male patrols are also less effective at apprehending female intruders, and often do not notice when resources are missing since they are less familiar with the forest (Agarwal, 2001).

Women are not consulted about entry bans to forest areas, even though these bans impact on women profoundly. They have to travel greater distances daily to collect firewood and other NTFPs. Sometimes daughters have to quit school to help their mothers. Carrying heavy loads over longer distances results in back problems, gynecological difficulties, and injuries. Some women resort to stealing from neighboring forests, risking humiliation and fines. Some substitute other fuels such as twigs, agricultural waste, dry leaves, or cow dung, which increases cooking time and creates health hazards for eyes and lungs from the fumes. In high-altitude locations, women might have to forego heating fires in subzero temperatures, thereby increasing the rates of respiratory illnesses. This usually affects poor and middle-income rural households, since even the latter seldom purchase firewood or have sufficient private trees. However, the landless poor are the worst off because they have no crop waste or cattle dung. Restrictions on fuelwood collection usually persist even after the forests have started to regenerate and “much more firewood can be extracted sustainably than the conservative closure regimes ... allow” (Agarwal, 2001).

In addition, women have no say over the distribution of benefits from the regenerated forests,

and the use of community funds. Hence, community funds often are spent on items that do not benefit women. Funds distributed to men individually sometimes are spent on personal items rather than household needs for food, education, and health care. Shares in forest resources often are distributed based on contribution, or auctioned off, even though “women across class lines [are] vehemently opposed to forest products being auctioned and want [...] rules that allow [...] everyone equal access to grass or firewood.” Forest management plans made by men tend to emphasize cash-yielding tree species instead of the trees with domestic use value that women prioritize (Agarwal, 2001).

While programs initiated by governments or funding agencies generally have fared better in including women than locally initiated user groups, they also can undermine local achievements in localities where self-initiated user groups have become inclusive. For example, in Uttarakhand in the Central Himalayas, a region with high male labor migration and a history of community organization to protect local forest access, women had carved out significant decision-making authority in local forest management institutions. In some cases, women were included in the main forest management institutions; in other cases, women’s organizations influenced decisions, or women obtained the right to enclose their own patches of communal land. Many local arrangements succeeded in allowing forests to regenerate, and to provide the necessary NTFPs and water regeneration. Many were representative of different castes and hamlets. Local institutions were easily accessible since they did not involve a distant and difficult-to-navigate bureaucracy (Sarin, 2001).

However, the forest department initiated a new village joint forest management (VJFM) program. The program did not build on local arrangements and on the gains women had made. The VJFM program was negotiated with elite men in the village without the women’s knowledge. Although it was meant to facilitate local user participation, the program reduced the villagers’ control over forest resources in many localities. The sudden influx of money caused men to take an increased interest in forest management. Well-paid male guards were hired instead of the female volunteer patrols. The self-initiated user groups lost their decision-making authority. Most villagers were unclear about the new rules. The shift of accountability from the villagers to the forest department increased cor-

ruption. Where previously the aim of local user groups had been to ensure the supply of fuel and fodder, the VJFM program shifted the emphasis to revenue generation from resin and timber species. The influx of money created inequities between villages with and without projects, and conflicts arose within project villages over the use of the funds (Sarin, 2001).

This shows the dangers of comanagement agreements signed with the community without a careful analysis of community structures, particularly the membership of the counterpart committee that allocates resource access and use rights. While partly due to a lack of awareness, intracommunity differentiation also might be overlooked to reduce the complexity of the situation, simplify transactions, and make the arrangements workable and durable. A review of a large body of communal property arrangements found that the homogeneity of user groups, or at least of their identities and interests, is one of the factors that makes these arrangements functional and durable (Agrawal, 2001). A perceived need for homogeneity can lead to a conscious or unconscious glossing over of intracommunity differences.

Thus, the gender dimensions of access to land, water, decision making, and development assistance need to be highlighted in comanagement initiatives to ensure that women are not excluded from the new decision making institutions. Their inclusion in decision making limits the risk that women will lose their customary access to natural resources and bear a disproportionate amount of the costs of restricted resource management and/or lose out on the benefits. Addressing social differences within communities can reduce or avoid intracommunity and intrahousehold conflicts and inequities created by the enclosure of commons for the use of a limited number of community members.

The importance of an analysis of the roles women and men play in natural resource management, their perspectives and needs, and the impact of project activities has been recognized increasingly in recent interventions. It was one of the questions of PPA in Pakistan, which sought the views of young and old men, women, children, and minority groups in separate discussions (Mumtaz et al., this volume).

The PPB model in India also is based on careful and participatory gender analysis. This has allowed the initiative to identify men and women’s roles in planting, harvesting, and postharvest processing. This knowledge then enabled the team to support specific income-generating activities for women entrepre-

neurs, as well as support women's role in providing nutritious food for their families (Arunachalam et al., this volume).

In the Community-based Haor and Floodplain Resource Management (CBHFRM) project in Bangladesh, gender analysis showed that adult women usually do not participate in fisheries. Nevertheless, women were invited to participate in designing an action plan for resource regeneration, and in training activities related to natural resource management and to alternative income-generating activities (Nishat et al., this volume).

Gender analysis—in the framework of the WWF project in Yunnan Province, PRC—demonstrated women's important roles in collecting and managing NTFPs and in the rearing of animals, their lack of access to health care and education, and several specific problems that the project could address. The project managed to improve the irrigation system, introduce fuel-efficient stoves to reduce women's workload in fuel collection, and support women in marketing the gathered NTFPs and managing the financial resources obtained from them (Yusong, this volume).

In these cases, gender analysis was an essential first step in making women visible, understanding their roles (and the particular challenges and needs derived from these roles), and designing project activities that would support women's activities and meet some of their practical everyday needs. To obtain results that reflect the different perspectives in a community, and that are acceptable to all community members, the gender analysis needs to be inclusive. All the different social groups must be invited to participate.

While gender analysis is a crucial step, it is not sufficient. To make resource management plans inclusive, affirmative action measures are required to ensure women's participation in community discussions and decision making. It also requires a carefully designed participatory methodology to facilitate a process where women are not only physically present, but also able to express themselves and participate substantively in decision-making processes.

Inclusive participatory planning processes

Participation means different things to different users of the term. Various typologies of participation have been developed, such as Arnstein's (1969) ladder encompassing passive participation (being informed),

consultative participation (being asked for opinions), influence on decisions, and control over decisions. Similarly, White's (1996) typology includes nominal participation (for legitimation), instrumental participation (for efficiency and cost-effectiveness), representative participation (for sustainability by giving people a voice in shaping projects), and transformative participation (for empowerment to strengthen people's ability to decide and act) (Cornwall, 2002).

To ensure the passive or nominal participation of women alone often requires affirmative action measures. These can include quotas of women on committees and in community meetings, or stipulations that at least one proposal has to be submitted by women. However, affirmative action alone is not sufficient because men still might dominate decision making in joint committees and in the development of women's proposals. Additional participatory tools are needed, which can include social mapping of community households for targeting projects, separate meetings for women, and clear equity criteria for the selection of ideas or proposals (World Bank, 2004b).

Several project teams in this volume have established separate women's committees or groups. The Yunnan Environment Development Program's (YEDP) pilot demonstration projects tried to involve women, and women have been added to "new" YEDP-inspired committees. While authority remained with the village elite represented on village committees, a new female elite was added by creating women's committees (Spencer et al., this volume). The Pred Nai Community Mangrove Forest project in Thailand also set up women's groups (Kaewmahanin et al., this volume).

Going beyond consultative and instrumental participation has been difficult for funding agencies, governments, and NGOs. The inclusion of women, especially from marginalized groups, in research and planning is time-consuming. As their views are diverse, consensus building—even within separate women's groups—can be a long-term process. Enabling women to formulate and voice their views and needs often requires preparatory capacity-building activities. The CBHFRM project found that extensive training in natural resource management, environmental awareness, and leadership skills, as well as practical income-generating skills, were required to overcome the capacity gap between women and men (Nishat et al., this volume). However, the time required to build women's "capacity

to speak and act” is often unavailable (Razavi, 2002) if rapid assessments are needed.

Sensitizing dominant community members to women’s needs and perspectives can take just as much time. In addition, adapting project designs to complex local circumstances “requires slow, gradual, and persistent learning by doing” on the part of the project facilitators. These long time lines run counter to the incentive system of international development programs, which reward quick results (Mansuri and Rao, 2004).

Being inclusive requires adjustments to the planning process. Project teams have to include women, as in the Pakistan PPA process (Mumtaz et al., this volume). Schedules need to be modified to a time of day, and a time of the year, when women can attend, including those from poor and socially marginalized households. A private location for meetings might facilitate women’s participation without violating social norms. Small groups might encourage women to speak up without having to give a public performance and risking ridicule or confrontation. Conversely, an emphasis on formal knowledge and tidy presentation might discourage women from participating (Cornwall, 2002).

Redd Barna found that identifying gender and age differences in views about social issues required engaging with the community over a period of months rather than days. The process included (i) discussions in small, homogeneous groups of young women, old women, young men, and old men, as well as presentations to the plenary with follow-up discussions; (ii) an analysis of intracommunity differences; and (iii) a community action plan for common interests with separate spaces for group action. Despite careful preparation, conflicts tended to emerge. However, the process helped raise awareness of different perspectives and respect for the priorities of others (Cornwall, 2002). Other axes of difference, such as economic status, can be added to the model to divide the community into locally relevant and meaningful groups.

An inclusive participatory planning process also requires skillful facilitation. Different sets of tools have been developed to facilitate participatory analysis and planning, including participatory rural appraisal (PRA) tools. However, the use of PRAs has been problematic where facilitators receive inadequate training. Training over a short time span often focuses on visible outputs, while neglecting social, institutional, and interpersonal dynamics. Many practitioners have

limited social science backgrounds, which reinforces a tendency to put more emphasis on visible outputs than on facilitating a process that allows villagers to express themselves. In addition, they often fail to see who participates and who is absent (and why). Representatives of the Indian NGO SARTHI found that male PRA trainers they worked with tended to be more active than females, but that they addressed mostly the male villagers. They also observed that including all village residents, or understanding the socioeconomic structure of a village, was difficult due to the distance between houses. In addition, they found that PRA methods were complex and highly visual, which made them particularly difficult to explain to less literate participants. Women also refused to criticize the access rules to local resources in a public forum. When prodded to do so, male participants, especially the forest guards, rebuked them harshly. As a result, staff and villagers felt more comfortable with informal small group discussions and long-term day-to-day interactions. SARTHI found that a longer-term research project generated a much more in-depth understanding of gender roles and social differentiation (Sarin, 1998).

Tension is often inherent between empowering local communities and enabling women in these communities to gain voice, influence over decisions, and access to resources. The experience with forest user groups in India and Nepal shows that increasing local influence can disempower women and undermine their livelihood. Participatory research and action methodologies are designed to challenge local discourse and institutions that exclude women or that portray them as weak and in need of protection or charity. However, these goals of changing local power relations are frequently at odds with results of the participatory action research, which reinforce traditional gender roles. Practitioners constantly have to balance responsiveness to local analysis and requests against pushing for equity within communities (Cornwall, 2002). To further complicate this dilemma, notions of gender equity are sometimes perceived as a Western imposition and interference with local culture, even if expressed by local stakeholders (Jolly, 2002).

Despite the difficulties and trade-offs, a successful participatory planning process can facilitate women’s participation. It can allow them to make their voices heard, and sensitize male peers to their needs, capabilities, and perspectives. If their requests are followed through, they lead to the integration of

activities that address their specific needs, or compensate for their reduced access to a resource under rehabilitation. However, the inclusion of women—and responsiveness to their special needs—by itself does not change local power relations.

Bargaining power

Project activities to address women's needs are often specific, separate initiatives for income generation, revolving loans, capacity building, or infrastructure. Often they terminate with the end of the direct and active involvement and funding of the external agent who initiated the process. Although access rights for women might be written into the resource management rules, these can be changed as externally motivated institutions become locally owned. Long-term change requires a modification of local power relations in favor of women.

In customary resource tenure regimes, rules are renegotiated and reinterpreted continuously. Patterns of access to resources are altered based on changes in environmental conditions, social needs, household composition, and economic activities. However, as these adjustments are mediated by negotiations, they depend on the negotiating position and skill of each community member. Under comanagement, rules are less flexible. Still, they are subject to renegotiation between community representatives and the state, and to interpretation at the local level. Even in private property regimes, members of the same household negotiate access to resources. Recognizing the importance of negotiation to resource allocations within communities, and within households, can allow women to defend and expand their rights by enhancing their bargaining power (Rocheleau and Edmunds, 1997).

Amartya Sen postulates that negotiations and cooperative conflict determine access to resources within a household. Men and women pursue cooperation for their mutual benefit and arrive at a deal on the conflicting issues. This deal is often implicit and based on wider behavior patterns in society. However, it might be more beneficial to one side than the other. The extent to which one side benefits more depends in part on the contributions they are perceived to be making to the household, which in turn depends on their education, employment, property, and access to productive resources. Income tends to be perceived as a contribution, whereas reproductive labor usually is overlooked. In addition, a person's

bargaining power depends on the extent to which a breakdown in cooperation represents a greater threat to one side than the other. Women's bargaining power within the household can be enhanced through education, and access to employment and resources (Sen, 1990 and 1999).

In addition to income and education, women's bargaining power within the household and vis-à-vis the community depends on their ability to draw on external support systems and alliances. Women's participation in natural resource user groups is determined by the membership rules, support from NGOs and state agencies, social and cultural norms, perceptions of their abilities, personal property, connections, experience, confidence, marital status, class, ethnicity, and caste (Agarwal, 2001). In South Asia, for example, gender norms constitute a powerful constraint on women's ability to participate in public discussions and obtain property or access rights. Household resources are allocated preferentially to men, lowering nutritional intake, reducing medical care, and decreasing survival chances for girls. However, initiatives to form women's groups and provide access to funding and natural resources can change these norms. Over time, these initiatives improve women's confidence, mobility, visibility, and perceived contribution to the household and community (IFAD, 2002).

Thus, community-based resource management initiatives can contribute to changing local gender relations and social inequities by increasing women's bargaining position. They can enhance women's access to decision-making forums, and provide alliances with external agents such as NGOs or government staff. Women's committees and groups, such as those set up by the YEDP in Yunnan Province, PRC and the Pred Nai community in Thailand, are one way of enhancing women's access to decision-making forums, organizing them collectively, and facilitating consensus-building and leadership trainings. However, if interactions with the men's groups and the main project are not strong, separate women's groups can risk isolating women's perspectives and needs. This could restrict women's expression to their own special group and activities.

Several projects have attempted to build women's leadership, negotiation, and entrepreneurial skills within mixed groups and activities. The PPB projects in India highlighted the importance of women's contributions, sought ways to make their work less hazardous to their health, and encouraged

women to become entrepreneurs (Arunachalam et al., this volume).

Community-based programs also improve women's material conditions by creating new livelihood options and strengthening their user rights to natural resources. The WWF project in the PRC successfully involved women in the business and marketing of NTFPs they were collecting, and built their negotiation and financial management skills (Yusong, this volume). The Pred Nai community project created income-generating opportunities for women in the processing of crackers from mangrove plants and the sale of wine (Kaewmahanin et al., this volume). The CBHFRM project created employment for women on the reforestation project, and set up a revolving loan fund for livestock and agricultural projects (Nishat et al., this volume).

As for strengthening women's rights to natural resources, the study on irrigation tanks in South India promises to explore the impact of a transfer of tank management and tank usufruct rights to poor people, particularly women (Balasubramanian, this volume).

The acquisition of new skills and a cash income, in turn, has increased confidence, raised esteem by fellow community members and external agents, and enhanced mobility. The income is often spent on food, children's education and family health care, though also on ritual activities (Yusong, this volume; Nishat et al., this volume).

Conclusion

Community-based natural resource management and comanagement offer promising possibilities to establish more equitable natural resource management systems, while making them more ecologically sustainable. They can build upon the flexibility and universal access of customary regimes, and improve them by incorporating modern scientific knowledge and technology, as well as equity considerations. Granting access to natural resources to all local residents allows these systems to avoid the exclusion of the poorest—particularly poor women—that is inherent in private property regimes. On a larger scale, these management systems also have the potential to address issues of population growth, market integration, and intensified use to a certain degree.

To fulfill the potential for increased gender equity, affirmative action measures to include women in decision making need to be integrated into

community-based or comanagement regimes. These measures might include separate women groups that are linked effectively to the wider resource management process, or quotas for women on community user groups and their leadership bodies. Quotas need to be accompanied by measures that make it possible for women to attend such as modified schedules, day care, locations that are accessible and acceptable to women, etc. In addition, affirmative action might include specific measures to solicit proposals from women or initiatives to improve women's livelihood. These initiatives might include the provision of drinking water close to residences, income-generating projects, revolving loan funds, and measures to enhance women's continuing natural resource gathering or cultivation activities.

While passive attendance at events can be enforced through quotas, active and effective participation in decision making often requires a long-term investment in training and capacity building. This includes raising awareness among male leaders and spouses, and confidence building and leadership trainings for women. It likewise implies capacity building of men and women on natural resource management, environmental issues, new production technologies, resource monitoring approaches, and knowledge of sustainable yields to bring them to an equal level. Specific training also might be needed for external facilitators of user groups in gender analysis and in gender-sensitive facilitation methodologies.

Done successfully, community-based management or comanagement of natural resources has the potential not only to address some of the immediate practical needs of women and include them in community decision making, but to enhance their bargaining power over the long term. Contributing tangibly to community decision making might enhance women's self-esteem and change the perceptions that other community members have of them. New skills and higher incomes could increase their visible contribution to the household, thereby improving women's standing in the household. Codified rights to access natural resources have the ability to establish the precedence that women are holders of rights, and provide them with a more reliable source of sustenance. This would make them less dependent on perceived favors from community and family members. These changes might contribute to a slow shift in local cultural practices, build female leadership, and improve the economic base of family livelihood.

Community Mangrove Management in Pred Nai Village, Thailand

Jaruwan Kaewmahanin, Somsak Sukwong, Robert Fisher, and Supaporn Worraropnpan³³

Introduction

This case study describes forest management activities undertaken in a mangrove forest by the Pred Nai Community Forestry Group in Thailand. The village of Pred Nai is in Trat Province near the border of Cambodia. The mangrove is one of the last surviving mangrove forests on Thailand's eastern seaboard. The portion within Pred Nai covers 1,728 hectares (ha) (including 320 ha of plantation). Commercial logging since the 1940s has destroyed or degraded a significant area of mangrove forests in and near Pred Nai.

This case study discusses community action to restore the mangrove, beginning with attempts to prevent commercial logging for charcoal production. This was followed by the restoration of mangrove trees through plantations, as well as protection to allow regeneration. This evolved into active management of the mangroves to increase the production of aquatic species. Although the mangrove forest is technically under the authority of the Royal Forest Department, this has not prevented community action.

Local-level institutional reforms for sustainable management

The community in Pred Nai is trying to ensure that the local mangrove forest is managed in a sustainable way. The degradation of the mangrove, an important habitat for aquatic animals (such as crabs), has affected the availability of these animals. Villagers also have perceived a reduction in coastal fisheries, which they consider to be due mainly to the degradation and destruction of mangrove forests.

Pred Nai was settled around the 1850s. Its current population is about 600 (170 households). The villagers' main occupation used to be rice cultivation.

They also harvested aquatic resources, such as crab, fish, and shellfish, as well as forest products as part of their livelihoods. Pred Nai's main economic activities now include running a rubber plantation, growing fruit gardens, cultivating shrimps, and fishing. Some villagers work as laborers. Landless villagers engage in fishery activities and work as laborers.

The mangrove forest was placed under a logging concession in 1941. By 1985, villagers became concerned that the logging concessionaires were overharvesting the mangrove and prohibiting villagers from harvesting crabs, shellfish, fish, and other products in the concession areas. Some local people converted degraded mangrove areas into shrimp farms and built a gate to block seawater, which further damaged the mangrove's ecology. In 1986, the villagers formed a group to stop logging and shrimp farming. Their efforts were successful; commercial logging ceased in 1987, the company was ousted from the village (the concession was legally terminated in 2000), and the seawater gate was destroyed.

Even after the concessions stopped, it was difficult to prevent outsiders from nearby villages and farther away from harvesting or destroying resources within the mangrove area. Nervous about any harvesting, local leaders prohibited harvesting in a conservation area that comprised a small part of the mangrove. Harvesting regulations for the grapsoid crab (*Metopograpsus* sp.)—a small crab harvested for sale and rarely consumed by the collectors—were developed in 1997. These regulations involved closing the harvest during the breeding period in October.

A forest management group for the mangrove was formed in 1998. Its activities included resource mapping and forest patrols. Drawing on the strengths of local traditions and village elders, Pred Nai villagers built on some of the organizational and institutional skills developed as a result of a village savings fund started in 1995, with the support of a respected monk. First, the villagers planted trees in the denuded mangrove area; some stands began to regenerate naturally under strict village protection. Second, villagers set out to increase the production of mud crab (*Scylla serrata*)—another economically

³³This paper is based on experiences gained in an action research project carried out in Pred Nai, Thailand, in collaboration with the community and funded by the Toyota Foundation. We wish to thank the people of Pred Nai for their cooperation and enthusiasm. We also wish to thank Jim Enright for help in providing the scientific names of marine species and for advice on mangrove ecology.

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important aquatic animal—by starting a “crab bank.” People who caught egg-bearing crabs were asked to place them in one of the cages established by the management group in the canals.

A more detailed mangrove management planning exercise began with the technical support of the Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC) from 2000.

The villagers also acted to prevent destructive fishing practices. In addition, they are experimenting with thinning the dense natural stands of *Ceriops*. The villagers exchange ideas with fishery researchers to help with the monitoring methods and the collection of relevant data. The process and results are analyzed and reflected in the subsequent planning cycle. This conscious learning process is an important aspect of the group’s success.

The villagers realized that the people of a single community could not implement successful and sustainable forest management because boundaries were not demarcated and there were no regulations on forest use. A mangrove network was developed with some other local villages. The network was first initiated and facilitated in villages sharing boundaries with Pred Nai and later expanded to many other villages. The communities all became members of the Community Coastal Resource Management Network, Trat Province. Through the exchange of knowledge and experiences, the villagers have learned from their successes and failures. Their collaboration has allowed them to initiate new ideas and practices that respond to community needs.³⁴

The movement to regain control of the mangroves was initiated by residents of Pred Nai who sought support from some local politicians. Subsequently, in 1998, RECOFTC was invited to provide technical support, especially for management planning. This was formalized and increased in 2000 through a small support project funded by the Toyota Foundation. The activity began as and remained a local initiative. Table 19 presents a chronological summary of the landmark dates in the Pred Nai story.

Ecosystem improvements

The project began with the restoration of the mangrove forest through plantations and protection,

Table 19: Chronology of Events at Pred Nai

Year	Event
1985	Villagers become concerned about the impacts of the mangrove logging concession
1986	Group formed to stop logging and shrimp farming
1987	Logging stopped
1995	Savings management group formed
1997	Grapsoid crab harvesting regulations
1998	Forest management group started RECOFTC support requested Mangrove management activities started
2000	RECOFTC involvement increases with Toyota Foundation Project Formalizing of Community Coastal Resource Management Network, Trat Province

RECOFTC = Regional Community Forestry Training Centre for Asia and the Pacific.

leading to the regeneration of mangrove trees. After 16 years of community action, fauna biodiversity has increased. Villagers report that stocks of crab, shellfish, and fish have grown also. Many water birds, such as the painted stork (*Mycteria leucocephala*), *Parphyris poliocephalus*, purple heron (*Ardea purpurea*), grey heron (*Ardea cineria*), lesser whistling duck (*Dendrocygna javanica*), and brahminy kite (*Haliastur indus*) are returning. Moreover, macaques (*Macaca fascicularis*) reportedly have come back after moving away during the logging period. *Hoy lod* or razor clams (*Solen strictus* Gould) that were absent for 20 years also have reappeared.

After a couple of years of protection and some conflicts over the use of forest resources, villagers are trying more proactive management methods, emphasizing sustainable use rather than more passive conservation.

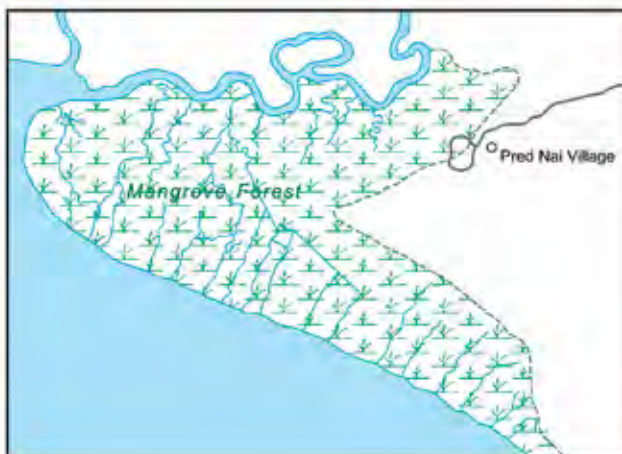
One of the most valuable local species is the mud crab, which is rare because so few mangroves remain. Some villagers who were interested in cultivating the mud crab formed a group to increase production. In addition to exchanging ideas among themselves, they are in contact with fishery researchers who specialize in crab aquarium breeding.

In conservation literature, a debate over whether sustainable use and biodiversity conservation are

³⁴A film in Thai and English has been produced about this networking activity: A Community Coastal Resource Management Network in Trat Province, the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC), 2002. Pred Nai also appears in the film: Forests, Local Knowledge and Livelihoods, IFAD/RECOFTC, 2000.

Map 11

Location Map of Pred Nai



- Mangrove Forest
 - National Capital
 - Provincial Capital
 - District Capital
 - Village
 - Main Road
 - Village Road
 - River
 - Village Boundary
 - District Boundary
 - Provincial Boundary
 - International Boundary
- Boundaries are not necessarily authoritative

compatible continues (see, for example, Robinson, 1999). In Pred Nai—and no doubt in many other cases of community-based conservation—previous use had undermined biodiversity severely. However, community-based initiatives have led to increased income and improved biodiversity, and community activity did not so much “conserve” biodiversity as reintroduce it.

In terms of biodiversity, the mangrove is now much healthier and biologically diverse. Apart from more aquatic animals and mangrove tree species, some aquatic animals and mangrove tree, bird, and mammal species have returned to the site. Also, while outcomes in biodiversity terms might not be perfect, they represent a major improvement. Third, in terms of the role of government policies, the original degradation was not the result of poor community practices. Rather, it was the consequence of government-issued logging concessions and the policy of promoting shrimp farming.

Poverty reduction

By Thai standards, Pred Nai village is not a particularly poor village. Livelihood and income sources are varied, and include horticultural activities and fishing. The connections between mangrove use, harvesting, and poverty are not simple because several categories of the poor can be found. Since each category has different types of assets and livelihood strategies, they are likely to be affected differently by changes to mangrove management.

The village has a significant number of relatively poor people, usually landless. Mangrove management has reduced poverty in their case and is likely to lead to improved livelihood security for other members of the community, especially those involved in fishing. Landless people can be subdivided into crab collectors and wage laborers who work in rubber gardens, shrimp farms, or in Trat town.

Some of the people in debt as a result of bankruptcy from shrimp farming or other causes might own land. For those within this group interested in crab collecting and fishing, better mangrove management has improved food security and provided alternative work.

The mangrove ecosystem is a valuable source of income for some villagers, and is the basis of a way of life for the village as a whole. The management initiative has helped ensure that the environmentally and economically important mangrove area is managed in a sustainable way. Improvements in the con-

dition of the mangrove have increased the availability of aquatic animals, especially crabs that are collected and sold. Mainly poorer members of the community, especially those without land, collect crabs. They obtain significant income from this activity, and income levels have improved.

After a few years of monitoring, the average daily harvest of grapsoid crab apparently has increased from 8 to 15 kilogram (kg) per collector per day. Significantly, the time spent collecting crabs has decreased—meaning collectors have more time for other income-generating activities—thereby increasing overall income and spreading risk across more activities.

Since the introduction of crab banks, an increase in mud crab harvests also has been reported. As Table 20 shows, the income, the number of collectors, and the quantity of aquatic animals harvested from the community mangrove forest are increasing.

With the improved catches of grapsoid crab, the income level of crab-collecting villagers has almost doubled. While exact figures on income from crab collection are not available, data suggests that the poorer villagers engaged in crab collection could earn 500–600 baht (B) (\$12–\$13) per day. An increase in mud crab harvests resulting from the innovative introduction of crab banks also has been reported. Artificial fish “houses” made from blocks of used car tires are being installed in canals within the mangrove. Villagers and outsiders said this reduces the time needed for fish harvesting.

Local management efforts also have spurred other community development activities. In addition to activities within the mangroves, Pred Nai villagers are trying to restore the seacoast within a 3,000-meter conservation zone and protect it from destructive fishing practices, such as the use of push nets and trawlers. A community patrol is enforcing the regulation against push nets with local government support. The success of the community forestry activities has encouraged the villagers to develop a marketing system, and a women’s group has been processing crackers made from mangrove plants and producing local wine for sale.

The savings management group formed in 1995 has more than 600 members, and a fund of about B6 million (about \$150,000). Other community groups were established, such as a women’s group, a youth group, and the network of people from various villages who use the mangrove area. The management initiative also has encouraged other villages to set up community forests.

Table 20: Harvest of Aquatic Animals and Income, 1998–2003

Type	1998	2003
Grapsoid crab	8 kg/day at B50/kg = B400/day	15 kg/day at B40/kg = B600/day
	6 collectors involved	30 collectors involved
Mud crab	B10,000/season (3 months) per cultivator ^a family	B15,000/season per cultivator family
	6 cultivator families	10 cultivator families
Clams	5 kg/day at B25/kg	6 kg/day at B30/kg
	5 collectors	10 collectors

Notes: Data collected in early 2004.

Exchange rate in December 2004: US\$1 = approximately 40 baht (B); kg = kilogram.

^aThe term “cultivator” is used because mud crabs are raised in ponds.

Thus, restoration and management activities have improved significantly livelihood security, especially for the poorer segment of the population. However, the impact on poverty in Pred Nai has not been just in terms of income generation,³⁵ but also in the sense of empowerment (e.g., increased capability for organization). The confidence people gained from successes, such as the savings fund and earlier mangrove conservation, helped build a sort of organizational confidence or social capital.

Gender matters

An important aspect of any attempts to deal with conservation, livelihood security, or poverty reduction is the equitable distribution of the costs and benefits of activities across groups within a society. This includes aspects relating to gender. This study has shown that improved livelihood security and incomes for relatively poor people were the main benefits of improved mangrove management at Pred Nai. These people did not appear to incur any major costs, nor were any groups harmed by the activities.

In terms of gender, the direct beneficiaries of the improved production of marine animals have been the collectors (all male) and, presumably, their families. There is no evidence that women have borne any additional costs as a result of the conservation activities. The only local trader collecting and

processing grapsoid crabs is a woman. From a gender perspective, an interesting aspect of the developments in Pred Nai is that women have been active participants in the Forest Management Committee (the current chairperson is a woman), as well as in the savings group.

Other benefits

The success of community action has had spin-offs in terms of increased confidence to engage in other activities, including the savings fund and, increasingly, ecotourism. Some additional benefits seem to have accrued in terms of health as increased income and work opportunities apparently have contributed to a reduction in drug consumption, although this has not been quantified.

Education is another important factor. The local school has been involved in management, and educational activities revolve around the mangrove. Villagers have collaborated with the schools, with some elders teaching school children about mangrove ecology and coastal resources. The mangrove community forest has served as a learning laboratory. Boys and girls have joined adult villagers in the planting program and the forest thinning experiment. The villagers also have constructed a walkway in the mangrove for educational purposes, which also could have potential for ecotourism. The Asia-Pacific Economic Cooperation (APEC)

³⁵The multidimensional nature of poverty must be understood. According to the World Bank (2000), poverty is concerned with lack of assets, powerlessness, and vulnerability.

sponsored a group of school children from various countries to attend an environmental camp and carry out fieldwork at Pred Nai in July 2003. The students learned about mangrove and coastal resources, generating a sense of pride in Pred Nai.

The link with education is especially important because a self-taught approach has been a major factor in the success of Pred Nai. The villagers started with reflection, and then developed their abilities to solve problems, learning new ways to manage the resources, their village, and their own lives. Expanding and institutionalizing this through the younger generation is a logical development of this approach.

Networking, external support, and partnerships

The success of the initiative depended on managing the mangrove area, as well as the people who use the mangrove. The project incorporated innovative partnerships and a wide range of participants.

After the mangrove concessions ended and the management group was set up, local users who depended on the area were not allowed to harvest any products. This caused resentment and conflicts. After discussions with community members, however, the villagers slowly began experimenting with less restrictive management and the committee became more inclusive.

Partnerships needed to be established with people from other villages who wished to use the resources. Villagers set up the Community Coastal Resource Management Network, which meets in different villages on a rotating basis. The development of the network demonstrated the recognition that managing mangroves at the site level alone is difficult without the cooperation of nearby communities.

The study has pointed out that this activity was based on a community initiative. However, the community asked RECOFTC to provide technical support and facilitation. RECOFTC primarily supported the community by facilitating forest management planning activities, and assisting with the formalization of the wider network of villages interested in mangrove conservation. The network, a local initiative, was initially more informal.

Technical support was provided through collaboration with government officials (fisheries and forests) and academics from regional universities. Villagers have gained experience by collaborating with outsiders, such as fishery experts, foresters, and

various institutions. Since some problems are beyond the scope of village action, links with other institutions are important. These include networks with other villages, collaboration with other institutions (e.g., government forestry and fishery departments), police patrols, and politicians. Religious institutions, such as temples in the Eastern Gulf region, also have been important partners.

The other main participants are local officials. Although the Government of Thailand does not legally recognize local management efforts, local officials have supported them, and have provided technical and moral support. The provincial governor became an active supporter of the community forest and the mangrove network after seeing what local efforts had achieved. An important lesson is that legal recognition is not essential if there is a collective interest and vision in managing resources.

Institutional sustainability

Because the initiative operates at the local level, the learning capacity of community members has increased. Villagers also learned to communicate and collaborate with outsiders. In the early days of community action, villagers contacted the ministerial level of government for help; when other problems arose within the community or nearby, they initiated local solutions. That achievements can be traced largely to initiatives and decision making from within the community bodes well for sustainability.

The villagers' success has become so well-known that many study tours from abroad have come to visit. Ecotourism also is being discussed. Both of these outcomes have potential benefits and risks. One of the risks (or costs) is the time involved in managing so many visitors. On the other hand, the visitors act as an incentive to pursue conservation efforts.

Within the village, some conflicts have arisen between conservation and resource utilization objectives. At one stage, the committee's focus on conservation came into conflict with people who wanted to use the mangrove resources as livelihood assets. The current committee chairperson is committed to sustainable use rather than narrow conservation.

Pred Nai is a good example of innovation in natural resource management, and in using savings for village development. The forest, as well as the broader landscape (including the sea, canals, and orchards), is managed, conserved, and sustained. Local efforts will be sustained as long as there are economic, envi-

ronmental, and cultural interests in managing the mangrove area. A potential threat to the initiative is restrictive and intrusive national legislation that usurps the rights and efforts of the local villagers in the name of the “national interest.”

Political and legislative context

Pred Nai has received fairly wide recognition as an exemplary community initiative. In 2001, an NGO presented the community with the Green Globe Award, and the Royal Forest Department awarded a prize to Pred Nai Community Forest in 2002. In 2004, it was one of the 30 communities globally recognized by the Equator Initiative. The recognition by the Royal Forest Department (now part of the Ministry of Environment) is particularly ironic given that legislative support for local forest management efforts has been debated for more than a decade in Thailand. On the surface, the ingredients for cooperative management are in place. Communities throughout Thailand are managing and protecting forests and the constitution which operated from 1997 until the coup of September 2006 stipulated that local communities have the right to participate in natural resource management. Upon closer inspection, however, many obstacles remain.

The policy reform process has stagnated, and conflicts are becoming more acute. Local networks of community forestry groups are pitted against a powerful coalition of bureaucrats, academics, and environmentalists who perceive rural people as destructive and consider their participation a threat to national interests. For many years there has been debate about a Community Forestry Bill, with a number of versions being prepared in turn. People’s organizations and their supporters submitted a ‘community-friendly’ version to Parliament in March 2000 after collecting 52,698 signatures. A parliamentary commission was set up to examine the bill and previous community forestry bills. However, the commission was canceled after only 3 months when Parliament was dissolved.

In response, a mass media campaign was initiated to lobby for changes to parliamentary regulations and more inclusive parliamentary commissions. After the new Government was elected, a new commission was set up. It included 13 people’s representatives, who made up one third of the members. The commission finalized the drafted bill, which the lower house of Parliament then approved.

However, the upper house (Senate) changed the bill’s intent and focus drastically. The crucial part of the bill, Article 18, states that people settled in national parks, wildlife sanctuaries, and watersheds before the forests were declared protected could continue to manage and use forest products in a sustainable way. The Senate deleted this provision for various reasons. Some senators said they were afraid that if the villagers received rights to manage the forest, they would convert the fertile forest to grow cash crops; others were afraid that “outsiders” might abuse the bill by encroaching on protected forest, and then claim the right to manage it. Further discussions occurred, but the process has been stalled since the constitutional crisis which has led to Thailand being ruled by a caretaker government since early 2006.

Conclusion

Community-based initiatives in general, and Pred Nai in particular, should not be romanticized. Within Pred Nai, differences of opinion and conflict have arisen regarding mangrove management, including a debate about conservation versus sustainable use. What is important is that the community members have managed the conflicts themselves through negotiation and dialogue. Pred Nai shows that communities can work cooperatively, and that community initiatives can improve biodiversity. Although biodiversity had been compromised, largely as a result of outside commercial interests and government policies, it has improved immensely since the villagers regained control. Pred Nai is an example of people empowering themselves through local initiative and organization, demonstrating that confidence can be gained through small successes and that community action can help improve livelihood and reduce poverty.

Wetland Resource Management in Bangladesh to Improve Livelihoods and Sustain Natural Resources

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Introduction

Wetlands are invaluable ecosystems in Bangladesh, supporting up to 100 million people. People get food, fuel, fiber, fodder, house-building materials, etc. from

the wetlands. The important inland and coastal wetlands consist of the vast floodplains and delta system of the Ganges, Meghna, and Brahmaputra rivers. Bangladesh's wetlands area has been estimated at 7–8 million ha, about half the total area of the country depending on the time of year and annual weather patterns. However, the burgeoning human population and its constantly growing needs have massively depleted these resources. In the Ganges–Brahmaputra floodplains alone, an estimated 2.1 million ha of wetlands have been lost due to flood control, drainage, and irrigation projects. This case study reviews these national challenges and attempts to address them in selected sites.

Wetlands and the livelihoods of the poor

THE WETLAND ECOSYSTEM OF BANGLADESH

The abundance of water and wetlands has always been a major part of the history and geography of Bangladesh. Rajendra Cola (1012–1044 AD) wrote in Tirumulai about “Vangaladesa” as a land “where the rains never stopped ... on the shore of the expansive ocean producing pearls and the Ganga whose water-bearing fragrant flowers dashed against the bathing places” (Chowdhury, 1967).

Three mighty rivers—the Ganges (the Padma), Meghna, and Brahmaputra—flow across the country, and 90% of the incoming water runs into the Bay of Bengal through the lower Meghna estuary of Bangladesh. This outflow is second only to that of the Amazon River system in South America. These major river systems and their tributaries help form diverse wetland ecosystems, including mangrove forest, peat land, haor, baor, beel, seasonally inundated floodplains, and estuaries. Beels are the deepest pockets of floodplains, haor are bowl-shaped depressed water basins or river backswamps in the north and central part of Bangladesh, and baors are oxbow lakes. About 6.7% of the country is permanently under water, of which 21% is deeply flooded (more than 90 centimeters) and about 35% experiences shallow inundation (FAO, 1988).

DEPENDENCE ON THE WETLANDS, ESPECIALLY BY POOR HOUSEHOLDS

The livelihoods of about 100 million people are linked to the productivity and sustainability of the wetlands in Bangladesh. Wetlands have enormous economic functions for people, including commercial and non-

commercial uses, such as growing flood-tolerant rice; fishing; collecting mollusks; harvesting aquatic fruits, vegetables, cooking fuel, and fodder; raising ducks; catching turtles; collecting reeds; trapping water birds; cultivating winter crops; and navigation. Near the rivers and estuaries are newly accreted lands, known as *char*, which have been used for human settlement, rice cultivation, and fishing. Poor communities generally are dependent on forest products from the country's estuarine forests, while the mangroves provide an array of harvestable resources, including mud crabs, shrimp fry, honey, timber, fuelwood, thatching materials, etc. People revere and cherish the wetlands, which shape, influence, and mold their existence and philosophy of life. Various social and recreational activities, such as boat races, swimming competitions, and monsoon folk culture norms, are centered on the wetlands.

HEALTH, DIET, AND THE WETLAND ECOSYSTEM

The fishery sector alone provides nearly 80% of rural people's dietary protein requirements, and accounts for more than 5% of the gross domestic product (GDP) (Bangladesh Bureau of Statistics, 2002). According to the World Bank (1989), Bangladesh is the world leader in freshwater fish production per unit area, with 4,016 kg per square kilometer of water body, and per capita fish production of 5.5 kg. Throughout Bangladesh's history, fish and fisheries have played a significant role in nutrition, culture, and economy. According to an age-old adage, the Bangladeshis have always been known to be “machhe-bhate Bangali,” meaning the Bengalis thrive on an exclusive fish and rice diet, which poignantly illustrates the prime role of fish in the economy, food habits, diet, and nutrition of the people. The fisheries sector provides full-time employment to an estimated 2 million persons. Subsistence fishing is extremely important in maintaining the nutritional health of rural populations. About 76% of the rural households in haor areas and 57% of households in the central region of the country engage in subsistence fishing (Food Action Plan [FAP] 6, 1993).

HEALTH CONTEXT AND ACCESS TO CLEAN WATER: A GROWING ROLE FOR WETLANDS

Recently, the presence of arsenic in groundwater increased the role of surface water from the wetlands in supplying drinking water. As a wetland-dominated country, water is everywhere in varying quantity and quality. Rivers, beels, canals, and ponds are used for domestic purposes, including bathing, washing uten-

sils and clothing, and often drinking. However, people have tended to drink safe water from tube wells and dug wells. Water quality and quantity become crucial during the dry season when only the deepest parts of the depressions hold water. The number of tube wells in the country was low up to the early 1980s, leading to widespread waterborne diseases including diarrhea, dysentery, and jaundice. In recent years, extensive well drilling has contributed to a significant decrease in the incidence of these diseases. Between 8 million and 12 million shallow tube wells in Bangladesh reportedly supply water to about 10% of the population living in the large cities and some district towns. Inadequate sanitation—especially the use of unhygienic open latrines—was also the cause of diseases such as dysentery, cholera, and diarrhea. Data from the Bangladesh Bureau of Statistics (BBS, 2002) show that the Government of Bangladesh has achieved remarkable safe water coverage (97%), and the percentage of sanitary latrine usage increased from 16% to 39%. Still, waterborne diseases, caused mainly by poor human waste disposal, have not declined significantly. Data also show that only 17% of people wash their hands with soap and water after defecation.

The use of underground water, especially from shallow tube wells, resulted in exposure to arsenic in most parts of the country. The underground water in 40 of the country's 64 districts is contaminated with arsenic at a magnitude ranging from low to very high. Drinking arsenic-contaminated water over several years caused arsenicosis among the 20 million people inhabiting these rural areas. The Dhaka Community Hospital and the School of Environmental Studies of the Jadavpur University in Kolkata, India conducted a study of 1,630 adults and children in 18 affected districts of Bangladesh to understand the effects of arsenic on the health of the population in the survey area. The study found that 57.5% of people surveyed had skin lesions due to arsenic poisoning. A national initiative was also undertaken to test tube wells across the country for arsenic contamination, identify patients suffering from arsenic poisoning, and educate communities on how to deal with the problem. This program provided short-term options to ensure safe drinking water, including harvesting rainwater, boiling water from ponds, and other simple techniques for removing arsenic. Now aware of the deadly effects of arsenic poisoning, people are beginning to adopt alternative options to source safe drinking water.

Problems and challenges facing equitable and sustainable management of the wetlands

The wetlands of Bangladesh face many challenges, including

- development schemes;
- conversion of wetlands for agriculture;
- erosion, siltation, and sedimentation;
- draining of the wetlands;
- conversion of swamps;
- inequitable fishery policies; and
- lapses and gaps in policy, rules, and regulations.

DEVELOPMENT SCHEMES

Over the last few decades, physical infrastructure has expanded rapidly in the floodplains and haor areas of Bangladesh. Infrastructure erected for agricultural purposes—dikes, embankments, seasonal dams, sluice gates, etc.—has had a significant impact on water flows in the haor, baor, and floodplains. During the last 2 decades especially, Bangladesh has seen massive development in rural areas in the form of rapid expansion of road and feeder road networks and urban centers. This infrastructure often has been constructed without considering the possible environmental impacts, resulting in serious hazards to ecosystems, especially the wetlands. The hastily and poorly planned roads, drainage structures, sluice gates, land filling, etc. caused water logging and accelerated the siltation of water bodies, which in turn has had serious impacts on water regimes.

CONVERSION OF WETLANDS FOR AGRICULTURE

With a population density of more than 850 persons per square kilometer, the demand for land is enormous and constantly increasing. The exploitation of wetland ecosystems for other competing purposes began with agrarian settlements, which are constantly expanding. To increase rice production, high-yielding variety (HYV) rice was introduced, leading to more wetlands being reclaimed each season. Swamp forests and reed lands that were once extensively distributed are now on the verge of extinction. With the changes in land-use patterns, the populations of fish and migratory birds have declined. The beels are being drained and embankments built to save crops from flash floods.

EROSION, SILTATION, AND SEDIMENTATION AND THEIR IMPACT ON THE POOR

The most devastating natural factor leading to land degradation is riverbank erosion, which generally eats

away land slowly and gradually. However, this process often assumes devastating dimensions in the more active floodplains. The floodplains of the Ganges–Brahmaputra–Jamuna, Teesta, and Meghna rivers are most susceptible to riverbank erosion. Smaller rivers, particularly those in eastern Bangladesh, erode land to a lesser extent. An enormous volume of water flowing down from the Himalayan mountain range creates devastating floods that cause large-scale riverbank erosion and sedimentation. Besides natural processes, human activities such as irrational use of forest and other natural resources, upstream and downstream, aggravate the situation (Islam, 1986).

Rural people whose lands have been eroded generally migrate to towns. The loss of crucial land resources affects poor people most—economically, socially, and psychologically. When rural people lose their land in this way, they end up destitute and alienated from mainstream society and culture. Extensive erosion of riverbanks leaves thousands of people homeless every year, compelling them to abandon the affected areas in search of new settlements. Each year, riverbank erosion affects millions of people.

In the haor areas, the erosion of homesteads due to wave action during the monsoon—exacerbated by the destruction of swamp forests—is a major natural calamity that the villagers face. Huge quantities of sediment are carried downstream with the additional volume of water during the monsoon, silting up beels and haors. In turn, the siltation of water bodies and streams has adverse impacts on the population and diversity of the country’s fishery resources, since beels and fresh water lakes become isolated from the rivers or canals due to the lack of connectivity. This is among the primary causes of reduced productivity of the wetlands.

DRAINING OF WETLANDS

The draining of haors, baors, and beels is a particularly common practice all over the country for irrigating agricultural land and fishing. Stakeholders in different locations have noticed the impacts of this unwise practice, namely the decline of aquatic species production and the destruction of habitats of other wetland-dependent species. The Government of Bangladesh recently initiated a new pilot-scale Community-based Management of Aquatic Ecosystems approach to restore aquatic habitats and increase the quality of life of dependent communities.

³⁶ *Kanda* is raised land in the haor.

³⁷ *Mouza* is the lowest map unit for revenue generation.

SWAMP CONVERSION AND IMPACT ON THE POOR

Freshwater swamp forests throughout the country have been destroyed in recent decades, except a few negligible fragmented patches surviving in the northeastern haor basin in Tanguar, Pasua, Sanir, Bara, Matian, Kharchar, Dekhar, Aila, Kawadighi, Muria, and Bawli haors. Clusters of reeds and scanty groves of hijal (*Barringtonia acutengula*) and karoch (*Pongamia pinnata*) still can be found, though they also are threatened with extinction. Haor swamp forests and reed lands and marshy areas have been cleared in favor of agricultural lands and human settlements, mostly by migrants from other parts of the country. The previously forested *kandas*³⁶ have been converted into land for agriculture, pastures, seedbeds, and others. A recent study found that more than 30% of the *kandas* in the three *mouzas*³⁷ of Pagnar haor have been converted into agricultural fields. Another 53% of the land is converted into pastures in the dry season, thus impeding the natural growth of vegetation.

Massive felling of swamp trees and cutting down of reeds in the haor and floodplains have led to the disappearance and depletion of biodiversity, including large mammals, reptiles, migratory and local birds, aquatic trees and reeds, medicinal plants, and various fish species. The disappearance of swamp forests aggravates livelihood insecurity among the poor as fish, nontraditional foods, housing materials, fodder, and fuel become increasingly scarce. Previously, the haor swamp forests served as natural barriers against the unavoidable wave action during the monsoon. Their disappearance has resulted in wave action becoming much more devastating, eroding village mounds in the process. People have been compelled to increase spending every year to protect their tiny homesteads. The traditional erosion-proof measures using indigenous technology are also difficult to adopt these days since the main raw material used for the purpose—a local tall grass that grows in the haor known as chailla (*Hemarthria protensa*)—is no longer abundant in the region due to overexploitation, grazing, and expanding agriculture.

INEQUITABLE FISHERY POLICIES

Fish stocks have been declining due to the lack of appropriate integrated policies for the sustainable

harvesting of wetland resources. The management of open waters has focused principally on generating revenue. The Ministry of Land leases out segments of rivers and large water bodies that have potential as a *jalmahal* or fishery (water estate). Before British rule in India, fisherfolk enjoyed customary rights to fish in rivers, beels, haors, and baors either for free, by paying a token toll, or by agreeing to share the catch with the estate holders or their agents.

During the flood season, access is open to all across the entire floodplain zone, except for the areas around beels that are included in the leased-out schedules. No fishing licenses are needed in the floodplain area during the monsoon. However, during the dry season, access is restricted and only those who can pay are allowed to fish. Generally, water bodies are leased out to the highest bidder for 3 years, a period in which the lessee exploits all the fish, irrespective of whether they are brooding fish or hatchlings. Consequently, fish stocks have been declining at an alarming rate. In addition, lessees have been observed from the haor and other floodplain areas hunting migratory and local birds and other wildlife; felling swamp trees; and extracting snails, mollusks, turtles, and reeds to generate illegal income from the water bodies. Inadequate leasing policies and the lack of monitoring of lessees have degraded wetland ecosystems. This, in turn, has worsened the poverty of local residents.

Fishing is not permitted in the leased-out areas without payment, as these areas are protected by the private armed guards of lessees. As the water level gradually recedes from the floodplains, haors, and small creeks during the dry season, fishing becomes increasingly difficult. Poor fisherfolk cannot fish in the leased area because they cannot afford the rent, though they might work for the lessee for very low wages. As a coping strategy, most rural fisherfolk migrate to cities or anywhere else in search of farming or nonfarming jobs. Those without other options still might try fishing in the rare, shallow ditches outside the leased-out prime fisheries. Thus, the leasing of open waters has benefited the rich and influential to the detriment of poor fisherfolk.

LAPSES AND GAPS IN POLICY, RULES, AND REGULATIONS

Bangladesh does not have a wetland policy, although it has prized wetlands that host the world's most diverse and abundant inland fisheries and other biodiversity. By working in the wetlands, the study found that integrated development of wetlands requires formulating

an appropriate wetland policy. Existing policies relating to fisheries, forests (including swamp forests), agriculture, land, or water are inadequate for conserving or developing wetlands as a whole. Instead, they lead to a piecemeal approach. Government lands within wetlands are leased out to generate revenue without considering the needs of the ecosystem. Similarly, the Department of Agricultural Extension follows its own policy to promote agricultural productivity through drainage, irrigation, or other operations, while ignoring the nature of crop-growing lands in the floodplains, haor, or baor. In addition to the sectoral priorities, laws and regulations related to forestry and fishery resource management are not enforced properly. Illegal felling of swamp trees, fishing, water extraction or diversion, and wildlife poaching by the elite and influential people are destroying wetland resources. These exploiters also are known to collude with law enforcement agencies during illegal extraction. Such resource mismanagement deprives the poor most of all.

People in and around the wetlands are not aware of the laws on resource harvesting and management. Government managers of the wetlands are reluctant to use the resources wisely unless it brings direct financial benefit to the respective department or authority. An integrated ecosystem approach is required to improve the well-being of the wetlands and the people that depend on them. This must take into account the interests of all relevant sectors and different stakeholders associated with the wetlands and their resources.

Institutional reforms to promote wetland conservation for poverty reduction

While sustainable management of wetlands has been lacking, civil society, the Government, and wetland inhabitants have been attempting to change this. The Government formulated the National Conservation Strategy, which provides guidelines for the conservation and sustainable use of resources and led to the preparation of the Environmental Policy in 1992. The National Environment Management Action Plan (NEMAP) was prepared through a participatory process, and the Environmental Protection Act was enacted in 1995. To implement the NEMAP, the Government and the United Nations Development Programme formulated the Sustainable Environment Management Programme with 26 components under five major subprograms, including a participatory ecosystem approach.

CBHFRM is one of the projects under the participatory ecosystem approach. It aims to restore and conserve wetlands for poverty reduction in wetland-dependent communities. Several other projects such as the Community-Based Fisheries Management, Management of Aquatic Ecosystem Through Community Husbandry, and Community-Based Wetland Management, have been implemented using a participatory approach. Inspired by the success of these projects, the Government started to follow a bottom-up approach to developing the national environmental arena. This change of mind-set at the decision-making level is an important milestone in developing sustainable management of resources to improve rural livelihoods.

COMMUNITY-BASED HAOR AND FLOODPLAIN RESOURCE MANAGEMENT

CBHFRM is an approach to natural resource management by, for, and with local communities. The objectives include improving the livelihoods and security of local people, empowering them, and enhancing conservation efforts. Sustainable resource management depends on the participation of the local communities, who perform activities only when they are able to perceive tangible benefits. This requires unobstructed access and property rights to resources. Sustainable CBHFRM is based on the indigenous knowledge of local people, their motivation to conserve natural resources, and strong local organization to undertake such initiatives. Under the project's approach, all basic activities have been organized at the field level with the participation of resource users, representatives from union *parishad* (local elected body), and concerned government officials.

However, this approach faces major challenges since more than half the households in the haor study area are landless, while 19% are large-scale farmers. The difference in socioeconomic status between the landless and large-scale farmer groups is considerable, which reflects directly on different dimensions of their life (capacity, rights, status, and opportunities). The capacity and social rights of the poor and the rich are on different scales. The wealthy and influential people of the community oppress and suppress the voices of the poor. Consequently, all benefits deriving from the ecosystem, agriculture, social and health investments, infrastructure, or any other development favor the upper class of society. The wealthy enjoy most of the communal and government lands

in rural Bangladesh. Rules and regulations for the management of common properties, therefore, are biased in favor of the wealthy.

IUCN Bangladesh, in association with the Bangladesh Center for Advanced Studies, Center for Natural Resource Studies, and Nature Conservation Management, has been implementing the CBHFRM projects in five sites of the haor and floodplain areas of Bangladesh since 1998.

The haor sites are

- Pagnar and Sanuar–Dakuar Haors, Sunamganj district; and
- Hakaluki Haor, Moulvibazaar, and Sylhet districts.

The floodplain sites are

- Padma–Jamuna Floodplain site, Manikganj;
- Madhumati Floodplain site, Gopalganj; and
- Brahmaputra Floodplain sites, Mymensingh and Gazipur.

A community-based approach has been used to restore and conserve wetland resources. Community participation has been ensured from the beginning of the development of action plans and implementation of project activities. Community-based organizations have been established in each village to administer environmental activities. Communities have been motivated to improve their livelihood while conserving natural resources. During project implementation, the emphasis was on raising awareness on environmental issues; building the capacity of grassroots environmental managers; empowering women; and generating alternative employment with a view to supporting the main conservation efforts such as afforestation and reforestation, rehabilitation of wetland habitats, and biodiversity conservation.

PARTICIPATORY ACTION PLAN DEVELOPMENT

Before designing a prescription for any development project, a proper diagnosis of the problems is essential. People who live with these problems can identify them, their causes, effects, and probable solutions most appropriately. In a problem identification and action plan development workshop, a list of issues related to the project's scope and goals is made, and their root causes and consequences are discussed exhaustively with the participants and stakeholder groups. The perspectives of community people regarding difficulties related to their socioeconomic, political, and ecological conditions are also carefully analyzed. Based on the information gathered in this way, stakeholders become aware of the impacts of

Map 12



resource use patterns, livelihood strategies, and economic activities on the local environment. They also learn about the sustainable resource management schemes and environmental conservation options available to them, since priority issues and probable solutions are determined through this analysis. An action plan to remedy the diagnosed problems then is designed for restoring, conserving, and sustainably managing their ecosystem.

Generally, the development of participatory action plans is the starting point of people's involvement in the conservation process. A participatory approach creates debate, conflict, and ideally, consensus in the community. Under the CBHFRM project, participants from landless, marginal, small-, medium-, and large-scale farmers, and women have been participating and designing action plans to regenerate their resources. Individuals from concerned government departments and the Union Council, as well as elected public representatives, also participated to express their respective concerns during the exercises.

Implementation of the plan, access and benefit sharing, management planning, finance mobilization, and sustainability issues also have been designed through community facilitation. Local communities previously excluded from development initiatives are now considered important stakeholders in the planning process. The critical part is staging an inclusive participatory platform for discussing the issues. Special concerns—such as women's participation in every aspect of wetland management, including decision making—are discussed openly by involving all stakeholders to help dispel prejudices prevailing countrywide. The community-based approach to the grassroots communities has created an opportunity to prove the sustainability and success of community planning, and eliminate external assistance.

PROJECT IMPLEMENTATION

Communities within the jurisdiction of a project have been brought together to develop institutional mechanisms for environmental management and ensure sustainability of the project. The development of institutional links between local level organizations (village committees) and concerned government departments or ministries helps gain access to existing facilities within the government structure. In the haor and floodplain project areas, 113 village committees have been formed to conserve and manage the wetland resources. With gradual rejuvenation of

biological and social resources enhancing livelihood security for wetland households, a process of sustainable management of the resources is being initiated with cooperation from the Government.

HUMAN RESOURCE DEVELOPMENT AND GENDER EQUITY

Bangladesh has a population of 140 million. The overall literacy rate is 40%, though it is as low as 15–20% in certain remote pockets of the country. Females, who make up about half the population, are neglected in terms of education and employment. Through this project, initiatives have been taken to organize training programs for rural men and women. More than 2,500 men and women have been trained in natural resource management, leadership development, and income-generating activities, such as (i) rearing ducks and poultry, (ii) fattening cattle, (iii) developing aquaculture, and (iv) producing handicrafts and pottery. People also have been made aware of the environmental concerns that might lead to the degradation of wetlands. Environmental awareness covered illegal hunting of wildlife and birds, illegal felling, use of harmful fishing gear, draining of water from water bodies for fishing, and massive encroachment on wetlands to extend dwellings and agrarian activities. Attempts have been made to dispel disparities between men and women, and to enhance the knowledge of youths on the future management of their environment.

ECOSYSTEM IMPROVEMENTS: REGENERATION OF SWAMP FOREST

Although communities are now aware of the consequences of forest degradation, they usually are unable to mobilize the resources necessary to reverse this phenomenon. Nevertheless, people have initiated activities aimed at conserving and managing swamp forests in Pagnar and Sanuar–Dakuar haors of Sunamganj District in an effort to preserve the haor zone. The community first identified the lands in Pagnar, Sanuar–Dakuar, and Hakaluki haors fit for growing the aquatic plant species hijal and karooh. Then land tenure in the haor region, which always has been a critical issue, had to be resolved. The Government owns many kandas, which are exploited by vested groups. However, there is also community-owned land, locally known as *ejmali* property. Traditionally, community people have common equal rights over the *ejmali* lands, while local influential people control the Government lands (*khas*) for their own use. Under the community-based haor resource management

project, about 450,000 saplings of karoch and hijal were planted, after ensuring access and benefit sharing of the regenerated forest resources and conservation perspectives, and resolving land tenure issues.

POVERTY REDUCTION AND LIVELIHOOD IMPROVEMENTS

The communities also made a plan for the management of reforested swamps. The planting of aquatic species created work opportunities in the haor and floodplain sites. Women have been trained to raise aquatic tree saplings. They raised thousands of saplings and sold them to the project for planting, thereby generating income for themselves. In the Pagnar and Sanuar–Dakuar haors, at least 50 women took up this enterprise as an opportunity to improve their livelihood. In addition, poorer women of the community are hired to irrigate the newly planted saplings during the peak dry months (March–April), while poor men guard the plants. These activities also help reduce poverty in the project area.

POVERTY REDUCTION AND SWAMP FOREST IMPROVEMENTS

A haor forest is not only a biodiversity habitat; it also provides products such as food, forage, housing materials, and fuel, for its human residents. In addition to these direct economic benefits, a haor forest abates the impact of waves, reducing the vulnerability of haor people to wave action that tends to erode their scanty homestead lands during the monsoon. This saves money for the inhabitants of a haor, who would otherwise have to incur considerable expense to protect their homesteads. For the regenerated forest, a benefit-sharing plan has been drawn up, taking into consideration the conservation and sustainability perspectives. The benefits from the forest will be distributed among the villagers as follows:

- 60% of the benefits from the sale of branches from pollarded trees will be distributed equally among all households of the village;
- 25% will go to building a reserve fund for the village committee to be used for social or pro-poor development; and
- 15% will be reserved for the landowner, or union parishad (local government institution).

Restoration of the swamp forest would also enhance the condition of the haor ecosystem, which would increase fishery and forest resources. The villagers of Pagnar and Sanuar–Dakuar haors are expected

to earn about \$260,000 per year from the regenerated forest of about 350,000 trees and other NTFPs after 5–7 years of successful plantation activities.

ECOSYSTEM IMPROVEMENTS: WETLAND REHABILITATION

Subsistence fishing plays an important role in the nutritional health of the country's rural population. However, declining access and fish stocks have caused many problems for subsistence fisherfolk. To address this, interventions, such as the establishment of fish conservation areas, the rehabilitation of migratory fish routes, and awareness building regarding biodiversity conservation, have been implemented under the CBHFRM project in the five project sites. Fish sanctuaries and the rehabilitation of migratory fish routes in the project area evidently have increased fish stocks, and some critically endangered species have reappeared. A continuous awareness campaign against using harmful fishing gear and catching hatchlings and brooding fish also contributed to restoring fish stocks in the habitats.

LIVELIHOOD BENEFITS FOR THE POOR FROM WETLAND REHABILITATION

A study conducted under the CBHFRM project reported that the landless were more dependent on wetland fishing than medium- or large-scale farmers for fishing in the wetlands. Men, women, and children all fish in the wetlands. A study in Shingharaji beel in Tangail found that roughly 40% fished for their subsistence needs, about 35% were part-time professional fisherfolk, and 25% were full-time professional fisherfolk. Survey data showed that females constitute 7.4% of the fisherfolk; most of them are under 15 years old and fish for home consumption. In contrast, two thirds of the adult fisherfolk sell at least a portion of their catch. Thus, the wetlands of Bangladesh allow the poor to meet their daily protein requirements and vulnerable fishers to generate an income.

Fish catches in the haor and floodplain sites now indicate that conservation measures have increased fish populations and diversity in the sanctuary, as well as within the peripheries of rehabilitated habitats. Surveys showed that catches in a fish sanctuary in Pagnar haor have increased threefold compared to those in a control area. Diversity has increased; 29 species of fish were found in the sanctuary, compared to 21 in the control area.

According to the local people, fishing in the water bodies surrounding their villages is open, regardless

of social class, occupation, influence, or vulnerability. From a conversation with Shashanka Talukdar of Matargaon village of Jamalganj Upazilla, it is evident that fish catches in the Ganger Agar and Maranodi have increased substantially, and some large fish and rare species are being caught.

GENDER BENEFITS

The CBHFRM project has sought to empower female entrepreneurship. Female (and male) groups have been trained in employment-generating activities, namely poultry and duck rearing, handicraft production, cattle fattening, nursery development, etc. During the 5-year project period, 238 training sessions were organized for the women of some 158 haor and floodplain village groups. Once the groups are considered capable of managing the environment fund for income-generation activities, funds are disbursed. About 6,000,000 taka (Tk) (\$100,000) have been disbursed to the members of 158 village groups, five village committees, and one floodplain resource management committee. More than 80% of the groups formed under the haor and floodplain resource management project have used their fund to generate employment, thereby increasing their income. In most cases, women used such funds to rear ducks, poultry, and cattle while men invested in agricultural activities to generate profits. Increasing women's incomes, according to the women's groups, has supplemented families' income. This has enabled higher daily food intake and access to education, as well as obtaining medical treatment and reducing the amount borrowed from private money lenders at exorbitantly high interest rates. Alternative income generation also has enhanced people's capacity to cope with natural disasters or local crises.

Conclusion

The CBHFRM project has been implemented in the field for wetland conservation by, for, and with the local communities. The objectives were to improve the livelihood and security of local people, empower them, and enhance conservation efforts. Holistic interventions have been carried out to enhance people's livelihood assets, including physical, social, biological, financial, and human attainments. In general, natural resource conservation and increased forest cover have been perceived as successful measures for enhancing biodiversity. This, in

turn, enhances the livelihood of the local communities. Replication of this approach in other parts of the country through NGOs, civil society, or government agencies could play a significant role in reducing poverty.

Institutional Reform Linking Poverty and the Environment: Experience from Yunnan Province, People's Republic of China

Robert Spencer, Mark Watson, and Zhou Bo

Introduction

The PRC, the world's most populous and rapidly developing country, is experiencing the challenges of integrated, sustainable development more acutely than most. However, unlike many other developing countries, the Government of the PRC can marshal significant human and technical resources. Therefore, the opportunity to influence the outcome of significant and seemingly minor policy changes should be grasped at every opportunity, at least in the eyes of the major bilateral and multilateral development agencies.

YEDP, an integrated poverty reduction and environmental protection project funded by the United Kingdom's DFID, provides a timely and large-scale case study within a complex institutional and political context. YEDP has tried to address only a fraction of the poverty-environment issues the Government is facing, and only in one discrete area—the relatively remote and mountainous province of Yunnan in southwestern PRC. Nonetheless, valuable lessons can be drawn from YEDP's work, which could have a bearing on the development and implementation of poverty-environment policy in the province and perhaps at the national level of the PRC Government.

This case study also seeks to answer the wider question of whether development agencies have any impact on the development processes of a country, such as the PRC, with such a strong tradition of internal procedure, technical expertise, and bureaucratic complexity. Teasing out this issue might assist development agencies that seek to influence positive change in the PRC development process in the future.

Background to Yunnan and the policy context

YUNNAN PROVINCE: ECOSYSTEMS AND POVERTY

In the PRC, as in most developing countries, many of the poorest live in remote areas where environmental degradation is a primary issue affecting livelihood. A mountainous, agriculturally marginal region in south-western PRC, Yunnan has a unique and complex physical environment and, as with other areas of similar geophysical conditions, an ethnically diverse population. The PRC Government and the international community have focused on Yunnan in recent years due to the province's relative poverty, as well as its exciting natural environment and cultural diversity. Efforts to pioneer integrated development have been established on a foundation of tourism and "green" development.

Yunnan has experienced rapid economic growth and social development since the 1970s. Yet Yunnan remains one of the poorest provinces in the PRC, ranked 26th of 30 in the Human Development Index. Yunnan also accounts for 73 (12%) of the 592 counties designated as poor by the central government, i.e., having per capita incomes below the national poverty line of 825 yuan (CNY) (about \$99.64) per year (Yusong, this volume). Based on the official definition of rural poverty, more than 4 million people in Yunnan have an annual average income below CNY625 (\$75.48). An additional 6 million people do not have a steady supply of food and clothing, or shelter.

Yunnan's poverty and rapid economic development are closely linked to ecological damage and unsustainable exploitation of natural resources. The ecological function and quality of its forests have continued to decline; the quality of land has decreased; water shortages have worsened; and natural disasters such as droughts, floods, and landslides, have intensified.

The same forbidding terrain that has protected some ecosystems from overexploitation and slowed the processes of cultural assimilation has also served as a barrier to economic development. Southwest PRC's upland farmers live far from markets in areas that are ill-suited to high-input intensive agriculture. As such, they were left behind during the surge in the PRC's rural economy during the 1980s (Yusong, this volume). Indeed, Yunnan's 10 million poor, who include various ethnic minorities, dwell primarily in the mountainous areas. Meanwhile, environmentally linked poverty has become the most prevalent type of poverty in the province, despite the Government's

efforts to address environmental issues and the completion of some poverty reduction initiatives. The Yunnan Provincial Government (YPG) aims to reduce the number of people living in absolute poverty by 75% and to rehabilitate 70% of degraded land by 2015.

INSTITUTIONAL CONTEXT OF YUNNAN

Since 2000, YPG has been quick to take advantage of the opportunities presented by the PRC's Western Development Campaign, which calls for the large-scale development of the country's poorer western regions, including Yunnan. This is a response to the lagging performance of these areas relative to the affluent east coast regions. YPG has prepared a development strategy for the province, which emphasizes the need for "a strong green economy." Other key policies—the *10th Five-Year Plan for Ecological Construction and Environmental Protection in Yunnan* and the *Ten-Year Program for Rural Poverty Alleviation in Yunnan 2001–2010*—have been formulated and published. In the case of the former, YPG is revising this policy to take into account recent initiatives, such as PRC's Agenda 21. Nonetheless, the economic activities that have occurred traditionally in Yunnan often have included the unsustainable exploitation of mineral or forest resources. This has taken a serious toll on complex and fragile upland environments, while bringing limited benefits to local communities.

Although strong environment–poverty links in Yunnan are recognized within YPG poverty reduction initiatives, the relationship is still viewed as a simple causality: that the poor cause environmental degradation, which in turn worsens their poverty. Government agencies have formulated supply-led poverty reduction projects based on this downward-spiral concept. Moreover, technical approaches to environmental management have had a strong influence on most YPG initiatives that link environmental protection with poverty reduction, a reflection of the strong environmental determinism that prevails in Beijing.

TRADITIONAL POLICY PRINCIPLES

The above aspirations need to be set within the context of the PRC's traditional policy priorities for the rural and disadvantaged areas. Indeed, this juxtaposition has led DFID and other international development agencies to offer assistance in tackling the stubborn areas of poverty, and reconciling this goal with the need to sustain natural resources and their function in terms of ecological services. As observed

by Pieke (2004), the PRC's agricultural and development policies traditionally have hinged on a few key principles. Until recently, changes in rural and developmental policies could be explained largely by the relative weight given to these principles. More recently, however, several of these principles have been relaxed, or even abandoned, leading to a different mix of objectives and policy options.

National food self-sufficiency. National food sufficiency (chiefly grain) has long been the key concern of the Government. A few years after liberation in 1949, the Government adopted the so-called unified purchasing and marketing system in rural areas. The system of unified state purchases at set prices survives to this day, now as an income guarantee and subsidy for rural households that have few other options but to grow grain for a living.

Land-use rights as the basic welfare right of the rural population. Whereas the urban population has the right to employment or, increasingly, welfare payments, the rural population's stake in the PRC's socialist society continues to be access to land (Pieke, 2004). Before 1984, members of the rural collectives were essentially involuntary shareholders who had the right and the duty to work on the land owned by their collective. With decollectivization, collective ownership of rural land was retained, but individual households were given the exclusive use right over plots of land contracted out to them. Subsequently, the term of these contracts was increased steadily, and currently stands at 30 years. As in the past, however, this is a double-edged sword: cultivating the land assigned to the household is a right as well as an obligation. Until recently, the grain quota system was used to enforce this policy device by guaranteeing agricultural land-use rights and mandatory grain procurement. Since 1998, quotas have been replaced by rural land-use planning, which requires local governments and individual farming households to keep designated agricultural land cultivated even when this no longer makes economic sense.

Separation of rural and urban PRC. Despite the rural roots of the communist revolution, modernization of the country always has focused on the cities. At the same time, the rural areas have had to pay for this urban modernization. The backwardness and overpopulation of rural PRC is perceived as an insoluble problem that stands in the way of the national goal of achieving modernity and socialism. Therefore, the cities were insulated from the perceived negative influence of rural PRC, while a stable supply of arti-

ficially cheap resources drawn from the countryside was ensured. A corollary to the separation of cities and countryside has been the strong resistance to implementing differential rural development policies in different parts of the PRC. The household registration system upholds the separation between the cities and the countryside most visibly. However, it also informs (or used to inform) a broad range of policy instruments, including the taxation system, economic planning system, grain procurement system, land planning, and so forth.

These three fundamental policy choices underlying PRC's rural development policy (Pieke, 2004) have had two specific consequences directly relevant to the work of YEDP.

Poverty reduction. Until recently, acute famine and disaster, or chronic poverty directly threatening people's lives, was addressed principally by waiving the grain procurement quota or by selling state grain back to the affected area. More structural development projects were undertaken as part of the state development plan, though they had to be substantially funded (or co-funded) from local resources (local government revenue, *corvée* labor), and more recently foreign funding agencies. The projects targeted at poverty reduction aimed to make poor rural areas self-sufficient in providing the basic needs of the population. Fundamentally, poverty reduction is predicated on the belief that the problem of poverty should be solved in the areas where poverty occurs, without being a drain on the central budget. Lastly, poverty is still perceived to be a rural problem that ultimately can be solved only by the gradual modernization of PRC society.

Neglect of the environment. The current environmental crisis in the PRC can be broken down into two fundamental components. The first is deforestation and associated nonreversible land erosion caused by the large-scale opening up of marginal lands. The second component is more recent and directly associated with rapid industrialization and rising living standards since 1949 and especially 1978, particularly in the coastal areas. Until recently, the Government has allowed both components of the environmental crisis to accelerate, viewing them as the price that had to be paid for economic growth and the involution of the rural economy, despite a long-standing policy of reforestation. The disastrous floods of the mid-1990s (especially in 1998) and the dust storms in Beijing have prompted the Government to take large-scale environmental degradation seriously.

Characteristically, the consequences of such erosion for the developed (mainly urban) areas triggered this reaction, rather than a concern with the long-standing poverty observed in remote and marginal areas.

CURRENT POLICY

The PRC's national policies for rural areas have changed considerably over the past 15 years, particularly since the 16th Party Congress in 2002. Provincial and other lower-level governments are expected to negotiate and carry out a set of policy objectives that are, in many respects, quite different from in the past. Pieke (2004) concludes that the PRC Government only recently accepted that it must apply a more holistic approach to the associated poverty and environmental degradation in some key areas of the country. However, many poverty policy documents produced by provincial governments still have not recognized or considered sufficiently environmental issues in economic and poverty reduction policy, or identified the role of poverty reduction within environmental policy.

At the same time, centralized policy making has not enabled local stakeholders to participate in making decisions on the management of natural resources, or to have a say in the direction of state-led research. This has led to policies that do not reflect adequately the needs and requirements of the poor, and an absence of locally specific solutions to environment–poverty challenges. Under existing institutional arrangements, YPG departments tend to have stronger vertical links with their own departmental counterparts at higher levels than with other departments at the same level. This has made the development of policies and programs that integrate environmental concerns into other areas of government more difficult.

A new pattern is emerging, however. The provincial governments are being given more latitude in their interpretation and implementation of national policies. Initiatives are also being rolled out from the central level to strengthen the nascent democratic institutions emerging under careful control at the village level. These include greater flexibility in the preparation of village development programs, and the encouragement of community organizations and local responsibility for village-level infrastructure and agricultural resources. These PRC-led initiatives have opened spaces for programs funded by aid agencies, such as YEDP, to enter the development field and seek to influence current and future practice.

Yunnan environment development program

The primary objective of YEDP has been to develop YPG's capacity to design and implement environmentally sustainable, pro-poor development programs. YEDP has attempted to achieve this through continuing policy dialogue and development at the strategic level, coupled with training initiatives and demonstration projects at the field level. This two-pronged approach marks an effort to influence the design and implementation of future policies and programs on environmental protection and poverty reduction. YEDP was designed based on a series of key principles or themes, including participation, integrated working, gender and ethnicity mainstreaming, targeting of resources (to those most in need), equity and efficiency, and sustainable livelihood.

YEDP has focused primarily on assisting three provincial government institutions: Yunnan Environmental Protection Bureau (YEPB), Yunnan Poverty Alleviation Office, and Yunnan Development and Reform Commission. However, given the complex institutional framework for environment–poverty issues in Yunnan and the influence wielded by other YPG stakeholder departments, YEDP inevitably has worked alongside line agencies such as the Agriculture, Forestry, and Water bureaus, during the program.

In addition, YEDP has sought to improve YPG's approach to environmental protection and poverty reduction through two major thrusts of technical support that were set out in the original program design documents: the Yunnan Sustainable Development Action Plan and a series of demonstration or pilot projects.

To set the stage for project interventions, YEDP undertook two major research exercises in 2001–2002 before working on the pilot projects. These studies were largely internal; indeed, the results of this work have not been made widely available until now. The first task was to identify the key policies and institutions that YEDP needed to work with or influence if it was to have any impact on YPG's approach to environmentally linked poverty among Yunnan's poorest. The second study was the typology study, a large-scale field study designed to document (i) the types of environmentally linked poverty in Yunnan Province, (ii) why they exist, and (iii) how policy makers and practitioners might approach them (YEDP, 2001a). The key findings from the typology study are in the next section.

Poverty–environment links in Yunnan

The study undertaken by YEDP identified the following poverty–environment issues:

- **Villagers have a holistic and dynamic conception of well-being and vulnerability in their own communities, which included natural resource issues.** Critical factors defining poverty, as perceived by villagers, included the level of household labor available; the ability of the household to access regular forms of income or employment outside the community; the level of health; poor water quality (as a cause of bad health); the importance of education as a household strategy for broadening livelihood opportunities; the increased burden of work, particularly for women, resulting from resource degradation; and the importance of livestock as a safeguard against crop failure and other shocks (such as natural disasters) that might increase vulnerability.
- **Poverty in Yunnan has a strong gender dimension, with women subject to a disproportionately heavier work burden, partly due to natural resource factors.** Problems were found to be particularly severe for households headed by single females, and households where the labor dependency ratio was high. Women were also more likely to be excluded from agricultural extension services that used a formal medium for knowledge transmission because they received less years of education than men. As the environment degraded, women's work burden often increased as they spent more time on routine and production tasks. Their health could suffer, meaning they lost productive time through sickness. Thus, they became locked in a cycle of impoverishment from which it was increasingly difficult to escape.
- **The state of the natural resource base and the topographical and climatic conditions were key factors in determining vulnerability.** The degree to which land is steeply sloping determined vulnerability to erosion problems, and karst topography meant soil quality is often poor. Lack of forest cover and forestry resources, as well as a lack of water resources, also proved critical.
- **Most village studies described the increase in population pressure as a key factor conditioning poverty.** Increased population reduces per capita landholding and increases the pressure on natural resources, particularly fuelwood, animal fodder, and NTFPs. The juxtaposition of increased population with policy impacts (e.g., the Upland Conversion Policy) that restricted the land available for farming and grazing was a particularly severe pressure compounding environmental degradation and poverty.
- **The implementation of environmental protection measures could increase poverty.** In the context of a poor and degraded natural resource base and an economic situation lacking livelihood development alternatives, the study found that policies were seldom inappropriate for the sectoral problems they sought to address. However, secondary, unforeseen impacts had repercussions across many inter-linked livelihood dimensions. For example, the closure of wastelands for forestry regeneration could impede opportunities for goat and livestock grazing for villagers; frequent shifts in policy could cause and exacerbate poverty; villagers had no opportunity to adopt a long-term strategy for resource management; and policy often shifted between poverty reduction and environmental protection, without developing integrated solutions to facilitate both.
- **Indigenous knowledge conflicts with rural extension policies.** In study areas where minority populations had practiced traditional forms of shifting cultivation, government extension services and policies promoted more modern approaches to farming and land management. However, the introduction of policy instruments to encourage settlement and environmental protection, while traditional forms of cultivation continued, exacerbated and intensified poverty-related problems.
- **Access to land, forestry, and water was often unequal between households.** The introduction of the household responsibility system in agriculture in the early 1980s provided an important spur to agricultural production. While increasing food security, the system also further opened land for cultivation and, consequently, environmental degradation. The initial allocation of land to households was on a 15-year usufruct rights basis, with a 30-year allocation planned subsequently (providing households with a longer time frame more conducive to investment in agriculture). The village studies showed that access to resources was often unequal due to

social and community dynamics; increases in household size, which were not compensated; and marrying-in of females, who then were not entitled to a redistribution of land.

- **Animal husbandry is an important social safety net against food insecurity and unstable market prices for crops.** Animal husbandry plays an important income, subsistence, and social role in rural Yunnan. The closure of forestlands and wastelands to grazing has sharply reduced livestock holdings, consequently increasing vulnerability to poverty. This has also diminished social capital in cultures where livestock is an important indicator of wealth and status. At the same time, the overgrazing of wastelands, and particularly of common lands, was identified as a key driver of environmental degradation, especially in upland areas where the recovery from overgrazing was slow.
- **Market access determined the ability to safeguard against poverty and the rate of exploitation of natural resources.** Proximity to marketing centers was found to give rural farmers an outlet for the sale of surplus produce. However, they were often ill-equipped to access marketing opportunities due to their lack of experience, training, and/or access to the networks in commercial centers that enable exploitation of opportunities. On the other hand, proximity to markets and good market access also could hasten environmental degradation through the commercial overexploitation of resources, such as mushrooms, firewood, and medicinal plants.
- **The ability to access employment and income opportunities outside the rural community was a critical wealth and security indicator.** Although Yunnan is overwhelmingly agricultural, rural livelihood was not identified exclusively as agricultural. Migration, an important coping strategy against poverty, might be temporary, seasonal, or require one member of the household to work permanently in an outside area, sending back remittances.
- **Government-sponsored poverty reduction schemes have been largely unsuccessful, and might not have targeted those most in need.** Data showed that most of the 12 villages surveyed had been the target of significant poverty reduction interventions by the Government. Despite such interventions, these villages remained impoverished.

- **Agro-industrialization and peri-urbanization undermine traditional livelihoods.** Linked to the resettlement schemes in Jiangcheng County in the southwest valley region, significant agro-industrialization and peri-urbanization was taking place. Plans for urbanization through closure of lands appeared to restrict traditional livelihood options (cattle grazing, in particular) in minority communities where livestock husbandry is the major source of income. The development of other types of crop plantations meant that villagers were susceptible to new kinds of commercial pressures over which they had no control, and which they were ill-equipped to influence.

CAUSES OF ENVIRONMENTALLY LINKED POVERTY

Based on the findings of YEDP's study, six key causes, or triggers, of environment–poverty situations emerge:

- limited resource base (quantity of natural resources available),
- access to resources (which groups and who within those groups have access),
- resource degradation and depletion (policies and practices causing environmental loss),
- quality of resources available (e.g., poor soil on karst),
- resource policies (some sector policies exacerbate poverty), and
- resource technologies (such as extension services).

While these triggers might be present to a greater or lesser degree in different locations, some or all were found throughout the areas studied in Yunnan. An environmentally linked poverty situation is never caused by one trigger; the dynamic and changing inter-relationship of triggers locks Yunnan's rural poor into mutually reinforcing cycles of environmental degradation and poverty. Key examples of dynamic downward poverty cycles include

- those driven by the Government's policy shifts and contradictions,
- the juxtaposition of state and traditional agricultural and land management practices,
- the role of women in subsistence household production, and
- the demands of crop promotion and occurrence of natural disasters.

The following section highlights government policies that were identified as having a significant role in exacerbating environmental degradation.

STATE POLICIES THAT WORSEN POVERTY—ENVIRONMENT ISSUES

The results of the fieldwork provided many examples of policy conflicts and indicated the complexity of the policy environment. For example, frequent shifts in policy can cause and exacerbate poverty. Because villagers know that policies frequently change, they are unlikely to take a long-term view of resource management. They simply extract what they can before the next policy shift, which accelerates the likelihood of this shift occurring. Policy planning along sectoral lines appears to favor income creation (tobacco planting, for example) or environmental protection (the subsequent ban on tobacco planting for forestry protection). Seldom are integrated policies introduced to achieve the twin objectives of income enhancement and environmental protection over the long term. In most villages studied, the Government has introduced significant poverty reduction interventions. Yet these villages have remained impoverished.

The links between specific types of environment–poverty situations (i.e., triggers), as identified in the typology study, are not always clear and direct. However, evidence of these links abounds, as the following examples demonstrate:

- Where poverty is linked to the environment via a community's access to resources: this kind of situation has been affected by a lack of local flexibility in implementation, as well as a lack of participation in the design of policies. For example, the closure of grasslands to local communities or a ban on hunting by villagers deprives them of their previous livelihood. This also can apply to the establishment of nature reserves and/or tourist facilities, though usually to a lesser extent.
- Where poverty is linked to the environment via resource degradation or depletion: this kind of situation often has been affected by the imposition of historic state policies (e.g., industrialization), which have resulted in overexploitation of forests and, particularly, water resources.
- Where poverty is linked to the environment via inappropriateness of particular resource technologies: this kind of situation has been affected by the absence of technologies (e.g., in agriculture) designed for, and targeted at, the poorest or particular ethnic communities, localities, etc. It also can occur where inter-agency coordination might have provided some technical input (e.g., irrigation, water), but not

a necessary complement (e.g., crop storage and marketing support).

- Where poverty is linked to the environment via the design and implementation of particular resource policies: this kind of situation has been created directly (if usually unintentionally) through the imposition of a particular policy with no public participation. One example was the 1998 logging ban. It can also occur in resettlement schemes if insufficient support is provided in the resettled areas, or if linked agro-industrial opportunities disappear (e.g., in the case of tobacco and cassava and/or alcohol production).

These examples show that, although state and YPG policies undoubtedly have been very successful in reducing poverty generally in Yunnan Province, public policy might fail to deal with certain types of poverty. In fact, policies can compound the problems for certain groups. This conclusion confirms the design base upon which YEDP was prepared.

YUNNAN SUSTAINABLE DEVELOPMENT ACTION PLAN

Since its inception, YEDP has offered technical advice, training, and capacity support for the preparation of Yunnan's Sustainable Development Action Plan (YSDAP)—a provincial interpretation of the PRC's National Agenda 21 process. Given its policy coordination role, the Yunnan Development and Reform Commission is responsible for preparing this document. However, the components of such a large-scale plan have involved research and documentation by several other major agencies whose work relates to the sustainable development of the province. Thus, YEDP has benefited from supporting and advising a process that is not only required by the Government, but also necessitates a cross-cutting approach and close cooperation between provincial government departments in preparing the document. This natural concurrence of requirements has helped achieve one of YEDP's primary goals in the delivery of this output: strengthened integrated work between government departments in the fields of environmental protection and poverty reduction.

DEMONSTRATIONS: THREE PILOT PROJECTS

The second strand of YEDP's approach embodied in the project documents was to use field demonstrations to influence YPG's approach to finding ways of reducing environmentally linked poverty in rural

areas. As with many development programs that seek to introduce new approaches to government bureaucracies, YEDP aimed to enlighten YPG by designing and implementing pilot projects—practical demonstrations of what a model approach to reducing environmentally linked poverty might be, using officially designated poor villages as case studies.

Thus, YEDP's goal in delivering this second strand of the program was to introduce to YPG institutions novel ways of interacting with their target communities that would enhance two-way involvement in the rural development process. At the same time, YEDP aimed to encourage greater horizontal integration between government bureaus with diverse, but linked, responsibilities. Several dominant themes characterize the YEDP approaches, which will be familiar to those with an understanding and knowledge of current development practices. They are focused around participatory, community-led, pro-poor approaches. Meanwhile, they aim to mainstream concepts such as gender sensitivity and ethnicity awareness, and how these considerations can influence the optimum development solution in a community or household. The three YEDP pilot demonstration projects are in Changning, Nanhua, and Ninglang counties.

PRELIMINARY FINDINGS FROM THE YEDP PILOT PROJECTS

Participatory reviews characterized the monitoring approach to the YEDP's pilot projects. These allowed project staff and clients (stakeholders) to review the pilot project critically, something quite new in this part of the PRC. As one Lugu Lake woman put it: "We have never been comfortable to tell people who give us things that are not working. On this project, we are able to tell you when it works, and when it does not."

After the initial focus on YEDP approaches during design and feasibility, however, some aspects of implementation can revert to business as usual in activity delivery. This was partly because implementation was hurried due to a delay in project commencement. It also reflected a desire to utilize funds efficiently and to meet local targets (i.e., internal PRC targets) that might diverge from the YEDP process-based targets that preoccupy the funding agencies, international technicians, and some higher-level provincial agency staff.

Changing the development delivery approach is extremely difficult. YEDP not only had to change YPG's approach (from top-down to bottom-up), but

also deal with a variety of different partners. In other words, YEDP had to attempt to introduce changed approaches to the whole gamut of partners broadly involved in poverty–environment issues—from veterinary workers to water supply engineers. Integrated work is difficult because (i) each agency has its own discrete mandates, (ii) agencies often compete for financial resources, and (iii) the chain of command and reward systems are associated with the agency rather than with YEDP.

During implementation, it helps to have a key actor who is not tied to a given agency in terms of budgeting and reporting lines. At Changning, for example, the active involvement of the township vice-mayor assisted implementation because he was not tied to an agency with a specific mandate (and associated budgetary constraints or concerns). Choosing a key technical partner agency, especially to lead a pilot demonstration, has been a critical determinant of performance.

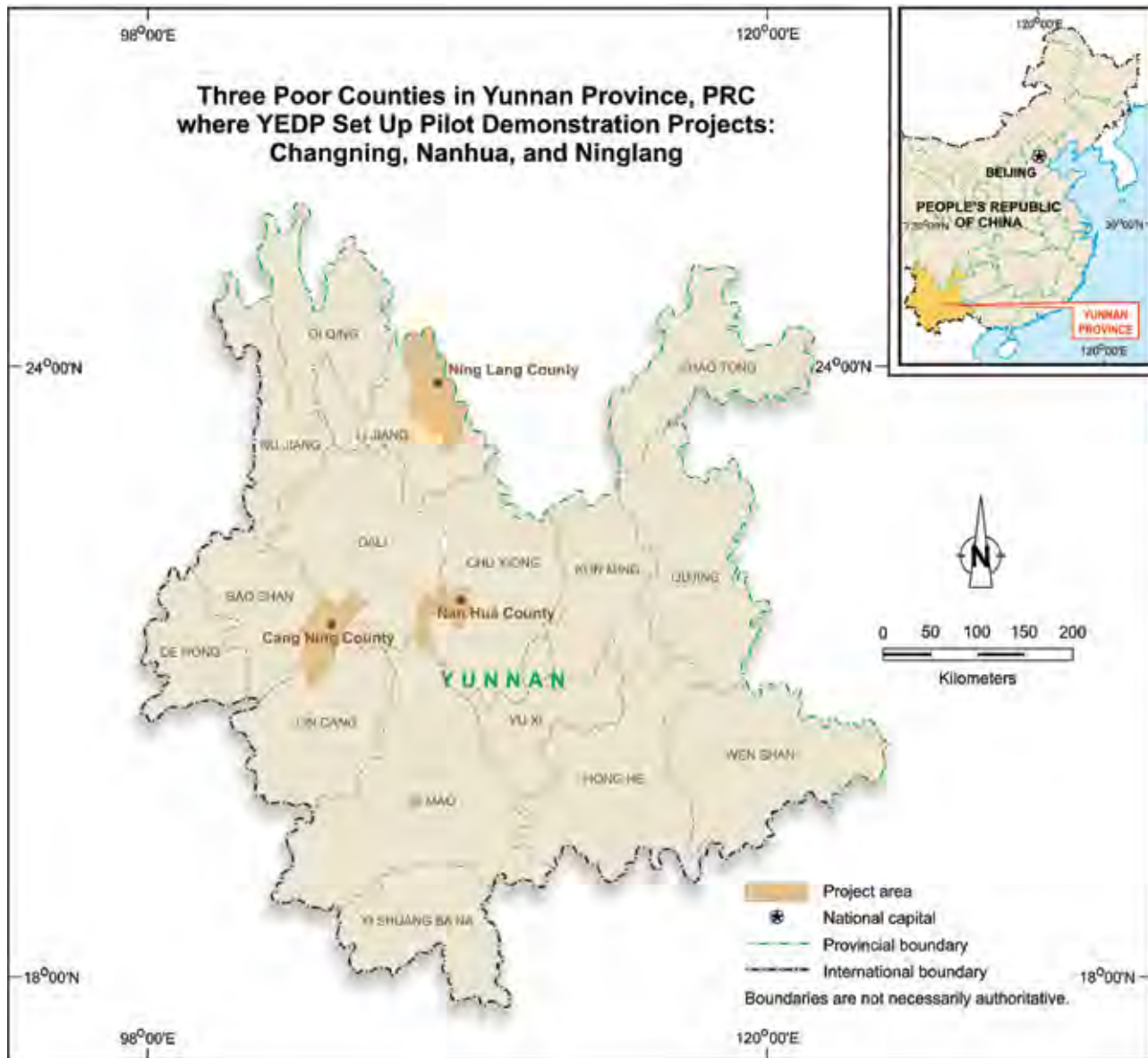
Conclusion and policy recommendations

The final section of this case study summarizes the key lessons learned from the YEDP experience for governments and funding agencies. It also makes recommendations for future policy on environmental protection and poverty reduction, including institutional requirements.

YEDP has influenced the outcomes of the YSDAP process with relative ease, given the central Government's demand for such a strategy. However, its ability to influence and contribute to genuine change in other policy areas has been less significant than envisaged in the YEDP's design. In particular, concepts such as participation, integrated working, and gender mainstreaming are relatively new in Yunnan. As such, their effective institutionalization requires significant effort, adoption of international best practice, and capacity building.

In addition, the notion that YEDP could act as a vehicle for change in YPG was based on a belief that Yunnan had sufficient political will and openness to embrace such change. Despite its ambitious design, YEDP was hampered at the strategic level by (i) overly complex institutional arrangements; (ii) gaps and duplication in responsibility for environment–poverty policy; and (iii) limited understanding and experience of the practical application of sustainable development approaches, participatory methodologies, and community involvement

Map 13



PRC = People's Republic of China, YEDP = Yunnan Environment Development Program.

techniques among officials. This was compounded by a tendency toward silo working (not considering matters beyond their particular remit), and internal competition for program resources between partner agencies, resulting in a lack of coordination. A general reluctance to change within the Government, combined with a misunderstanding of the value YEDP could bring to Yunnan Province, did not help this situation.

In retrospect, the decision to locate YEDP within the Yunnan Environmental Provincial Bureau might appear to have been sound during program design. However, given the importance of addressing environmentally linked poverty and the need to work at stra-

tegic and pilot village levels, an equally strong case could have been made to house YEDP in the Poverty Alleviation Office, in the light of its extensive outreach and supposed coordinating role, or even within the Development and Reform Commission, given its strategic policy coordination role.

Below the provincial level, YEDP exerted a far more tangible and, arguably, more sustainable influence on county and township government institutions. The pilot projects (i) demonstrated the value and use of participatory approaches; (ii) encouraged joint initiatives between government agencies; and (iii) established the practice of targeting resources to those most in need to ensure more efficient program design

and implementation, and more equitable distribution of resources. Perhaps this is a consequence of the less complex local level institutional arrangements, and the pragmatic approach to project implementation adopted by local officials with scarce resources. In this sense, the pilot projects were effective, and affirmed the demonstration concept set down in the DFID project design.

YEDP might be too ambitious in introducing new pro-poor approaches and expecting multiple agencies (that are frequently unfamiliar with the work) to adopt and execute them with other agencies. Clearly, the more complex and remote the institutional relationships, the less likely that the new approaches espoused by YEDP will work.

Lessons learned for development agencies

From the perspective of future program design, development agencies need to recognize the importance of ensuring overall program feasibility right from the start. If YEDP were to be redesigned, a strong case

could be made for a program with a shorter time horizon, more realistic ambitions, greater focus, narrower objectives, and specific targets and goals—all of which should be achievable in the time and budget allowed. Focusing only on the time-sensitive, government-endorsed planning process, such as YSDAP, would have been one such approach.

Alternatively, given the protracted nature of ensuring institutional and policy change in Yunnan Province, a program could be designed over a longer time frame (e.g., 6–8 years) with continuing technical support and a process of stepped change. International expertise could be used in the first 3–4 years to develop local capacity, with local staff and experts gradually enabled to assume full control in the latter stages of project delivery.

Whatever option is selected for future program design, the key point is that such initiatives require fundamental support, as well as a willingness and ability to embrace change from the center to drive the program, given the command-based nature of the PRC Government.

