



Introduction: Linking Rural Livelihoods and Protected Areas in Bangladesh

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Introduction

Protected areas such as national parks and reserves form the front line in the campaign to conserve biodiversity. Worldwide protected areas cover more than 12% of the planet's surface (Chape et al. 2003). In Bangladesh, one of the world's most populated nations, protected areas cover only 1.67% of the total land area. Overall, Bangladesh ranks 129 out of 155 countries in terms of the percentage of its national territory under some form of protected area status (World Resources Institute 2006).

Simply declaring an area to be a 'national park' or 'protected area' has not worked in Bangladesh or elsewhere to stop the steady loss of biodiversity for a number of reasons. Among others, these include the fact that timber- or fuelwood-based commercial operations located in and around these areas perceive them to be a direct threat to their economic well-being, while neighboring low-income households perceive a threat to their livelihoods from reduced access to forest biomass in different forms. In addition, a number of non-local groups such as timber companies, international development banks, the military, and tourism agencies often have valuable economic and political interests at stake in these areas (Brechin et al 2002). Scholars such as Dove (1993) suggest that if local people develop an economically valuable forest resource, elite economic and political interests will assume control of it. These scholars suggests that the problem for forest peoples is not that they are poor but that they are politically weak; they inhabit a resource which is coveted by groups that are more powerful than they are.

Based on the belief that human activities are incompatible with ecosystem conservation, managers of national parks and other protected areas across the

globe often prioritize keeping local people out. Many national agencies charged with managing protected areas lack the human and financial capacities, the knowledge of conservation, motivation, and commitment, and the resources necessary for supervising the vast protected areas under their rule, particularly if they have alienated local communities or local commercial interests with a stake in resource extraction from those areas. Mounting pressures on protected areas from growing populations, persistent poverty, and the penetration of the market economy all compound the pointlessness of trying to manage protected areas by isolating them from human activities.

In the 1980s and 90s conservation organizations responded to these threats to biodiversity by pioneering new approaches to protected area management that promised to build support among local constituents by sharing the social and economic benefits derived from these areas. Brechin et al. (2002) refers to these as 'people-oriented' conservation programs. These programs include community-based conservation, such as integrated conservation and development projects (ICDPs), community based natural resource management (CBNRM), co-management, community-managed or indigenous reserves, and community conservation areas (CCAs). Co-management or collaborative management involves two or more social actors negotiating, defining and guaranteeing amongst themselves a fair share of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources. The co-management approach has been a fundamental recommendation of the past two World Parks Congresses, and is actively advocated by the IUCN. The goals of these initiatives include compensating local people for lack of access to protected areas and providing alternative income sources that allows people to benefit economically from conservation while refraining from environmentally destructive practices.

While a number of successful community oriented approaches to conservation can be cited such as the Il Ngwesi Community Conservation Area in northern Kenya (Oates 1999) and Kakadu National Park in northern Australia (Perdan 2004), critics of community-oriented approaches to conservation have started to question or even reject these approaches. Despite significant investments in hundreds of relatively expensive projects, almost entirely carried out or financed by conservation organizations and international development agencies, there are few unambiguously successful cases where local people's needs and aspirations have been reconciled effectively with protected areas management (Wells and McShane



2004). Demonstrating constructive ways of involving local stakeholders in the conservation and sustainable use of biodiversity in and around protected areas remains one of the most important challenges and priorities for nature conservation.

Many past efforts to incorporate local people into the management of protected areas proceeded on the basis of simple and incorrect assumptions about the nature of the dependence of poor local people on natural resources systems. Experience has shown that site-specific biodiversity conservation is rarely compatible with unfettered development, income generation, or livelihood interests. In practice, there will be winners and losers. Better techniques are needed to identify and understand the goals and interest of the local people living in and around protected areas.

In 2004, the Bangladesh Forest Department launched the "Nishorgo Program for Protected Forest Area Management". At field level, the Nishorgo Program was to test and refine a model for collaborative management of five protected areas in the country, including Lawachara National Park, Satchari National Park, Rema-Kalenga Wildlife Sanctuary, Chunati Wildlife Sanctuary, and Teknaf Game Reserve. At these five pilot co-management sites, the Forest Department has been working to develop a collaborative management platform by which key local stakeholders are to have a greater voice in management decision-making while also perceiving a greater benefit from the protected areas and their surrounding landscapes. The Nishorgo Program receives assistance from USAID in the form of the Nishorgo Support Project.

In 2006 the East-West Center, the Nishorgo Support Project, and the Bangladesh Forest Department provided eight research fellowships to students, lecturers, and professors in various Bangladeshi universities, and to Assistant Conservators of Forests in the Forest Department, to conduct six months of field research in the five pilot sites. Through these small research grants we sought to explore the impacts and implications of protected areas on the livelihoods of people living in and around the chosen protected areas. Among others, the types of questions we were interested in exploring included: What benefits (products) do rural people derive from protected areas and what services do they provide in return? What are the market dynamics and market chains of these products? Who benefits from these products and in what ways? Who are the key stakeholders? What is the impact of protected areas on women, the rural poor, and ethnic minorities? What is the potential for alternative products such as ecotourism to be developed in these

areas? What are the points of contention between key stakeholders over existing or potential resource use patterns? Are local institutions capable of supporting innovation and experimentation in resource management systems? How do farmers respond to risk and uncertainty? How do they respond to new technologies and innovations?

The Role of Non-Timber Forest Products

Numerous studies have attempted to document how traditional communities living in and nearby protected areas use forest resources. Understanding the resource-use patterns of such communities provides a basis for seeking the participation of such communities in forest conservation. Hegde and Enters (2000) addressed the importance of forests in the household economies of eight indigenous communities located near a Wildlife Sanctuary in Southern India. They found that villagers living within or near the sanctuary collected more non-timber forest products (NTFPs) than villagers living far from the sanctuary and depended on NTFPs for a greater portion of their income. All income groups used NTFPs for subsistence although, with the exception of the low income group, the contribution of NTFPs to household subsistence was not high. The collection of NTFPs was more important in villages that had legal access to the sanctuary (where collection of forest products was allowed) and had access to markets. Where there were no restrictions on forest use, higher income groups used the resources more heavily than lower income groups and would suffer more from any restriction on forest use. People's reliance on forests declined with increased levels of both education and opportunities in non-forestry vocations.

Among our case studies, Belal Uddin and Sharif Mukul found that NTFPs and homegardens play important roles in improving the livelihoods of people living in around Satchari National Park. The authors found that wealthier households are less dependent on NTFPs than poorer households and suggest that enriching homegardens and buffer zones with commercially important NTFPs may pay off through reduced pressures on the national park. Likewise, Rahimullah Miah (this volume) examined the role of NTFPs and homegardens in Chunati Wildlife Sanctuary. He found that people living in four villages within and nearby the sanctuary received a significant portion of their livelihood from the sanctuary. He suggests that the cultivation and domestication of NTFPs in the interface landscape of protected areas can play an important role in the co-management of those areas.



C.M. Caron (1995) examined household food procurement strategies in a Sri Lankan village located adjacent to the Sinharaja Man and the Biosphere Reserve. Caron found that after the reserve prohibited villagers from conducting swidden agriculture that the community adjusted by switching from growing their food needs in their swidden fields, to a variety of alternative practices including collecting NTFPs illegally from the forest and tapping kitul palms (which is legal with a permit from the reserve) for a type of sugar known as jaggery. Within their homegardens villagers planted cash crops of tea and rubber and began protecting all kitul palm trees and saplings for tapping in the future. The study suggests that establishment of the forest reserve shifted the supply of basic needs from the forest to the market. While this reduced the overall pressure on the reserve, it also intensified the pressure on specific resources such as the kitul palm.

In this volume, Zashim Uddin and Snigdha Roy focused on the collection of two medicinal plants, menda (*Litsea glutinosa*) and bohera (*Terminalia bellerica*) in Rema-Kalenga Wildlife Sanctuary for sale in the medical plant markets. They found that local residents knew little about the cultivation of these species and that they currently manage them as open-access resources with whomever wishing to collect them doing so freely, if illegally. The authors suggest that unless the cultivation and management of these species is promoted by sanctuary personnel that they will become increasingly rare, if not extinct, in the sanctuary.

Udaya Nagothu (2001) studied fuelwood and fodder collection in the Sariska Tiger Reserve in Rajasthan, India. He found that the extraction of fuelwood and fodder resources by the local community did not cause deforestation in the reserve as the major portion of fuelwood and fodder came from dry wood and grasses. He also found that local people initiated strategies such as changing the composition of their livestock herds, regulating grazing patterns, producing fodder on private farms, and restricting the use of resource from temple lands in order to reduce pressures on the reserve. Nagothu concluded that main stream resource management agencies such as the Forest Department often ignore local modes of resource exploitation resulting in conflicts between local people and conservation agencies.

Rafiqa Sultana (this volume) examined fuelwood collection in Satchari National Park. Contrary to Nagothu's conclusions that fuelwood collection in the Tiger reserve does not cause deforestation, Sultana found that local households are collecting close to two tons of fuelwood daily from the 243 hectare park; a figure that she suggests is not sustainable.

Ecotourism

Many managers of protected areas view ecotourism as an effective method for promoting the conservation of endangered species and habitats in developing countries. By creating economic incentives for impoverished villagers or their communities, ecotourism is thought to encourage local guardianship of biological resources. Bookbinder et al (1998) assessed the impact of ecotourism on the income of villagers living near Royal Chitwan National Park, Nepal. They found that despite a visitation rate exceeding 60,000 tourists, most from industrial nations, that the economic impact of ecotourism on household income was minimal and limited to villages close to the park's main entrance. They concluded that ecotourism is not a panacea for long-term biodiversity conservation.

In another study in Sariska Tiger Reserve Nagothu (2003) examined local people's attitudes towards conservation and wildlife tourism. In this study he found that villagers were aware that a well-conserved protected area could result in greater benefits from tourism. Nagothu suggests a positive correlation between the benefits people obtained from tourism and their support for the existence of the protected area. Some of the main problems the study identified included unequal distribution of the benefits from tourism, and a lack of local people's involvement in tourism and development activities.

In this volume, Modinul Ahsan examined the perceptions of tourism by people living in three indigenous communities located in and around Lawachara National Park. Modinul found that people living in two of the three communities received relatively minimal benefits from the park, while people in the third community, located within the park and most affected by tourists, have not entered the tourism economy and as a result have received no benefits at all. He suggests that local institutions, both formal and informal, should be more involved in helping local people to gain benefits from tourism.

Towards a More Comprehensive Understanding of Human Needs and Biodiversity

Salafsky and Wollenberg (2000) developed a conceptual framework for assessing the impact of various activities implemented to support rural livelihoods on biodiversity conservation. This framework attempted to rank how dependence on diverse livelihood activities such as collecting NTFPs or timber harvesting affected:



1) maintaining species at the site; 2) maintaining habitats at the site; 3) percentage of the site on which the livelihood activity depends; 4) period and frequency of biodiversity use on which the livelihood depends, and 5) dependence of the livelihood activity on associated conservation values. Salafsky and Wollenberg tested the framework and the scales they developed by evaluating 39 project sites in the Biodiversity Conservation Network. Their results suggest that because most NTFP harvesting businesses depend on only one or two species, there is likely to be strong pressure to increase the management of the system to promote these species, ranging from forest enrichment to domestication in agroforestry systems. These management approaches may maintain the population of the focal species, but may have no impact or even a negative impact on overall habitat conservation.

Among our case studies, Sayeed Riadh found that cultivating betel leaf in the park provided an important source of cash income for local communities. While betel leaf cultivation may improve the livelihoods of park residents, implications of cultivating betel leaf trees in the park are less sanguine for park habitat.

Of the various product harvesting projects they evaluated, Salafsky and Wollenberg (2000) found that the projects with the highest linkage to conservation are timber production and wildlife management both for harvesting and tourism purposes. Timber is highly ranked because it uses a number of species and has a strong habitat linkage. Animal harvesting and viewing of animals in ecotourism are highly ranked because animals are at a higher trophic level and thus depend on the surrounding habitat for their survival. Salafsky and Wollenberg also showed that unless local stakeholders recognized the link between their livelihood activities and biodiversity conservation that it will not matter in terms of influencing their actions. If local people do not perceive this link, they may not take action to stop direct or indirect threats to the protected areas. Linkages between livelihood activities and conservation, however, are only among many factors influencing conservation success.

Among our case studies, Ala Uddin and Abu Shadat Foisal examined local perceptions of wildlife in Chunati Wildlife Sanctuary. They found that local people are knowledgeable about wildlife, are interested in their sustainable management, and are aware of the links between their activities and wildlife conservation. But the failure of local forest department officials to solicit local participation in the management of the sanctuary severely impacted the livelihoods of both local people as well as wild animals.

Salim Uddin and Abu Sayed Arfin Khan (this volume) analyzed the impact of

Muslim refugees forced to flee their homes in Myanmar on the Teknaf Game Reserve, which is located on the Bangladesh/Myanmar border. This is an example of increasingly common problem as people are forced to flee from wars, civil conflicts, and natural disasters. The authors found that the refugees are far more dependent on the game reserve to meet their livelihood needs than are local people that live in and near the reserve.

Overview of Papers in this Volume

Belal Uddin and **Sharif Mukul** question the roles NTFP collecting and home gardening play in the livelihoods of local residents and forest conservation in and around Satchari National Park. Their paper suggest that 27% of households in the park receive at least some cash income from NTFPs, and that for 18% of households processing and selling NTFPs forms their primary occupation. The authors found that wealthier households rely less on forest products from the park, while poorer households are heavily dependent on the park to meet their subsistence needs. Belal and Mukul conclude that park managers should seek to enrich home gardens and the park's buffer zone with commercially important NTFPs.

Sayed Riadh examines and compares the role of NTFPs in the livelihoods of communities living both within and outside of Lawachara National Park. His paper suggests that local people meet their fuelwood demands from the forest either by collecting it themselves or purchasing it from the market. Betel leaf cultivation in the park provides the only source of cash for the Khasia communities that reside within the park. With the exception of a few wealthy households living outside of the park, all households collect bamboo, cane, wild vegetables and medicinal plants for domestic consumption.

Strategies to foster development based on the gathering, processing, sorting, collection period, and diversification of non-timber forest products (NTFPs) implicitly target households as principal beneficiaries. **Rahimullah Miah** studied four villages located in or near Chunati Wildlife Sanctuary that derive a significant portion of their livelihoods from NTFPs. He concludes that both research on the cultivation and domestication of NTFPs and co-management practices are needed to allow forest villagers to continue to live in the sanctuary in a sustainable manner.

Large portions of the world's population depend on medicinal plants to meet the primary health care needs. **Zashim Uddin** and **Snigdha Roy** explore linkages between two medicinal plants, menda (*Litsea glutinosa*) and bohera (*Terminalia bellerica*), and the livelihoods of local people living in the vicinity of Rema-Kalenga



Wildlife Sanctuary. Uddin and Roy found that while many people are involved in the illegal collection and sale of both species, that the income gained from these activities forms an important component of local livelihoods. They recommend that local people should be consulted and involved in the design and implementation of plans to cultivate and manage these species.

Resource managers and academics are increasingly aware of the importance of recognizing local perceptions, knowledge and participation in defining management strategies and actions for the conservation of natural resources. **Ala Uddin** and **Abu Shadat Ahmed Faisal** evaluate local peoples' perceptions and attitudes toward wildlife in Chunati Wildlife Sanctuary. They argue that because Forest Department officials failed to solicit local participation in the design and management of the sanctuary, management policies have severely impacted the livelihoods of both local peoples and wild animals. Despite their problems with park officials, however, local people remain interested in playing an active role in protecting the environment so that wild animals can make a come-back.

Rafiq Sultana examines linkages between fuelwood collection and community livelihoods in Satchari National Park. She found that three distinct groups collect fuelwood: villagers living in the park, villagers living outside of the park, and tea estate laborers. Overall, approximately two tons of fuelwood are extracted from the park by these communities daily. All villagers (those living in and outside of the park and tea estate laborers) meet 100% of their energy needs from the park. While tea estate laborers do not collect wood for purposes other than energy, approximately 39% of households in the interior village and 100% of collectors from villages outside the park depend on the park for earning cash income. Fuelwood collection accounts for 62% and 100% of the cash income earned by villagers living in and outside of the park, respectively.

The Bangladesh Forest Policy recognizes ecotourism as a forestry activity that should be promoted. **Modinul Ahsan** looks at the perceptions of tourism and the benefits received from tourism by three communities living in and adjacent to Lawachara National Park. He found that two out of the three villages studied received benefits from tourism activities such as the sale of handmade clothes, eco-tour guide services and cultural shows. On the other hand, the community residing within the park both received the fewest benefits from tourism and encountered the most problems with tourists disturbing their village. He suggests that not all communities benefit from tourism.

Finally, **Salim Uddin** and **Abu Sayed Arfin Khan** compare the dependency,

livelihood activities, and impacts of Rohingya refugees from Myanmar with activities of local people on Teknaf Game Reserve. Their paper suggests that 57% of all households, including 100% Rohingya refugees, are totally dependent on the reserve for their livelihoods. The authors assessed four livelihood activities—fuelwood collection, sungrass collection, illicit felling, and brickfields—as having a major impact on the game reserve and posing a high risk to its future. While Rohingya refugees are comparatively more dependent on the forest than local people, both local people and refugees desperately need alternative income generation activities. The authors suggest that both groups want to collaborate with national and international organizations to resolve the refugee situation in a timely and congenial manner and to repatriate Rohingya refugees to their country.

Conclusions

Bangladesh is among the most poor and densely populated nations on the face of the globe. The difficulties forest department officials face in promoting the conservation of flora and fauna are among the most severe found anywhere. This joint project of the East-West Center, Nishorgo Support Project, and Bangladesh Forest Department encouraged university students, teachers, and forest department officials to conduct field research on the impacts and implications of protected areas on the livelihoods of people living in and around the chosen protected areas. The papers in this volume are the results of this initiative. These papers point to several important conclusions about linkages between rural communities and conservation in protected area management. They also set a baseline of information from which the NSP will work to improve the implementation effectiveness of protected area conservation through co-management with local stakeholder participation.

First, they suggest the difficulties and constraints that have occurred in Bangladesh in linking rural livelihoods and conservation. Promoting the management and even domestication of NTFPs may give local communities incentives for protecting these species, but this may have little or no impact on overall habitat conservation. Likewise, eco-tourism may encourage local guardianship of biological resources, but the benefits local people receive may be minimal and/or unequally distributed among participating communities. Second, they provide valuable lessons (or recommendations) in how to improve the linkage between rural livelihoods and conservation. For example, these papers suggest that no one strategy will work everywhere and indeed, probably no one strategy can work on its own at any given



site. It may be possible to link tourism enterprise, for example, in only one part of a protected area, and use other approaches in other parts of the park. To make conservation happen, park and resource managers need to be able to understand the specific local conditions at their project site, both at the start of the project, and as they change over time. They need to develop the appropriate mix of strategies that include incentives and other strategies such as education and awareness. In addition, they need to monitor the results of their interventions, analyze the data, and use it to make appropriate responses in a process of adaptive management.

Third, these case studies illustrate the importance of developing constructive ways of involving local stakeholders in conservation and sustainable resource use practices based on the goals, interests, and understanding of the people living in and around the protected areas. These case studies confirm that protected areas cannot be managed successfully on the basis of simple and incorrect assumptions about how local people use natural resources. The authors of these case studies unanimously argue for incorporating local people and their knowledge into park management decisions through some type of co-management system. These authors suggest that establishing a process to constructively work with people is perhaps the most important step that can be taken on the road to sustainable protected area management. The process by which decisions are made about resource management may be more important than any product or plan protected area managers can produce.

Brechin et al. (2002) argue that much of the debate on biodiversity protection has relied on a false dichotomy between rural livelihoods and biodiversity conservation. In contrast they suggest that establishing a legitimate process to constructively work with people is the most feasible and morally just way to achieve long-term nature protection. They suggest that since conservation is a human organization process, the goal of biodiversity protection depends on the strength and commitment of social actors. They posit that successful biodiversity conservation will ultimately be based the adoption of three broad principles that local people must have the right to: 1) participate at all levels of the policymaking process as equal partners; 2) self-representation and autonomy, and 3) political, economic, and cultural self-determination.

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