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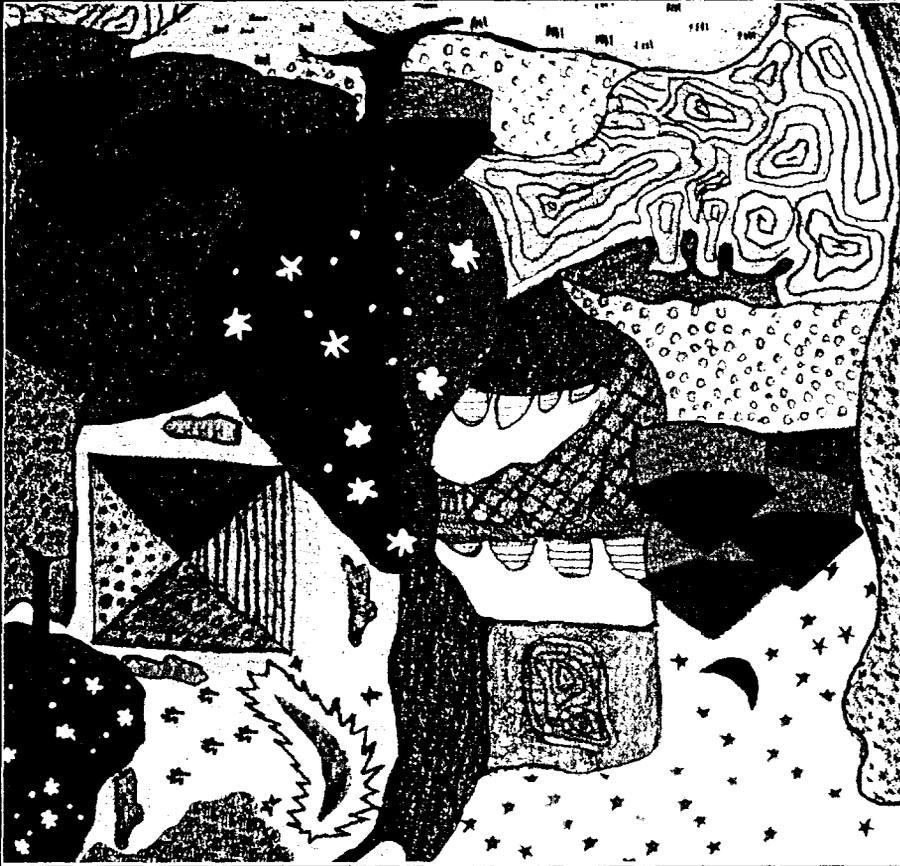
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Julian Caldecott

Ernst Lutz

Edited by



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BIODIVERSITY CONSERVATION

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Decentralization and Biodiversity Conservation

A World Bank Symposium

Decentralization and Biodiversity Conservation

Edited by

Ernst Lutz

Julian Caldecott

The World Bank
Washington, D.C.

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Foreword

Integrated rural development projects implemented during the 1970s and 1980s have had mixed results, in part because they were administered from central project offices that had limited knowledge of local conditions and infrequent contact with rural communities. Partly in response to this experience, a current trend in many countries is toward decentralized development and administration. A key policy question that has emerged is whether decentralization fosters rural development and whether it does so in ways that are environmentally and socially sustainable.

This and related questions are the topic of a World Bank research project, "Decentralization, Fiscal Systems, and Rural Development." This volume is one of the results of that investigation. It contains ten country studies, each including two or three best-practice case studies. Also presented are analyses of thirty-two projects chosen to shed light on the complex process by which rights and duties are redistributed from central public authorities to local or private ones and the implications of this process for the conservation of natural ecosystems and biodiversity.

The principal intent of decentralization is to improve the delivery and impact of public sector services by increasing the role of local governments and communities in decisionmaking. This is accomplished through the transfer of political, fiscal, administrative, and often legislative power from central and intermediate-level governments to the local level.

Decentralization presents not only significant opportunities but also challenges that may differ by sector. For example, empowered rural communities tend to invest in feeder roads, schools, health facilities, and the like, which are of clear and immediate local benefit. In contrast, the costs of biodiversity conservation

are often borne locally, whereas its benefits may accrue to regional, national, and global levels of society. Moreover, ecosystems vary greatly in their ability to yield local revenue or to support alternative land use, sustainably or otherwise. Consequently, there are no simple, universal solutions, and it is hard to generalize about what will or will not work in rural development or conservation for any given location.

The diverse experience reported in the country studies and project analyses shows that decentralization and conservation are complex, interactive processes. A conclusion from the historical reviews of country experience is that centralized, top-down conservation is seldom effective, except where large budgets are available for enforcement and the society concerned is willing to accept a rather undemocratic conservation process. The more recent experience of countries where new responsibilities have been given to local government units and nongovernmental organizations (NGOs) suggests that both opportunities and potential problems exist.

To take advantage of the former while avoiding the latter, it seems that a cluster of arrangements must be made as a whole if conservation is to work well in a decentralized setting. Of these arrangements, the following have emerged as being important for maximizing the benefit and minimizing the risk of decentralization:

1. Local participation, especially in a way that allows local people to understand and endorse the boundaries and management plans of nature reserves and that promotes clear tenure over land and other resources in and around the reserves
2. Capacity building, to increase skills and account-

ability among local government units and NGOs so they can work together to promote conservation and rural development

3. Incentive structures that allow local communities to keep income generated by the sustainable use of nature reserves and other biodiversity assets
4. Conditional subsidies, especially where divergent costs and benefits of conservation are experienced by local and nonlocal groups, making it necessary for global and national society to bridge the gap with livelihood investments or grants
5. Appropriate enforcement, especially against powerful local or central interests, always in the context of education and public relations
6. Stakeholder forums and ecoregional executives, which need decisionmaking and fiscal authority to fulfill their three main roles of avoiding conflict through dialogue, authorizing conservation action, and requesting help from nonlocal society to meet local development priorities
7. Enabling policies, laws, and institutions to provide a clear and supportive framework for conservation on behalf of national government, thus

creating incentives at the local level to harmonize development and conservation and so reduce the need for enforcement.

Decentralization is by no means simple. It may make conservation more difficult in cases where local people bear the costs of conservation but experience few benefits. The main challenge for each country is to find the appropriate degree of decentralization of various government functions that will best promote rural development and alleviate poverty while enhancing the creativity and enterprise of its citizens and the protection and wise use of its living resources.

The World Bank is committed to helping countries meet this challenge and to assisting them in reconciling the sometimes divergent interests of local communities, national governments, and global society so that more sustainable development may be attained.

Ismail Serageldin
Vice President
Environmentally Sustainable Development
The World Bank

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Ernst Lutz

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Introduction

Ernst Lutz and Julian Caldecott

Decentralization is an important aspect of good governance (Binswanger, Shah, and Parker 1994). This volume adopts a particular perspective within the broad study of decentralization, focusing on a single question: whether or not decentralization promotes the conservation of biological diversity and, if so, under what conditions. We know that conservation is part of sustainable development and good governance (IUCN, UNEP, and WWF 1991; UNCED 1992; WCED 1987; WRI, IUCN, and UNEP 1992; UNEP 1995). We also know that participation by local communities is needed for effective conservation and that this may have to be supported by significant decentralization (Bhatnagar and Williams 1992; Wells, Brandon, and Hannah 1992; World Bank 1994).

But questions remain concerning the kind and scale of decentralization, its linkage with participation, and the role of other elements, which include incentives, enforcement, and the institutional capacity to achieve a socially optimal degree of conservation. We now need to discover how these various factors are linked and by what mechanisms.

Ten Country Studies and Analysis

To seek answers to these questions, this volume reports on the national experience of decentralization and conservation in ten countries: Colombia, Costa Rica, India, Indonesia, Kenya, Nepal, Nigeria, Philippines, Russia, and Zimbabwe. The country studies are followed by a chapter that describes an attempt to model a decentralized country and to compare the current and future similarity between this model and the real countries described in the country studies.

The next chapter reviews thirty-two projects of the World Bank and the Global Environment Facility

(GEF) that have conservation goals. It focuses on project-related variables and their contribution to the effectiveness of habitat conservation. A concluding chapter considers the patterns that have emerged and the lessons to be learned from the investigation as a whole.

Failed Past Attempts to Conserve Biodiversity

Part of the background to all this work is the knowledge that many past attempts to conserve biodiversity failed. One reason for the failure was an overly centralized strategy often involving top-down planning by technicians and bureaucrats without concern for the opinions or well-being of the people affected by their decisions. Examples are common and include the efforts of the former Soviet Union. There, the system of parks and reserves helped conserve much of the country's biodiversity, but the centralized decisionmaking process was seriously distorted by inefficiency and corruption. To function, it needed government sufficiently powerful to ignore local aspirations and local conditions, and when that power failed, many nature reserves were immediately exploited by local groups that saw no reason not to do so. In many other countries, the viability of centrally planned "fortress reserves" has been undermined by their cost and by the democratic deficit built into them (Bonner 1993).

These issues will perhaps become clearer if conservation is defined as improving the allocation and use of environmental resources, including the various components of biodiversity (distinct populations, species, ecosystems, and so on) and the range of ecological services and goods that the environmental resources provide. These resources are consumed at

various levels of society, classified broadly as global, national, and local (comprising the community and bioregional levels). Diverse costs and benefits result from managing resources in a particular way at each level. Managing them to maximize benefits at one level may impose costs on other levels. Thus, what is internal to one level may be external to another.

To illustrate the effect of this, assume that an action at the local level creates ten units of benefit at that level, while causing negative impacts worth eight units at the national level and two at the global level (we will call these negative impacts “externalities”). These externalities may take many forms, such as the loss of species, watersheds, fisheries, or carbon stores. One way for nonlocal society to avoid such impacts is to prevent local people from acting in their own interest, for example by imposing a fortress reserve upon them.

But a fairer alternative might be to pay the local level ten or more units of resources to refrain from the action. This payment might take the form of a rural development project offering alternative benefits. This is the rationale behind many of the integrated conservation-development projects undertaken in recent years, albeit with mixed success (Brandon and Wells 1992; McNeely 1988; Ruitenbeek 1990, 1992; Wells 1992; Wells and Brandon 1993).

Decentralization as a Process

Thus, each level of society has its own interest in how biodiversity resources are used, and payments from one level to another can, in principle, be used to compensate losing parties so that all sides will be satisfied. Decentralization can be seen as a process by which property rights and bargaining powers are redistributed among the levels of society. At least three distinct processes are involved:

1. The educational (or self-discovery) process, by which each group identifies itself, its priorities, and hence its interests. This is the *conscientização* of Freire (1984), which is learning to perceive and act against oppressive elements of reality (which in our view include harmful environmental externalities).
2. The empowerment process, by which each group obtains the bargaining power needed to advance its interests.
3. The process of communication and negotiation, by which the groups agree to the terms of transaction among them. Such transactions represent the exchange of rights and obligations or the payment of

compensation for the impact on one group’s opportunity that is a consequence of another group fulfilling its own interests.

It seems reasonable to facilitate these processes, thus reducing the average transaction cost, which benefits society. One way to do so is to assist the peaceful redistribution of power while simultaneously establishing bargaining mechanisms that are based on the new power structure. In overly centralized societies, this may mean promoting decentralization as one component of a broader reform process. This could involve, for example, giving local groups the authority to manage environments and the corollary authority to tax and spend.

The Contrast of Centralization and Decentralization

Not all functions of government can be decentralized usefully, however (Prud’homme 1994, 1995). Nonlocal groups may be in a better position than local ones to appreciate long-term or large-scale issues and to act as disinterested arbiters of local disputes that cannot be resolved locally. This nonlocal perspective is vital in conservation, the fundamental concern of which is to avoid, and if necessary to manage, conflicts of interest among species, generations, regions, and nations. Therefore, empowerment of local groups should be balanced by a continuing role for central government to deal with market failures and to ensure social equity and environmental protection.

Although local activities occur in the context of national policies, laws, and institutions, they often do so out of sight of the agents of government (Caldecott and Fameso 1991). Local activities can directly affect biodiversity in which the national and global levels of society are now increasingly interested. These higher levels wish to protect viable and representative natural ecosystems, particularly terrestrial ones in the humid tropics, for in these locations reside most of the world’s estimated 10 million–100 million species (UNEP 1995). Tropical species are especially vulnerable to significant and widespread habitat change, such as that brought about by clear-felling, fire, or agriculture. Thus, the best single way to maintain overall global species richness is to create and manage an adequate system of protected areas in the tropics. Other strategies are complementary to this intent. They include off-site techniques such as captive breeding and the conservation of wild populations that are the objective of logging, hunting, fishing, and

other harvesting, to the extent this can be done sustainably.

Given the externalities, certain resource management options may exist for which the net benefit to global society is maximized and through which all actors at various levels can be equitably treated, with appropriate compensation. A complication emerges, however, if people at the local level are unaware of certain values and consequences. For example, they might not fully recognize the value of wild species or the consequences to themselves or the society of changing land use in water catchments. A rational response by the national and local levels would be to invest in education at the local level, either in addition to compensation and other incentives or instead of them. This should reduce the cost of any transfer payments that might still be required, while taking advantage of the fact that education, once paid for, yields continuing benefits without further cost (Haddad and others 1990; Herz and others 1991; Tilak 1989). The high cost-effectiveness of education over the long term helps to explain why educational activities are now so often linked to conservation projects (for example, see GEF 1995).

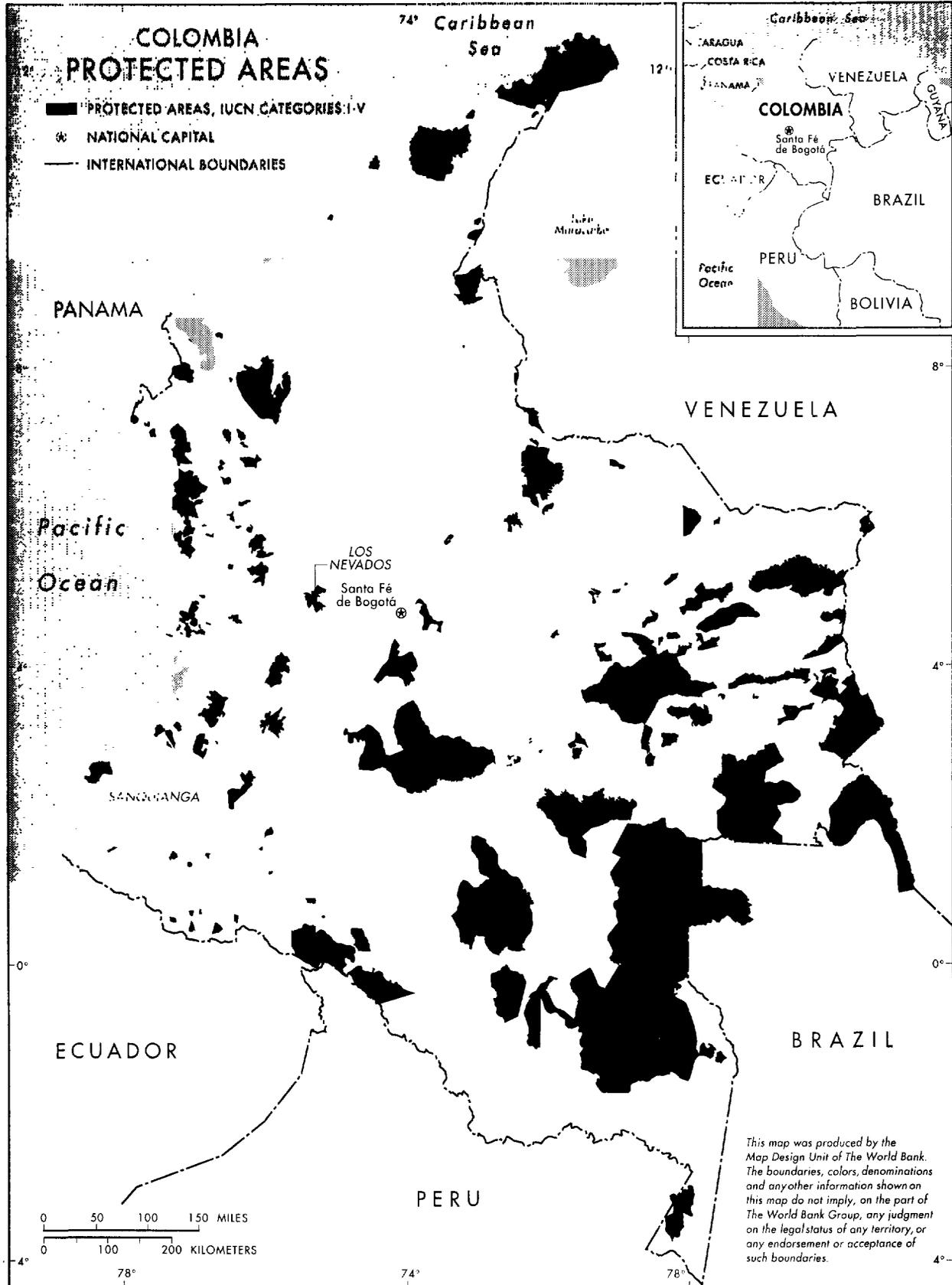
Once conservation is adopted as a policy priority, it creates a special challenge for good governance. This is because conservation is uniquely concerned with managing actual or potential conflicts among the needs of people, plants, and animals, among the needs of different generations of people, and among the needs of widely separated populations of people. The present study intends to explore some implications of entering this new territory. In doing so, the authors have tried to draw insights from field experience. These can help to make sense of the complex interaction among all the factors involved, thereby helping to clarify the relation between decentralization and biodiversity conservation.

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Colombia

Eduardo Uribe

In 1968, the Colombian national government created the National Institute of Natural Renewable Resources (INDERENA), which was linked to the Ministry of Agriculture. This institute was given a mandate to administer, protect, and manage the country's natural resources and more specifically its vast forest lands. The activities of INDERENA were conducted in a centralized manner, and the institutional, organizational, and legal structure under which it operated did not encourage participation by local governments or local communities.

Between 1968 and 1990, eighteen regional environmental authorities were created, using as a model the Tennessee Valley Authority (TVA) in the United States. These authorities, known as autonomous regional corporations (ARCS), had jurisdiction over about 60 percent of Colombian territory. Most were located in the Andean and Caribbean regions of the country, where population density, economic and institutional development, and demand for natural resources were great. These ARCS were active at a regional level, and they developed a relatively decentralized strategy for the management of natural resources. The board of directors of each ARC decided its general direction and priorities, which then were put into effect by a director appointed by the Colombian president.

About half of the financial resources of the ARCS were obtained locally, in the form of environmental taxes and fees. The federal government cofinanced their activities, and its influence over decisions by the ARCS was closely related to the resources transferred to them by the central government. Although local interest groups were allowed to participate to some extent in defining directions and priorities, there were few channels of participation, especially for nongovernmental organizations (NGOs), municipal governments, and communities.

Colombia experienced important legal and institutional changes relating to the environment with the passage of Law 99 in December 1993 (Colombia, Congress 1993b). The country's traditionally centralized systems for natural resources management and for public administration underwent extensive transformation. The law ordered the government to close INDERENA by December 1995 and to create a Ministry of the Environment and a National System for the Environment. The new ministry is responsible for writing national environmental policy and regulations.

The new law transformed the nature of the eighteen existing ARCS and created seventeen new autonomous and sustainable regional development corporations (ASRDCS). These thirty-five ARCS and ASRDCS (or new ARCS) presently function under a decentralized regime. Their assemblies are composed of local mayors, local NGOs, representatives of local communities and Black and Indian minorities, and the private sector. The assembly dictates the general policies, objectives, and priorities of each corporation and elects a board composed of the above actors. In turn, this board selects the director of the corporation.

The Colombian National Park System

The main criteria for declaring an area a unit of the Colombian National Park System are its ecological and biological importance, its biogeographic uniqueness, and the environmental services it provides. The forty-three protected areas of the national park system cover nearly 90,000 square kilometers, or about 9 percent of Colombia. Nevertheless, Colombian biodiversity experts argue that the country's diverse ecosystems are still underrepresented in this apparently large system. The forty-three national parks have different kinds of economic potential, depending on

their environmental and biogeographic nature. Some are valued mainly for their role in protecting endemic species and unique ecosystems, whereas others are valued more for their scenic richness and ecotourism potential. Other parks combine these values.

Some parks are rich in mineral resources or contain land suitable for agriculture and cattle ranching. This has made it hard to restrict their use to those activities that are in harmony with the objectives of the national park system. Conflicts have occurred, and park staff have been threatened and even lost their lives in attempting to limit the use of these lands to activities permitted by law. Such conflicts have defined the need for a more realistic and viable legal framework and for economic incentives to promote resource use that is socially and ecologically sound in some areas. In turn, applying these legal and economic measures is seen to require building and strengthening institutional and technical capacity at the local and community level.

Legal and Institutional Trends

Before the approval of Law 99 in 1993, INDERENA was responsible for the management, administration, and control of the Colombian National Park System. These activities were normally conducted with very little participation by local authorities and communities, even though in many cases those communities had existed in the area for centuries.¹ Conflicts arose frequently between resident traditional communities and INDERENA's officials, who sought to enforce laws that did not take into account the presence of those communities in the parks.

Park management activities by INDERENA were limited in scope, however. One-third of the units of the national park system lacked any institutional presence, largely as a result of their remote location, difficult access, and the presence of guerrillas and drug traffickers.² These factors meant that INDERENA concentrated most of its resources on maintaining tourism infrastructure and on sporadic enforcement and control efforts. Few programs in the national parks were meant for research, environmental education, clarification of land tenure, or ecotourism development.

Participation by local actors, such as NGOs, universities, and the ARCS, was very limited, mainly because of economic constraints and the lack of policy and programs to promote such participation.³ Legal opinion that central government should be the only caretaker of the park system also discouraged participation by these actors. Nevertheless, limited

participation was possible in a few cases because important international and national financial contributions were associated with their involvement.

Thus, prior to Law 99 of 1993, only in a few cases did private organizations and NGOs participate in park administration at the local level. These important cases included Fundación Natura in the Utría National Park, Fundación Pro-Sierra Nevada de Santa Marta in the Sierra Nevada National Park, Fundación Herencia Verde in the buffer zones of Los Nevados National Park, and Fundación Puerto Rastrojo in Cahuinarí.

Despite significant contributions by NGOs to park management, their relation with the Park Division of INDERENA was, according to a recent report, "discontinuous in time and with great fluctuations in intensity," and thus the opportunity to benefit from their support was partly lost. Equally important was the participation of the ARCS in protecting national and regional park areas. Local public and private universities also gained relevant, if limited, experience in developing research projects in these protected areas.⁴

Although various factors prevented greater involvement of these actors prior to Law 99, their positive experience and contributions helped to justify changes in national park management that were introduced by the law. As the number of national parks increased rapidly, the capacity of INDERENA to administer them was exceeded, and local communities and NGOs sought to participate in management decisions and park administration. Their involvement came to be seen as essential to the future of the parks.

With the approval of Law 99 of 1993, the management of the national park system was transferred to the Ministry of the Environment. Under this new legislation, more flexible and decentralized administration and management schemes became possible. Responsibility for national policy on park management and administration belongs to the Ministry of the Environment, which can now delegate the administration of national parks to the ARCS. These corporations can in turn involve NGOs, local communities, and municipal governments in management of these areas. In addition, the ministry should oversee activities and projects conducted in the parks by the ARCS, in coordination and association with local authorities and NGOs.

Under the new legal framework, the involvement of local actors will grow in research, ecotourism, education, and recreation programs and projects in national parks. Local participation probably will be more active in those parks located in the most developed regions of the country. These are the Andean and the Caribbean regions, where the institutional capac-

ity of municipalities, regional governments, and ARCS is greater, and important academic and technical resources exist in local universities and research centers.

Although the reform is new, and more time is needed before conclusions can be drawn, evidence is growing of increased interest in decentralization. Some ARCS, NGOs, local communities, and municipal governments are seeking direct participation in the management and administration of national parks. Creation of decentralized and transparent sources of funding, such as the National Environmental Fund and ECOFONDO (described below), probably will encourage the involvement of these new participants and increase the resources dedicated to the parks.

The involvement of these new local participants in different aspects of park management, administration, research, recreation, and control certainly offers the possibility of complementing the limited action traditionally conducted by the central government. Recently, nineteen of twenty-one park officials who were asked about external collaboration in their areas concluded that this support was positive (Chaves, Andrade, and others 1994).

Land Tenure Rights and Participation of Indigenous Communities

Traditionally, most of the Amazon, Orinoco, and Pacific coast regions of Colombia have been government-owned, and land rights have been denied to indigenous (Black and Indian) communities. When national parks were created in these regions prior to 1993, no provision was made to protect the rights of indigenous communities to inhabit and use the natural resources of their ancestral lands. As a result, their economic activities were often considered illegal, and this caused frequent conflict with the central government.⁵

Logging and mining have been established for centuries in the vast forest areas and national parks of the Amazon, Orinoco, and Pacific coast regions. Some of this is done directly by local residents, but extraction by them is limited compared with the role of medium-to-large companies that are based elsewhere in the country.

Important legislation on the land tenure rights of indigenous communities also has been approved during the last few years. This legislation is particularly relevant for traditional Black and Indian communities of the Pacific coast and for Indian communities of the Amazon and Orinoco regions. The granting of land

titles to Black and Indian communities in these biodiverse areas has both enabled and motivated their involvement in decisions affecting the use of their natural resources. In most cases, these Indian and Black communities are very demanding about the environmental soundness of the technologies used to extract the natural resources on their lands. Consequently, to ensure conservation of these areas, the granting of land rights needs to be complemented with technologies that are environmentally and socially sound.

The new legislation, particularly concerning Black territories, provides important tools to promote involvement of local communities in the development of national parks. There is still room for improvement, however, and a great challenge to the park system is to find creative legal, economic, and institutional ways to achieve harmony between the lifestyles of indigenous peoples and the conservation needs within their traditional territories.

Trends in Financial Resources

Until recently, activities within the units of the national park system were mostly limited to enforcement and control and were traditionally financed by the central government through INDERENA. Participation by other government agencies, by the private sector, and by NGOs generally was prevented by legal barriers and by INDERENA's policies. This situation limited the resources available for national parks to funds transferred by the central government, which by and large were insufficient. On average, the budgets for national parks in recent years have totaled US\$1 million per year. According to INDERENA's Parks Division, total budgets for Colombia's national parks in 1993 were as follows:

- Nine units (47 percent of total park area) had no investment budget.⁶
- Eight units (38.6 percent of total park area) had budgets of US\$0.00–US\$0.25 per hectare.⁷
- Seven units (7.2 percent of total park area) had budgets of US\$0.25–US\$1.50 per hectare.⁸
- Ten units (2.6 percent of total park area) had budgets of US\$1.60–US\$8.33 per hectare.⁹
- Four units had budgets greater than US\$8.33 per hectare.

Investment in personnel and maintenance also has been low. The Park Division of INDERENA had 258 fieldworkers in 1993, many of them nonprofessional

and poorly educated. On average, each person was responsible for administering 34,800 hectares. Revenues generated by the parks also have been small. In 1994, visitors were charged less than US\$1.00 for a day pass, and in 1993 revenues from the twelve parks where entrance fees were collected generated only about US\$383,000.

Compared with these figures, and with transfers by the central government, national NGOs and external donors have mobilized important financial resources. The German government, for example, gave DM2 million (approximately US\$1.5 million) to Fundación Pro-Sierra de Santa Marta for the conservation of the Sierra Nevada National Park. The Nature Conservancy (TNC), the U.S. Agency for International Development (USAID), the World Wide Fund for Nature (WWF), and the Organization of Iberoamerican States have supported Fundación Natura's efforts in the Utría and La Paya national parks. The WWF has helped the work of Fundación Herencia Verde in the buffer zone of Los Nevados National Park. These contributions have complemented scarce government resources. The ARCS also have been supportive, and the ASRDC of Cauca, for example, has completely financed the management of the Farallones de Cali and Las Hermosas national parks.

Resources earmarked by the central government for the national park system are likely to increase substantially because of the creation of the Ministry of the Environment and development of a more flexible law for park administration. Compared with INDERENA, the leadership of the Ministry of the Environment is expected to be more effective in garnering resources for national parks.

The growing interest that recent reforms have generated among NGOs, local governments, and ARCS likely will bring new resources to parks because the regions will have a greater stake in their management. In addition, Law 99 provides new and additional economic resources for environmental management at the regional and local levels. Some of these resources can now be allocated by municipalities and ARCS to the parks in their regions. The level of such support will depend on the degree to which the Ministry of the Environment delegates responsibility for park management to regional and local actors. Potential sources of park funding include the National Fund for the Environment, the National Royalties Fund, land taxes, a fraction (3 percent) of the value of the electricity generated in the region, pollution taxes, and water and timber fees.¹⁰

In the specific case of the National Royalties Fund,

Los Nevados National Park will have approximately US\$1.2 million a year, which is equivalent to previous annual budgets for the entire national park system. The most important source of funding for Colombian NGOs is ECOFONDO, a private organization that manages a trust fund and acts as an umbrella group for hundreds of Colombian NGOs and some ARCS. Its resources flow mainly from the terms of two bilateral debt reductions with the governments of Canada and the United States. As in the case of municipalities and ARCS, the level of ECOFONDO support for national parks will be affected by the degree of NGO participation in national park management that is allowed by the central government.

As mentioned, direct donations or joint projects between Colombian and foreign NGOs have been important for the development of a few but very significant projects in national parks. Most of those projects are oriented toward research and community, and as Colombian NGOs acquire greater institutional capacity in these areas, their ability to access such resources and to engage in technical cooperation will increase.

Rural Development Activities

Before June 1991, environmental concerns were secondary in the decisionmaking process for development projects. Public participation in environment-related issues also was very limited. INDERENA had little capacity to incorporate environmental concerns or to influence decisions by other, more powerful government agencies responsible for large infrastructure projects. As a result, these projects seriously affected national parks, forest reserves, and fragile ecosystems. Before the reforms, more than fifty projects were developed in national parks and their buffer zones, including roads, hydroelectric plants, ports, dams, aqueducts, power lines, and mines. Most were done without environmental impact assessments (Chaves, Andrade, and others 1994).

The construction of a highway through a coastal wetland in the Caribbean region provides one example of an ecological disaster caused by an infrastructure project in a fragile and important ecosystem. The construction destroyed a significant area of Salamanca National Park. Water flow between the mainland and the sea was interrupted, altering the equilibrium between salty and fresh waters. Increased water salinity in this wetland caused the deaths of mangroves on hundreds of hectares and dramatic reduction of the fishery productivity in these waters. Thousands of fishermen were left without means to

support their families. At the time, INDERENA did not have the institutional capacity to impede the construction of the highway or to propose changes in its design. In addition, there were no channels for the affected communities to participate in the decision-making process.

Reforms of 1991

The new constitution approved by a Constitutional Assembly in June 1991, among other things, established the right of all citizens to live in a clean and healthy environment and to participate in decisions affecting it. Under the new constitution and its ensuing legislation (Law 99 of 1993 and Decree 1753 of 1994), development projects such as roads, power plants, pipelines, mines, and irrigation schemes require environmental impact assessments (EIAs). These must be approved by the regional environmental authorities, which may grant an environmental license if the project is considered viable from an environmental point of view. Whenever such a license is issued, an environmental management program must be implemented as part of the development project. If the project affects a national park or its zone of influence, the environmental license can be issued only by the Ministry of the Environment. In the EIA evaluation process, communities have the right to participate through public meetings that must be organized by the environmental authority when requested by a group of citizens.

Although this system of environmental evaluation and of public participation is new, it has been widely accepted. The benefits of this process also have been recognized by NGOs, communities, and environmental authorities, all of which now have a legal and practical tool to ensure that large infrastructure projects integrate environmental concerns and management plans. There have been several important examples of public participation at the local level during EIAs of rural development projects. This participation has helped improve government decisions during the environmental evaluation of projects.

Land Conversion

Guided land-conversion projects were promoted by government as an agrarian reform strategy during the 1960s and early 1970s. The land colonized during those years, mostly in the Amazon and Orinoco regions, had limited possibilities for agricultural production. Thus, productivity in those recently cleared

lands was lower than in other, more fertile regions of the country, and the cost of production was higher.

Today, colonization and deforestation of forest lands are mainly driven by economic forces related to poverty, such as illegal crop production, mining, and timbering. Colonization is also threatening the integrity of several national parks because of the failure of the traditional strategy of policing national parks and forest reserves to prevent their destruction. As noted, the renewed Colombian National Park System faces the challenge of developing a range of creative policies, laws, incentives, and institutional arrangements to resolve these problems in collaboration with rural communities.

Resolving Conflict between Development and Conservation

Colombia has a long tradition of conflict between development and conservation interests. The historical weakness of environmental authorities relative to powerful development agencies, the limited opportunity for participation by interest groups, and centralized decisionmaking together have resulted in most, if not all, of these conflicts being settled in favor of the developers. More often than not, disputes did not even occur because those who defended conservation interests were not heard or understood.

Several new means of public participation now exist in Colombia, and these are expected to help prevent conflict between economic and conservation interests. Most notable are the different mechanisms now available to a wide range of interest groups for participation in decisionmaking bodies. For example, representatives of NGOs, indigenous groups, the private sector, and municipalities all participate in the executive councils of the ARCS, which are responsible for granting or denying environmental licenses to development projects at the local level. At the national level, a National Planning Council now includes an even wider range of interest groups. This council meets every four years to evaluate and propose changes to the National Development Plan and to decide the general direction of national development. Finally, legally constituted public meetings greatly reduce conflict within communities and local interest groups by giving all citizens the opportunity to influence final decisions that affect development projects.

A case that highlights the bright future of public participation in protecting environmental interests occurred in early 1995. This affected the Gorgona National Park, which is an island off the Pacific coast of

Colombia. It was in recovery from prior use as a high-security prison until the mid-1980s, when it was declared a national park. The minister of justice and other national security officials then proposed converting the park back into a prison for the most dangerous criminals of the country. The decision was announced at the cabinet level and approved by the president but was reversed following an immediate public outcry.

Despite these participatory mechanisms, it is always possible that conflict will be generated because interest groups can express their opinion by different means. Legal action can be taken, for example, when a person or group feels that its environmental or constitutional rights have been violated, or when a decision that degrades the environment affects some other constitutional right, such as the right to work or the right to a healthy life. Colombia has experienced several instances of such legal action, and judges have ordered the interruption of rural development projects and the compensation of affected persons and communities.

Colombia has had only brief experience with decentralized and participatory decisionmaking at the national, regional, and community levels. Although short in duration, this experience strongly suggests that the more democratic and transparent new arrangements have great potential to prevent conflicts and to resolve them in a pacific, civil, and effective way.

Summary and Conclusions

In Colombia, the national park system was created under a centralized regime, generally without regard for the social and economic conditions that prevailed in and around the parks. However, the declaration of natural areas as national parks would have been very difficult without the centralized authority of one agency. In that sense, having an established centralized system was important for the formation of the national park system, although new strategies now are needed to manage it effectively.

The most notable difficulties encountered in creating and managing a national park system under a centralized regime include the following:

1. After most parks were created, the traditional economic activities of long-term resident people suddenly became illegal, and these people became violators of park laws.
2. The central government was unable to offer park

residents solutions to their legal problems.

3. The management strategy adopted was based mainly on policing the parks, which created friction and problems between the communities and the central government.
4. The capacity of the central government to administer most parks was very limited, and in many cases the responsible central governmental agency (INDERENA) had no presence in them. Where INDERENA was present, it was mainly concerned with policing the parks, enforcing their regulations, and maintaining the housing and camping infrastructure. Other activities, such as research and ecotourism, were limited by budgetary constraints.
5. Important local human, institutional, and economic resources were available, but they were not used to the benefit and service of the parks because of legal and policy constraints. Participation by NGOs, the private sector, and local and regional environmental authorities was generally discouraged.
6. The lack of participation by local, private, and public agencies and groups undermined local support for the purposes and objectives of the parks.
7. Financing from the central government was limited, and the national park system did not generate its own revenue. Despite these difficulties, however, some important contributions were made by NGOs and ARCS to the management of national parks, and these helped to justify the changes introduced by Law 99 of 1993.

Colombia is undergoing important legal and institutional reform toward greater decentralization in park management. The central government maintains general coordination of the park system and defines park policy and regulations. Under the new law, however, local agencies, both private and public, can, by delegation of the Ministry of the Environment, undertake important activities related to park management and administration. In addition, the granting of land tenure rights to native communities has opened new possibilities for their greater participation in park matters.

Because these reforms are new, it is hard to reach any definitive conclusion regarding the efficacy of decentralized and participatory park management. Nevertheless, certain trends are evident or will probably develop:

1. Discussions about creating new national parks will occur locally. Such consultations will involve the

Ministry of the Environment as well as regional environmental authorities, municipalities, local NGOs, and the communities that inhabit the parks. This probably will make the process of park creation longer and more difficult, but many of the negative consequences of the centralized system should be avoided.

2. New human, institutional, and economic resources available at the local level, particularly in the most developed regions of the country, will be put to the service of national parks, and revenues are likely to increase.
3. With the participation of new local agencies, private and public, park management strategies no longer will be based only on enforcement and policing. Instead, they will be complemented with environmental education, ecotourism, and research. As local interest groups recognize that they have a stake in park management, their interest and participation will grow.
4. Resident communities within the parks will tend to participate more actively in park protection because they will be involved in developing realistic solutions to their production problems.
5. The new law requiring an EIA for a project that may affect a national park will complement the new mechanisms for public participation, and both will act together in preventing and mitigating negative impacts of development projects.
6. The capacity of environmental authorities to influence the decisions of other public and private development agencies has grown, and potential conflict between development and conservation interests now has more equitable and participatory channels of resolution.
7. Because regional NGOs and local authorities have an increased role and stake in decisionmaking, their participation and financial commitment will grow.

Case Studies in Colombia

Colombian laws on the use of resources inside national parks are very strict. All economic activities other than those for subsistence are illegal throughout the 90,000 square kilometers, or 9 percent of the country. Because of the high standard and large area, Colombia's national parks are very difficult to protect. Those few cases in which no challenge to legal protection occurs are in parks such as Chiribiquete, which is accessible only by helicopter.

Most parks are inhabited by traditional indigenous, Black, and farmer communities or are under constant colonization pressure. Several national parks have become operation centers for guerrilla groups. In many parks, illegal crop cultivation is common. These difficulties often make the very rigid park laws unenforceable.

The recent constitutional and legal changes described in this chapter have opened new possibilities for strengthening the national park system. Three cases are described here: the national parks and forest areas in the Pacific coast region, where the Constitution of 1991 granted land rights to Black communities; Los Nevados National Park, where municipalities and ASRDCs are participating in decisionmaking and in administration of the park; and the National Network of Private Natural Reserves.

Black Communities and the National Parks

The Pacific coast of Colombia is considered one of the most biodiverse regions of the world. Several centuries ago, groups of Black people fled from slavery and settled the alluvial valleys of the numerous rivers that drain this vast region. These communities have lived in isolation ever since. The territories they inhabit were government lands, and residents had no property rights over them. The lack of clearly defined property rights in this region contributed to its ecological deterioration. Mining, logging, and fishing were conducted without institutional or social control. The population did not have the legal tools to defend the territories they occupied from intrusion and pillaging. Such activity, in addition to the absence of environmental authority and open access to these resources, caused serious social and environmental damage.

The Constitution of 1991 granted collective land tenure rights to the Black communities in forested areas of the Pacific coast. Later, the Colombian president established a national commission that included representatives of these communities and the government. This commission drafted a bill for submission to the Congress, in which additional rights were granted to the 200,000 rural inhabitants of these areas. It was approved by the Congress in 1993 and became the historic Law of the Black People. The legislation granted Black communities new rights regarding sustainable use of natural resources in more than 75,000 square kilometers (6.2 percent of Colombian territory). It also granted them participation in planning bodies and forums at the national, regional, and local

levels. It further ensured the participation of those communities in EIAs for projects that might affect their interests.

This new legal instrument, the Law of the Black People, will foster very important changes. But much work needs to be done before the new rights are fully assumed and the measures fully implemented. Although new legal instruments will be needed to define more clearly the rights of Black communities and their involvement in conservation strategies, a marked change already has occurred in how government agencies seek and promote their participation. The Black communities now are represented in the National Congress, as stipulated in the Law of the Black People.

Through public meetings, Black communities have actively participated in defining the content of EIAs for large rural development and infrastructure projects and in evaluating EIAs. Construction of the Pereira-Nuqui highway was stopped, for example, because local Black and Indian communities felt that their traditional productive and social systems would be endangered by a road that would have connected the central Andean region with the Pacific coast.

An interesting process of public participation is taking place in the Sanquianga National Park of the Pacific coast. This is a relatively small park (800 square kilometers) with a population of about 5,000 people. The main economic activity of the park's Black communities is logging. In this area, the United Nations Development Programme (UNDP) has been working jointly with Black communities. An ASRDC has been established to propose sustainable economic alternatives for the use of the park's forest resources. Since the approval of the Law of the Black People, these communities have demanded greater participation in the design of management strategies for the park. In addition, the Colombian government will soon begin a conservation project in the area, using a World Bank loan. It is expected that the participation of Black communities and regional authorities in the development of the project will be very significant.

Regional Environmental Authorities and National Parks

Los Nevados National Park is located in the central region of the Colombian Andes.¹¹ It is about 380 square kilometers in extent and contains cloud forests, called *páramos*, and snow-covered peaks. The park safeguards water resources for several cities and for the largest and most productive coffee-producing area

of the country. The coffee economy has made this region one of Colombia's most prosperous, and its social indicators as well as the institutional capacity of its environmental authorities and the municipal and regional governments are well above the national average. Los Nevados National Park is culturally important to the people of the coffee zone, and most farmers recognize its importance in safeguarding their future coffee production. Like most Colombian parks, it has experienced colonization pressures, and these are still very damaging to its resources, although they have declined in intensity.

The weakness of INDERENA in managing this park contrasted with the financial, technical, and institutional capacity of the local environmental and governmental authorities in the region. The people of the region began to demand greater conservation efforts in the park. In the period 1990–95, even before Law 99 of 1993 was approved, local authorities began to develop management strategies for conservation of the area, and the local ARCS began to implement projects in its buffer zones. These activities included environmental education, ecotourism, and biological research. As a result, a committee was created to design and implement a management plan for the park, with the participation of representatives of INDERENA and the ARCS of the region.

This case is a good example of the positive implications of allowing regional environmental authorities to participate in the management of national parks. Regional environmental authorities have greater stakes in the management of their parks and are therefore willing to invest greater resources and efforts. The benefits are particularly evident when the park is strongly appreciated by the people of the region and when the local institutional, technical, and financial capacity is greater than that of the central government.

National Network of Private Natural Reserves

Colombia is a biologically and ecologically diverse country,¹² and it would not be realistic to pretend that the government could keep all this richness under its control. In fact, most Colombian territory is under some form of private tenure. It is therefore important that the owners of lands containing valuable biological and ecosystem resources protect and conserve them as part of the nation's patrimony.

When Law 99 of 1993 was being discussed in the Congress, a group of citizens managed to include in the law a series of articles that created the National Network of Private Natural Reserves. The objective of

this network was to facilitate the conservation of important ecosystems that are in private hands and to promote development of sustainable practices in those areas. According to this legislation, an area can become a private natural reserve and a member of the network if it preserves an ecosystem, or if that ecosystem is used sustainably.

This legislation defines special mechanisms for the defense of the private reserves that make up the network. A development project that affects a private reserve can be conducted only with the approval of its owner, and under the conditions negotiated with the owner. In addition, the government must create mechanisms to facilitate development of the network. Among these mechanisms, the government should design economic incentives to stimulate the growth of the network. Presently, the network functions with small donations by its members, and ECOFONDO also has given some financial support.

Although the National Network of Private Natural Reserves is very new, it has grown rapidly. It comprises about forty private reserves, which are well distributed across Colombia. The preserves range from less than 1 hectare to 2,300 hectares. Their owners are farmers, small and large, and most depend economically on their reserves. Many are poor and have experienced the economic impact of deteriorating soil, water, and forests. Most of the large farms in the network contain a significant area of forest ecosystem. The adoption of sustainable practices for the use of natural resources is important, as is the development of incentives to preserve the ecosystems.

The network is coordinated by an NGO that promotes the association of new reserves, conducts environmental education projects, facilitates the transfer of environmentally sound technologies to its members, and proposes legal and institutional changes to the government. So far, the Colombian government has not actively promoted or supported the network.

The National Network of Private Natural Reserves represents a viable strategy for the conservation of biological and ecosystem resources, and it is a sound complement to the national park system. The promotion of private reserves in buffer zones of national parks certainly offers a realistic option in efforts to conserve those areas with the active participation and involvement of private owners.

Notes

1. The parks with the most significant occupation problems are Sierra Nevada de Santa Marta, La Macarena, La Paya,

Salamanca, Sanquianga, El Cocuy, Paramillo, Orquideas, Sumapaz, Picachos, and Farallones de Cali. Some 86 percent of the parks have severe occupation problems, and approximately 8.68 percent of the national park system, or 700,000 hectares, is occupied by private owners (Castaño 1991).

2. Thirteen parks, representing 35 percent of the whole park system, had no field personnel in 1993. Two parks covering 10 percent of the area had one person responsible for over 100,000 hectares. Another 35 percent of the park system had one person administering between 50 and 99,000 hectares (Chaves, Andrade, and others 1994).

3. Fundación Puerto Rastrojo participated in Chiribiquete and Cahuinarí; Fundación Natura collaborated with USAID and The Nature Conservancy in Utría, Chingaza, and La Paya; and Fundación Pro-Sierra Nevada de Santa Marta participated in Sierra Nevada de Santa Marta.

4. The National University, the University of Los Andes, University of Nariño, IDEADE-Javeriana, Universidad del Valle, and Universidad de Antioquia have participated in research in several national parks (Chaves, Andrade, and others 1994).

5. The Cahuinarí, Macuira, and Catatumbo-Bari national parks share 50–100 percent of their lands with indigenous reserves. The Sierra Nevada de Santa Marta, Utría, Los Flamenkos, Nukak, and Puinawai national parks share 10–49 percent of their areas with indigenous reserves (Chaves, Andrade, and others 1994).

6. The units include Picachos, Tinigua, Sumapaz, Catatumbo-Bari, Chiribiquete, Nukak, and Puinawai.

7. The units include La Paya, La Macarena, El Cocuy, Paramillo, Cahuinarí, and Tuparro.

8. The units include Santuarios and most Andean parks.

9. The units include Corota, Estoraques and Iguaque, PNN Tayrona.

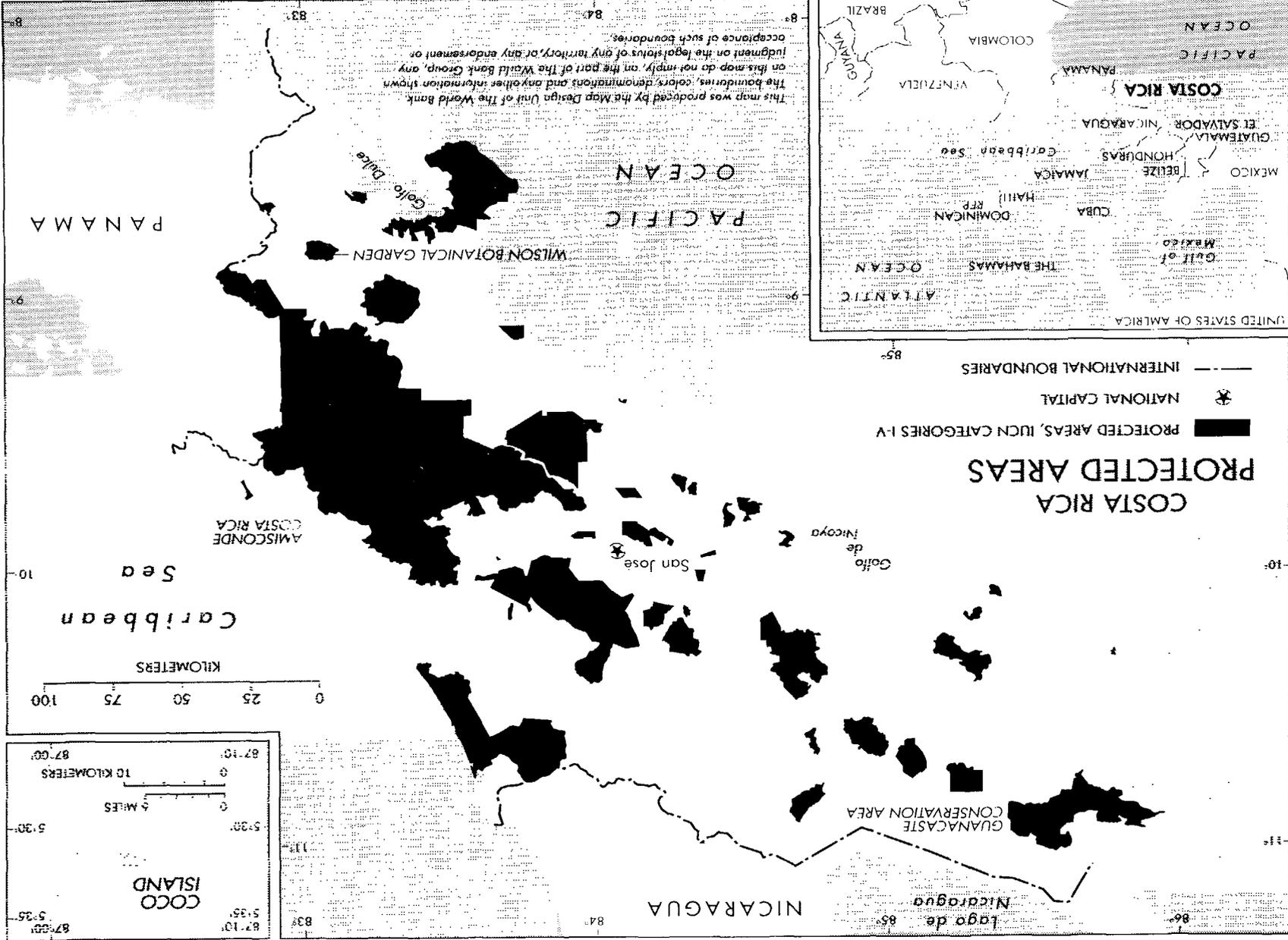
10. To access the first two funds (National Fund for the Environment and the National Royalties Fund), local governments and authorities must propose specific projects to an evaluating body that administers these funds at the central government level. The four other funding sources (land taxes, 3 percent of the electricity value generated in the region, pollution taxes, and water and timber fees) can be autonomously administered and guided by the ARCS and local governments.

11. Additional information regarding regional environmental authorities and national parks can be obtained from Carlos Castaño and Antonio Villa, Ministerio del Medio Ambiente, Unidad de Parques Nacionales, Calle 16, No. 6-66 piso 30, Bogotá, Colombia, telephone: ++ (57-1) 3361166.

12. Additional information regarding the National Network of Private Natural Reserves can be obtained from Juan Carlos Riascos and Amparo Casasfranco, Fundación Herencia Verde, Calle 4 Oeste, No. 3A-32, Cali, Colombia, telephone: ++ (57-1-928) 808484.

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Costa Rica

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Costa Rica is located in Central America, between Nicaragua and Panamá, and is home to about 3 million inhabitants, most of whom live in the Valle Central around the capital, San José. The economy is based on plantations, cattle ranches, tourism, and light industry, and most of the country's 51,000 square kilometers are privately owned. The government has little power to regulate use of private land, so landowners have largely been free to invest in agriculture and ranching in forest areas. The result has been that Costa Rica had one of the world's highest sustained rates of deforestation during the 1970s and 1980s (Repetto 1991). This devastating process convinced local conservationists that virtually all private lands were destined to be cleared of natural habitats and that if most of the country's wild species were to survive, they would have to do so in nature reserves under public ownership (Gámez and others 1993).

Thus, the strategic challenge was to secure viable and representative samples of all of the country's natural habitats within reserves owned by the government and managed in the public interest. To achieve this, several problems had to be overcome. Although nearly a quarter of Costa Rica's land area had been acquired by the government over the previous forty years, the various protected wildlands were being administered as different kinds of reserves and by a number of different agencies. The main legislation was the Forestry Law, but this placed the National Parks Service in charge of National Parks and Biological Reserves, the Forestry Directorate in charge of Forest Reserves and Protection Zones, and the Wildlife Service in charge of Wildlife Refuges. All were under the authority of the Ministry of Natural Resources, Energy, and Mines (Ministerio de Recursos Naturales, Energía, y Minas, MIRENEM),¹ but the For-

estry Law tended to prevent them from being managed in a coordinated way. Other categories of land, such as indigenous people's reserves, also were potentially important for conservation, but they remained under the control of other agencies.

The national reserve system was thus in urgent need of being consolidated and rationalized. This might have meant increasing central control, but two particular constraints, one political and the other financial, prevented this from happening. First, Costa Rica has a relatively egalitarian distribution of wealth and well-established democratic institutions and processes, and much of the electorate is distrustful of excessive concentrations of power. Second, by the late 1980s Costa Rica was deeply in debt, and the political consensus favored reducing, rather than increasing, the size of government and the public sector wage bill. Proposals to create a new centralized bureaucracy to run the reserve system were therefore unlikely to be welcomed by the nation's decision-makers, electorate, or creditors.

Another factor was that, even if the administration of the reserve system could be streamlined, the reserves themselves would not adequately preserve biodiversity and offer ecological services (Janzen 1991b). Many of them were too small, and others had vulnerable private lands interposed between areas of protected natural habitat. To solve this problem, the government would have to acquire more land, but it was legally unable to expropriate private land without paying full market value for it. This meant, in effect, that conservationists were encouraging the government to buy land at a time when the national treasury was already stressed by its high level of external debt.

The result of this would have been inaction, had there not existed a strong conservation lobby in the

country. In the 1980s, however, certain Costa Rican biologists moved into positions from which they could guide government into improving the national reserve system. An early effect of this was to create a government-endorsed nongovernmental organization (NGO), the National Parks Foundation (Fundación de Parques Nacionales, FPN). Its role was to support an international fund-raising campaign for Costa Rica's reserves and to buy land on behalf of the government. From 1987 onward, the FPN also facilitated a series of debt-for-nature swaps, by which conservation groups bought Costa Rican debt at a discount on the international secondary market. This debt paper was then donated back to the Central Bank in return for monetary stabilization bonds. The interest on these bonds was used to finance conservation projects (WCMC 1992).

This arrangement required influential assistance at high levels in government, and the role of the conservation lobby became particularly important in 1986–90, when the National Liberation Party (Partido de Liberación Nacional, PLN) held both the presidency and a majority in the Legislative Assembly. In this period, there was a growing realization that solving the structural problems of the country's reserve system would require a more complete effort than had previously been contemplated. A National Biodiversity Planning Commission therefore was appointed by presidential decree on 5 June 1989. The commission had nine members, representing three ministries, the National Museum, two universities, the National Scientific Research Council, and two NGOs (Gámez and others 1993). The commission's role was to design a comprehensive conservation strategy in Costa Rica.

Strategic Planning

The National Biodiversity Planning Commission assumed that biodiversity was intellectually, economically, and spiritually valuable and should therefore be preserved and used for the public benefit (D. H. Janzen, personal communication, February 1992; R. Gámez, personal communication, March 1993). Biodiversity was to be preserved mainly in the wild, by maintaining large blocks of natural forest under public ownership. From the government's previous experience in acquiring and managing land for conservation, however, the commission realized that protecting natural forests would be expensive, in financial terms, regardless of its economic justification. Conservation thus would generate a need both for capital and for secure recurrent financing.

The commission also realized that forest protection would in the end be unsuccessful unless people living around protected areas were willing to comply with their protected status. Thus, the permanence of boundaries between protected and unprotected land ultimately would depend on the public valuing the benefits of public lands being retained under natural forests. It was assumed that there would always be an incentive for land-hungry individuals or groups to seek access to "unused" public land and that this would need to be countered by a clear and durable social consensus in favor of maintaining natural forests. Over time, it was hoped that education would sustain this consensus by helping people to appreciate the economic, intellectual, and aesthetic values of forests and biodiversity. Meanwhile, however, there would be a need to find ways for intact forests to generate financial reward for people who have influence over the future of each forest area.

The commission therefore considered it important for people living around protected areas to receive education about biodiversity, as well as direct benefits, such as employment and income, from conserving natural resources. The commission felt that the government and local communities both had a claim on revenues generated by protected areas. Government claims would arise because of public investment in protection and issues of national patrimony, whereas community claims would arise because of the need to support the security of those investments. The commission therefore sought ways for each of Costa Rica's reserves to yield sustainable revenues that could be used to reward everyone involved and to help to protect the reserves.

Consequently, the commission proposed new legislation by which to consolidate a national system of conservation areas (Sistema Nacional de Areas de Conservación, SINAC). These areas were to be assembled from existing reserves, each with the aim of preserving biodiversity. A central agency was to coordinate and assist them (initially the Servicio de Parques Nacionales, SPN). Actual managerial authority, however, was to be decentralized and devolved to each conservation area, thus helping it to be seen as a local asset rather than as a project of the central government.

To help pay for the administration of SINAC and its various reserves, the commission recommended a national biodiversity inventory. The inventory's mission was to discover exactly what comprised Costa Rican biodiversity and to identify any potential intellectual, economic, and spiritual uses of this biodiversity that might be reintegrated into natural resource conserva-

tion initiatives. The commission also proposed the creation of a National Biodiversity Institute (Instituto Nacional de Biodiversidad, INBio) to manage the inventory in the public interest.

The commission was created by a PLN president and government, but that administration was displaced in February 1990 by the more conservative Christian Social Unity Party (Partido de Unidad Social Cristiana, PUSC). This change delayed the implementation of some of the commission's recommendations, given that the new government was less sympathetic to the idea of decentralization than its predecessor. Although INBio came into being before the changeover, and legislation to create SINAC was approved unanimously at the committee stage, the new law was not passed by a full vote of the Legislative Assembly (R. Gámez, personal communication, October 1993). This delayed the transfer of authority from San José to the conservation areas themselves. The election of February 1994, however, returned PLN to power, with a mandate to renew the process of constituting SINAC more or less as envisioned by the commission.

The Conservation Area System

The main components of SINAC are based on the country's existing reserves, which comprise the eight areas known as Amistad,² Arenal, Cordillera Volcánica Central, Guanacaste, Osa, Pacífico Central, Tempisque, and Tortuguero. Because of the changes in government during 1989–94, the effect of applying the SINAC concept has been patchy and confused. The aim of SINAC legislation was to consolidate the various kinds of protected wildland in each location and to manage each as an ecological unit. Economic links between each area and the people living around it were to be made stronger, and those people were to be actively involved in the area's management. To ensure local participation and the local capture of economic benefits, responsibility for managing reserve budgets and staff was to be devolved from the national capital to the areas themselves.

Despite the delay in passing new legislation, the SINAC concept has been applied throughout the country, but it has been applied with particular effect in the Guanacaste Conservation Area (GCA). This area lies inland from the northern Pacific coast and is the best known and most financially stable conservation area in Costa Rica, with a large endowment fund and a well-developed local administration (see the case studies at the end of the chapter). Because of its financial security and international prominence, the GCA

has been able to manage its development largely independently of the central government. Contrasting examples can be found elsewhere, however, where uncertainty over legislation and political leadership have had a more detrimental effect.

The Brunca region, for instance, covers 9,500 square kilometers in the south of the country, lying inland from the Pacific coast up to the continental divide and between southern San José Province and the Panamá frontier. The area is sparsely populated and relatively poor and is dominated inland by the Cordillera de Talamanca. This mountain range has seventeen peaks of 2,600 meters or higher and lies mostly within La Amistad International Park, extending over Costa Rica's southern border into Panamá. The Amistad Conservation Area, according to the SINAC concept, comprises the Tapantí, Chirripó, and Cahuita national parks, La Amistad International Park, and the Hitoy Cerere Biological Reserve. The southern borders of Amistad are the sites of the Amisconde (Amistad) Conservation and Development Project and the Wilson Botanical Garden (see the case studies at the end of the chapter). As a component of SINAC, Amistad also includes several indigenous people's reserves, forest reserves, and protected zones.

The southern part of the Brunca region is dominated by the Golfo Dulce and the Peninsula de Osa, around which are the intact forests of the Corcovado National Park and various forest reserves and indigenous people's reserves, including the mangroves of the Valle de Diquis and the Golfito Wildlife Refuge. The Osa Conservation Area will, under the SINAC law, cover most of the Osa Peninsula and the lands surrounding the upper Golfo Dulce. The Brunca region therefore extends from one extremely important area for biodiversity (the cordillera) to another (the gulf and peninsula) and includes a wide variety of lands and human settlements in between.

Neither the Amistad nor the Osa conservation area had well-established local institutions in late 1993, and both were short of resources (Caldecott 1993). The embryo of SINAC-style management existed at Amistad, because its environmental education program was developed locally, with the SPN in San José merely being kept advised through annual work plans (C. Fernández, personal communication, October 1993). Some support had been provided to Amistad by the MacArthur Foundation and the Swedish government, and other funds had been allocated to Amistad and Osa through the Global Environment Facility. In all cases, these allocations were made on the assumption that SINAC legislation would be passed by the Legislative Assembly.

By late 1993, the legal position of conservation in Costa Rica was uncertain because several conservation areas had followed the SINAC model in localizing administrative and financial arrangements. Some had also received external assistance, conditional on a new law that had not yet been passed. Fortunately, these anomalies seem likely to be resolved because bipartisan policy support for the SINAC law was restored after the change of government early in 1994. The new administration has made it clear that priority will be given to biodiversity management and ecotourism (Burnie 1994; A. M. Piza, personal communication, April 1994).

The National Biodiversity Institute

Costa Rica lies in a region where North American communities of plants and animals meet and overlap with those of South America (Janzen 1983). The topography, geology, and climate are diverse, and the many different habitats range from evergreen rain forests on the Caribbean side of the country to dry seasonal forests on the Pacific side. Costa Rica is therefore very rich in wild species, with up to 13,000 higher plants, 10,000 fungi, 205 mammals, 848 birds, 384 reptiles and amphibians, 130 freshwater fishes, and 1,400 marine fishes (WCMC 1992; Gámez and others 1993; TWIG 1994). Most of the invertebrate fauna is poorly known, but there are thought to be more than 360,000 species of arthropods and 85,000 other invertebrates (Janzen 1991a; MIRENEM, MNCR, and INBio 1992), bringing the national total close to nearly half a million species.

The National Biodiversity Institute was established to facilitate efforts to learn about these native species, to catalog them, and to find new uses that would support their conservation. INBio was established on 24 October 1989 as a private, nonprofit, public-interest organization dedicated to integrating all levels of society into the conservation effort (Gámez and others 1993). INBio also can be considered a tool for providing essential data related to biodiversity formatted for individuals or institutions (Janzen 1991a; Gámez 1991a, 1991b; Sandlund 1991; Gámez and others 1993).

INBio has four divisions, which are responsible for different aspects of its task:

1. The Inventory Division intends to discover and document taxonomically all the species occurring in Costa Rica's conservation areas to discover what these species are and where they can be found. A sample of each species is collected, prepared, stored, described, and identified. Records are kept on their location,

distribution, natural history, ecology, morphology, behavior, phenology, and genetic variation.

2. The Information Management Division manages the enormous quantity of data being generated by the inventory, as well as other sources, in a way that provides for the needs of potential users.
3. The Biodiversity Prospecting Division works with research centers, academia, and private industry to identify materials that have commercial potential and to assist in their development.
4. The Information Dissemination Division addresses intellectual uses of biodiversity. It provides information to all sectors requiring information, including education, science, conservation, national and international policymakers, the Costa Rican government, and tourism.

By late 1995, INBio was well established at a rapidly growing facility in Heredia, north of San José, and was running thirty-two biodiversity offices scattered throughout the country's conservation areas. These field sites are the outposts of the national biodiversity inventory and were yielding about 900,000 specimens each year for processing at INBio. In the early years of the inventory, there was a strong emphasis on plants and insects, reflecting both the availability of local expertise and the extent of missing knowledge. About 80 percent of the national flora and 18 percent of the insect fauna were estimated to have been assigned taxonomic names. In 1994, INBio expanded into a third group, mollusks, and now houses about 20,000 specimens in its collection.

The biodiversity inventory has a role in conservation that goes far beyond a purely scientific exercise. This is because INBio encourages local people living in the communities surrounding nature reserves to participate fully in the inventory program. Interested and highly motivated individuals from rural areas are selected, trained, and employed as "parataxonomists" to undertake the initial collection, preparation, and processing of the specimens that are sent to INBio for identification and final analysis (Janzen and others 1993b). All of the current roll of forty-one parataxonomists live and work in the area where they were recruited, and they play an important role in communicating their special knowledge and enthusiasm to the rural people around their homes. In this way, parataxonomists assume a role of leadership, teaching nearby communities about the natural world that surrounds them and encouraging their support for conservation activities.

The original reason for recruiting parataxonomists

was not related to biodiversity education, although this has proved to be a very welcome benefit of the program. Rather, using lay collectors was a pragmatic means of responding to human and financial resource deficiencies. INBio estimated that employing only professional taxonomists available in Costa Rica to take on the monumental task of inventorying 500,000 species would simply take too long. It was thought that parataxonomists could save valuable time and funding and would speed up the process in the end.

These collectors have indeed saved expert staff time, and the inventory has proceeded rapidly, with several million specimens already having accumulated at INBio. Specimens collected by parataxonomists are labeled, prepared, and identified at the family or subfamily level by technicians. Curators working for INBio take over the identification from that point. When necessary, they draw on the expertise of national and international specialists who visit INBio out of personal interest, often using independent financing.

INBio's activities are significant for Costa Rica's nature reserves in a number of ways. The inventory is the first concerted initiative to conduct a full geographic and year-round cataloging, using locally designed methods geared to meet the inventory needs of INBio and Costa Rica and involving the development of links between the inventory and other essential activities of biodiversity conservation. For example, the inventory is designed to work closely with information dissemination programs and to support prospecting activities that depend on taxonomic information. Although inventory collectors and collections remain separate from any biodiversity prospecting research, the taxonomic data are essential to these other activities.

By coming to know what and where biodiversity exists in Costa Rica, society can begin to value what the country's nature reserves contain and safeguard them. The inventory process provides the stepping-stone that will allow this tropical developing country to find new ways to preserve biodiversity through sustainable use.

Finding new intellectual, economic, and other uses for biodiversity is INBio's primary aim, but the institute also seeks to ensure that these uses will help support conservation efforts, rather than undermine them. For economic uses, INBio intends to ensure that all biodiversity prospecting research occurs under legal contracts that guarantee local return on commercial development (Janzen and others 1993a). To do this, INBio enters into research collaborations that

fulfill three primary objectives: (a) to generate returns for conservation, (b) to advance the transfer of technologies for the benefit of Costa Rica as a whole, and (c) to provide support for the other parts of the institute (Barbier and Aylward 1992; Laird 1993; Sittenfeld and Gámez 1993; Coghlan 1994). Research agreements are tailored to each circumstance and generally include a research budget (of which 10 percent will go directly to the country's conservation areas), training opportunities for Costa Rican scientists, equipment transfer, and royalties on any forthcoming products (to be shared equally by INBio and MIRENEM).

Intellectual uses of biodiversity are also vital, because information can influence public opinion to support conservation initiatives. Thus, the management of biodiversity data is central to INBio's role, making it important to design a data base to accommodate the needs of a variety of intellectual users. By 1992, INBio had defined the needs of its users clearly enough to start developing a system able to manage very large amounts of data in separate but interactive fields. These data are alphanumeric (specimens, species, and literature), graphical (pictorial), and geographic (mapped) in separate but interactive fields.

An agreement with the Intergraph Corporation allowed INBio to obtain a powerful ORACLE-UNIX system and to collaborate in developing the software with which to run it effectively (Gámez and others 1993). This system, officially inaugurated in May 1995, is intended to meet the needs of users ranging from scientists to government planners and from schoolchildren to private businesses.

Conclusions

The activities of INBio first captured international attention in 1991, with prominent articles in the technical literature (Gámez 1991a, 1991b; Janzen 1991a; Sandlund 1991), in popular science journals (Aldhous 1991; Joyce 1991; Wille 1991), and in newspapers (Lyons 1991). The immediate focus was on INBio and Costa Rica's ambitious plan to undertake a complete inventory of Costa Rican biodiversity. But the activities had extra impact because the world's governments were beginning to negotiate the Convention on Biological Diversity.

Global interest prompted international contacts, which helped to spread the ideas on which both INBio and SINAC were founded. This led to collaboration agreements such as those signed between INBio and the Indonesian Institute of Sciences in 1992 and the University of the Philippines at Los Baños in 1993

(Caldecott 1996). The need to service such agreements has helped to identify a weakness in most official assistance programs, which is that few funds are available to promote direct linkage and mutual aid between institutions in tropical developing countries.

The inventory and the prospecting contracts managed by INBio are only two aspects of the institute, and the institute itself is only one feature of a much more comprehensive national response to conservation issues in Costa Rica. This process involves general reform and rationalization of Costa Rica's nature reserves, decentralization and devolution of management authority to local people and local entities, and the exploration of new methods to finance and otherwise support conservation sustainably. These other aspects were obscured by a delay in the growth of a political consensus in the country. Paradoxically, this delay may have been helpful in providing an opportunity to rethink the recommendations of the Biodiversity Planning Commission before they were implemented, which may have further strengthened the process as a whole.

Case Studies in Costa Rica

The following case studies present some successful examples of decentralized conservation in Costa Rica: the Guanacaste Conservation Area, the Amistad Conservation and Development (Amisconde) Project, and the Wilson Botanical Garden.

The Guanacaste Conservation Area

Beginning as the Guanacaste National Park Project in 1986, the Guanacaste Conservation Area was consolidated in 1989 from three national parks, a forest experiment station, a recreation area, and private lands. It now comprises about 1,100 square kilometers of dry forest stretching inland from the northern Pacific coast (Janzen 1983, 1986, 1988a, 1988b, 1991b). An endowment fund was established for the area, and by 1992 this had reached about US\$12 million. The conservation area's policy calls for the annual yield of this endowment to stabilize in real terms at a level consistently equal to, or greater than, the area's annual budget (D. H. Janzen, personal communication, February 1992). This budget supports the following management programs: fire control, security, sector supervision, biological education, extension, research, ecotourism, and ecological restoration (S. Marin, personal communication, March 1993).

The GCA had 104 employees in 1995, most of whom were indigenous to the environs; 40 were women. The

area includes four research stations where some of INBio's parataxonomists are based and where extensive biodiversity research is conducted. Plans exist to undertake a pioneering "All-taxa biodiversity inventory" to document every life-form in the reserve and to link local conservation action with global carbon sequestration benefits (Langreth 1994; Rodríguez and Gámez 1994; GCA 1995).

The GCA's management programs and staff are all administered locally and relate to a central directorate, which is divided into subdirectorates for operations and management and for ecodevelopment. All are supported by a single office of accounting and personnel, directly reporting to the director. A program chief is responsible for each management program, each of which is designed according to clear budget ceilings. Because of their long-term budgetary significance, new staff appointments within any one program require the approval of all eight program chiefs and the directorate, the heads of which make up the Technical Committee. This is one of three committees that support the director in the administration of the GCA. The others are the Research and Alterations Committee and the Regional Committee.

The Regional Committee is the main guarantor of local control of the GCA. In late 1993, it was comprised of thirty-five individuals who represented forty-seven local institutions, communities, and corporations and who elected an eleven-member board of directors. All members of the committee are *guanacastecos*, people local to the area, but none is employed by or has any direct connection with the GCA itself. Collectively, they have the authority to approve the GCA's annual work plan before it is submitted to MIRENEM in San José as well as to hire or fire the director. The committee is deliberately kept closely involved in decisions affecting the conservation area and is able to veto proposals by other groups where these are considered likely to have an unacceptable impact.

The Guanacaste Conservation Area is an important model of local management, sustainable cost recovery, and conflict resolution. It further demonstrates several principles, although not without some degree of controversy. By late 1993, the GCA administration had gone far beyond existing law and was, in effect, waiting for the law to catch up to it. There were also reservations in some quarters about increasing the influence of local NGOs, about the loss of central authority implied by decentralization, and about the relative success of the GCA in obtaining financial resources. There was an opinion that such resources should be spread more evenly through the national

conservation system and that the central government should retain the power to ensure that this was done. These concerns were not realistic, however, because the GCA raised its own funds, paid all of its own costs, and was operated on the premise that the local population should determine the allocation of conservation resources to the conservation area under its own custody (D. H. Janzen, personal communication, June 1995). In any case, by late 1995 the GCA was a significant net contributor to SINAC as a whole.

The Amisconde Project

The Amistad Conservation and Development (Amisconde) Project is located on the Pacific slope of the Cordillera de Talamanca. Its headquarters are at the small village of San Jerónimo de Unión, at about 1,200 meters elevation. The view from there in late 1993 exemplified some of the problems that the Amisconde project seeks to address. Visible in the distance, steep to very steep lands had tree cover only close to the ridge crests and showed signs of fire damage within the boundaries of Chirripó National Park. Although few areas of active soil erosion were apparent, there had been widespread clearance of forests on steep land where they had been replaced by rough pasture grazed by cattle and horses. Wherever the slope and residual fertility made it feasible, land had been planted with coffee or, closer to the village, with annual food crops. Pressure on the surviving natural forest was being maintained mainly by fire incidental to pasture maintenance.

The Amisconde project was conceived in 1991 by individuals associated with Conservation International (a U.S.-based NGO) and the Tropical Science Centre in San José (J. Calvo and M. Ramírez, personal communication, October 1993). By late 1993, funding had been secured from McDonald's Corporation. The project covered San Jerónimo and three nearby settlements in Costa Rica and was also active near Cerro Punta in Panamá, again close to the Pacific side of La Amistad International Park. The project responds to environmental degradation on steep lands around San Jerónimo by promoting agricultural reform, tree planting, soil conservation, and the prevention of forest fires. It works with the local Agricultural Producers' Association, with youth groups on community development, and with women's groups on forestry.

The agriculture program seeks to diversify cropping systems by adding fruit trees, rehabilitating degraded cattle pastures by planting trees and improved grasses, and promoting soil conservation. The pro-

gram also assists the women's group by financing a nursery for fruit trees and providing advice concerning marketing strategy for agricultural produce and the lease-purchase of vehicles and other large items.

The community development program focuses on developing local managerial skills, building community infrastructure, and providing financial services through a revolving credit fund. This fund was established in collaboration with a local commercial bank to provide loans to farmers. By facilitating access to credit, the project has the opportunity to guide investment toward sustainable and financially sound forms of land use, backed by adequate training of the borrower.

The forestry program emphasizes reforestation of degraded areas and the prevention and control of forest fires. The program is thus supporting the youth group in its efforts to establish a nursery for forest trees, to subsidize reforestation plantings, and to raise awareness and local capacity to prevent, control, and combat fires.

By late 1993, the Amisconde project had shown several important strengths, including its clear goals, its choice of location according to those goals, and its thorough and flexible planning with balanced input from the local communities and outside experts. The project also enjoyed the benefit of a dedicated staff, ample technical expertise, and healthy financial resources, allowing it to make good use of existing local infrastructure. Amisconde strongly promoted sustainability by strengthening local social institutions, by discouraging dependency on outside inputs, by introducing financial and agricultural skills, and by relying on voluntary adoption of new land-use techniques.

The project's main weakness was that its ultimate purpose of protecting the Chirripó National Park was neither communicated to local people nor properly addressed in the project's activities. Biodiversity was also largely missing from the conceptual framework of the agricultural program, which emphasized widespread planting of nonnative species within the project area, rather than the use of native species in new crop combinations and the control of exotics.

The Wilson Botanical Garden

The Organization for Tropical Studies operates a field study center at the Wilson Botanical Garden at Las Cruces, near San Vito among the Pacific foothills of the Cordillera de Talamanca. Although the main buildings were damaged by fire in late 1994, they are being rebuilt, and the garden has good facilities for visitors and researchers, including interpretative ma-

terials and nature trails. Deforestation has left the garden isolated, and in an early response to this threat the garden used traditional methods of environmental education for children, such as lectures and guided tours. The seven-to-thirteen-year-olds involved were thought to have little influence on adult behavior, however, and by the time they grew up natural habitats were expected to be lost.

The garden therefore tried participatory education with a greater emphasis on adults, and this has been very successful. Ecological committees meet each month at five communities, and attendance is increasing steadily. The intent is to encourage local communities to identify their own problems and then to maintain a dialogue through which to seek solutions without relying on government bureaucracy (L. D. Gómez, personal communication, October 1993).

The garden works closely with local NGOs. These organizations tend to perceive government bureaucratic initiatives as having little relevance to local people because they cannot respond to environmental and cultural conditions in particular localities (H. Villalobos, personal communication, October 1993). From this point of view, the starting point for education should be to work at the family level in order to find out what families need, and every effort should then be made to make education relevant to those needs and to real local concerns, thereby creating a new, better, and locally "owned" curriculum. Local NGOs also are inclined to view the national education system as weak and corrupt and to believe that education should better target families and communities if change is to occur fast enough to save the environment.

Local NGO projects include a radio program each Easter week, which deals with issues such as the overharvesting of palm hearts and fishes at that time of year (Costa Rica is predominantly Roman Catholic). The garden also collaborates with seven active ecological committees in Coto Brus, especially on issues such as the use and management of bamboo.

The garden also has close links with nearby indigenous communities and the NGOs that represent them, including the Fundación Iiriria Tsochok (FIT). Relations with the government in this area often can be tense. FIT, for example, encourages indigenous people to demand their land and other rights; these rights often have been abused. Misunderstandings remain common between indigenous and nonindigenous people, and these misunderstandings can be exploited by outside groups for their own purposes. The overriding challenge when working with indigenous (or

other) people is to achieve mutual trust, something which must be earned by outsiders, but once obtained can result in complete cooperation. The managers at Wilson Botanical Garden are thus at the center of an active but diffuse and diverse process of local empowerment and participation in conservation activities.

Notes

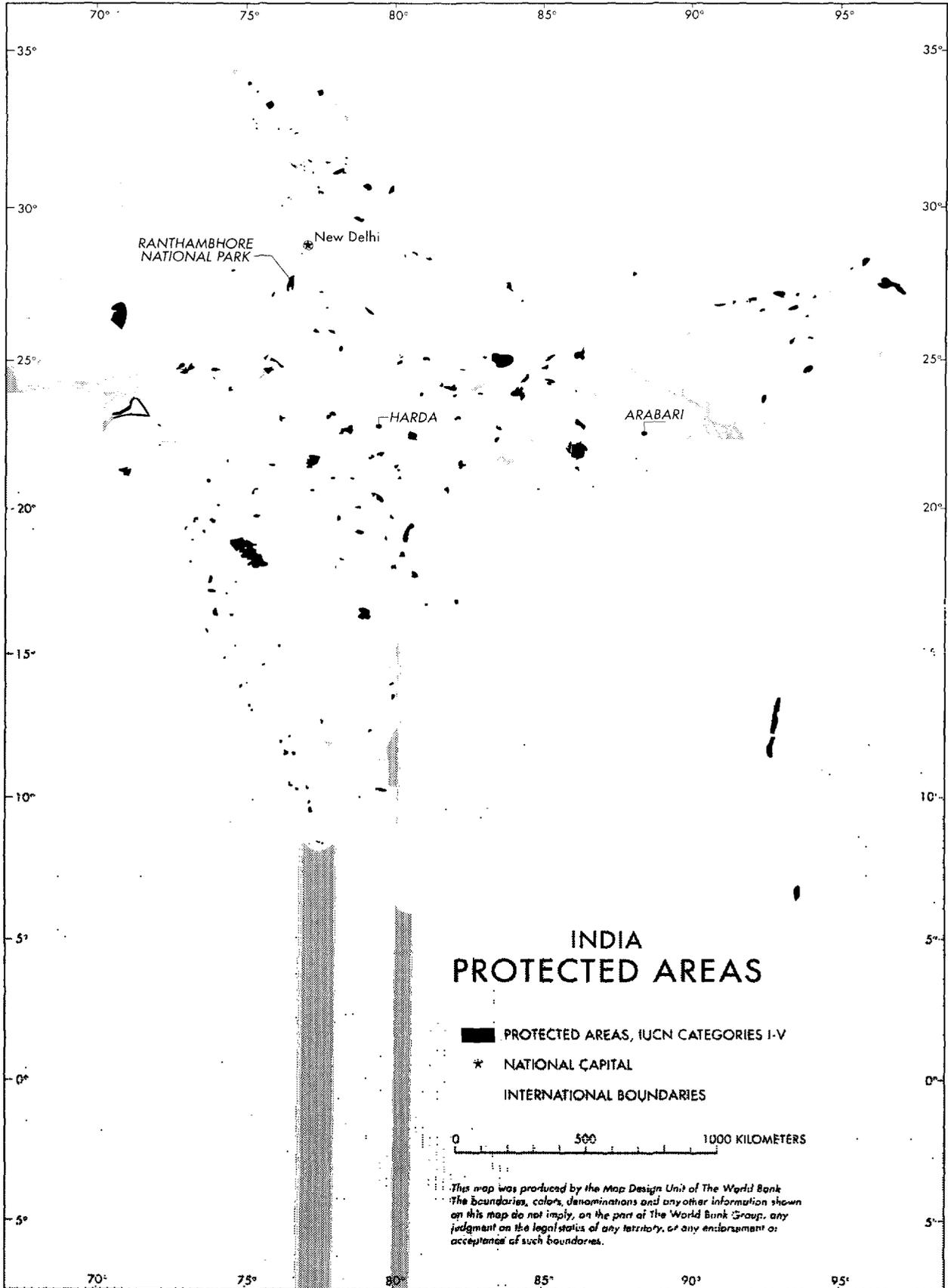
1. MIRENEM was recently transformed into the Ministry of the Environment and Energy (Ministerio de Ambiente y Energía MINAE).

2. Amistad was recently split into two: Amistad Pacífico and Amistad Atlántico.

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INDIA PROTECTED AREAS

- PROTECTED AREAS, IUCN CATEGORIES I-V
- * NATIONAL CAPITAL
- INTERNATIONAL BOUNDARIES

0 500 1000 KILOMETERS

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India

Shekhar Singh

Fiscal and administrative decentralization can be of at least two types. First, decentralization can involve moving financial and administrative control and decisionmaking power from one level of the government to another, such as from the national to the state government. Second, decentralization can involve shifting such control and power from government to community institutions. These processes have different effects and implications and thus are considered separately here.

Decentralization within the Government

Before India achieved independence in 1947, governance was essentially centralized, with control being exercised by the British government from London. Some powers were vested with the British viceroy in India, who was assisted by various essentially advisory bodies. At independence, India adopted a federal structure with power being shared between the central government and individual state governments. Today there is a national Parliament of directly elected members of the Lok Sabha (House of the People) and indirectly elected representatives of states in the Rajya Sabha (Council of the States). Similarly, each state has a directly elected Legislative Assembly whose members also elect representatives to the Rajya Sabha.

The constitution of India and other related instruments divide various functions between the states and the central government. Certain matters, such as law and order, are almost exclusively state subjects, whereas defense and external affairs are exclusively central government subjects. Other matters, such as rural development, forests, and environment, involve both the central government and the state governments, for both have jurisdiction.

Management of Forests

Nearly a quarter of India is legally designated as forest land. It contains a variety of habitats, including grasslands, wetlands, mangroves, and even rivers and deserts; some areas may have no surviving natural ecosystems. Nevertheless, by virtue of legal designation, such lands are forest land. They represent the largest holding of natural habitat in the country.

The first effort to nationalize and centrally control the Indian forest estate was made by the British in 1865, when the first Indian Forest Act extended government control over what was then either common resources or privately owned land. This act was replaced in 1927, again by the British, with a new Indian Forest Act. It is still in force, and it has further consolidated the hold of the government over forest land. With independence in 1947, and establishment of the Indian Republic in 1950, control over these forest lands passed to the state governments.

Expenditure on forests is largely controlled by state governments although, as is the system in India, the allocation of financial resources is done by the National Planning Commission of the central government. Nevertheless, effective control over these resources remains with the state governments. Unfortunately, despite the large forest holdings, budgetary allocations for forestry have rarely exceeded 1 percent of the national budget. This reflects the hesitation of both the central and state governments to give forest protection and management a high priority. Revenue from the forests accrues to state governments, but there is no correlation between the forest revenues earned in a state and the expenditure on forest management in that state.

In 1980, the government of India enacted the Forest (Conservation) Act, which specifies that no forest land can be converted to nonforest use without the consent of the government of India. This act was prompted by high and increasing rates of loss as forests were converted to nonforestry purposes, including agriculture and infrastructural projects such as dams and roads. The Forest (Conservation) Act was amended in 1986 to cover plantations by nongovernmental organizations (NGOs) and the clearing of natural vegetation on forest land.

By amending the act, the central government further consolidated its control over the forests because the law specified that without central government permission states could neither give forest land to any private or corporate entity nor clear forests of their natural vegetation. The first measure was to prevent the transfer of forest lands to corporate bodies under the guise of promoting plantations, while the second was to protect biodiversity and forest cover on lands that were legally classified as forests.

Earlier, at the central government level, forestry had been overseen by a department in the Ministry of Agriculture. But in 1985 the government of India created a National Wastelands Development Board (NWDB) and a consolidated central Ministry for Environment and Forests. The NWDB was given the responsibility and resources to undertake large-scale afforestation programs and to make forestry a mass movement. The creation of the NWDB also meant, however, that more of the funds available for forestry would now be handled by the central government than by the state governments.

Thus the overall trend in Indian government since independence has been to centralize rather than to decentralize administrative and fiscal control over forests. Although the day-to-day management of forests is still within the purview of state governments, the Forest (Conservation) Act has centralized the power to prevent the conversion of forest land to other land uses. Similarly, although much of the fiscal power relating to forests remains with the state governments, the NWDB and the Ministry of Environment and Forests give the central government control over a greater share of the funds to be spent on forestry.

There is, however, widespread support for the Forest (Conservation) Act among foresters and environmentalists. This is mainly because state governments have in the past been insensitive to the needs of forest conservation and have tended to favor forest revenue and large infrastructure projects. Statistics show that

the rate of forest conversion was almost a hundred times greater before the Forest (Conservation) Act than after it came into effect. Because much of this diversion was for large infrastructure projects, communities that were dependent on the forest for basic needs were displaced and otherwise deprived.

This problem is aggravated by the facts that state governments themselves do not further decentralize power and control and that all decisions are made at the state level rather than at the level of villages or districts. One view is that there may be local sensitivity to conservation and social justice issues but that, especially in the case of the environment, this does not permeate up to the state level, where most decisions are made. It is felt, therefore, that central government intervention is desirable because the central government is far enough removed from local concerns to be objective, while also tending to have greater concern for the environment.

Some problems remain, of course. For example, an outcry often arises when a village road or a water supply scheme is delayed, pending central government permission to convert forest land. Consequently, there is a strong demand that limited powers of forest diversion for certain specified purposes be delegated to the state governments. Desirable as that is, the current difficulty in getting clearance for forest land ensures that all other alternatives are first considered. Only when no other alternatives are available is the use of forest land proposed. Given the rapidly shrinking forest cover in India, this seems to be a helpful constraint on changes in land use.

Management of Wildlife Protected Areas and Other Habitats

Strong legal protection is accorded to wildlife protected areas (WPAS), which include national parks and sanctuaries. Coastal regions also are strongly protected. None of the other habitat types has such specific and comprehensive legal protection; other ecologically vulnerable habitats such as mangroves, coral reefs, grasslands, wetlands, and mountains have little legal protection or regulation unless they fall within legally designated forest areas or WPAS. Recent acts, however, have given general protection to all habitats. Under the Environment (Protection) Act (EPA) of 1986 and its various rules, the central government and state governments can take whatever action they deem necessary to protect the environment.

A good example is the coastal regulation zone, which was created by the EPA in 1991. Under this act,

use or construction in the coastal zone is regulated up to a specified distance from the high-tide line, and any deviation needs special permission from the central government. Similarly, another notification under the EPA has made it legally necessary to obtain central government clearance prior to initiating certain infrastructure projects such as dams, roads, industries, and mines.

A series of acts since the mid-1970s have empowered the central government and its agencies to monitor and regulate pollution. These include the [Prevention and Control of] Water Pollution Act of 1974 and the [Prevention and Control of] Air Pollution Act of 1981. Creation of a Central Pollution Control Board is also significant. Each state government has set up its own department of environment and pollution control board, but a large proportion of the financial resources available for the environment continues to be controlled by the central government. Given the indifference to environmental matters at the state level, there are advantages to this continuing centralization.

Decentralizing Management to the Community

Control over forests and other natural habitats has been exclusively with the government, with few exceptions. One exception is some village land, mainly pasture land, that belongs to communities. Another exception occurs in certain predominantly tribal states of northeastern India, where most of the forests are controlled by tribal district councils. A third exception is the rights retained by communities over many forests—grazing, collection of firewood, harvesting of timber for building or repairing homes, and harvesting of nontimber forest produce.

Only in the past few years has an effort been put forth toward sharing with communities control over natural habitats such as forest lands. One such initiative is joint forest management (JFM), in which forest departments have involved communities in protecting forests around their villages, acknowledging in return the community's right to harvest forest products sustainably and to receive a share of other revenue earned from the forest. (JFM is discussed in the case studies at the end of the chapter.) More recently, ecodevelopment projects have been established around some WPAs. (Ecodevelopment projects are discussed in the case studies.) Such projects not only develop alternatives to the resources of WPAs but also seek to involve communities in their management.

Another way to involve communities is to ensure

that they share in the financial and economic benefits from WPAs, especially tourism revenue. Finally, there are calls to introduce a system of joint protected-area management, similar to JFM, in which communities would be involved in managing and protecting WPAs. These measures and proposals are important moves toward decentralizing government control over forests and toward increasing the participation of communities in habitat management.

Management of Wildlife Protected Areas

India has almost 500 WPAs (national parks and sanctuaries), covering more than 4 percent of the country, which have been created and are managed by state governments. Before 1972, they were created under various state acts, the details of which varied from state to state. For example, in 1936 India's first national park (Hailey National Park, now known as Corbett National Park) was set up in Uttar Pradesh, and a special act was required for this purpose. In 1972, however, the Indian government passed the Wild Life (Protection) Act, which brought all new and existing national parks and sanctuaries under one law. Although it is a central government act, it essentially gives power to state governments to create and manage national parks and sanctuaries. Until amended in 1991, the act also provided for the central government to create national parks, but this provision was not used.

The act has both a decentralizing and a centralizing effect. It is decentralizing in that it gives state government the authority to control protected areas. But it is also centralizing because almost no role is recognized for communities to participate in managing WPAs. Although there is a provision for appointing honorary wildlife wardens, and many have been appointed, most of these individuals are eminent urban-based conservationists rather than prominent members of the rural community.

WPA revenue is decoupled from expenditure. Any revenue earned by a WPA, from tourism or any other source, is credited to the government account and is not available specifically for expenditure in the WPA. Thus the government's annual budget to the WPA is unrelated to its revenue.

Each state has established a Wildlife Advisory Board, not all the members of which are government officials. These boards have sometimes been effective in addressing crisis issues and lobbying government, but day-to-day management of the WPAs continues to be wholly in the hands of government officials. At the national level, there is an Indian Board for Wildlife,

which is chaired by the prime minister and includes members who are not government officials. This board is mainly involved with policy formulation, however, and meets very rarely.

In short, arrangements for managing the WPAs have remained constant for many years, without any trend toward either centralization or decentralization. It is

only in the last few years that the government has begun to recognize the need to involve communities in the management of WPAs. In the Eighth Plan (1992–97), the Indian government started a new scheme of ecodevelopment that involves communities as part of WPA management. The present situation of WPA management is summarized in table 4-1.

Table 4-1. Management of Wildlife Protected Areas (WPAs) in India

<i>Function or powers</i>	<i>Central government</i>	<i>State government</i>	<i>WPA authorities</i>	<i>Local community</i>	<i>NGOs</i>	<i>Private sector</i>
Participates in policy formulation	Yes	Yes	Partial ^a	No	Partial ^b	No
Demarcates area for setting up WPA	No	Yes	Partial ^c	Partial ^d	No	No
Sets up a WPA	No	Yes	No	No	No	No
Decides on a WPA management plan or strategy	No	Yes	Partial ^e	Partial ^f	Partial ^f	No
Manages the WPA, including regulation and protection	No	No	Yes	Partial ^g	No	No
Issues license	Partial ^h	Partial ⁱ	Partial ^j	No	No	No
Collects user fees	No	Yes	No	No	No	No
Receives revenue share	No	Yes	No	No	No	No
Receives donations	No	Yes	No	No	Partial ^k	No
Borrows from financial institutions	Yes	Yes	No	No	No	No
Borrows from external sources	Yes	No	No	No	No	No
Allocates resources to sectors, schemes, and programs	Yes	Partial ^l	No	No	No	No
Approves expenditure	No	Yes	Partial ^m	No	No	No
Inspects, audits, and approves accounts	Partial ⁿ	Yes	Partial ^o	No	No	No
Supervises procurement	No	Partial ^p	Yes	No	No	No
Generates revenues from the WPA	No	Yes	No	No	Yes ^q	Yes ^r

- a. Although WPA managers are rarely members of policy-formulating bodies, their opinions often are solicited.
- b. NGOs and nongovernment individuals are members of the state wildlife advisory boards and the Indian Board of Wildlife, which are essentially advisory bodies for policy formulation.
- c. Can only recommend to the state government, which makes the final decision.
- d. Can record their rights over the area sought to be made into a WPA and thereby have that area deleted, or have their rights accepted, or receive compensation for their rights.
- e. Develops and recommends a management plan that receives final approval from the state government.
- f. Only in WPAS where ecodevelopment projects have been established.
- g. Only in WPAS with ecodevelopment.
- h. For certain matters, like the killing or moving of Schedule I species, the powers are with the central government.
- i. Most permissions and licenses can be given only by the state government.
- j. Some powers are usually delegated to WPA authorities, especially the power to grant entry permits and to allow overnight stays.
- k. Some NGOs operate around WPAS and collect donations to support their work. However, they cannot accept donations on behalf of the WPA.
- l. Actual sectoral allocations are based on proposals by the state governments and by the Central Planning Commission. However, the state governments can reappropriate some proportion of these funds.
- m. Some powers are delegated to WPA authorities whereby they can approve an expenditure that is already budgeted.
- n. For expenditure sanctioned directly by the central government under centrally sponsored schemes, the final scrutiny of accounts is performed by the central government.
- o. It is the responsibility of the WPA authorities to supervise expenditure within the WPA.
- p. For certain items, like vehicles, the procurement is sometimes centralized at the state government level. This is also the case where an item must be supplied in bulk to many or all of the WPAS.
- q. In some WPAS, NGOs produce literature and provide other services that generate revenue for their work. However, this revenue cannot be credited to the WPA account.
- r. Many private entrepreneurs and corporations set up hotels and run other tourist facilities in and around WPAS and thereby earn revenue from the WPA.

Rural Development

Rural development programs were formally launched in India in 1952 through the Community Development Programme, which continues in modified form today. From the start it stressed decentralization, community participation, and sectoral integration. The program is implemented through village-level workers and focuses heavily on three village-level institutions: panchayats (village or local self-governments), cooperatives, and rural primary schools.

The program sought to integrate all rural development activity, especially agriculture (including fisheries, dairying, and horticulture), employment generation (including artisanal and self-employment schemes), and rural industrialization and small infrastructural development (including minor and medium irrigation projects, rural roads, and small systems for energy production and transmission). Despite this diversity, much of the focus was at first on agriculture, and this was later identified as a weakness in the program.

Agricultural land is privately owned in India. Laws

exist to regulate the size of individual holdings, and those that exceed a stipulated size must be redistributed to the landless. Also, ownership of agricultural land is legally transferred to the person who tills it for a sufficient time to prevent absentee landlordism. These laws, however, have been difficult to implement.

Rural development is both centralized and decentralized in that certain schemes are funded by the state government and others by the central government. Each state has a Department of Rural Development with representatives down to the village and panchayat level. The financial resources available to the department are spent through a variety of schemes that are implemented by government institutions, NGOs, and community institutions such as panchayats, mahila mandals (women's committees), and others. Another strategy for rural development is through so-called centrally sponsored schemes, which are supported from the central budget but implemented by state government institutions. There are also central government sector schemes, which are paid for by the central government and implemented either by central government institutions or by NGOs.

By law, all minerals belong to the state, except in Goa, where privately owned mines are permitted under a special agreement.

Conflict and Resolution

The main activities that result in conflict between what broadly is called development and habitat conservation are essentially three:

- Commercial activities, in which private or government corporations or individual entrepreneurs seek to use natural resources or wilderness areas unsustainably to meet commercial demand. Common examples include forest-based industry, the mining sector, and the tourism trade.
- Infrastructural activities, in which the government or other concerned agencies jeopardize or injure natural habitats while undertaking infrastructural projects and related activities. In this category are construction of dams, roads, townships, transmission lines, schools, and hospitals.
- Subsistence activities, in which communities are forced to exploit a shrinking natural resource to feed an increasing population, usually because no better alternatives exist. The situation is aggravated by the absence of a sense of ownership of the resource. Examples include livestock grazing and the collection of fuelwood, building materials, medicinal and edible plants, and other nontimber forest products.

The method in India so far has been essentially regulatory. Only recently have some efforts been made to use economic instruments to minimize potential conflicts. Resolving conflict by means of proper and integrated planning is still to be tried and tested systematically in India.

The Regulatory Strategy

Two regulatory strategies prevail in India—affording special legal status to certain areas and regulating certain activities. In the first, designated areas are given special legal status so that commercial, infrastructural, and subsistence activities are prohibited or regulated. Covered by one law or another are designated forest areas (approximately 25 percent of the country), WPAs (about 4 percent of the country, overlapping significantly with the forests), and coastal regions (200–500 meters from the high-tide line). The Doon Valley and the Aravalli Hills have also been accorded such special protection. In national parks,

for example, no human use is permitted, whereas in forest and coastal areas, various activities are allowed under government permit.

In the second strategy, certain activities are regulated in that they require prior environmental clearance from the appropriate government authority. For example, all industries require prior clearance from the state pollution control boards. In addition, certain industries that are considered particularly hazardous to the environment require a more comprehensive environmental clearance from the central government. All large dams and mining leases require environmental clearance from the central government, as do harbors and jetties, thermal power stations, nuclear facilities, and tourist facilities in the mountains.

Furthermore, the EPA of 1986 empowers both central and state government “to take all such measures that it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling, and abating environmental pollution”(section 3[1]). This act, and others intended specifically to prevent and control air and water pollution and to conserve wildlife, give legal standing to the common person and thereby empower any individual to demand legal compliance after giving sixty days notice to the government.

Providing Economic Incentives

In recent years, the government has attempted to provide economic incentives, both positive and negative, for environmental conservation. Positive incentives to commercial groups include ecolabeling of products that are environmentally friendly throughout their life cycle, from before manufacture to after disposal. Tax rebates and soft loans also are provided with which to install pollution control equipment and other environmentally friendly devices and machinery. Variable pricing and environmental audit of companies encourage the conservation of water, energy, and other natural resources. Negative incentives include a requirement to finance and perform compensatory afforestation in lieu of diverted forest land; heavy fines for violation of environmental standards, especially under the EPA; and legal provision and precedent to support high compensation rates for environmental damage.

To counter environmental damage resulting from subsistence demands, the government has launched two programs that employ positive economic incentives: JFM and ecodevelopment. Under JFM, communities in and around forest areas are empowered to

receive most or all of the nontimber forest produce and earnings from timber sales. In return, they protect and help regenerate the forest. In ecodevelopment, communities around WPAs are provided the financial and legal means for developing income and biomass alternatives to their dependence on the protected areas, from which such needs cannot legally be met. Both schemes are described in the case studies at the end of the chapter.

Integrated Planning

Use of integrated planning to prevent or minimize conflicts between development and habitat conservation requires at least three things:

- Integration of environmental concerns in all sectoral plans
- Development and implementation of a conservation-oriented land-use plan
- A strict budgeting of natural resources.

Planning in India continues to be mainly a centralized activity. The National Planning Commission prepares annual plans and five-year plans, which are essentially sectoral, for both central and state governments. The planning process is supposed to be integrated, with scrutiny prior to finalization by the National Planning Commission, the cabinet, and the National Development Council. In practice, however, little sectoral integration occurs, and environmental concerns are rarely reflected in the proposals of other sectors. As a result, government ministries and departments pursue their respective sectoral objectives, and conservation imperatives are mostly forgotten. Although for many years the government has had a National Land-Use Board, no comprehensive land-use plan exists. Therefore, pressure on land continues to grow, and land-use decisions continue to be made in an ad hoc manner.

The Indian government, in its National Conservation Strategy and Policy Statement on Environment and Development of 1992, states, "The Government will prepare, each year, a national resources budget which will reflect the state and availability of resources such as land, forests, water, etc. and which will rationally allocate these resources in keeping with the principles of conservation and sustainable development" (paragraph 8.2.3). Despite this, no natural resources budget exists.

Resolution of conflict that arises from subsistence needs clearly has worked better at the local, decentral-

ized level. Both JFM and ecodevelopment are decentralized strategies in both senses of the term: an increasing level of control is transferred from the government to the community, and government involvement itself is at a decentralized level. Similarly, it increasingly appears that decentralized planning, starting from the village level, is the most effective way to build a national plan, although this has not happened so far.

However, for regulation of commercial and infrastructural pressure, the Indian experience suggests that the power of centralized government might be preferable to decentralization at the state level or below. State governments have been far more inclined than the central government to ignore environmental imperatives. The ability of state forest and environment departments to withstand pressure from powerful development departments, such as those for energy or irrigation, is almost nonexistent. Even with centralized regulation, however, the regulatory process would benefit from greater involvement by concerned and affected members of the public.

Conclusions

The question of decentralization has troubled Indian planners since independence was achieved half a century ago. The Community Development Programme was designed and implemented with a strong component of decentralized control and execution. The panchayati raj, or local self-government, was seen as an important instrument for decentralized community action. Despite this, however, significant problems were experienced in implementing the community development programs. Although many attempts were made to rectify these problems, time has proved them difficult to solve.

In a society as stratified as India's, it can be hard to ensure that decentralized institutions are not taken over by traditionally powerful local groups. These groups may then perpetuate the oppression and stratification that have been the main causes of rural inequality and underdevelopment. Laws intended to improve the representation of women and weaker segments of society, and thus increase their influence on local decisionmaking bodies, have not always solved the problem. Such representatives often remain ineffective or become co-opted into the power structure, accepting personal advantage and abandoning the interests of their constituents.

This is not always the case, however, and in some areas traditional power structures have been

marginalized. This usually happens where significant redistribution of land and other economic resources has occurred, or where mass education has taken root. But in many other areas, the traditional power structure still dominates, and these areas have the greatest need for genuine decentralized, people-based institutions.

Even where traditional power structures have been broken, the problem of historical bias and ignorance remains. The biases of gender and age, plus a reluctance to examine new ideas and ways of understanding, constitute another impediment to effective local decisionmaking. For example, decisions continue to be made by the village elders, but it is mostly the younger generation that has had access to education. Although the wisdom of the elders is critical for a society's well-being, it is equally important to integrate within this wisdom the knowledge and perceptions of the new generation. Traditional societies in India rarely provide for this, creating a difficult soil in which to sow the seeds of change.

Rural development programs were designed to be decentralized right from the start, but the management of forests, WPAS, and vulnerable ecosystems continues to be centralized. Only recently have efforts been made to transfer control over natural habitats from government to communities, and this has worked well in the joint management of forests.

In some cases, however, abject poverty among rural communities has made it impossible for them to restrict their use of natural resources to a sustainable level, and this has forced them to destroy the resource base on which they depend. Also, where investment choices must be made by communities, forest and environmental management have tended to receive very low priority. For example, during the Seventh Plan (1985–90), 5 to 10 percent of rural development funds were earmarked for forestry, but in the Eighth Plan, no money was earmarked for forestry, and spending decisions were left to the communities. The result was that almost no money was spent on forestry.

In many cases, rural communities have been alienated from their natural surroundings for generations and have lost all sense of ownership toward them. Community skills in the sustainable management of natural resources, if they were ever present, have also been lost after generations of government control over these resources. In the few communities where these skills remain, people are not always equal to the task of conserving a resource that faces new and greater pressures. Reports from the tribal states of northeastern India, where most forests are

legally owned by tribes, are discouraging. They have had the highest rates of forest loss in the country over the past few years.

Painstaking analysis of past experience leads to the conclusion that the ideal formula for conservation action is to establish joint control and management, with the government and the local people as partners. This way, neither party can do anything significant without the other's concurrence. A sense of ownership and stakeholding is established within the community by legally ensuring their access to the economic benefit of conservation (as in JFM) or by development of alternatives (as in ecodevelopment). By making such inputs conditional on the community protecting the resource, further incentive is given for sustained conservation.

Case Studies in India

Joint forest management and ecodevelopment are two strategies that employ positive economic incentives to communities to improve their involvement in managing the environment. Following a brief look at these principles, we shall consider three case studies of successful attempts at decentralizing biodiversity conservation in India: participatory resource management and ecodevelopment (the Harda case), the Ranthambhore Ecodevelopment Project, and JFM in West Bengal.¹

Joint Forest Management and Ecodevelopment

Joint forest management involves setting up means by which specific forest areas are jointly protected and managed by the community and the forest department. In essence, the government writes a memorandum of understanding with the community, through forest protection committees established in villages for the purpose. Such committees organize themselves to protect the forest areas from their own members and from outsiders. In return, they have a right to claim a portion of forest produce. In Arabari in West Bengal, JFM began almost spontaneously in 1972. Assessments show that jointly managed forests have regenerated better, have cost a fraction to protect, and have better benefited communities than forests managed solely by the forest department.

The ecodevelopment strategy recognizes the need to develop alternate livelihoods and biomass sources for communities that traditionally depend on WPAS. Ecodevelopment is based on the belief that a WPA cannot be conserved unless local people have realistic

lifestyle options, benefit from the financial and economic gains of the WPA, and are involved in its management. Ecodevelopment is therefore a strategy for protecting ecologically valuable areas from unsustainable or otherwise unacceptable pressures resulting from the needs and activities of people living in and around them. It seeks to do this by at least three means:

- Identifying and developing sustainable alternatives to the biomass and income that are being obtained from protected areas, where this occurs in a manner and to an extent considered unacceptable
- Involving the people living in and around such a protected area in planning and managing it, thereby not only channeling some of the financial benefit of conservation to them but also giving them a sense of ownership toward the WPA
- Raising awareness in the community of the value and conservation needs of the protected area and of patterns of economic growth and development that are locally appropriate and environmentally sustainable.

Ecodevelopment initiatives vary from area to area, and even from village to village, but three basic principles are common to all: site-specific and microlevel planning, sectoral integration, and people's participation. Ecodevelopment is more than just rural development, for it is not solely directed toward economic development of the rural population but simultaneously seeks to protect an ecologically valuable area by eliciting the support of communities and by helping to develop viable biomass and income alternatives.

Also, eco-development is not policing, in the sense that it does not seek to protect an area solely or primarily through the enforcement of laws intended to exclude local people. Rather, eco-development involves local people in the process of protecting the park from destructive activity. For any eco-development plan to succeed, it must be backed by an appropriate management plan for the protected area.

Participatory Resource Management and Ecodevelopment: The Harda Case

In the state of Madhya Pradesh, about 160 kilometers southwest of its capital city of Bhopal, is Harda, headquarters of a forest division in Hoshangabad District. The total reserve and protected forest area is 1,417 square kilometers, divided into six forest ranges. The

forests, mainly tropical dry deciduous teak forests of the Handian Range, have a long history of degradation from organized but illicit logging. The division's reserved forests, although seemingly well stocked, are not regenerating adequately, perhaps as a result of excessive livestock grazing and recurrent fires. Bamboo (*Dendrocalamus strictus*) also has suffered from grazing and fire, especially after gregarious flowering. Villages are dotted all over the reserve and protected forests in the region.

An experimental scheme for participatory resource management and eco-development started at Harda in October 1990. The program now covers nearly 80 percent of the total forest area, both interior and fringe areas. It involves 190 villages, each with a village committee organized especially for the program.

Village microplans for eco-development are prepared jointly by villagers and the forest staff. Such plans are intended to protect, regenerate, and stock adjoining forests and to meet the genuine needs of the community. At the same time, the plans seek to divert unsustainable pressures from the forests through on-farm and off-farm improvements. These include protecting, regenerating, and managing forest areas, improving watershed management, building water-harvesting structures, establishing additional income-generating activity, developing village infrastructure (on a limited scale), implementing energy conservation measures, and developing alternate energy sources.

Funds for the implementation of microplans are mobilized in two ways, through tapping forest department funds under plan or nonplan schemes and by channeling funds from different district-level development agencies through effective interdepartmental coordination. The forest department is the coordinator, networking among the various departments and agencies.

To achieve financial decentralization, the village committees have built up a village common fund—initially, from voluntary donations of wages, from money paid by the forest department for protection work done by the villagers, from social fines, from charges levied by the committee on the use of community assets (for example, water from step dams and lift-irrigation facilities), and from bank interest. Fund monies are used by the village committee to extend credit to members, to develop additional community assets, and to protect adjoining forest reserves.

One hundred participating village committees were able to collect Rs1.7 million in their common pool over three years. The idea is gradually to build the

village committees so they can handle the full budget for microplan implementation. A core activity has been to change the perceptions and working patterns of forest staff to help them work more closely with the villagers. Forest staff and villagers also were trained to develop their microplanning capacity and to help them establish various income-generating activities.

Encouraging results have been achieved over the past three years through the ecodevelopment and JFM programs in Harda division:

1. The 190 village forest committees, one in each village, were able successfully to combat recurrent forest fires. Only 2 percent of the area has been affected by fires since the program began, compared with 23 percent in 1990.
2. Through the program, grazing has been regulated over 85 percent of the forest area. This has voluntarily closed 47,500 hectares of forest area to grazing. In accordance with the village committee grazing management plan, grazing has been restricted to below carrying capacity in the remaining forest area. This has resulted in good growth of grass in areas where none grew formerly.
3. The growth of grass has been so profuse that in 1993 two of the village committees earned more than Rs100,000 from the sale of grass.
4. Bamboo has again begun to flower and regenerate on approximately 3,000 hectares. Bamboo was on the verge of extinction here, mainly because of fires and uncontrolled grazing.
5. A good number of village forest committees in the peripheral villages have successfully addressed the problem of illegal firewood extraction from the forests. Village forest committees in Khatmakheda, Padarmati, and Amsagar villages, for example, successfully combated illicit fuelwood sale by improving the production from agricultural fields, through assured irrigation, and by developing additional options for income generation by poor villagers.

In another part of the Handia Range, where illicit logging by organized gangs had been a serious problem for many years, forest protection committees have been able to relieve the threat. Recorded offenses for Handia were reduced from sixty-four in 1991 to sixteen in 1993. Not only did the quality of forests improve, but the income of local people increased as a result of the ecodevelopment program.

Local people's stake and interest in the recovery of Harda forests can be attributed to two main factors. First, their need for fuelwood, fodder, bamboo, and

small timber has been recognized by the forest department, and they have been assured access to these resources at sustainable levels from the forest area that they protect under the JFM agreement. Second, the ecodevelopment program has helped to increase the villagers' on-farm and off-farm income and has thereby reduced the unsustainable pressures on the adjoining forests. The long-term sustainability of such programs depends on gradual financial and administrative decentralization to village organizations, with the transition being helped by improving simultaneously the capabilities of villages and forest department personnel.

The Ranthambhore Ecodevelopment Project

Located in Sawai Madhopur District in the state of Rajasthan, Ranthambhore Tiger Reserve offers an enchanting sense of history and an overwhelming starkness of rare and beautiful natural forests. Overlooking its dry tropical forests is the Ranthambhore Fort, said to have been built in A.D. 994. The area of the tiger reserve is 1,335 square kilometers, with the core of the reserve being Ranthambhore National Park (393 square kilometers, including a buffer zone of 118 square kilometers). The River Banas divides the reserve, forming an important natural corridor.

Ranthambhore was one of the first nine tiger reserves created under Project Tiger, and it was constituted in 1973. At that time, it was decided to relocate sixteen villages from the newly designated core area to outside the boundary of the park. Twelve of these villages were moved during 1976–79, and two new settlements were created to accommodate the inhabitants, one in Kailashpuri with a group of nine villages, and another in Gopalpura, with three villages—Nakdi, Lahpur, and Ranthambhore. Including these resettled villages, eighty-four villages with an estimated population of 85,000 exist within the periphery of the park. These villages are distributed in two tehsils (district sub-divisions), Sawai Madhopur and Khandhar. An additional 80,000 people live in the peripheral towns of Sawai Madhopur and Khandhar. An estimated 100,000 livestock units depend on park resources.

Although Ranthambhore is a valuable wildlife habitat with a significant tiger population, over the years much of the buffer and even parts of the core have become degraded because of human pressures, especially grazing. Recognizing the need to involve the community in protecting the Ranthambhore Tiger Reserve, and in an effort to encourage local participation and adapt conservation to local needs, in 1991 the

World Wide Fund for Nature-India (WWF) launched an ecodevelopment project here. This project, supported by the British government through WWF International, intends:

- To work with local people to evolve alternatives to their dependence on the resources of the park
- To revive the social and cultural links that the communities have with the Ranthambhore forests
- To regenerate the buffer with the involvement of the local people, to ensure that the process is participatory
- To forge a link between the local people and the forest department
- To conduct appropriate research.

In essence, the project seeks to develop and field-test a model of ecodevelopment that can be expanded and replicated. The project started with efforts to build trust in the community and to strengthen community institutions. It focused on Gopalpura, a cluster of three resettled villages. A small team of WWF workers set up headquarters near this village.

As a first step, the WWF staff helped the villagers obtain legal title to land allotments. This gave villagers the sense of security that is so essential for any long-term conservation action, and the action won the trust and cooperation of the villagers. At the same time, village development committees were organized and began meeting monthly to decide how the project should proceed and the order in which issues should be addressed.

The second phase of the project focused on grazing. Large quantities of sorghum Sudan grass seed were distributed. This grass soon became very popular, and many farmers began growing it on their own lands and on common lands and wastelands outside the park. The forest department was persuaded to allot 25 hectares of degraded forest land to the village for growing fuel and fodder. The villagers formed a forest protection committee to promote protection and regeneration of this forest. They also developed their own rules and regulations:

- No free grazing would be allowed.
- Every family in the village would contribute labor to work the land.
- Families that failed to perform their share of work would be liable for a penalty fixed by the village committee.
- Benefits from the land would be distributed equitably in the community, in accordance with norms laid down by the villagers.

The land became available in 1993, and a remarkable degree of regeneration was evident within two years. The lush vegetation in this plot contrasts sharply with the sparse and degraded vegetation in surrounding areas. The success of this fuel and fodder plantation has motivated other villages to establish similar plantations, and the forest department has agreed to make more degraded forest land available to support this project.

Shortage of water is another serious problem in the area. At the request of villagers, the project took up a watershed development program around the village clusters, a move that has proved both popular and useful. The project also has assisted in upgrading the local breed of cattle, in providing veterinary services, and in helping to develop a marketing network for milk products. All of this has increased local income and reduced pressure on the park. The project now has a working model of decentralized, participatory ecodevelopment, and with a large Global Environment Facility (GEF) project proposed for Ranthambhore, this model will be expanded and replicated.

Joint Forest Management in West Bengal

JFM is a new strategy under which state forest departments and communities jointly manage forest lands and share responsibilities and usufruct. In India, this method is being tried by about half of the states, with encouraging results. The pioneering state is West Bengal, situated in eastern India. The origin of JFM was through a small experiment started in the early 1970s by a forest officer, who involved forest fringe communities in the management of sal (*Shorea robusta*) forests that had been reduced to bushy condition by overexploitation.

Community involvement in protection and management brought a remarkable rejuvenation of the sal forests. Encouraged by the success of this experiment, the government expanded the program statewide, and at present nearly 4,000 square kilometers of degraded forest land are being managed by nearly 2,500 forest protection committees (FPCS) constituted by the fringe dwelling communities. The program has spread to fourteen other states.

A number of legal, institutional, and sociopolitical factors have played a role in the spread of the program, including progressive land reform measures, social forestry programs, and usufruct sharing with the people. These laid the foundation for the successful JFM program. As JFM got under way, it was realized that nontimber forest products (NTFPs) play a crucial role in sustaining the interest of the local people in

JFM. These are more important to people than timber benefits, with household income from NTFPS being nearly seven times that generated from the final harvest of sal forests. However, income from NTFPS can be further increased through certain interventions. The benefit in employment generation also has been substantial. During the experimental project phase, 220,000 person-days of employment were generated by the forest department.

A number of studies have disclosed an increase in the biodiversity of these regenerating forests. In a survey of twelve FPCS, 255 species were observed in the area (regenerating forests, plantations, and settlement areas), and 84 percent of these were found in regenerating sal forests. The new JFM strategy required an attitude shift, both of forest departments and the people, to build effective partnerships. At the institutional level, a number of FPCS have evolved their own mechanisms and rules for controlling access to their forests and managing them.

An important reason often cited for forest degradation is population increase. In West Bengal, despite continued population growth in the last two decades, involvement of people in the management of their forests has resulted in dramatic regeneration of sal forests. People not only are enjoying a greater flow of forest products, but also have gained greater access to and control over their forest resources.

The program was initiated as an experiment in 1972 on an area of 1,272 hectares and involved 618 households. By 1991, however, it had spread to about 2,360 square kilometers and involved 188,037 households in 1,804 FPCS. By 1994, the area under joint management further increased to 3,910 square kilometers, involving 2,423 FPCS. Since its inception, the JFM program has gradually developed into a movement. Its significant achievement has been in qualitative terms, especially in the positive shift in relationship between the forest departments and local people, in improved quality of life, and in rejuvenation of forest ecosystems.

Recent analysis of Landsat images has shown that in the past six years, closed forest cover in Midnapore District alone has increased from 11 percent to nearly 20 percent of total land area. These regenerating forests now provide many medicinal, fiber, fodder, fuel, and food products for participating rural communities. The effect of the JFM program can be seen in the vegetation dynamics of regenerating sal forests, in changing livelihood patterns among fringe communities, and in evolution of attitudes and working style of the forest department. The effect of the JFM strategy on

forests is clearly visible if one just visits these areas. One can easily see the regenerating forest patches from a distance and discern where people are protecting forest and where they are not.

The Forest Survey of India's annual report for 1993 draws attention to changes in southern West Bengal since its previous report in 1991 and states that 41 square kilometers of degraded scrub forest (0–9 percent canopy cover) have been upgraded into the open forest category (10–40 percent canopy cover).

Another interesting impact of forest regeneration in southern West Bengal is the return of elephants to these tracts. Until about 1987, hardly any resident elephant population existed here, although a few solitary animals remained in the Ajothya Hills, the Bundwan Range of Purulia District, and the Banaspahari area of Midnapore District. The herd of wild elephants from the Dalma Wildlife Sanctuary in Bihar used to visit these areas between October and December, but their movement was restricted to the west of River Kangsabati. A large herd of about fifty entered East Midnapore division in 1987 and stayed primarily in the Arabari Range until March 1988. During 1988 to 1990 this tract was frequently visited by the elephants. Attempts to drive them away were not very successful. This pattern of visits has now become an annual feature.

Although the JFM program of West Bengal is now more than two decades old, its greatest expansion occurred in the middle and later 1980s. The program yielded results early, and these have become much more apparent now. Regeneration of degraded forests has had a large impact in West Bengal. Quantitative indicators are changes in forest species numbers and density, the quantity of forest products accruing from the forests, and the total area brought under JFM. Qualitative indicators are the attitude changes among people and forest department personnel and improvements to the lifestyle of the villagers.

Note

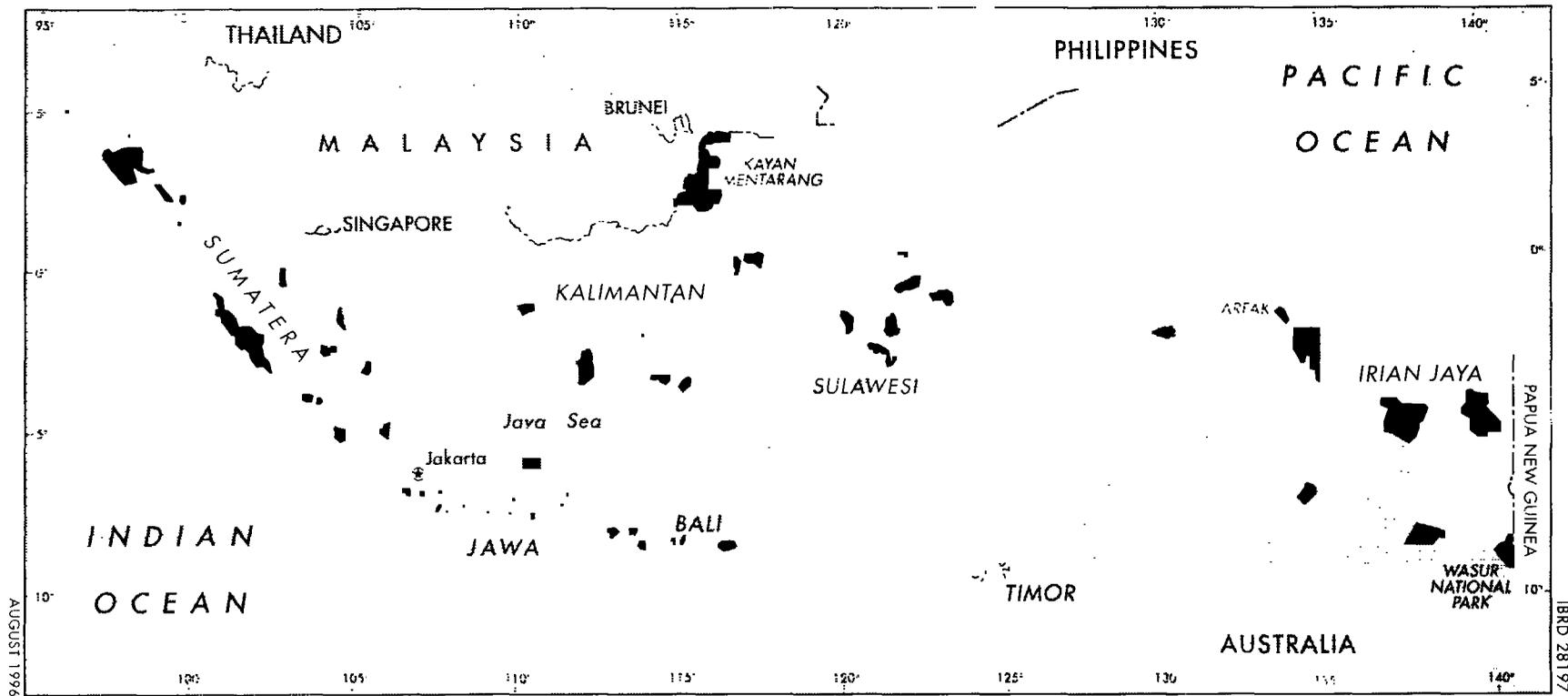
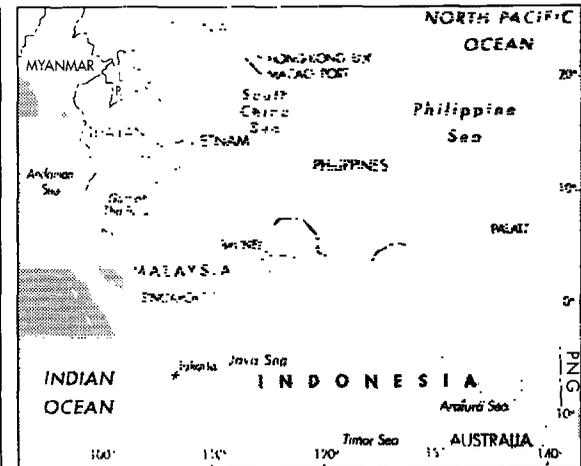
1. The Harda case study is by B. M. S. Rathore, Wildlife Institute of India, Dehra Dun. The source for the Ranthambhore Ecodevelopment Project is WWF-India, "In the Shadow of Ranthambhore: WWF-India's Ecodevelopment Project," November 1994. The source for joint forest management in West Bengal is WWF-India and Society for Promotion of Wastelands Development, "Case Study on Participatory Forest Management in West Bengal," March 1995.

INDONESIA PROTECTED AREAS

-  PROTECTED AREAS (IUCN CATEGORIES I-V)
-  NATIONAL CAPITAL
-  INTERNATIONAL BOUNDARIES

0 200 400 600 800 KILOMETERS

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Indonesia

Julian Caldecott

Decentralization can be seen as a process by which property rights and bargaining power are redistributed among the various levels of a society (Lutz and Caldecott, chapter 1 in this volume). Thus, in exploring links between decentralization and conservation in a society, a starting point is to consider the structure of that society. In modern Indonesia, this is rooted in events that occurred more than three decades ago, in 1965, when the present system of government was established under its current leadership. This followed disturbances that amounted to a final confrontation between nationalist groups, supported by the army and other elements of the armed forces (Angkatan Bersenjata Republik Indonesia, ABRI), and the large Indonesian communist party, which was destroyed. From 1966, therefore, ABRI came to dominate political events, and in 1968 former President Sukarno was replaced by General Soeharto, pending elections that occurred in 1971.

Those elections consolidated the position of the New Order government. Prior to them, the political party system had been simplified and placed under close supervision, and the government had developed its own partylike electoral vehicle (that is, the functional groups, Golongan Karya or Golkar) with an overwhelming capability to mobilize votes among civilians. Afterward, ABRI filled many seats in the People's Consultative Assembly by appointment rather than election. This confirmed ABRI's influence, which has helped to stabilize the position of the governing elite and allowed a consistent set of policy directions to be maintained ever since. Its other effects have included the limiting of internal political debate and participation in government decisions by nongov-

ernmental organizations (NGOs), the facilitation of military action that might otherwise have been constrained by international opinion, and the provision of greater opportunity for corruption than is offered by more transparent and accountable systems (Schwarz 1994). These arrangements have allowed several themes to be played out that might not otherwise have been expressed—the gradual decentralization of government; the lack of opportunity for much of the population to learn the value of Indonesia's forests; and government policies that consistently favor the rural economy.

Looking at the first theme, although the country is an archipelago of some 17,000 islands and is inhabited by people of diverse cultures, it has been governed as a unitary rather than a federal state. This means that subnational government entities (see table 5-1) are seen as local representatives of central government. They have no independent political mandate and are in principle subject to central direction at all times. When compared with Nigeria or India, for example, this gives the impression that Indonesia is an exceptionally centralized state (compare Singh on India in chapter 4 and Caldecott and Morakinyo on Nigeria in chapter 8 of this volume). But in practice, the subnational tiers of government have a high degree of autonomy for many purposes and have considerable latitude to adapt central policies and procedures to local circumstances—subject to formal or informal overrule by Jakarta.

One outcome is that decentralization in Indonesia has been a relatively subtle process, involving the growth of “managed pluralism” and thereby gradually “increasing the number of units in the economy and society capable of autonomous action within the con-

[This chapter is dedicated to the memory of Ian Craven]

Table 5-1. Government Organization in Indonesia

<i>Central government</i>	<i>Provincial government</i>	<i>Kabupaten (district, regency, county, or municipality)</i>	<i>Kecamatan (subdistrict)</i>	<i>Desa (village or ward)</i>
President	Governors of Provinces and Special Territories	Bupati of Kabupaten	Camat of Kecamatan	Desa (village or ward)
People's Consultative Assembly (MPR)	Provincial representative assembly	Walikota (mayor) of autonomous cities and districts of Jakarta	Sectoral fieldworkers	Lurah of Desa (rural) Lurah of Kelurahan (wards of cities)
Supreme Court	Regional offices of central departments (Kantor Wilayah or Kanwil)	District or municipal representative assembly		LMD (Village Council)
Supreme Audit Body		Sectoral services		LKMD (Institute for Village Community and Stability)
People's Representative Council (DPR)	Sectoral services	Regional Development Planning Agency, Level II (BAPPEDA II)		Levels of neighborhood administration
Supreme Advisory Council	Regional Development Planning Agency, Level I (Badan Perencanaan Pembangunan Daerah, BAPPEDA I)			Rukun Kampung (RK)
Sectoral or line ministries				Rukun Tetangga (RT)
Coordinating ministries				Rukun Warga (RW)
Ministries of state				
Nondepartmental agencies— for example, National Development Planning Agency (Badan Perencanaan Pembangunan Nasional, BAPPENAS)				

Source: EMDI 1991.

finances of the existing political system. Indonesian pluralism has included an increase in the number of government agencies capable of autonomous action, in the levels of management within them, and in the range of economic and social tasks to which they are set. At the same time Indonesian pluralism also has involved an increase in the number, variety, and complexity of private groups and the economic and social tasks in which these also are engaged" (Bresnan 1993: 293–94).

A second theme results from the fact that nearly two-thirds of Indonesia's 200 million or more people live on the inner islands of Java, Bali, and Madura, where they have inherited a long history of high civilization sustained by irrigated farming on fertile volcanic soils. Most natural forests on these islands were reduced to fragments centuries ago (Whitten, Soeriaatmadja, and Afiff forthcoming). Because of this, most Indonesian voters and decisionmakers live in environments where little opportunity exists to learn the use or value of large areas of natural forest.

This is consistent with the general direction of Indonesia's policies on forest management, which have tended to discount local, renewable, and unmarketed forest benefits in favor of those more easily quantified and traded (Gillis 1988; Repetto and others 1989). Salim (1995) has made the point that this also would have arisen from the guidance of mainstream economists who were unaware of the true economic value of natural forests. In either case, an additional factor was presumably a perception that the outer islands of Indonesia, such as Sumatra, Sulawesi, part of Borneo (Kalimantan), and part of New Guinea (Irian Jaya) represented a sparsely populated frontier, laden with valuable resources unclaimed and ripe for harvesting.

A third theme is that the Indonesian government has consistently maintained policies that favor the rural economy, particularly that of Java (Bresnan 1993). This contrasts strongly with the case in Nigeria, for example, where political and economic power concentrated in the cities helped to promote system-

atic disinvestment in the countryside and particularly in small-scale agriculture (Caldecott and Morakinyo, chapter 8 in this volume). Despite the similar concentration of power in the main cities in Indonesia, the authoritarian nature of the political system gave its leaders the freedom to express sympathies arising from their own rural origins by promoting massive public investments in rural development. These took the form of financial and material subsidies to farmers, infrastructure, and educational services, the latter particularly intended for the primary level and providing equal access to girls. The impact of mass education has been profoundly beneficial for rural equity, health, and the rate of population growth, which was about 1.7 percent in 1993 (Dompka 1994), down from about 2.3 percent in the mid-1970s (KLH 1992).

Other consequences of rural development, however, have posed many challenges to conservation. Transmigration programs, for example, have moved large numbers of people from the inner to the outer islands, and other policies have encouraged expansion of the rural road system and widespread conversion of natural ecosystems to farms. These have seriously affected the way of life of many people indigenous to the outer islands (WWF 1980; SKEPHI 1990; Cultural Survival 1993), while also causing the loss of natural ecosystems and driving many of Indonesia's native species toward extinction (Collins, Sayer, and Whitmore 1991). The resulting loss of biological diversity as a side effect of government policies is not without irony in the Indonesian context because the governing elite has had a historical reason to be sensitive to the value of genetic resources.

For example, the use of new rice varieties, along with subsidized fertilizer and rural credit, boosted rice production to record levels in 1970. This ended rice shortages that had threatened the viability of the government in the late 1960s (Bresnan 1993). It was to be twenty years, however, before this experience was connected at a policy level with the idea that Indonesia's biodiversity as a whole was a valuable national resource.

Policies and Biodiversity

The largest and most diverse Southeast Asian country, Indonesia is located between mainland Asia and Australia and is set in 3 million square kilometers of territorial sea between the Indian and Pacific oceans. Its natural ecosystems range from alpine meadows to moist lowland forests, from deep lakes to shallow swamps, and from coral reefs to sea grass beds and

mangroves. These have been described in detail in the Ecology of Indonesia book series, prepared with Canadian government support by the Ministry of State for Population and Environment (Kependudukan dan Lingkungan Hidup, KLH) (Whitten and others 1984; Whitten, Mustafa, and Henderson 1987; MacKinnon and others 1994; Monk, de Fretes, and Lilley forthcoming; Tomascik and others forthcoming; Whitten, Soeriaatmadja, and Afiff forthcoming; Forsyth and others forthcoming). Indonesia's many habitats sustain great numbers of species: at least 20,000 flowering plants, 515 mammals, 900 amphibians and reptiles, 1,520 birds, and 4,200 fishes, an overall total of 15 percent or more of all the species in the world (BAPPENAS 1993; KLH 1992).

By the early 1990s, these biodiversity resources were starting to be seen by Indonesian policymakers as important economic raw materials. This view was expressed most clearly by the minister of KLH (Salim 1992), who predicted that the world's economy would come to be dominated by biotechnology-based industries and that countries which conserved biodiversity would be at an advantage because of this. This perspective was developed at a time of growing consensus for investment in conservation. In Indonesia, the move toward conservation was based partly on a series of policy and strategy studies (see WRI, UNEP, and IUCN 1995), partly on Indonesia's active role in the U.N. Conference on Environment and Development in 1992 and in support of the Convention on Biological Diversity, and partly on exposure to Costa Rica's biodiversity management model in 1992–93, which led to the creation of the Indonesian Biodiversity Foundation (Caldecott and Lovejoy, chapter 3 in this volume; Caldecott 1996).

Meanwhile, many decisionmakers came to accept that past misunderstanding of the true value of natural ecosystems had allowed this resource to be degraded unnecessarily by development (Salim 1995). The legacy of damage to Indonesia's environment included the widespread conversion of natural forest through mining, plantation development, small-scale encroachment, and transmigration schemes. It also included the degradation of wetland and coastal ecosystems from industry, agriculture, sedimentation, mining, destructive fishing methods, drainage, and the building of aquaculture ponds (World Bank 1990; BAPPENAS 1993; Hardjono 1991).

Recognition of the importance of the negative externalities (impacts) caused by such damage is connected with another consistent policy theme in Indonesia: that government has an important role in

preventing and correcting market failure. This idea has helped to keep government actively involved in regulating large sections of the economy. It can be attributed to a combination of a nationalist emphasis on self-sufficiency, a traditional sentiment toward equity and collective decisionmaking, and the long-term influence of Western-trained economists within the governing elite. The latter are thought to be responsible for the pragmatic and realistic direction of Indonesian economic policies since 1965 and for helping to maintain a perception that government should protect social interests against exclusively private ones (Bresnan 1993).

Thus, once enough evidence had accumulated to show the extent of negative externalities that were linked to environmental damage, the government responded to the need to avoid and manage such effects. This led to legislative and institutional changes in the 1980s and 1990s that were designed to achieve better control over such externalities. They included new laws on conservation areas, on spatial planning, and on the management of environmental impacts, as well as the creation of a National Environmental Impact Management Agency (Badan Pengendalian Dampak Lingkungan, BAPEDAL).

Planning and Environmental Threat

Environmental threat can be divided into two main classes. The first, major abuse, includes incidents of large-scale pollution and the incorrect placement or misuse of logging concessions, transmigration sites, plantations, and mines. Usually these can be solved only by government action in the form of planning, impact assessment, surveillance, arrest, and prosecution.

The second class of environmental threat is that of cumulative overuse, which arises when too many people make too many demands on ecosystems to meet their day-to-day subsistence needs (Sheppard, Naseer, and Premeratne 1995). This kind of threat is far more amenable than the other to local regulation and social control. When coupled with tenure security to prevent competitive open-access harvesting, such local regulation is the basis for many traditional systems for managing ecosystems sustainably. Among them are those of the Baduy in the surviving forests of the Banten region of West Java (Salim 1995) and the *sasi* system for conserving coastal and certain inland resources in Maluku (Zerner 1994).

Threats and solutions interact in complex ways, both with each other and with the many different uses to which ecosystems are put (Burbridge, Samarakoon,

and Masabathula 1995). In practice, however, if local people possess secure tenure, they can resist most day-to-day threats better than government can, whereas if government possesses the technical and institutional resources, it can resist major abuses better than local people can. Because both forms of action are almost always needed to solve the problems that arise in ecosystems over time, correct ecosystem management must usually involve some form of joint venture between local people and government (Caldecott, Bashir, and Mohamed 1995). The possibility of this joint venturing has now emerged as an important theme in decentralization and conservation (Caldecott and Lutz, in this volume) and has guided work in Indonesia for some years.

Indonesian government efforts to avoid conflict between environment and development have concentrated on improving the spatial planning process. In principle, spatial planning intends to identify forms of resource use that are expected to be economically sound and durable within each particular type of environment and then to locate those uses exclusively within appropriate environments. This principle is illustrated by the dominant spatial planning process of 1970–85, the “consensus classification of forest function” (Tata Guna Hutan Kesepakatan, TGHK). This process involved the collaboration of government agencies to produce maps that show the agreed-to allocations of forest land to various kinds of permanent use.

The main TGHK categories were nature reserve and protection forest (not available for timber extraction), limited production forest (nonindustrial selection-felling permitted), regular production forest (industrial selection- or clear-felling permitted, depending on forest type), and conversion forest (clear-felling and conversion to other use permitted). Thus, the TGHK process largely defined the resource base, both for the timber industry and for the national system of conservation areas.

The TGHK mapping program was flawed mainly by a lack of adequate information to support spatial and forestry planning (Dick 1991), but other mapping operations were undertaken to correct this. The most comprehensive was by the Ministry of Transmigration in the late 1980s; it mapped land use and land capability for the whole country, under a program called REPPROT (Regional Physical Planning Program for Transmigration) (REPPROT 1989, 1990a, 1990b). The Ministry of Public Works has since integrated the REPPROT maps on a common scale with TGHK and district and provincial planning maps and has updated

them from field observations and new remote imagery. These maps now show actual forest cover, various types of protected area (protected forests, nature conservation areas, and sanctuary reserves), and the alignments of existing and proposed roads and other development projects. A comprehensive legislative context for a national system of spatial planning was provided by Act No. 24 of 1992, which created a mandate for provinces to prepare spatial plans and for districts to ensure that projects are located in accordance with them (Salim 1995).

The link between spatial planning and nature conservation is clear: most species and ecosystems cannot survive except in areas set aside and managed for this purpose. Planning for a national system of protected areas in Indonesia occurred in parallel with TGHK (MacKinnon and Artha 1981–82) and later with REPPROT (MOF and FAO 1991). By 1990, Indonesia had listed for protection 303 terrestrial protected areas totaling 160,000 square kilometers, and another 175 sites had been proposed. These were chosen specifically to ensure the inclusion of viable and representative samples of most of the nation's ecosystems and populations of most native species. Their legal position was consolidated and clarified by Act No. 5 of 1990, which designated them as various kinds of nature conservation areas and sanctuary reserves (MOF and WWF 1990). More than 300,000 square kilometers had meanwhile been designated as protection forest, covering watersheds and steep slopes, and 23 marine and coastal protected areas had been listed for protection, with another 200 areas proposed (BAPPENAS 1991).

Accurate maps of protected areas and development projects are essential if conflicts are to be avoided, but it is hard to use such maps once projects have been sited incorrectly because powerful interest groups may resist rulings in favor of conservation. Thus, an important complement to spatial planning is environmental impact analysis (EIA), which in Indonesia is known as the AMDAL (Analisis Mengenai Dampak Lingkungan) process. AMDAL is meant to detect cases where the proposed use of an area conflicts with a planned use and to anticipate and manage the "leakage" of impacts from one area to another. The AMDAL process is therefore a tool that can be used both to avoid planning failure and to maintain the ecological integrity of a planned landscape. Such systems are designed to prevent conflicting interests from becoming established, by discouraging proposals to use or affect resources in ways other than originally planned. Government Regulation No. 51 of 1993 consolidated

and clarified AMDAL procedures and superseded a number of earlier laws (Dick and Bailey 1992; BAPEDAL 1993, 1994).

All projects that might affect a protected area must now undergo AMDAL before a decision is made to proceed, and this also applies to protection forests and a wide range of sensitive terrestrial and aquatic habitats. Although AMDAL cannot guarantee the safety of conservation areas, the process can prevent their being destroyed accidentally while providing an opportunity for public opinion and technical advice to exert influence on the decisions involved.

The Role of Integrated Conservation Development Projects

The intent of spatial planning and AMDAL is to avoid putting activities in the wrong place and to anticipate the effect of each development project on others elsewhere. A combination of perfect planning and perfect AMDAL should result in secure nature reserves. This can be achieved in practice, however, only if planners can exert sufficient control over events. But there are practical limits, both to government control and to the help that formal planning can give to conservation. Central government agencies and private corporations under their direct supervision are most likely to cooperate in this system, but noncompliance with planning procedures tends to increase with distance from Jakarta. Examples can be drawn from Irian Jaya in 1994, where roads were being built through nature reserves, regardless of official spatial plans and AMDAL procedures (Dahuri 1994; World Bank 1995; WWF 1995).

Thus, certain threats to biodiversity can be relieved through better planning and AMDAL, but different solutions are needed when threats come from the unplanned or informal and cumulative overuse of resources. Where large numbers of rural people are involved, it is hard to resolve threats solely by enforcing government planning decisions. A different kind of response therefore is meant to solve diffuse problems by using local participation to achieve compliance and sustainable use of resources.

The implications of this strategy have been explored by governments, donor agencies, and NGOs in Indonesia and elsewhere since the late 1980s. A result was the definition of integrated conservation and development projects, or ICDPS (Wells, Brandon, and Hannah 1992). These projects seemed to offer a more holistic strategy than others in meeting the development needs of rural populations, especially those liv-

ing around nature reserves. Because of growing international interest in sustainable development and biodiversity conservation, ICDPS became increasingly attractive to institutional donors, governments, and the larger international conservation NGOs.

Acting together, these groups tended to design large ICDPS that were planned centrally according to existing institutional procedures, using professional consultants. Because of their cross-sectoral intent, ICDPS emphasized consultation among government agencies, which encouraged administrative changes and promoted the role of hierarchies of committees. At the national level, a committee would provide strategic oversight and policy direction, whereas lower-level committees closer to the project area would provide tactical oversight and routine coordination.

In Indonesia, these committees are chaired at the national level by the National Development Planning Agency (BAPPENAS) and at the regional level by its equivalents, BAPPEDA I (provincial level) and BAPPEDA II (district level) (table 5-1). The Ministry of Forestry is involved at all levels through its Directorate General of Forest Protection and Nature Conservation (Perlindungan Hutan dan Pelestarian Alam, PHPA).

In principle, these committees allow problems that cannot be solved at one level to be passed to other levels. They also provide a forum for communication among different agencies at each level. The main weakness in such a system is likely to be its interface with local people in the project area. Several ICDPS have tried to correct this by recruiting NGOs to provide "community awareness, mobilization, and extension" services under contract to ICDP managers (for example, ADB 1992; DHV 1992).

The Role of Conservation NGOs

A hierarchy of top-down planning committees, aided by professional consultants and working with local people through contractors, was never likely to be a very attractive model for all conservation NGOs. Some therefore continued to devise conservation methods through more direct forms of local public participation. In doing so, they refined techniques for solving certain kinds of conservation problems cheaply and effectively. Examples are provided by the work of the World Wide Fund for Nature (WWF) at Tangkoko in North Sulawesi, at Kerinci in West Sumatra, at Kayan-Mentarang in East Kalimantan, and at Cyclops, Cenderawasih, Arfak, and Wasur in Irian Jaya (Salim 1995). (For Kayan-Mentarang, Arfak, and Wasur, see the case studies at the end of the chapter).

Similar projects have been developed elsewhere by WWF (1991, 1993a, 1993b, 1994a, 1994b; Sandbukt and Østergaard 1993), by The Nature Conservancy (Cochrane 1992; Schweithelm and others 1992), and by other groups in various combinations with government and donor agencies.

These projects have concentrated on parts of the conservation area system and have emphasized collaboration with the people living in and around those reserves. They were designed in response to a common theme in preserving both biological and cultural diversity: that wild species and people have a similar need for secure access to the resources with which to sustain life and, for people, culture. In practice, this means stabilizing the boundaries of nature reserves, both to allow viable natural ecosystems to survive and also to make it possible to work with viable local communities. The latter require clear and often exclusive rights to occupy territory and to use resources in and around reserves, if they are to contribute to their proper management.

The projects mentioned are intended to help people who live around reserves participate in setting their boundaries, in harvesting certain natural resources within them, and in benefiting from new forms of sustainable economic activity there. By the early 1990s, it had been learned empirically that mapping individual and community landholdings around reserves can help to stabilize their boundaries. This was attributed to local people becoming more aware of boundary locations and having more reason than formerly to supervise the boundaries and to prevent encroachment by outsiders. The same applies to the boundaries of communal or private lands around reserves. In all cases, reduced uncertainty about tenure and increased local support for established tenure act together to help stabilize the use of land and forest resources.

It had thus proved feasible to work with local people in marking agreed-to boundaries on the ground and in mapping them accurately on behalf of the Ministry of Forestry. For example, this created new reserve boundaries in the Cyclops and Arfak mountains in Irian Jaya that were accepted by the ministry's Bureau of Forest Inventory and Mapping as being more durable than the former ones. (See the Arfak Project in the case studies at the end of the chapter.)

In a June 1994 statement, the minister of forestry stressed the importance of biodiversity and effectively authorized local and traditional community involvement in sustainable forest management. Thus, by late 1994, the ministry was prepared to accept reserve

boundary maps prepared by communities and to consider accepting their locally determined boundaries in preference to the original centrally planned ones. The ministry also encouraged formal acceptance of residents' role in managing the resources within conservation areas in accordance with their management plans, for example in the Arfak Mountains and Wasur National Park. (See the Arfak Project and the Wasur Project in the case studies at the end of the chapter).

Conclusions

At least two factors may have contributed to the evolution of government policy. First, the completion of spatial planning and AMDAL laws in 1992 and 1993 drew attention to the fact that, necessary as such laws and procedures are to avoid planning failure, they can do little against small-scale, cumulative encroachment. Second, experience with large ICDPs convinced the government that delivering massively subsidized changes in land use without an early financial return was not a sustainable option, given the size of Indonesia's conservation area system. Large ICDPs had briefly seemed to provide a model for effective biodiversity conservation, but international donors proved reluctant to commit the hundreds of millions of dollars estimated to be needed according to this model (KLH 1992).

By the early 1990s, sections of the Indonesian governing elite seemed to have reached a consensus that biodiversity is important and that conservation is therefore worthy of investment. The cost of an ICDP-based strategy then prompted a search for a cheaper way to achieve equivalent or better results. In fact, the search needed to lead no further than the methods that some NGOs had already developed. Constructive communication has sometimes been difficult between Indonesian NGOs and government groups, but there are signs that it is becoming increasingly feasible to achieve the kind of joint venture among local people, NGOs, and government that conservation often demands to be successful.

However, time is short for many of Indonesia's natural ecosystems, and for the species and cultures they sustain. The gradual emergence of hopeful signs is set against a background of destruction of marine and terrestrial nature reserves in all parts of the country, from Sabang to Merauke. In Irian Jaya in particular, all signs are that a wave of unsustainable development is now breaking over what is, from a conservation viewpoint, perhaps the single most important part of one of the most important countries in

the world. Investment in protection is needed now, in the decade 1996–2005, rather than at some future time when far less will remain to be saved. After many trials, Indonesia is now able to make well-targeted, cost-effective conservation investments, backed by sound laws, competent institutions, and enthusiastic local people. The global community claims to be motivated and equipped to help Indonesia meet this challenge and should do so now.

Case Studies in Indonesia

The following case studies present some successful examples of decentralized conservation in Indonesia. They are the Kayan-Mentarang Project in East Kalimantan and the Arfak and Wasur projects in Irian Jaya. They present work by the WWF, in cooperation with other organizations, and show promising results.

The Kayan-Mentarang Project, East Kalimantan

The Kayan-Mentarang Nature Reserve, established in 1980, covers some 16,000 square kilometers in the interior of East Kalimantan. It is the largest protected rain forest area in Borneo and contains numerous distinctive and species-rich natural ecosystems (Momborg and others 1994). About 10,000 mainly aboriginal people (Kenyah, Kayan, and Punan) live in and around the reserve, and they depend on the use of various nontimber forest products to supplement their harvests of hill rice obtained through shifting cultivation. The reserve boundaries enclose patchworks of farmed land and regenerating forest on fallow land, as well as large areas of intact and lightly exploited natural forest. The total landscape thus comprises elements of cultural as well as biological importance and is one of the few locations where traditional systems of land use characteristic of the Bornean interior may be preserved in the long term.

Since the early 1990s, Kayan-Mentarang has been the focus of a project by WWF and PHPA that aims to stabilize human use of the environment (and to resist, among other things, the influence of poorly planned road projects and logging concessions). In the process, the project has relied on, and to a large extent pioneered, the use of social mapping to create a multiuse conservation area (the proposed Kayan-Mentarang National Park). Within it, traditional land use can coexist with certain forms of development and with natural habitats and wild species. In this strategy, participatory appraisal techniques are used to prepare maps of areas used by communities, emphasizing the significance of

land units and the resources they contain, from the viewpoint of people who know and depend on those resources (Momberg and others 1994).

This approach has complemented one based on the use of two technologies, the geographic information system (GIS) and the global positioning system (GPS). Their use is intended to help clarify and to map accurately the boundaries of community lands, forest concessions, nature reserves, and other features such as larger rivers. This would allow the government to constitute and manage the proposed Kayan-Mentarang National Park (Prasodjo 1992; Sirait and others 1994). The combination of social mapping with GIS and GPS has proved very powerful. This is so particularly in making plans that are consistent with local tradition and the wish for secure tenure over resources and that are a convincing basis for conservation proposals and activities involving government.

The WWF project in Kayan-Mentarang also sought ways in which local people can use natural resources sustainably once tenure over them has been clarified. This is important for refuting the idea that the reserve and traditional lifestyle of its people are to be kept static, as if in a museum. Results suggest that once tenure is agreed to, progress can be made by involving local people in harvesting and marketing local products and in saving and productively using revenue thus obtained. Some lessons learned have been summarized as guidelines for involving local people in the management of nature reserves (WWF 1993a, adapted in Caldecott, Bashir, and Mohamed 1995):

1. Activities should neither require indefinite subsidy nor create dependency or a sense of entitlement; they should help conservation directly and should raise income.
2. Earned benefits and gifts should be received quickly and obviously by participating people and should be seen by them as a reward for their own conservation action.
3. Activities and benefits should be spread evenly to reduce jealousy within and between communities.
4. Activities should be large enough to yield tangible benefits locally but too small to attract unwanted outside entrepreneurs.
5. Activities should be diverse, intended to supply local markets, and should not compete with one another for human, physical, or financial resources.

The Arfak Project, Irian Jaya

The coastal Arfak Mountains rise to nearly 3,000 meters in northern Irian Jaya (Indonesian New

Guinea), a few kilometers south of the town of Manokwari. The Arfak Strict Nature Reserve is 683 square kilometers of generally intact natural forest in which live at least 70 species of mammals and 320 of birds. Arfak is part of an endemic bird area (ICBP 1992, 1995) and a center of diversity for birdwing butterflies (including the locally endemic *Ornithoptera rothschildi*). These birds and butterflies are featured prominently in the WWF's management strategy for the reserve (Craven and de Fretes 1987). In late 1994, the main threats to the reserve were from impoverished aboriginal people in the area or involved illegal hunting and gathering by outsiders and small-scale encroachment across uncertain reserve boundaries. New roads were planned that would approach the reserve in the north and southwest (Caldecott 1994).

Conservation work in the area since 1987 has focused on working with the Hatam people to mark and map agreed-to boundaries of the reserve (Craven 1989). This process yielded boundaries acknowledged by the Ministry of Forestry's Bureau of Forest Inventory and Mapping to be more stable and durable than the former, centrally planned boundaries. Cooperative shops and saving schemes also were established in villages, with the intent of teaching management skills and promoting self-reliance and financial security. Terraced farming techniques were promoted by local WWF employees, and a project was developed in which the WWF worked with a local NGO to promote the ranching, harvest, and sale overseas of protected birdwing butterflies (Neville 1992; New 1994). These activities appear to have been effective in helping make the Arfak Mountains reserve a genuine entity, both on the ground and in the minds of the people.

The Wasur Project, Irian Jaya

The Wasur National Park lies between the Maro River and the Papua New Guinea frontier in the extreme southeastern corner of Irian Jaya, close to the town of Merauke to the west and bounded by the Arafura Sea to the south. The climate is strongly seasonal, with a single rainy season. The area is dominated by savannah woodlands, with patchy stands of moister eucalyptus and melaleuca forest and large areas of seasonal swamp and grassland. Native wildlife species include at least 390 birds, and the area is part of an endemic bird area (ICBP 1992, 1995) as well as being used by many migratory water birds such as ibises and pelicans. Some eighty native mammals are present, including abundant wallabies; introduced deer and pigs are common. These habitats and wild-

life resources occur nowhere else in Indonesia and have attracted government interest in their tourism potential.

Several threats to the park and nearby ecosystems were apparent by late 1994 (Caldecott 1994):

- Transmigration schemes opened successively during the 1960s, 1970s, and 1980s had isolated the park behind a barrier of settlements and rice fields.
- The demand for wild meat created by the influx of transmigrants and by the growth of Merauke town led to intensive hunting.
- Aboriginal people had been displaced from areas far from the park into its buffer zone, a narrow 1–2 kilometer band of forest that mostly lays between the transmigration schemes and the Maro River.
- The Trans-Irian highway had been constructed through the middle of the park and then northward along the frontier with Papua New Guinea, and several thousand nonaboriginal people had been settled along the highway and around Sota on the frontier deep in the park.

The park itself occupies the traditional lands of three aboriginal groups, who now are based at villages within the park. These communities had long been seen by the WWF as allies in management of the park, and this strongly influenced the WWF's strategy in designing and implementing the Wasur Project (I. Craven, personal communication, February 1992). Its first goal was to establish the right of aboriginal people to live within the park and to harvest its resources in accordance with the management plan (PHPA 1992). The project then sought to work with the PHPA and its local Natural Resources Office (Konservasi Sumber Daya Alam, KSDA) to prevent outsiders from hunting within the park and to promote the sale to outsiders of deer and pig meat harvested by traditional hunters operating within the park. It also sought to promote village-level production and wider sale of aromatic oil distilled from eucalyptus leaves and to encourage community tourism.

The Wasur Project works with communities in the buffer zone of the park to clarify tenure over resources and to stabilize forests as much as possible within traditional-use zones owned and managed by aboriginal groups who were displaced by transmigration schemes. The project has encouraged the government to resettle nonaboriginal communities along the Trans-Irian highway to less sensitive locations and to close the highway itself to public traffic while upgrading the alternative road through transmigration sites outside the park. These aims had mostly been

achieved by late 1994, largely attributable to the efforts of the late Ian Craven, and WWF's involvement in Wasur therefore entered its final phase. Its main theme was to ensure a smooth transition of the park to full PHPA-KSDA management, due to be completed in 1996, while also keeping the park's aboriginal residents involved in its management. The procedures and precedents established are likely to be applicable in many other locations in Irian Jaya and Indonesia.

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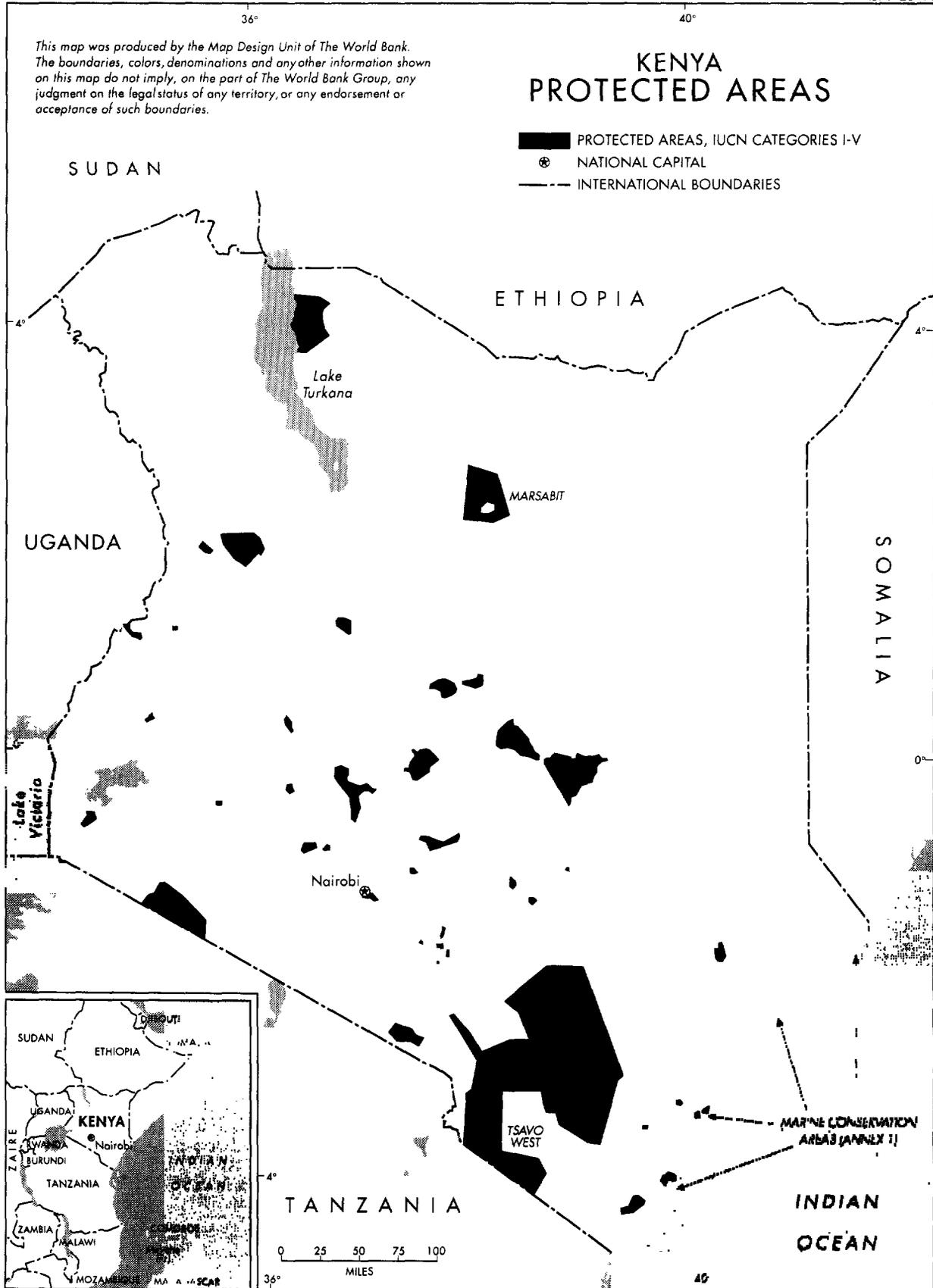
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KENYA PROTECTED AREAS

- PROTECTED AREAS, IUCN CATEGORIES I-V
- ⊕ NATIONAL CAPITAL
- INTERNATIONAL BOUNDARIES



Kenya

Joyce H. Poole and Richard E. Leakey

In the late 1970s, the government of Kenya recognized that successful long-term rural development required greater participation by local communities, and in 1983 the District Focus for Rural Development system was begun (Kenya 1987). This delegated to the districts responsibility for many rural development projects, such as village water systems, rural access roads, municipal market buildings, and rural health centers. The authority to set general policy and to plan multidistrict and national programs remained with the central government ministries. The intent of this decentralization strategy was to widen the base of rural development and to encourage broader participation, thereby improving identification of problems, mobilization of resources, and project design and implementation.

Kenya's original constitution provided for strong provincial governments, but these were dismantled in the 1960s, leaving the districts and their county councils as the main stratum of "local" government in the rural areas (Smoke 1993). The districts are large units, remote from and not particularly accountable to ordinary citizens, and their powers are subject to veto by central government. A significant drawback to effective centralization is that the districts still need to go to the center for funds because they cannot raise their own revenues. Central and district governments between them control most land and other resources, which can be allocated almost at will by senior officials.

In theory, each district is responsible, through its district development committee, for rural development planning, coordination, project implementation, financial management, local procurement, and management of human resources. The district treasury is responsible for managing all government funds in the

district according to established procedures. Often, however, the main source of funds for rural development is the sectoral ministry concerned in each case, and these resources are limited by that ministry's budget and priorities. As a consequence, rural development increasingly is being funded by external donors through nongovernmental organizations (NGOs) to ensure adequate resources and proper implementation of projects. In practice, most large-scale rural development, such as agricultural research stations or mining projects, is planned and managed through the relevant ministry, although district-specific subcomponents of any project are supposed to be implemented at the district level.

Despite the intent of District Focus for Rural Development, decentralization and devolution of authority are, in reality, quite limited in Kenya. District-level authorities often lack resources and expertise with which to meet their responsibilities. The district development committees responsible for district-level planning are largely made up of locally based representatives of ministries and other central agencies. There seems to be a continuing reluctance on the part of government to decentralize authority in real terms and to empower local communities. In the case of the wildlife sector, a district warden is a member of the district development committee, but wildlife and habitat conservation never really has been carried out in accordance with the District Focus strategy. In Kenya, wildlife and habitat conservation has always been the responsibility of a central body that makes all important decisions regarding finance and administration.

[Author's note: After the preceding was written, the Kenya Wildlife Service commenced a program of decentralization and proposed wildlife policy changes

that may lead to a better outcome than implied in this chapter.]

A Difficult History of Decentralization

Prior to 1976, the protected areas of Kenya fell under several different administrative bodies. The national parks were run as a parastatal by a National Parks Board, and revenues were retained by the national parks. Wildlife outside protected areas was the responsibility of the Game Department, which fell under the Ministry of Tourism and Wildlife, and each district had a Game Department office. The national reserves were administered by the district county councils under the jurisdiction of the Ministry of Local Government, with a game warden supplied by the Game Department. Most indigenous forests were run by the Forestry Department under the Ministry of Environment and Natural Resources (MENR).

In 1976, the national parks were merged with the Game Department and became the responsibility of one government department, the Wildlife Conservation and Management Department (WCMD) of the Ministry of Tourism and Wildlife. The merging of two departments into one government department had the effect of increasing centralization, especially since the reporting structure was vertical rather than horizontal, and control lay effectively with the minister and the permanent secretary.

The merger was not a success. The government department was not permitted to retain revenue from park entrance fees and concessions and was unable to obtain adequate funds through the ministry from the treasury because of competing government priorities for national fiscal resources. The key problem for the WCMD was that its revenues, policies, and programs were under central government control. The result was that over a relatively short period, wildlife management became inefficient and corrupt, and it was during this period that close to 90 percent of Kenya's elephants disappeared.

The Forestry Department was meanwhile experiencing the same difficulty because it was not permitted to retain revenue and could not obtain adequate funds for forest protection and management. Kenya's forests therefore suffered serious decline. Because of illegal agricultural expansion, illegal harvesting, and official excisions from protected forest reserves, indigenous forests now occupy only 2 percent of the total land area. This amounts to over 10 percent of the country's forest cover in moister areas (Sayer, Harcourt, and

Collins 1992), but much of the remaining forest is degraded and contains few fully mature trees.

In 1990, the WCMD was transformed into a new parastatal known as the Kenya Wildlife Service (KWS). This new organization was to retain revenue earned and was given a broad and independent mandate. Although the KWS falls under the Ministry of Tourism and Wildlife, the intention was for this new organization to have a corporate culture free of the constraints of civil service procedures and work methods. In reality, however, the minister and the permanent secretary continue to exert considerable influence and control over policy and operations, partly because they control the flow of funds from external donors and partly because the law creating the KWS was not comprehensive and did not anticipate some of the problems that have emerged. New legislation has been proposed but not yet prepared as of this writing, and the KWS meanwhile remains less than fully effective.

In 1990, the KWS produced a comprehensive policy framework and five-year investment program (KWS 1990) that clearly states its intention to increasingly decentralize. This objective seemed attainable in view of bilateral and multilateral donor commitments of up to US\$150 million, much of it for the Protected Areas and Wildlife Services (PAWS) Project. The total PAWS Project budget is US\$143 million. Of this, US\$31 million is the Kenyan government's contribution. The other US\$112 million is to come from various donors, including a US\$60.5 million in International Development Association (IDA) credit and about US\$40 million from the German Kreditanstalt für Wiederaufbau (KfW) and the British Overseas Development Administration (ODA). The U.S. Agency for International Development (USAID) is supporting the Community Wildlife Program with US\$7 million.

The intention was for planning and implementation, as well as fiscal responsibility, to be granted increasingly to regional wardens and to wardens of national parks and reserves. Indeed, the wardens are theoretically responsible for development planning and implementation. But in practice, work plans and budgets are still controlled from headquarters. Furthermore, many protected-area work plans developed under PAWS had to be completely revised because of ceilings on public sector expenditure imposed by the International Monetary Fund (IMF).

Even if these difficulties can be overcome, it is clear that, for decentralization to work successfully, it will be necessary to recruit a substantial number of qualified personnel. To do this, the KWS must attract staff from the private sector, where terms of employment

are substantially better than in government and other parastatals. So far the government has been unwilling to allow the kws the necessary independence in recruitment and terms of service. (Not all qualified technical personnel need be decentralized. It is possible to establish a system in which a number of specialized skills are centralized, whereas day-to-day operations are fully decentralized and devolved to local governments or community institutions.)

In most cases, the national reserves remain under the management of district councils. More than half of Kenya's protected areas are controlled by these local authorities, which derive revenue from tourism. The district councils are very dependent on such revenue and often are unable or unwilling to allocate adequate budgets for reserve management and wildlife conservation. National interests and habitat conservation are compromised when a reserve is poorly run, not only because wildlife populations are at risk, but also because tourists may change their travel plans in response to bad publicity and bad experiences and may not discriminate as to exactly where they had those experiences. Thus, this is an example of decentralization where conservation objectives have not been achieved.

For this reason, since the creation of the kws, there has been a trend toward encouraging local authorities to allow the kws a stronger role in reserve management. This has met considerable resistance from some quarters because of fears that district councils would receive less money and that graft would be eliminated. Until the management is improved, some of Kenya's key wildlife protected areas will continue to be seriously threatened.

In 1991, the kws and the Forestry Department entered into a memorandum of understanding whereby the kws would jointly manage indigenous forests. Under the memorandum, the kws would encourage revenue-generating activities within indigenous forests and would retain the revenue for forest management. This concept has met with mixed success, but efforts continue to make progress in key forest areas.

From the foregoing, it can be seen that decentralization in the wildlife sector has progressed little, despite some important opportunities. An important question is how better to manage national reserves that are so critical to the budgets of local authorities. Introducing efficient management could sustainably increase county council revenue, and this could benefit other sectors at the local level. Better management requires professional manpower, however, as well as

investment in equipment and infrastructure, and all of this costs money. At present, neither the central government nor local government is willing or able to facilitate or implement policies that would help the wildlife sector.

Trends Affecting NGOs, Communities, and Private Landowners

NGOs have been and continue to be important to conservation in Kenya. During the WCMD years (1976–90), NGO involvement in conservation increased because the expanded bureaucracy of the government-run agency was less responsive to conditions in the field and because inadequate funding and corruption led donor agencies to channel conservation funds through NGOs to ensure timely and effective implementation.

Some NGOs recognize the need to build institutional capability to ensure project sustainability. Thus, they increasingly encourage participation in project identification, design, and implementation, both by local communities and by bodies such as the kws. The emphasis in recent years has been on providing technical support to those responsible for conservation. The management of project funds has proved problematic, and some NGOs are increasingly inclined to retain control of them.

The kws's policy of working toward greater decentralization is nowhere more clearly stated than in community involvement in conservation. Again, however, these programs have not had time to prove themselves. Signs of progress can be seen in the setting up by the kws of the Wildlife Development Fund and numerous revenue-sharing wildlife forums and associations and in the progress that has been made around Marsabit and Amboseli national parks (Western, Wright, and Strum 1994). (See the case studies at the end of the chapter.) These positive steps have been made despite continual attempts by central and district officials to retain control, especially of revenue-sharing funds, wildlife enterprise development funds, and the like. Disputes over land use and revenues—for example, among private ranchers, group ranches, the group ranch committees, and district councils—have resulted in slow implementation of community conservation programs.

Political interference also seriously threatens to undermine community wildlife programs. In 1993, for example, after a major court battle, the Ol Choro Oiroua Wildlife Association won the right to retain the revenue earned through tourism on its land, which comprises a number of group

ranches around the Maasai Mara. Prior to this decision, the county council had collected all such revenue, returning only a small portion to the landowners. This decision was later overturned, and Ol Choro Oiroua is now being forced by council authorities to share nearly half its revenue with neighboring ranches whose own revenue is still collected by the county council.

Thus, funds that were set aside for wildlife and habitat management are no longer available, and the local community is losing interest in conservation as a viable alternative for this important dispersal area. It can be concluded that although the devolution of responsibility for wildlife and habitat conservation may be a useful ideal, it has not worked well in Kenya because of political constraints and the absence of clear and supportive government policies.

There are, however, some cases of successful conservation initiatives by private landowners. During the severe poaching of the 1970s and 1980s, for example, the owners of a number of large ranches started programs to conserve the black rhino. As a result of their efforts, by 1989 about 45 percent of Kenya's remaining rhinos survived on private land, and during the 1990s some of these rhinos have been used to restock a number of Kenya's protected areas.

Government funding in Kenya is limited and inflexible, so access to revenue sources that are independent of government is an important factor for the success of local conservation efforts. A substantial proportion of community conservation activities receives NGO funding

Decentralization of Important Functions

Decentralization of important conservation functions has various consequences depending on the function involved, the entity to which it is transferred, and the circumstances in each case. Conservation management has many aspects; some directly affect and involve the local community and others do not. The control of problem animals, for example, may be achieved locally when the species are neither dangerous nor endangered (for example, porcupines and wild pigs). If dangerous or perhaps endangered species such as elephants are involved, however, specially trained personnel, firearms, and strict controls are needed, and this requires a more centralized system. Nevertheless, there have been attempts to decentralize such control, even for elephants, by involving honorary wardens and game scouts. The general trend is toward greater decentralization and greater involvement of local communities.

The need for on-the-ground protection also varies, depending on the threat. When poaching is small-scale and for-the-pot, game scouts from the local community may work more effectively than a team of well-armed rangers sent from kws headquarters. If, however, the threat is a well-organized rhino or elephant poaching gang equipped with automatic weapons, local scouts have little deterrent value except as informers. This problem demands a specialized team that only a central authority can deploy.

The success of decentralization for habitat conservation and management depends largely on the number of well-trained individuals available. The more decentralized conservation becomes, the more trained individuals are required. Currently, far too few competent and experienced individuals are available to support a centralized effort, let alone one that is wholly or even partially decentralized. Without a strong local and accountable system of political control, decisions affecting wildlife resources are made by those who have the least interest in ensuring their sustainable use. This discourages local people from conserving. In the absence of local political control, a powerful conservation authority, staffed by highly trained technical people, is needed.

It may therefore be more effective to increase local involvement and accountability through real decentralization, rather than to increase the number of technical people employed in conservation agencies. This strategy would be abetted by changing the training of conservation staff to include negotiation and group-facilitation skills as a complement to technical, managerial, and leadership skills.

Competition from Other Sectors

To a large extent, the decentralization experience can be classified according to whether a protected area holds economic potential for some other sector, such as tourism or agriculture. Central government authorities exercise direct control over many aspects of local management, including land allocation. Such central authorities include the commissioner of lands, the Ministry of Local Government, and the Ministry of Environment and Natural Resources. Political interest is common in Kenya, and where economic gains are to be made, communities, district officials, and protected-area wardens are rarely in a position to resist decisions that are made or influenced higher up.

The greatest threat to biodiversity in Kenya is loss of habitat, as agriculture and settlement expand into the forests, wetlands, and rangelands. The problem of agricultural encroachment is most acute around forest

reserves where high agricultural potential and demand for indigenous hardwoods have led to increasing illegal and "legal" excisions from protected forests. All cutting of indigenous trees is contrary to a standing presidential decree, although ministries continue to make such excisions. One consequence of these excisions is the increasing irregularity of forest boundaries, which makes it easier for people to enter the remaining forest to cut fuelwood and for elephants and other crop-raiding animals to gain access to farmland. The result is more conflict between wildlife and people.

In many arid and semiarid land areas, population pressure has caused demand for the removal from protection of large areas of park and reserve land, even where there is little potential for agriculture. One example is Marsabit National Park, a unique mountain forest surrounded by desert. In the 1980s, a large portion of the reserve was removed from protection to make room for settlement, with the result that traditional elephant migration routes were almost entirely severed. Increasing conflict between people and wildlife led to a joint effort by the KWS, NGOs, and the community to erect a fence around part of the forest. Although this project can be seen as a success (see the case studies at the end of the chapter), the increased confinement of elephants inside the forest may threaten the long-term survival of this unique and isolated habitat.

Another example of competition from competing agricultural needs involves the Tana Delta, which was proposed as a crucial wetland site under the Ramsar Convention and targeted to become a protected area. Despite this, it was decided to develop a massive prawn farm in part of the area and to allocate other parts for real estate development. High-level government backing played a role in this, and although the development has been stopped, ongoing litigation means that this unique and important wetland area has an uncertain future.

Tourism is often a threat to protected areas, although it provides much of the revenue needed to manage them. Once again, few controls exist, and the behavior of influential individuals who seek financial gain threatens to undermine the long-term viability of the tourism industry. In the early 1980s, for example, it was decided that no further lodges would be built in Amboseli National Park and that if more were needed, they would be constructed outside the park boundaries. This would disperse tourist vehicles while giving communities more opportunity to benefit from conservation. In 1991, however, political pressure

overturned this decision, and in 1994 construction began on a 200-bed lodge within the already overcrowded national park. Local people will see no benefit from this project, and the popularity of the area among visitors probably will be reduced because of the increased load on infrastructure, further overcrowding of game-viewing areas, and an aggravated traffic and dust problem. Communities and the central authorities all will lose if this occurs.

The Mara Game Reserve has had similar problems, but on a much larger scale. The reserve is owned and managed by the Narok County Council with little influence from the KWS. With competing district needs, little of the revenue derived from the reserve is put back into its management. Without proper management, poaching continues unabated, and conflicts between wildlife and local people outside the reserve have escalated to the crisis point. Several lodges in the Mara are owned by influential officials of the central and district governments, who have little incentive to control tourist numbers and activities. Hotels continue to be built with scant regard for the integrity of the reserve. Waste disposal systems are inadequate, overuse of wood for heating water is causing the loss of woodland, and off-road driving is degrading habitats and harassing all wild species, particularly predators.

Council staff have inadequate conservation and management expertise to deal with the growing problems, and they receive little political and administrative encouragement to do so. There is a strong input from conservation NGOs, but against a background of corruption in the council, little can be achieved. In this instance, the partial decentralization to districts (rather than to more local entities) is not effective in achieving conservation objectives.

Conflict between mining and protected areas has not been a serious problem in Kenya, except perhaps in Tsavo National Park, where mining for rubies was permitted for many years. Mining was stopped by the KWS, but pressure from influential individuals to resume it has increased in recent years. In contrast, there has been significant conflict over the routing of water and oil pipelines and power lines and the construction of hydroelectric dams. Diversion of water from one area of the country to another, mostly for irrigation, has affected many natural habitats and is one of the most widespread and pressing threats to the Kenyan environment.

For example, the Emali pipeline from Lolturesh on the slopes of Kilimanjaro has all but dried up the Esoit-Pus Swamp, once an important dispersal area for both Amboseli and Tsavo West national parks and

heavily used by Maasai livestock. The result is that both parks are subject to increasing pressure from livestock and wildlife. The decision to pipe the water was made after very little consultation with local Maasai or conservation authorities. Similarly, the proposed routing of oil and water pipelines and power lines through Tsavo and Nairobi national parks had to be negotiated at the highest levels, and the outcome would have been very different had decisions been decentralized to local entities, which are representative and not corrupt.

Where there is little competition from other sectors, conflicts are routinely settled at the level of the district development committee, where the district warden and the district forest officer are represented. It is only when conflicts cannot be resolved at this level, or when there is political interference, that problems are passed up to the director's level. In summary, a decentralized system is better able to solve minor and local conflicts than a centralized one. Where political interference occurs, however, the side with the most influence tends to win.

Rural Development and Habitat Conservation

As noted, rural development activities are intended to be decentralized under the umbrella of the District Focus for Rural Development system. In reality, however, decentralization and devolution of authority remain quite limited. This is partly because resources, expertise, and control over natural resources at the district level are insufficient, partly because coordination and communication are lacking among the various ministries concerned, and partly because competing sectoral interests and mandates exist. These factors all undermine the decentralizing effect of District Focus.

A most significant deterrent to decentralization and habitat conservation is that land-use planning policy is rarely followed. The land-conversion process is unguided, and because of limited accountability it is vulnerable to hijacking by influential individuals for private benefit. Meanwhile, little communication occurs among individuals from different sectors, and there is little consultation with conservation authorities. Friction is growing among competing and often conflicting development objectives and programs, including those in agriculture, forestry, energy (fuelwood harvesting), and wildlife conservation and management.

An example of this lack of communication is provided by the Mau forest, part of which was delisted to

allow settlement in 1992. This government decision was made without consulting the kws, which had data showing that the land to be settled lay where the forest had its highest density of elephants. This happened during a period when conflict between elephants and people had become a national issue. It was only after the decision had been made that the kws was invited to advise people on how best to avoid conflict with elephants (for example, through choice of housing sites and crops).

Summary and Conclusions

The Kenyan experience of devolving the central government functions of development and project management to local authorities has not been a great success. In most specific instances related to the wildlife sector, moreover, it has been a failure. Although few would contest the theoretical advantage of decentralization in promoting community participation, in Kenya it has been extremely hard to make decentralization achieve conservation objectives. Problems derive especially from the shortage of technical people who are willing to work in the public sector, where employment benefits often fall far short of need. Also, not enough people are willing to work in rural areas where few facilities exist for good schooling and health care and where there is no "critical mass" of committed local leaders, functionaries, and advisers. Furthermore, a chronic shortage of funds in the public sector has made project implementation a problem everywhere.

The basic goals of a decentralized system of development remain valid, but the strategies used in Kenya appear to have had limited success, and there are clearly defined problem areas that must be addressed. Particularly challenging for decentralization is the management and conservation of wildlife and protected areas, where interests compete for large tracts of land and access to water. Many problems of underdevelopment remain, and short-term action or even crisis management have become the order of the day. Although long-term objectives can generally be agreed on, politicians find it hard to make short-term choices that are consistent with those objectives. Their decisions are, therefore, often counterproductive and damaging, both to the public interest and to long-term national needs. In a centralized system, by contrast, local politicians sometimes can be overruled by directions from the center, and this can help people in the field to achieve conservation.

Case Studies in Kenya

The following case studies present some successful examples of decentralized conservation in Kenya: the Wildlife for Development Fund, working closely with the Associations of Fishermen in the marine national parks; the pioneering community conservation work of the African Wildlife Foundation (AWF) under its program Neighbours as Partners in the Tsavo West National Park Wildlife Extension Project; and cooperative erection of an elephant-barrier fence in Marsabit National Reserve Park.

The Wildlife for Development Fund and the Associations of Fishermen

In 1994 the Kenya Wildlife Service established the Wildlife for Development Fund (WDF) with financial support from USAID and the World Bank. The WDF is designed to encourage conservation among groups and communities that coexist with wildlife in their areas.¹ It does this by providing direct support and by promoting revenue sharing, in which communities receive a portion of the gate receipts from key conservation areas. Under revenue sharing and WDF, two groups of activities can be funded: enterprise development and community development. Funding approval is based on meeting certain criteria. KWS wardens-in-charge have the line authority to approve expenditures up to K Sh100,000. Greater amounts are proposed to KWS headquarters, where they are reviewed by the WDF committee.

Increasing numbers of wildlife associations are engaged in enterprises that seek to benefit from the sustainable use of wildlife. The Community Wildlife Service of the Kenya Wildlife Service has assisted in registering these forums or associations and in training their members, and many are now turning to the WDF for support. Of special interest to habitat conservation and rural development are the Associations of Fishermen. Although fishing cooperatives have existed for some time along the Kenya coast, the KWS is now working closely with those near the marine national parks. These subsistence fishermen use traditional dugout canoes, which are unreliable for venture into the open seas. Thus, they are forced to fish closer to shore along the reefs. As a consequence the reefs, including those in protected areas, have been overfished and the corals damaged by anchors.

A number of the Associations of Fishermen have received funding through the WDF that has increased their catch while at the same time reducing their impact on

the coral reefs. For example, larger boats, motors, and new fishing nets have permitted these fishermen to venture farther from shore, meaning that they no longer are fishing in or near protected areas. This reduces the impact on fragile marine habitats while simultaneously improving the fishermen's livelihood.

The African Wildlife Foundation and the Tsavo West National Park Wildlife Extension Project

It is now accepted that wildlife authorities should take the initiative in developing contact with the communities around their areas of jurisdiction. Although government departments recognize the importance of communities in habitat conservation, few have the resources to promote that role. In Kenya, the AWF has pioneered community conservation work under its program Neighbours as Partners, particularly in Tsavo West National Park.²

Tsavo is the largest national park in Kenya, and the long-term survival of elephants there requires that its boundaries and habitats remain intact. Agricultural expansion around the park has reduced available grazing land and has led to incursions into the park. In 1989, an estimated 40,000 cattle grazed within the park, causing severe habitat degradation and conflict between park authorities and neighboring communities. The AWF intends to reduce this conflict by supporting the extension work of the KWS through the Tsavo West National Park Wildlife Extension Project, a three-year effort with US\$350,000 financing through USAID.

The AWF project included some 2,000 square kilometers along the western boundary of Tsavo West National Park, where the local people are subsistence farmers and pastoralists. The primary objective was to organize an active community conservation team. The project was coordinated by Peter Lembuya of AWF, who worked with the communities to establish village-level committees. Their role was to mobilize communities and to carry on liaison between the communities and wildlife authorities.

As a result of workshops and other training, the communities resolved to establish a substantial buffer zone, 5 kilometers wide by 70 kilometers long, for dry-season grazing on group ranchland along the park boundary. By early 1994, the number of cattle using the park had been reduced to between 500 and 1,000. Revenue-generating activities also were conducted in the buffer zone, including camp sites, walking safaris, and game-bird hunting. The community further resolved to set aside its own game sanctuary in Kimana.

In addition to their own revenue generation, the communities have received some funds from the kws through revenue sharing. These funds have been put toward the building of schools and clinics away from the buffer zone.

As a result of the project, conflicts between the communities and wildlife authorities now are resolved through dialogue. The wildlife authorities have learned that they need community participation for conservation to work. They also have learned that cooperation sometimes means abandoning the uniform and the gun and sitting under the shade of a tree for a chat with the elders. The communities have learned that they, too, may benefit from conservation.

Marsabit: Building a Fence

Marsabit National Park lies in arid northern Kenya. The reserve is currently some 2,000 square kilometers, including Marsabit Mountain, which rises above the surrounding desert country. The reserve is unusual because it includes a forest reserve of 144 square kilometers (under the joint management of the Forestry Department and the kws) and a national park of 360 square kilometers, both of which are contained on the mountain itself.³

Marsabit Mountain supports a moist tropical forest that has undergone very little logging. The area of closed-canopy forest is the largest in northern Kenya, and its diverse forest community makes it very important for biodiversity conservation. In addition, a growing human population depends on the forest reserve for water, fuelwood, and dry-season grazing. The government has encouraged increased food production and agriculture as a land-use practice, even in arid locations and among pastoral communities.

The northern and eastern sides of the mountain are now densely populated with settlements of Rendille, Boran, Gabbra, Somali, and Burchi refugees from Ethiopia, all of whom have recently turned to a settled, agricultural way of life. The communities survive at subsistence level; indeed, many are on famine relief. As human settlement around the mountain has increased, the conflict between elephants and people has emerged as a serious issue. This had led to hostility among the local community, district leaders, and the kws.

A possible remedy was the erection of a wildlife fence. Thus, several years ago, the community approached Food for the Hungry International (FHI) and the National Council of Churches of Kenya (NCCCK) for assistance in raising funds for a fence. The FHI in turn

approached the kws. A cooperative effort put K Sh4.5 million into the erection of a 30-kilometer fence. kws provided posts, expertise, training, and design; FHI provided transport, electrical components, a community mobilizer, wire, and tools; and the community cleared the line, decided on alignment, dug the holes, assisted with construction, and assumed responsibility for maintenance. In all, community input was close to 15 percent of the project cost.

The project is thus far a success. On the rural development side, farmers along the fence are harvesting a full crop of maize, while on the conservation side, significant gains also have occurred. Several years ago, an average of three elephants were shot each year as problem animals, but none has been shot since the fence was erected. Rangers formerly assigned to full-time control work have been redeployed to antipoaching patrols in the north of the reserve or to further extension work.

Positive relations with the community have led to agreements that only dead wood will be collected in the forest and that it will pass only through specified gates for better control and monitoring. This is significant because it had been estimated that 155 metric tons of fuelwood were removed from the forest weekly along a 5-kilometer strip.

Furthermore, cooperative relations between authorities in the community and protected area have led to funding of another project, which involves piping water from the center of the forest to the community. This has reduced the number of people entering the forest and the frequency of illegal activity.

The Marsabit fence is an excellent example of integration of habitat conservation and rural development. The project has proved that different bodies—NGOs, communities, and conservation organizations—can work together to their mutual benefit. The effort has brought goodwill for conservation, a reduction in habitat destruction, and improvement in the lives of people living near Marsabit, as well as a better local appreciation for the value of conservation.

Notes

1. Information for the case study on marine conservation is from P. Wandera, Community Wildlife Service, Kenya Wildlife Service, personal communication, and "Policy Statement and Operational Summary for Revenue Sharing and the Wildlife Development Fund," Kenya Wildlife Service, Nairobi.

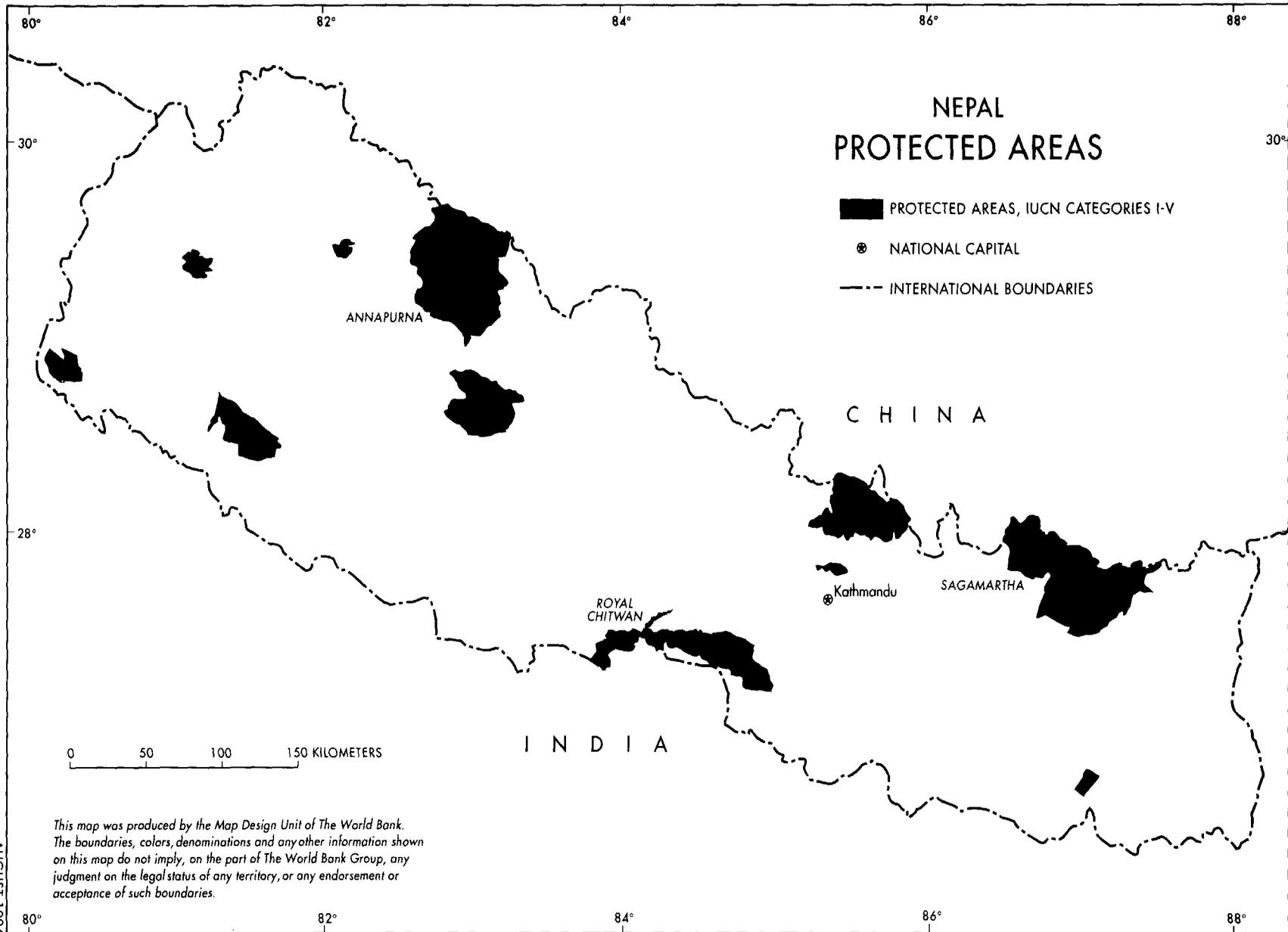
2. Information for the case study on community-based conservation efforts is from Peter Lembuya, African Wildlife Foundation, personal communication, and "Protected Areas: Neighbours as Partners—A Wildlife Extension Team for Tsavo West National Park, Final Report to USAID," African Wildlife Foundation, Nairobi.

3. Information for the case study on Marsabit National Park is from N. Kagiri, Fencing Unit, Kenya Wildlife Service, Nairobi, personal communication.

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Nepal

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Nepal contains some of the most spectacular natural areas in the world in a remarkable physical setting. The altitude increases dramatically from less than 100 meters above sea level in the subtropical Tarai in the southern part of the country to the highest point on Earth's surface (8,848 meters) at the southern edge of the Tibetan Plateau, all within a horizontal distance of about 200 kilometers. The country's wide variety of habitats within a relatively small area has produced an outstanding diversity of wildlife and plants. These include many endangered mammals and reptiles, over 850 bird species, some 640 species of butterflies, and over 6,500 species of flowering plants.

Nepal is an extremely poor country with limited resources and modest institutional capability. Despite these constraints, a significant proportion of the country's striking landscape, culture, and biological diversity is legally sheltered within a protected-area system that covers nearly 14 percent of the land area (see country map and table 7-1). In addition to their biological importance, several parks also contain religious and cultural sites of great significance. Royal Chitwan National Park and Sagarmatha (Mount Everest) National Park both have been recognized as World Heritage sites.

Nepal's protected areas increasingly have attracted foreign visitors, helping to establish tourism as the country's largest and most reliable source of foreign-exchange earnings (Wells 1993). The parks also provide some natural resources for local use, including timber, fuelwood, fodder, and thatching.

Despite the undoubted ecological and economic importance of the protected areas, there is growing evidence that two closely related problems have become particularly urgent (HMGN and IUCN 1988; MFSC 1988; ERL 1989). The two problems are:

- Reconciling the needs and aspirations of local people with protected-area management
- Reconciling the economic opportunities offered by protected-area tourism with its ecological threats.

Nepal's Department of National Parks and Wildlife Conservation (DNPWC) within the Ministry of Forests and Soil Conservation is responsible for protected-area management (with two exceptions, discussed below). But the DNPWC has so far lacked the capability and financial resources to respond effectively to these challenges.

Significant local imbalance between economic cost and benefits has led to conflicts of interest between protected areas and their neighboring communities in many countries (Wells 1992). Nepal has gone further than most to address these imbalances by launching a variety of projects and programs to test different participatory strategies. The future of biodiversity conservation in Nepal depends largely on how effectively these initiatives can continue to be implemented and, critically, how effectively their lessons can be applied on a broader front.

The modern history of conservation in Nepal has unfolded against a background of dramatic political change, particularly during the past five years. This chapter attempts to identify the landmarks and significant trends in biodiversity conservation at national and local levels in Nepal and to relate these to larger-scale political shifts that had the effect of first centralizing and then decentralizing decisionmaking.

A Brief Conservation History of Nepal

Key features of Nepal's conservation history can be traced to a period when the entire southern semitropi-

Table 7-1. Name, Size, and Date Established of Protected Areas in Nepal

<i>Name</i>	<i>Size (square kilometers)</i>	<i>Date established</i>
Annapurna CA	8,400	1988
Dhorpatan HR	1,325	1984
Khaptad NP	225	1985
Koshi Tappu WR	175	1976
Langtang NP	1,710	1976
Makalu-Barun CA and NP	2,330	1992
Parsa WR	500	1984
Rara NP	106	1976
Royal Bardia NP	968	1976
Royal Chitwan NP	932	1973
Royal Shuklaimasta	155	1976
Sagarmatha NP (Mt. Everest)	1,148	1975
Shey Phoksundo NP	3,555	1984
Shivapuri WR	114	1985
Total area	16,643	

Note: The abbreviations used are Wildlife reserve, WR; national park, NP; hunting reserve, HR; and conservation area, CA.

cal Tarai lowlands were forested. Local groups lived in communities near the rivers, hunted in the forests, fished in the lakes, and practiced subsistence farming. The infrequent visitors to this malaria-infested region were limited to occasional traders bringing supplies from India and to parties of rulers and their guests hunting prize game species such as tigers and rhinos (Smythies 1942; Gurung 1980).

This pattern was broken by the collapse of the autocratic Rana regime (1846–1951), and the ensuing political turmoil led to serious loss of wildlife and habitat in the Tarai. Encouraged by the gradual eradication of malaria from lowland areas during the 1950s, land-hungry migrants arrived from Nepal's hill areas (the intermediate zone between the Tarai in the south and the Himalayas in the north). Driven by economic hardship and the prospect of abundant territory in the lowlands, these people cleared most of the fertile lands for settlement and farming. Forests were cut indiscriminately and further damaged by extensive cattle grazing.

In 1961, the late King Mahendra dissolved the eighteen-month-old democratically elected government and imposed the "partyless Panchayat system" of government. Power thus became concentrated in the hands of the king and the royal families, a situation that persisted until 1990. This centralized government proved to be particularly favorable to wildlife conservation. The royal family's traditional dedication to hunting led them to take a keen personal interest in the new era of wildlife conservation in Nepal. For example, today's

Royal Chitwan National Park is the former Chitwan "rhino sanctuary." Similarly, former royal hunting forests now comprise the Royal Bardia National Park and Royal Suklaphanta Wildlife Reserve.

Increasing human population in the Tarai and the growing pressure from livestock grazing soon began seriously to affect the lowland forests, including the rhino sanctuary. A "rhino patrol," a special unit of armed forest guards, was established in Chitwan Valley as early as 1959. (This protection work now is performed by units of the Royal Nepalese Army.) As in many other countries, early protection efforts (before 1970) were intended to protect prize animals and valuable timber trees rather than wildlife habitats or complete ecosystems.

The National Parks and Wildlife Conservation Act (HMGN 1973) was passed in 1973, early in the reign of H. M. the King Birendra. This landmark legislation established the legal framework for Nepal's protected-area system as it exists today, consisting of eight national parks, four wildlife reserves, two conservation areas, and one hunting reserve. All but two are managed by the DNPWC. The Annapurna Conservation Area is managed by a national nongovernmental organization (NGO), the King Mahendra Trust for Nature Conservation (KMTNC). Shivapuri Watershed and Wildlife Reserve is managed by a development committee board under the Ministry of Forests and Soil Conservation.

Several policies adopted during the Panchayat era (1961–90) have set a high standard for conservation in Nepal, by:

- Creating a network of national parks and reserves in all of the country's important ecological regions
- Establishing the DNPWC
- Presenting a positive international image, with considerable success in attracting financial support for nature conservation, initially from international NGOs and then from bilateral and multilateral development organizations
- Establishing a prominent and influential national nongovernmental organization for nature conservation, the KMTNC
- Developing a core of well-trained and experienced park managers, several with higher-education qualifications from abroad
- Launching a more people-oriented strategy for protected-area management through the concept of multiple use and participatory conservation areas, as well as growing interest in community forestry.

Other policies introduced during the Panchayat period were controversial, however, and created a legacy of problems. Two are of particular concern. First, in 1975 the government replaced the existing forest guards with regular units of the Royal Nepalese Army; subsequently the army gradually assumed responsibility for law enforcement in virtually all parks and reserves except for the new conservation areas). These army battalions, however, are assigned to the parks for only two or three years, they receive no training in wildlife conservation, and they are not accountable to park management.

The army's perspective on conservation is not always compatible with that of the park managers, often resulting in a lack of coordination between battalion commanders and the park managers (Upreti 1989). Sharma (1986) has argued that the presence of armed guards should be limited to small groups of mobile units and that the parks' peripheral areas, where soldiers come into daily contact with local people, should be free of firearms. Such areas should be guarded by trained civil guards equipped only with batons (and possibly spears for protection against wild animals), with armed forces available as backup in an emergency.

The second concern is that an unfortunate precedent was set by granting concessions to private sector tourist resorts within protected areas, such as the seven in Royal Chitwan National Park (see the case studies at the end of the chapter). These resorts force park managers to apply a double standard because local people are not allowed to use park resources, whereas visitors at

the resorts have virtually unlimited access to them. The considerable revenue generated by these operations provides few local benefits, and tourism can be linked to growing and obvious environmental damage. It is now clear that such facilities should have been sited outside park boundaries, as is done in most other countries, and that use of parks by tourists should have been regulated much more strictly.

In the late 1980s, government policy toward conservation in general and the protected-area system in particular was outlined in the National Conservation Strategy (HMG/N and IUCN 1988). The strategy (a) highlighted the need to draft park and reserve management plans through consultation, both with local communities and with concerned government agencies; (b) stressed the need to designate protected-area zones for different kinds of use; and (c) emphasized the importance of regulating tourism. The strategy, however, gave no direction on how to achieve these goals.

The revolution of 1990–91 restored a democratic system in Nepal. Subsequent governments all have emphasized the need to maintain Nepal's wildlife conservation programs. In 1993, the Nepal Environmental Policy and Action Plan was adopted by the Environmental Protection Council. This plan reiterated the severe constraints facing the protected-area network, highlighted the need to involve local people in park management, and called for revenue-sharing mechanisms to benefit people whose livelihoods are adversely affected by parks.

Two policy decisions made during the post-1991 democratic era have considerably strengthened the institutional framework for wildlife conservation. First, environmental impact assessments (EIAs) are now required before any development project can begin in a protected area or national forest, including the granting of new concessions for resorts inside parks or reserves. The EIA guidelines are based on a cabinet-level decision published in the *Nepal Gazette*. Although this is an important step forward, these guidelines are reversible and ideally should have been legislated to make them strong and permanent.

Second, in 1993, the Fourth Amendment to the 1973 National Parks and Wildlife Conservation Act established a legal foundation for buffer zones to be created adjoining protected areas and for revenue-sharing schemes to be launched. This legislation empowered the government to declare areas surrounding any national park or reserve a buffer zone and local user group committees to use 30 to 50 percent of park revenues for managing community forests, income-generating activities, community development work,

and so on (details are given below). The legal aspects of many of these changes are explored in depth by Keiter (forthcoming).

The wholly centralized, top-down nature of wildlife conservation during the past three decades has essentially ended in Nepal. In the country's new political landscape, the future of the protected-area network depends largely on how much support individual parks and reserves receive from the people.

Institutions for Conservation in Nepal

DNPWC is a small part of the Ministry of Forests and Soil Conservation. Its staff recently was reduced by 13 percent to 880 in accordance with personnel reduction and cost-cutting policies throughout the civil service. There are 835 field staff positions, but actual staff numbers at all grades are well below this level as a result of vacancies and temporary transfers. The ability of the DNPWC to manage Nepal's protected-area system has not kept pace with the growth of the task in size and complexity.

Activities outside park boundaries presently are coordinated with other line agencies, usually the Department of Forests and the district administrations. Wildlife conservation outside protected areas is normally the responsibility of the Department of Forests, which manages most of Nepal's public lands. Currently, local communities have no formal role in any of the protected areas under DNPWC control. The DNPWC generates income from a number of sources, including concessions, entry fees, grass-cutting permits, elephant rides, and fines. Income from these sources is retained by the DNPWC to supplement its operating budget.

The KMTNC is the largest and most influential conservation organization in Nepal, with close ties to the monarchy. It has an impressive international reputation, has been successful in raising money from overseas, and was able to lobby successfully for legislation to guarantee its own autonomy. The trust has been able to bypass many of the procedures associated with government agencies and to execute projects with a slim and flexible bureaucracy.

The trust is perhaps best known for its Annapurna Conservation Area Project, in which it has an autonomous role in managing an innovative multiple-use conservation area. This is probably a unique arrangement for an NGO in Asia, or for any NGO with respect to an area of such global importance. The trust is led by a number of outstanding Nepalese staff who have profoundly influenced conservation at a national level. It

should be added, however, that the KMTNC's overall management structure is perhaps overloaded and that the organization is stretched close to its absorptive capacity (Brandon and Wells 1992).

The trust is generally much better equipped and financed than the DNPWC. The KMTNC defines its role as complementary to the department, mainly by concentrating on innovative pilot projects and special operations. Some of the department's senior staff were transferred to the KMTNC on a long-term basis when the trust was originally established, leading to an informal but complex relationship between the two organizations (Wells 1993).

Reconciling Protected-Area Management with Social and Economic Development

When Nepal's first protected areas were established in the early 1970s, international guidelines were followed; they treated tourism as the only human activity consistent with park management. Policymakers gave little consideration to the welfare of local communities. Villagers living in what became Royal Chitwan National Park were forcibly resettled. People living outside Himalayan parks such as Sagarmatha and Langtang were denied access to park resources, whereas those living in village enclaves inside these parks were permitted to continue limited firewood collection and livestock grazing. Since 1975, all of the parks have been protected by armed guards drawn from the Royal Nepalese Army.

Not surprisingly, the parks became the focus of local suspicion, resentment, and occasionally outright hostility as people were threatened by the loss of their land or livelihood. Local communities could see no benefit from protecting parks and reserves, which they regarded as containing free resources. Park staff were seen simply as a barrier to the pursuit and achievement of nearby villagers' basic needs. Many communities still depend for their livelihood on protected flora and fauna and bitterly resent restrictions on their access to and use of natural resources within protected-area boundaries. Ineffective communication and management have compounded this problem.

Although there are few reliable estimates of the use of protected-area resources by local people, there is no doubt that the use of firewood, grazing sites, fodder, and other nontimber products has been increasing in Nepal's lowland protected areas (Sharma 1991; Jnawali 1989). In Royal Chitwan National Park, for example, a survey suggested that 45 percent of the people living in neighboring communities use the

park illegally as a source of fuelwood (Sharma 1991), and the park's riverine grasslands are subject to heavy illegal grazing (Sharma and Shaw 1993). As forests continue to disappear, the demand for such park resources inevitably will increase. Experience is showing that law enforcement and the threat of heavy fines cannot stop the illegal harvest of park resources in the absence of alternative sources.

Compounding these problems, successful protection efforts have allowed large mammal populations to expand dramatically in certain protected areas, especially the subtropical Tarai. Crop and livestock raiding by some of these species, especially rhino, bear, tiger, and wild pigs, now are affecting seriously the communities adjacent to parks. Sometimes human injuries and fatalities result, fueling local resentment of the parks.

This illustrates how people situated in or near biodiverse ecosystems capture little economic benefit from conservation when laws or management policies exclude them. Unfortunately, the cost of conservation measures tends to be felt most severely at local levels, especially in the short term. The net benefit from conservation therefore is low—and occasionally negative—for members of local communities (Wells 1992).

Measures to conserve biodiversity therefore must provide economic incentives to increase the net local benefit from conservation and use of sustainable resources (Dixon and Sherman 1990; McNeely 1988). But reconciling economic development with biodiversity conservation is particularly challenging in the remote areas of countries such as Nepal, where poverty tends to be pervasive and where virtually all economic development depends directly on access to and use of natural resources (Wells 1995a). The relationship with local people may be the least tractable problem confronting protected areas, in Nepal or elsewhere.

Sharma and Shaw (1992) have argued that allowing limited access to park resources by local people to meet their subsistence and cultural needs does nothing to stabilize the pressure on a park. Instead of fostering a sustainable lifestyle, access to park resources actually may promote a dependence on the park that will grow beyond sustainability. The implication is that neither strict control nor widely expanded access is the solution to the problem.

Initiatives toward a Solution

Several notable and promising efforts have been launched in Nepal to reconcile protected-area man-

agement with the needs of local people. In practice, these efforts can be classified as measures that decentralize decisionmaking for resource management. The key initiatives are cited here; further details are presented in the case studies at the end of chapter.

- Since 1975, local people have been able to buy permits to participate in an annual harvest of tall grasses and reeds from Royal Chitwan National Park and other protected areas in the Tarai lowlands.
- In the Himalayas, the Annapurna Conservation Area Project was launched in 1986 under the management of the KMTNC, and the conservation area was officially established in 1992.
- Also in the Himalayas, the joint project of the DNPWC and Woodlands Mountain Institute (a U.S.-based NGO) to establish the participatory Makalu-Barun Conservation Area and National Park began in 1988, with partial support from the Global Environment Facility.
- The 1973 National Parks and Wildlife Conservation Act was amended in 1989 to provide a legal basis for establishing multiple-use conservation areas and to permit NGOs to manage them.
- The 1973 National Parks and Wildlife Conservation Act was further amended in 1993 to provide a legal foundation for establishment and management of buffer zones around protected areas, to be financed by a park revenue-sharing mechanism.
- The Parks and People Project was launched in 1994 by the DNPWC and the United Nations Development Programme (UNDP) to establish working buffer zones and to promote local participation around five protected areas in the Tarai.
- Community forestry has emerged as a significant policy and program emphasis in managing Nepal's forests outside protected areas, demonstrating that it is feasible to decentralize resource decisionmaking to village levels.

The Conservation Area Concept

Nepal's first conservation area was established in the Annapurna area. The prospect of a protected area had initially been unpopular because of fears that the government sought to overturn local traditional rights of resource use and management (Gurung 1992). Sensitive to these concerns, a survey team spent six months talking to villagers and collecting information while developing a provisional project design and management plan. The survey team reported that "local vil-

layers in principle were found to be remarkably aware of problems of environmental degradation, and in general claimed that they would be supportive of corrective efforts. Assuming this moral support, and some willingness to contribute time and energy, an effective framework must be established to allow them to control poaching and random forest cutting, while providing viable, self-sustaining, and economic alternatives" (Sherpa, Coburn, and Gurung 1986). This initial consultation phase was critically important in building local trust toward KMTNC staff and the future project.

It was clear that designating the Annapurna region as a national park would lead to rapid international recognition while also permitting the application of existing legislation and allowing higher fees to be collected immediately. It was feared, however, that the restrictive management required by law in a national park would generate the same negative local response as seen elsewhere in Nepal, such as at Chitwan, Langtang, and Sagarmatha national parks. There also was concern that a national park would focus on wildlife and habitat protection in the largely uninhabited areas at the expense of necessary education, development, and management activities in the more populous ones.

After various options were considered, a new legal designation of conservation area was recommended, which required new legislation. In contrast to the existing national parks, the conservation area concept specifically allows for hunting, collection of forest products, allocation of visitor fees for local development, and delegation of management authority to the village level. The Annapurna Conservation Area contains a number of zones, each with specific regulations and management policies. The highest management priority belongs to special management zones, which are areas of conservation importance that have been degraded or are threatened by imminent degradation. Other classifications include wilderness zones, protected forest-seasonal grazing zones, intensive-use zones, and biotic-anthropological zones.

The Impact Zone Concept

The impact zone concept was developed to focus on the special needs of people living in the immediate vicinity of protected areas, who are likely to be adversely affected by conservation measures. The concept calls for strict control of forests within and adjacent to parks, combined with intensified agricul-

ture and forestry on public and private properties outside the park, with the intention of increasing the production of natural resources that are in local demand (Sharma and Shaw 1992). The objective of impact zone management is thus to satisfy the subsistence needs of people residing in a defined belt of areas affected by a park. The long-term strategy is to make the surrounding areas self-sufficient in resources such as firewood and fodder. It would also initiate income-generating activities and introduce technology to improve living conditions.

The strategies of the impact zone and the conservation area are closely related. Their field-level management programs are similar because both treat user groups as the principal vehicles for development. Both use similar social forestry activities, such as private tree planting, training, and tourism management. The conservation area concept, as applied in the Annapurna Conservation Area Project, for example, has tried to demonstrate a truly bottom-up method. Resources available locally, such as forests, grasslands, alternative energy, and tourism opportunities, are managed by local groups with the intention of fostering sustainable growth in the area. This strategy may not be adequate, however, when confronted by factors such as continuing rapid population growth, severe rural poverty, low employment levels, and social pressure to acquire the amenities, goods, and lifestyles of the West.

Buffer Zone Legislation in Nepal

Although using the term "buffer zone," the 1993 amendment of the 1973 National Parks and Wildlife Conservation Act in effect adopted the impact zone concept by creating a specific mandate to help local people develop their communities by meeting subsistence needs for forest resources from within buffer zones. The 1993 amendment empowers the government to declare a buffer zone within any forested, farmed, or settled area surrounding a national park or reserve. Although private holdings may be part of a buffer zone, landownership rights are not affected. A warden is appointed to manage the buffer zone, the boundaries of which depend on several factors. These include local availability of forests, the distance traveled to reach firewood, fodder, or grazing sites, the distance wildlife must cover to raid crops, and the availability of recognizable landmarks for marking boundaries (Sharma 1990).

The act provides for 30 to 50 percent of the revenues generated by the park or reserve to be retained

for community development. The money thus received is to be spent through user committees, which can allocate a portion of it to compensate for property losses from floods and landslides. The committees also can be entrusted with the management of fallen trees, grasses, logs, and firewood inside the protected area.

The buffer zone rules (DNPWC 1994) describe the provisions of the 1993 amendment in detail, outlining management procedures and identifying activities that are prohibited within buffer zones. They also specify how user committees are to be established, how revenues are to be distributed, and how compensation should be determined. As of October 1995, these rules were provisional and were being reviewed by the government, but they provide the following guidance:

- Buffer zones may be divided into several units for management purposes.
- All heads of household become automatic members of the user groups in each unit, and these elect their own committees.
- Establishment of the committees is to be facilitated by the warden.
- Each committee is to include at least nine members to serve a five-year term.
- The committees can submit proposals for funding support from the allocated 30 to 50 percent of park revenues. The exact amount to be allocated is to be determined annually by the government, and the remaining 50 to 70 percent is to go to the central treasury.
- The committee can launch community development projects, mobilize participation of the people, levy fees for using resources on public lands, encourage tree planting, and compensate for property loss due to landslides or flooding of rivers that form park boundaries.
- The user group committees can form subcommittees for specialized work such as managing community woodlots, operating small-scale leasehold forestry projects, and managing religious forests.
- With technical support from the warden, user committees are to prepare operational plans for their units, to include community development activities, protection of natural resources, and the use of forest resources in the buffer zone.
- The committees are required to submit audited financial statements periodically to the buffer zone office.
- The buffer zone warden is to coordinate the activi-

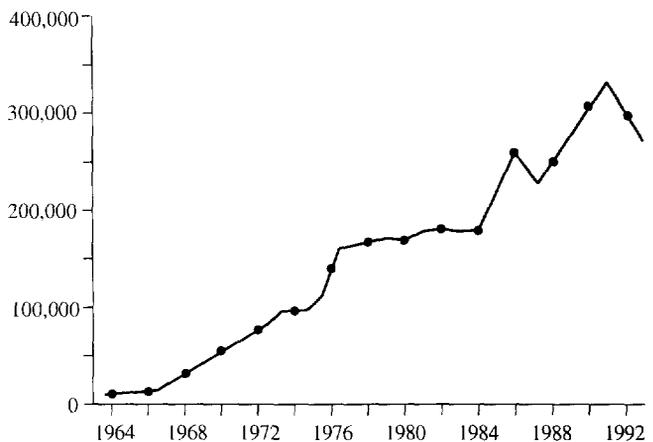
ties of various line agencies operating in the buffer zone.

- Industrial enterprises must obtain the warden's written permission before seeking or renewing operating licenses from the Ministry of Industry.
- Similarly, development activities related to other government line agencies are required to cooperate with the warden to promote a growth pattern consistent with the protected area's objectives.
- Learning from the existence of the continuing community and leasehold forestry programs in Nepal, the buffer zone rules also detail the steps required to hand over public lands to groups of poor households for management as community, leasehold, or religious forests.

Protected Areas and Tourism

International tourism on a large scale is relatively new in Nepal (figure 7-1). Visitors have been drawn by the country's cultural heritage, religious sites, the Himalayas, and opportunities to view wildlife and trek the mountains. Recorded arrivals increased from about 6,000 in 1962 to 330,000 in 1992, before falling to 290,000 in 1993 as a result of political unrest (HMGN 1993). A target of 1 million foreign visitors by 2010 has been proposed (Touche Ross and others 1989), although the economic and environmental impacts of this level of tourism have not been carefully evaluated. Strategic planning for tourism in Nepal has been very limited, despite a tourism master plan and similar documents prepared with the help of international development agencies.

Figure 7-1. Visitors to Nepal, 1964-92



Source: Ministry of Tourism 1994.

Official foreign-exchange receipts from tourism increased from US\$78,000 in fiscal 1961–62 (1 April–31 March) to US\$76 million in fiscal 1987–88 (NRB 1989). These official figures are thought to be low; unofficial estimates, which include illegal currency transactions, suggest that US\$113 million might be more realistic for fiscal 1987–88 (Touche Ross and others 1989). Although aid receipts remain Nepal's largest single source of foreign exchange, the tourism sector earns more foreign exchange than any other, and it directly employed about 11,000 persons in 1988 (NRB 1989).

The economic importance of the main parks as tourist destinations is difficult to estimate, although it is undoubtedly substantial. It was conservatively estimated, for example, that tourists spent US\$27 million in the parks in 1988, when the cost of managing those parks was less than US\$5 million, although park entry fees collected in that year amounted to no more than US\$1 million (Wells 1993, 1995b). The fees paid by foreign tourists have been increased several times in recent years, but they remain low by international standards.

Tourism in parks has led to numerous and complex conflicts of interest, which vary by location. In simple terms, the interested parties can be said to include DNPWC staff, who seek to minimize ecological impact; local people, who try to exploit economic opportunity; foreign or Kathmandu-based tour and trekking agencies, which seek to maximize their profit; and various government agencies, which are anxious to increase tourist numbers and which resist the regulation of tourism in the parks. No mechanism exists, either formally or informally, for resolving conflicts among these groups.

Almost all activity in the tourism sector has resulted from private sector initiatives, which are decentralized, spontaneous, uncoordinated, and largely unmanaged. The few luxury hotels in Kathmandu and the wildlife lodges at Chitwan have depended largely on foreign investment, and a great many people in areas visited by tourists have benefited from selling goods and services to them. The government's most significant regulatory role has been to issue visas and trekking permits through its Department of Immigration.

The Department of Tourism and its parent ministry perceive their main role as maximizing the number of foreign visitors to Nepal. Their activities focus largely on promoting Nepal as a destination and carrying on liaison with private sector travel and trekking agencies based in Kathmandu. They are not active outside Kathmandu and seem to have little interest in the economic benefit of tourism for rural areas. The De-

partment of Tourism does not have the capability to monitor or regulate the activities of tourists or trekking agencies in rural areas. As a result, the tourism sector has operated in a decentralized manner with minimal regulation.

Tourism in Nepal is highly concentrated in a few locations. About 80 percent of tourists enter the country through Kathmandu, where the cultural heritage of the city and its surroundings provides the main reason for sightseeing. Until very recently, virtually all tourist travel outside the Kathmandu Valley was limited to a few destinations, with most other areas of the country being closed to foreigners. People living in open areas have benefited by providing food and lodging and by working as porters and guides. This has applied especially in the Sagarmatha National Park and to a much lesser extent in the Annapurna Conservation Area and Langtang National Park. In contrast, local benefits from tourism in Royal Chitwan National Park and other protected areas in the Tarai have been negligible (see the case studies at the end of the chapter).

The ecosystems of Nepal's hills and mountains are experiencing serious pressure because of the demand for resources by the indigenous population. Tourism has aggravated these pressures in at least two ways: by increasing demand for fuelwood and hence causing deforestation and by causing litter and pollution problems along main trekking routes. These effects are particularly evident at the common Himalayan destinations of Sagarmatha and Langtang national parks and in the Annapurna Conservation Area.

The use of fuelwood by trekking and mountaineering groups is now prohibited in the mountain parks, and these groups are required to use kerosene. Local people are generally allowed to collect firewood but not to cut live trees. These regulations can be powerful tools for forest conservation, but they have not been applied either consistently or effectively, and this has led to serious pressure on some forested areas near the parks. Litter and pollution problems are most evident along trekking routes, at camp sites, in small mountain villages, and at the base camps used by mountaineering expeditions.

Various studies have confirmed that environmental impact is linked directly to the concentration of visitors in a few small areas within a handful of parks (MFSC 1988; ERL 1989; Banskota and others 1990; Gurung 1990; Touche Ross and others 1989). The Department of Tourism has downplayed the environmental effects of tourism and has encouraged the DNPWC to take responsibility for this issue. But the

DNPWC has almost no power to regulate the number of tourists and trekkers in the parks or their activities. The department has had little success in communicating or cooperating with other government agencies, such as finance, tourism, and immigration, and problems relating to parks and tourism cannot be addressed effectively without active participation of these other agencies (Wells 1993).

Although there appears to be an official consensus that the objective of tourism in Nepal is to maximize foreign-exchange earnings (NRB 1989; HMG 1992), at least four important strategic issues have yet to be seriously addressed.

First, there is the question of whether Nepal should continue to encourage large numbers of low-budget tourists or should seek smaller numbers of high-budget travelers. The latter require more sophisticated facilities, and more foreign investment to provide them, but tend to have far less environmental impact, particularly on fuelwood consumption and waste disposal. Neighboring Bhutan has in fact done this, restricting the number of tourists and requiring each visitor to purchase substantial amounts of Bhutanese currency.

The second question is whether additional areas should be opened to visitors and, if so, how should bottlenecks in transportation and infrastructure be overcome. This in turn raises the issue of how to disperse visitors: whether through regulations that limit numbers in particular areas, or through incentives such as user charges, which assign low fees to new destinations and high fees to the overcrowded old destinations.

The third question is whether direct government revenue from tourism should be increased substantially through higher charges and whether some of the resulting extra income should be reinvested in conserving and managing Nepal's natural and cultural assets.

The fourth question is how best to develop a national capability to monitor and mitigate the environmental impact of tourism. The lack of policy guidance by the central government to date has resulted in a situation where there is almost no capacity to act on these issues within individual ministries and no effective means to achieve coordination among them.

Conclusion

Nepal is undergoing an important policy shift from traditional fortress-style parks, in which areas are set aside, toward a more holistic strategy whereby local

people participate more as partners in the conservation effort. Centralized biodiversity conservation played a critical role in the early phase of Nepal's conservation history. But in Nepal's constantly changing political context, the future of protected areas (and biodiversity conservation in general) may depend on how effectively the continued decentralization of conservation programs can generate support from the parks' rural neighbors and from the nation as a whole. This could be helped by more effective coordination among different arms of national and local government, by a sustained institution-building effort within the DNPWC, and by broader recognition that Nepal's parks are valuable income-earning assets that require adequate resources for careful management.

Case Studies in Nepal

The following case studies present some successful examples of decentralized conservation in Nepal: Royal Chitwan National Park, Sagarmatha National Park, and the Annapurna Conservation Area Project.

Royal Chitwan National Park

Chitwan, in Nepal's subtropical lowland Tarai, supports an impressive range of birds and large mammals, including tigers and one-horned Asian rhinos. Chitwan's once-declining wildlife population recovered dramatically after the park was established and hunting became strictly controlled in the 1970s. Chitwan received almost 50,000 Nepalese and foreign visitors in 1991. Seven expensive tourist lodges operate inside the park, where they pay minimal concession fees, and more than forty unregulated small lodges have sprung up outside. There is widespread agreement that an excessive level of unmanaged tourism is injurious to the park. Despite recent entry fee increases, tourism provides virtually no economic benefit for park management, and the park warden has very little authority over tourism development.

Parts of Chitwan are bordered by areas of high population density, and many communities close to the park suffer an acute lack of fuelwood and grazing land (Mishra 1984; Sharma 1990). The Royal Nepalese Army provides 1,000 armed guards for law enforcement and imposes substantial penalties on offenders. Local people have not been directly involved in tourism, have neither participated in nor influenced park management, and appear to have little choice but to continue risking severe penalties by using the park to graze livestock and collect fuelwood. Without the

presence of the Royal Nepalese Army, it seems unlikely that Chitwan would have survived to the present.

To relieve the hardship caused by its presence, the park is opened to villagers for fifteen days each year so they can collect grasses, reeds, and binding materials. The park is the only remaining local source of these materials, which are needed for house construction and repair, and about 60,000 villagers benefit each year. Permit fees and imputed labor cost generate a net of about US\$250,000 for the local economy (Lehmkuhl, Upreti, and Sharma 1988). The ecological sustainability of this program has, however, been questioned.

Sagarmatha National Park

A World Heritage Site, Sagarmatha (Mount Everest) National Park includes the highest peak in the world and several important cultural and religious sites. About 3,000 Sherpas reside in the park, descendants of people who settled in the area about 400 years ago. Relatively isolated until the early 1960s, the region is now visited by more than 11,000 trekking tourists and about 40 mountaineering expeditions each year. Local villagers have responded enthusiastically to this economic opportunity. By 1986 two-thirds of the families living in the park had direct income from tourism by working as guides and porters and by selling food, lodging, clothing, equipment, and handicrafts.

Lodges owned and operated locally increased from seven in 1973 to eighty-one in 1991 (Stevens and Sherpa 1992). Namche Bazaar, the main tourist center in the park, includes new tourist lodges, grocery stores, tea shops, a bank, and a telegraph office. It is a scene of apparently unbounded small-scale capitalism. A remote poor rural society has rapidly become affluent and cosmopolitan and has acquired considerable economic aspirations, although the resilient Sherpa society and culture have remained remarkably cohesive.

This rapid economic development has been linked to significant environmental cost, especially the cutting of trees to meet the energy demand of tourists. To reduce fuelwood consumption, climbing expeditions and trekking groups inside the park are required to be self-sufficient in kerosene. Local people are allowed to collect fallen timber for fuel, but they must obtain a permit from the park authorities before cutting trees for house construction.

The effect of these regulations has not been closely monitored, and the extent of deforestation

remains controversial. There is evidence that grazing by tourists' pack animals is damaging the fragile, high-altitude pastures. The Mount Everest region also has become notorious for the amount of litter and pollution left by climbing expeditions and trekkers. The park authorities blame excessive tourism for such problems, but at present they have little jurisdiction over visitors. The meager park budget does not benefit from tourism, and park authorities have inadequate resources to meet the challenges posed by visitors to Sagarmatha.

Local residents were not included in the initial park planning process, and relations between the Sherpas and the park authorities have generally been poor. Settlements were excluded from the park, and its managers have tried to regulate local use of grazing lands and forests. These efforts have had limited success and have prompted local resentment toward the park, an effect aggravated by the presence of Royal Nepalese Army personnel who enforce park regulations. The DNPWC has been severely constrained by inadequate funds, by lack of authority over tourists (particularly mountaineers) or the number of armed guards deployed, and by ambiguity concerning the role of local people in park management.

Annapurna Conservation Area Project

The experience of the multiple-use Annapurna Conservation Area Project (ACAP) in Nepal corresponds with that of similar participatory initiatives in other countries. Together they suggest that it is possible for local institutions to promote economically viable and ecologically sustainable activities in multiple-use areas, in certain circumstances. They also show, however, that such initiatives can be time-consuming, complex, and expensive, usually requiring strong political support, enabling legislation, highly skilled management, sensitivity to local decisionmaking processes, and a flexible design that can adapt to the lessons from implementation (Brandon and Wells 1992). The key feature of ACAP is its commitment to reconciling conservation and development by promoting participatory local institutions. It has developed into one of the most impressive projects of its type anywhere in the world (Wells 1994).

Physically and culturally, the Annapurna Conservation Area is among the most diverse protected areas in the world. About 40,000 people of various ethnic backgrounds live there, and agriculture and trade have flourished for centuries. Most of these people are poor

farmers, but tourism has grown rapidly, and almost 40,000 foreign trekkers now visit the area each year, virtually all of them traveling along one of two trails. Although many small tea shops and lodges have sprung up in villages along these trails, relatively few of the local residents benefit directly from tourism, a situation that contrasts strongly with that in Sagarmatha.

The pressure of tourism on Annapurna's environment also bears comparison to that in Sagarmatha because the management is so dissimilar in the two areas. ACAP has been managed since 1986 by the King Mahendra Trust for Nature Conservation, Nepal's preeminent NGO, and it has encouraged local participation in natural resource management. This contrasts with the top-down imposition of regulations by outsiders in Chitwan and Sagarmatha. Discussions with local people had revealed that establishment of a national park would meet hostility based on the fear of substantial local cost as well as skepticism about the prospect of local economic benefit. This reaction was amply justified by the history of many of Nepal's other protected areas, and an alternative vision was needed (Sherpa, Coburn, and Gurung 1986).

Special legislation established the multiple-use conservation area and permitted hunting, collection of forest products, and the delegation of management authority to the village level (Bunting, Sherpa, and Wright 1990; Rana 1990). High priority has been given to reducing the environmental impact of visiting trekkers and to increasing the local economic benefits from tourism. ACAP has been authorized to collect and retain a visitor entry fee, helping the conservation project to be financially self-sufficient. This sensible arrangement is unique in Nepal and little-known elsewhere. The government provides no staff or funds to manage this protected area.

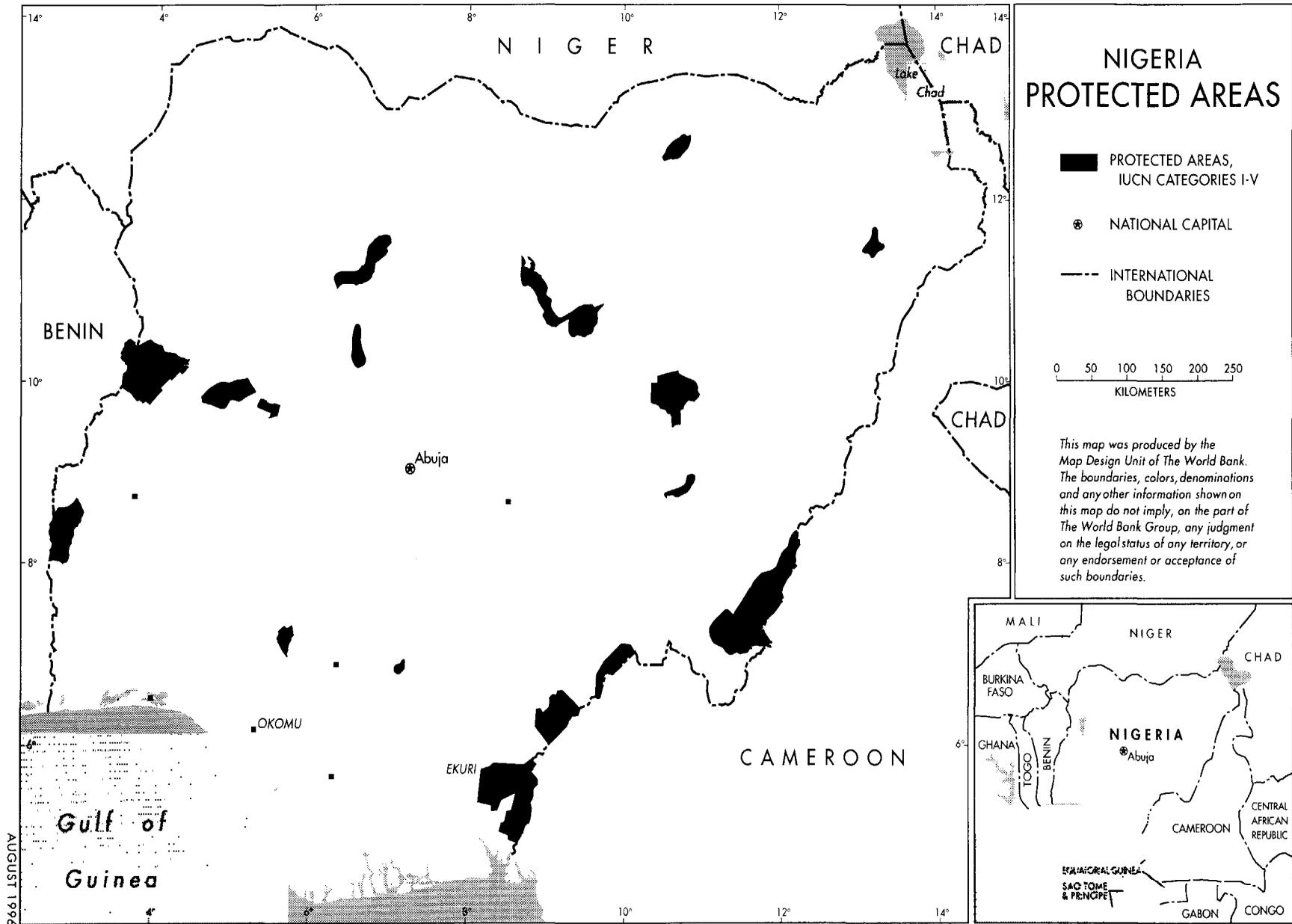
Alone in Nepal, local people in Annapurna are involved both in tourism and in management of the protected area, and visitor fees are reinvested locally. Only here are there signs of effective integration among tourism, economic development, and protected-area management. A key constraint on spreading the ACAP method has been the inability of the government to find a legal mechanism for delegating to NGOs the authority to manage protected areas, as well as the limited number of Nepalese NGOs that are capable of such a role.

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Nigeria

Julian Caldecott and Andrew Babatunde Morakinyo

Nigeria is about 920,000 square kilometers in area and lies between the Sahara Desert and the Atlantic Ocean, with Niger and Chad to the north, Benin to the west, and Cameroon to the east. The country is divided roughly into three by the Niger and Benue rivers, which join before draining southward into the enormous wetland of the Niger Delta on the Atlantic coast. It is the most populous country in Africa, with nearly 90 million inhabitants in 1990. Attempts to meet the needs of this population have resulted in widespread environmental degradation, and some sense of this should be given before discussing the political and administrative processes that influence the environment's possible future.

Nigeria's climate ranges from very dry in the north to very moist in the south, with variations in highland locations in the center of the country and on the Cameroon frontier (WCMC 1988; ODNRI 1989). There is a corresponding range of natural vegetation types, from desert and Sahelian scrub in the north, through savannah in the "middle belt," to moist deciduous forest, mangrove, and rain forest in the south (Sayer, Harcourt, and Collins 1992).

The history of environmental management in Nigeria during the past thirty years has been catastrophic, and this is reflected in the status of the forests, which have been greatly reduced in area and condition (Areola 1987; Caldecott and Fameso 1991; Sayer, Harcourt, and Collins 1992). A World Bank study (Singh and others 1990) highlighted three main national environmental problems of soil degradation, water pollution, and deforestation. It also noted other severe and widespread problems, including gully erosion, damage to fisheries, coastal erosion, loss of wildlife and biodiversity, and air pollution.

Nigeria includes many ecosystems, so the country

has many native species, including more than 4,600 plants, about 250 mammals, and 840 birds. Many of these occur only in the extreme southeast of the country, where habitat damage is particularly widespread and many species are threatened. Population densities in this region can approach 1,000 people per square kilometer, and agricultural pressure is intense. In Imo, Anambra, Enugu, and Abia states, more than 4 percent of the land area was affected by serious erosion by 1990 (Singh and others 1990). In nearby Ogoniland, severe sheet erosion affected about 40 percent of the land area in 1994 (Caldecott 1996). To resist the widespread destruction of natural environments and to protect the biodiversity they contain, Nigeria has established a system of about forty-five existing or proposed conservation areas, comprising national parks, game reserves or wildlife sanctuaries, and strict nature reserves (Caldecott and Fameso 1991). Many of these are degraded, however, and only a few are capable of maintaining viable samples of the country's natural ecosystems in the long term. Several of these became national parks by decree in 1991.

People and Administration

Hundreds of tribal groups live in Nigeria, and there are numerous religions, of which Islam and Christianity dominate. Nigeria often is described as three regions: the north (dominated by the Muslim Hausa-Fulani), the southwest (mainly non-Muslim Yoruba people), and the southeast (mostly non-Muslim Igbo people). These groups compete for national power, with minority groups of the "middle belt" having a balancing role. Although simplistic, this view suggests how rulers often have been able to transcend and exploit tribal and religious divisions

and to balance rival factions within what was at first a colonial political structure and today is a federal one.

In the late colonial era, Nigeria was ruled by the British in three regions, the northern, western, and eastern, divided by the Niger and Benue rivers. These three areas long have competed at various levels, and negotiation toward the independence of Nigeria involved much debate about balancing power among them. After independence in 1960, settlement was attempted by creating a federal system of states. This did not resolve fundamental issues of power sharing however, and civil war eventually ensued, in 1967–70, as the eastern region unsuccessfully attempted to establish itself as independent Biafra (Forrest 1993). It was a serious national trauma that continues to affect official and public attitude toward movements for increased regional autonomy.

The victors of the civil war continued to build a federal Nigeria based on an increasing number of states: twelve in 1967; nineteen in 1976; twenty-one in 1987; thirty in 1991; and thirty-six in 1996, plus the Federal Capital Territory of Abuja. The federal structure allowed the states a high degree of political autonomy but few opportunities to raise their own revenue. The states have therefore relied on money from the federal government, which has come largely from the sale of oil. This has meant that the states were encouraged to compete for federal funds, and it directly or indirectly created three strong incentives (Forrest 1993):

- At the local level, there was an incentive to create new states, which could give new groups access to federal funds.
- At the state level, there was an incentive to maximize current expenditure to reward local political loyalties.
- At the federal level, there was an incentive to maximize current oil revenue, which could be used to reward the continued political loyalty of the states themselves.

These arrangements locked the federal and state governments into a dynamic, tense, and complex relationship, which today dominates political events in Nigeria. These tensions have repeatedly undermined attempts at civilian rule, and the paradoxically weak but strong central government has been dominated by the military for most of the years since independence. The military, and hence the federal government, is controlled largely by a relatively small elite, most of whose members originate in the north of Nigeria.

From the point of view of this elite, giving more power to the states inevitably would involve transferring power to southern and middle-belt political groups and to those northern groups currently isolated from real power. The northern ruling elite would not be expected to welcome such changes in principle and has not done so in practice.

Continuing pressure for reform, however, has led to a series of adjustments in power relationships since the late 1970s, involving especially the strengthening of a tier of government below that of the states: the local government areas (LGAs). Initial reforms moved these away from being purely a tier of local traditional or appointed authority and toward being governed by councils that were to be local in character, with elected participation. The LGAs were to be given increasing autonomy by the states and were initially granted 10 percent of the federal expenditure.

Devolution of power to the LGAs ground to a halt during the early 1980s, and the LGAs remained effectively under state control, largely because their federal funds were routed at the discretion of the state government exchequers. The federal military government led by Ibrahim Babangida from the mid-1980s sought to restore momentum to the process of LGA empowerment, partly by increasing their share of federal expenditure from 10 to 15 percent and then in 1992 to 20 percent. The LGAs were given responsibility for primary education and health care, and federal grants were paid directly, with a supplement of 10 percent of the states' internally generated revenue.

Meanwhile, a number of other reforms were made, all of which tended to strengthen the powers of the LGAs (Forrest 1993). The intent of these changes was to transfer power to the LGAs and away from state institutions that might otherwise be effective rivals of the federal government. This would have the effect of reducing the importance of the state level of government and changing the nature of state-federal relations. It can be inferred that this process was resisted by the states, and renewed tension arose, leading first to the creation of more states in 1991 and then to an abrupt change in the federal government in 1993. This was linked to the annulling of elections and derailing of plans to restore civilian rule and resulted in reconfirmation of military dominance over the federal government.

Policies and Interest Groups

It is hard to disentangle the 1987–93 movement to return the country to civilian rule from the parallel

process of empowering the LGAs because the latter can be interpreted as a means used by the federal government to disempower the state governments. The "Countdown to Civilian Rule" likewise is hard to disentangle from the simultaneous series of reforms intended to deregulate and liberalize the economy. Forrest (1993) argues that decentralization, democratization, and deregulation of the economy (the "3Ds") are all essentially middle-class causes, but that the political weakness of the middle classes in Nigeria means that neither are 3D processes linked strongly to one another nor are they close to the interests of truly powerful groups in the country.

An implication of Forrest's (1993) argument is that 3D policies may have been promoted mainly to serve the interests of groups whose access to wealth depended on the relative power of certain federal and state entities. In other words, decentralization would be expected to be sponsored by federal interests when it promotes LGAs, by state interests when it strengthens states, and by local interests when it strengthens LGAs or creates new states. Similarly, movements toward both democracy and economic deregulation would be expected to be sponsored by federal interests when they serve to defuse opposition at the local or state levels or within critical economic sectors, or to the extent that they reassure external donor and lender agencies and thereby maintain Nigeria's creditworthiness.

This viewpoint might be extended by looking at the fate of another "middle-class" cause in Nigeria, that of conservation. Presently, conservation is not perceived at an international level as being primarily a middle-class issue. Indeed, it is widely acknowledged that the people most at risk of the consequences of environmental degradation are the poorest and least powerful members of any society. Because these are also among the least educated, however, they are least likely to articulate environmental issues and to mobilize themselves against environmental degradation. Where this has occurred in Nigeria, it has been harshly repressed, as in Ogoniland and elsewhere in the Niger Delta since about 1990 because of damage to water and farmland through oil production by Shell and other companies (Saro-Wiwa 1991; Ifowodo 1994; Rowell 1995).

Conservation was promoted in Nigeria not by grass-roots activists but by middle-class intellectuals and their wealthy sympathizers. These are the same groups who tend to promote 3D causes from conviction rather than from opportunism. It

can be argued that conservation has been absorbed and used by national power elites in much the same way as the 3D causes themselves. Thus, for example, after some years of campaigning by the Nigerian Conservation Foundation (a well-connected NGO), a commission of eminent persons, the Natural Resources Conservation Council, was appointed to study the matter. Public debate of conservation issues such as biodiversity and national parks was tolerated and even encouraged. After wide consultation among intellectuals, government officials, and donor agencies, the National Parks Decree No. 36 of 1991 (FGN 1991) created a number of national parks under the authority of the federal government.

Governmental Management of Conservation Areas

Nigeria has tried to conserve natural ecosystems within forest reserves, game reserves, and national parks. The following sections examine the successes and problems of each.

Forest Reserves

Until the 1950s, the only conservation areas in Nigeria were forest reserves. These were created by the colonial administration largely for timber production, and they occupy about 11 percent of the country's land area (Lowe 1984). Most forest reserves were created in the 1920s and 1930s, although in some states, such as Rivers, reservation continued into the 1960s and 1970s (Lowe 1984). In creating the reserves, preference was given to blocks of vacant land in consultation with communities that had traditional claims to the land. Most community rights, such as hunting, were allowed to continue if they did not seem to conflict with the proposed management objectives of the reserve, which in most cases was timber production (Lowe 1993).

The forest reserves originally were administered by the LGAs, which represented the communal landowners. The central government's Forestry Department monitored and supervised the activities of the LGA staff. Management of the forest reserves became more centralized in 1968, when the functions of the central and later the regional governments were taken over by the state governments. Forest reserves are still run by LGAs in a few northern states, but in most of the country the LGA staff was absorbed into the state forestry departments, thus moving them administratively

and psychologically farther from the communities.

For various reasons, including a lack of funding, state forestry departments have been unable to protect and manage their forest reserves on a sustained-yield basis. In the early 1960s, reserves that were being exploited were harvested in accordance with proper working plans. Within a few years, however, these plans fell into disuse, and virtually no new plans have been prepared. State governments have the right to award timber concessions within forest reserves, and they receive a royalty from the timber harvest. Most state governments therefore have tended to treat forest reserves as a resource for government patronage, rather than as elements of national or state patrimony which they are obliged to protect. Consequently, most forests have been "mined" for logs and now are approaching or have reached exhaustion.

In theory, a share of the royalties earned from a forest reserve is to be paid to the communal landowners, but this does not always happen in practice because the money is diverted. For this reason, local people and their chiefs generally now regard forest reserves as land that has been taken away from them. They are thus often willing to collude with illegal loggers and hunters who exploit the resources of the forests. This is ironic because the local people once were the guardians of the forests under traditional law (Martin 1991). Illegal and uncontrolled logging and hunting are a serious problem in all Nigerian forest reserves. It is estimated that by 1996, all the forests of west and central Nigeria will be exhausted (Lowe 1993).

The difficulties of state forestry departments are compounded by low staff morale. Staff often go without pay for several months at a time as a result of the structure of revenue distribution between the federal and state governments. Most states generate little revenue and depend on the central government for funding. This means that funding for state forestry activities is at the discretion of the federal government, which typically allocates to the states rather less than they would like to spend. The financial position of state governments was further weakened by increased federal allocations directly to the LGAs.

By the mid-1990s, the states remained responsible for managing forest reserves but were receiving decreased funding. The LGAs and the federal government controlled proportionately increasing resources, but neither had executive authority to manage the reserves. This tended to promote corruption at the state level, further reducing the effectiveness of reserve management. The process of transferring executive

authority for forest reserve management from local communities to the LGAs and federal government and then partially back to the state governments has resulted in a failure to protect the forest reserves. During this process, however, it gradually has been recognized that communities, which were the previous forest guardians, often are best placed to conserve them.

Game Reserves

Wildlife conservation received little attention during the British administration of Nigeria (1861–1963). Reasons for this included apathy, a preoccupation with the "ancient hunting rights of the natives," and the belief that conserving wildlife was incompatible with the campaign to eradicate tsetse (Happold 1971). Following the protection of forest reserves in the 1920s and 1930s, no further conservation activity occurred for many years. In 1953, however, the minister for natural resources of northern Nigeria visited a national park in Sudan and was sufficiently impressed to initiate the Yankari Game Reserve in 1955 (Jia 1971). In the following decades, nineteen game reserves were created, mostly by renaming forest reserves. Most reserves, however, have never existed other than on paper.

Regulations governing activities within game reserves are similar to those for forest reserves, except that hunting is allowed in game reserves only with a license. Different wildlife laws existed in each of Nigeria's three regions, but legislation introduced in 1972 placed responsibility for game reserves under a wildlife division within the forestry departments at both state and federal levels throughout Nigeria (Anadu 1987). This exposed the game reserves to the same problems that affected the forest reserves. The game reserves were even worse off, however, because wildlife conservation has not been a priority for the foresters who comprise most forestry department staff.

Until 1989, for example, the Ondo State Wildlife Division received no budgetary allocation from the Ondo State Forestry Department. In 1990 it received a budget of less than US\$1,000 for six staff and one motorcycle. Recommendations repeatedly have been made for a separate game department to be created (Haywood 1932; Anadu 1987) and for authority over game reserves to be decentralized and made closer to local communities (Darling 1995). It was announced in 1994 that state branches of the Federal Environmental Protection Agency (FEPA) would henceforth be responsible for managing game reserves. But it remains unclear

who will have executive powers, what these powers will be, and how the new arrangement will be funded.

National Parks

Kainji Lake and Old Oyo national parks were created in 1979 and 1988, respectively. They were reconstituted by the National Parks Decree of 1991, which also created the Chad Basin, Cross River, and Gashaka-Gumti national parks. The decree created a National Parks Governing Board to oversee the operation of the Federal National Parks Service. Chaired by the minister, the board's composition included two people representing the public interest in conservation and a representative of the Nigerian Conservation Foundation (NCF). Other members included senior federal civil servants and the state-appointed chairmen of four individual national park management committees, with a chief executive appointed by the president (Hurst 1994).

Each park was to be administered by a National Park Management Committee, with a membership equivalent at the state level to that of the federal governing board (again including NCF). The board and committees thus balanced the interests of the federal and state governments while including a conservation NGO and individuals from outside the government. This system seems to allow a balancing of credible conservation expertise with checks on the amount of money that might find its way from the federal exchequer to the national parks.

The decree formalized national parks as the main official means of conserving national biodiversity and established procedures for the parks to be administered and financed. In effect, national parks became vehicles for federal resource allocation to those states and LGAs that possessed parks. The parks thereby became a new tool with which to balance the interests of the federal, state, and local government while satisfying the immediate needs of an increasingly influential middle-class interest group (the conservation lobby).

Because the national parks are paid for directly by the federal government, funding is far less of a problem than it is for the forest and game reserves. Direct federal funding means that national parks are naturally seen by some states as a way to obtain more money from Abuja. This appears to have been anticipated by the federal government, which in 1989 adopted a policy of rationing only one park to each state. Since the 1991 decree, at least ten areas have

been proposed for national park status (A. P. Leventis, personal communication, 1994).

The national parks have been accused of being too isolated from local society and of making too little effort to integrate their policies with those of the states and the LGAs. Proposed amendments to the decree would make parks more accountable to state governments as well as to LGAs and communities (Hurst 1994). But an underlying problem is that because the parks receive funding directly from the federal government, park managers have little incentive to communicate with the states and the LGAs or to respond to their concerns. Many LGAs and communities consented to creation of national parks in their areas on the understanding that buffer zone development plans were to be implemented once the parks were officially announced. Four years after the 1991 decree, however, there has been little activity in any of the buffer zones, despite substantial budgetary allocations.

This has caused tension between state governments and some park management authorities (R. Dunn, personal communication, 1992) and resentment among local people who lost their right to harvest forest products within the parks but have yet to see any tangible benefit in return. In Cross River State in 1993, for example, politicians were able to take advantage of local dissatisfaction with Cross River National Park by campaigning for it to be degazetted. This local resentment was an important reversal of public support and needs to be understood because of its implications for other areas in Nigeria and in other countries.

Proposals for a national park in Cross River State (CRS) had been made since the 1950s. They were renewed in the 1960s (but were promptly overwhelmed by the civil war), and again in the late 1970s, and repeatedly during the 1980s (Caldecott 1996). Thus, a decades-long consensus had existed among conservationists that remaining CRS forests should be protected, but it was not until 1988 that serious support came from the state government. This was connected to events in late 1987, when the state was divided in two, with the southwestern third becoming the new Akwa Ibom State and the rest remaining as CRS.

Akwa Ibom State contains some of Africa's most densely populated areas and has more than two-thirds of the population of the old CRS. The new CRS is therefore much more sparsely populated than the old, and small populations living in rural areas are far more influential than they had been in the political life of the old state. Moreover, most of Akwa Ibom's

population comprises Ibibio people who hardly exist elsewhere, so creating Akwa Ibom greatly increased the influence of non-Ibibio tribal groups in the CRS government. This applied in particular to the Ejagham, Korup, and Boki people who live in rural areas around the forests.

These people were easily persuaded that a new national park and associated buffer zone development program would greatly benefit them, so they exerted their new influence in favor of the proposed park during 1989–91. In that period, the park was presented as a project that would benefit local people through an integrated conservation development project (ICDP). This ICDP was endorsed by the state government, by the NCF, and by the World Wide Fund for Nature (WWF). It was to be funded by the federal government and the European Union (Caldecott, Bennett, and Ruitenbeek 1989; Caldecott, Oates, and Ruitenbeek 1990). Local people thus tended to be enthusiastic about the project, even though the park implied the loss of access to farmland and other resources within the forest.

By 1992, however, key elements of the ICDP had not been started, and disillusionment began to set in among the local people. Some were inclined to recalculate the missing benefit of the park against the likelihood of losing hunting and farming rights to the forest, which became more of a threat once Decree No. 36 of 1991 had been published. It was not until 1994 that the Cross River ICDP began, by which time the park and project had serious public relations problems.

Throughout this process, few at the local, state, or federal levels—other than committed conservationists—seemed aware of or willing to value the biodiversity and environmental assets of the park. In attempting to sustain rural public support for the park, the NGOs, donor agencies, and government agencies emphasized either its financial value or the inherently middle-class value of “national pride” in the survival of flagship species. These themes either were inappropriate in the absence of a functioning ICDP or irrelevant to the daily lives of people in the project area. Few serious efforts were made to promote real environmental awareness and activism among the rural people, and none was tolerated for long by the agencies managing the project.

Nongovernmental Management of Conservation Areas

The NCF, established in 1982, is Nigeria’s oldest conservation NGO. It has been an effective and influential

lobby for wildlife conservation, and its work helped create the Federal National Parks Service and the national parks themselves. The Okomu Wildlife Sanctuary in Edo State (112 square kilometers) has long been managed by the NCF and almost certainly would not exist without it (Oates 1995).

Pandrillus is a much smaller NGO that has vigorously promoted a wildlife sanctuary in Afi River Forest Reserve in Cross River State. This area is important for conservation but was excluded from the Cross River National Park for political reasons. Efforts to protect it within a wildlife sanctuary are based on a careful dialogue over several years among Pandrillus, local villages, and the state government (Gadsby and Jenkins 1995). Pandrillus has received support from the U.K.-based Fauna and Flora Preservation Society (now Fauna and Flora International).

The Omo Forest Elephant Biosphere Reserve in Ogun State is managed by the Nigerian Forest Elephant Wildlife Survey and Protection Group (NFEWSPG) in close collaboration with the state government. This group planned to begin a village community education program during 1995.

Yankari National Park in Borno State, the Birnin-Gwari Game Reserve in Kaduna State, and the Kamuku Game Reserves in Sokoto State are managed by the Yankari Initiative in close collaboration with the state governments and especially LGA authorities. The British Voluntary Service Overseas (VSO) has assisted the Yankari Initiative, the NFEWSPG, and the WWF in Cross River State. The WWF also has been helped by the Canadian Universities Service Overseas (CUSO). The WWF has supported much of the NCF’s work and is assisting in the management of the northern Okwangwo Division of Cross River National Park.

Overseas NGO funding and other support have been important to all these Nigerian initiatives, but the NGOs concerned have been most successful when they have worked closely with state and local governments. All the nature reserves mentioned (except possibly Yankari National Park) owe their survival to these NGOs. They probably would not exist if conservation had been left entirely to federal government organizations.

Conflicts between Conservation and Rural Development

Because of the concentration of power and resources under the federal government, most large rural development projects are federal initiatives. Such projects

include the laying of oil and gas pipelines, large agricultural schemes such as plantations, and most large road construction projects, although the states do construct some smaller roads. The fact that national parks are, in effect, large federal projects means that to date they have not been affected by conflict with other federal projects.

Game and Forest Reserves

Conflict between conservation and rural development is frequent where a state, rather than the federal government, is responsible for a conservation area. Most large rural development projects in Nigeria are federal government initiatives because the federal government effectively controls most of the revenue that is generated within the country or that enters from outside. Being poor and weak compared to the federal government, the states often welcome any investment from the federal government, even those that may damage state forest and game reserves. The states rarely can afford to put conservation above investment. The federal government, having no executive responsibility for the state reserves, tends to disregard their destruction; this would not happen if they were federal assets like national parks.

Roads, Oil Exploration, and Other Infrastructure

Expansion of the Nigerian road system, oil exploration and extraction, and rural development programs have contributed significantly to the destruction of Nigeria's forest and game reserves (Ola-Adams 1981; Anadu and Oates 1982; Osemeobo 1988). This is partly because it is far easier for government to allocate publicly owned reserve land to such uses than it is to expropriate private or community land. Thus, for example, the A121 road from Shagamu to Benin passes through the Omo, Oluwa, Onishere, Idanre, Ohosu, and Iguobazuwa forest reserves. Meanwhile, in the Niger Delta, the Taylor Creek, Gilli-Gilli, and Kwale game reserves are crisscrossed by roads and pipelines constructed by oil companies with government approval.

Plantation Development Schemes

Plantations constitute a serious threat to Nigeria's forest and game reserves. Twenty forest reserves across Nigeria lost an aggregate 560 square kilometers to excisions for agricultural schemes during the mid-1980s (Osemeobo 1988). Typically, these schemes are initi-

ated or funded through the federal government, even though final responsibility may later rest with the state government. In Omo and Oluwa forest reserves, for instance, 500 square kilometers of rain forest were cleared in the mid-1980s for a *Gmelina* pulpwood plantation; the investment was financed by the World Bank (Okali and Ola-Adams 1987; Lowe 1993).

A decade later, Okomu Forest Reserve is faced with the clearing of 120 square kilometers of rain forest for the development of an oil palm and rubber plantation by the French corporation Michelin Rubber and the Belgian firm Socfinco. The clearing operation is opposed by the NCF, by Nigerian civil liberties organizations, and by communities affected by the project (Ashton-Jones 1993; Darling 1995). It is also against federal law, but this does not seem to have impressed Michelin and Socfinco. (See the case studies at the end of the chapter.)

The greatest threat by far to conservation areas in Nigeria, regardless of their official status, is illegal encroachment by small farmers who clear land for agriculture, often using shifting, slash-and-burn cultivation. A forest area of about 2,600 square kilometers outside conservation areas was being cleared each year by these means in the mid-1980s (Osemeobo 1988). Nigeria's large population means that there is a huge demand for agricultural produce. This has resulted in shortened fallow periods, preventing the recovery of fertility and forcing farmers to clear more land and to move closer to conservation areas or even into them. Current land tenure laws in Nigeria discourage a free market in land, resulting in a large population of tenant farmers who are not allowed to plant trees, or who have no incentive to do so. This discourages the adoption of more permanent systems of agriculture, including agroforestry.

Conclusions

Decentralization is a complex issue in Nigeria. The local tier of government and the steadily increasing number of smaller states imply growing opportunities for contact between citizens and government and for citizens to influence government decisions. LGAs and states, however, have participated, sometimes as actors and sometimes as tools, in an ever-changing balance of power between the more central and the more peripheral tiers of government. This balance ultimately continues to be tilted in favor of a relatively small elite associated with the federal government and with the military. Moreover, there is no evidence that any tier of government has a serious interest in empow-

ering local people. Instead, all tiers of government are willing to use whatever means are available to advance their own interests in relation to one another.

Since 1991, these means have included national parks. Some, such as Cross River National Park, were created in response to local demand, with agreement of the people and with provision for local involvement in park management. Once the parks had been created, however, powers linked to them gravitated back to the federal government. This left the parks as federal projects with little local support other than that rented through federal disbursements. It can be argued that the national parks have secured viable samples of Nigeria's most important natural ecosystems by placing them under committed and budgeted central control. Yet they all are threatened by encroachment, and federal protection without real local support is increasingly seen as only a short-term solution to this problem.

It is likely that threats will persist until local people, the state, and LGA tiers of government are all brought into the process of making decisions that affect these conservation areas. The same applies to the game and forest reserves. In all cases, real power over their future remains with a federal government that seems unwilling to share it. In the interstices of the Nigerian power structure, however, there are cases where local communities and LGAs have been able to empower themselves. Examples include the Ekuri project in Cross River State and the Okomu project in Edo State (see the case studies that follow).

Case Studies in Nigeria

The following case studies present two examples of decentralized conservation in Nigeria, the Ekuri Community Forestry Project and the Okomu Forest Project.

The Ekuri Community Forestry Project

Old and New Ekuri are two isolated villages in the Oban Division of Cross River National Park (CRNP), in the northwestern part of the support zone. Their (combined) 5,000 people share about 250 square kilometers of community-owned forest land adjacent to the park. The local economy is based on subsistence agriculture and the gathering of forest products for sale to urban populations.¹

Because the nearest market was far away and goods had to be carried by headload, in the past most income came from high-value forest products rather than from

farming produce. The main items traded were bush mango fruits (*Irvingia gabonensis*), edible forest leaves (*Gnetum spp.*), and the meat of wild animals, including endangered species such as chimpanzee (*Pan troglodytes*) and drill (*Mandrillus leucophaeus*). Rattan canes (*Laccosperma* and *Eremospatha spp.*) and chewing sticks (*Carpolobia*, *Massularia*, and *Garcinia spp.*) also were traded to a lesser extent.

Since the mid-1980s, the Ekuri villages had explored ways to use their community forest for maximum communal benefit. With CRNP personnel, they discussed the possibility of managing the forest for sustainable yields of timber and nontimber forest products. From these discussions emerged the goals of the Ekuri Community Forestry Project:

- To develop and implement a sustainable management plan for the Ekuri forest, involving the monitored cutting of timber from a stock surveyed plot and the controlled harvesting of other forest products such as rattans and chewing sticks
- To establish a village-based cooperative society with which to manage and control the forest resource for the benefit of the community
- To improve road access, thus neutralizing offers to do so from logging companies in return for concessions, and to provide a route for year-round transportation of forest products for sale
- To establish direct links with markets for forest products, both locally and abroad, to maximize receipt of local benefits by the community
- To add value to timber and nontimber forest products through the development of on-site and community-based processing facilities (including machinery for saw milling and seasoning, furniture-making workshops, and tools) while providing employment in the community.

Support for the Ekuri project was provided by the British Overseas Development Administration (ODA) and the WWF, supplemented by donations from the British High Commission, Eastern Bulkcem Co. Ltd., Crushed Rock Industries, and STRABAG. Implementation has been in close collaboration with the CRNP authorities and the CRS Forestry Department. In 1992 a VSO community forestry officer was assigned to the area by the CRNP. Thus assisted, within one year the communities had inventoried a plot of 0.5 square kilometer and produced a stock map. They also trained sixteen people in demarcation and enumeration skills and were able to determine which trees should be harvested by the two communities. Just as important,

a previously antagonistic relationship between the villages and the Forestry Department had become much more positive. This progress was attributed to a number of factors, including:

- The role of the community forestry officer (CFO) in promoting intensive discussion about forest management at the village level
- Local confidence in the CFO, prompted by his residing in the villages and by his actively helping the villages to obtain new bridges to improve access to the area
- The active role of the CFO in articulating requests for assistance and promoting collaboration with the Forestry Department
- The involvement of women in the forest inventory and promotion of a sense of community ownership of the project.

The last is especially important because the villagers of Old and New Ekuri are the main implementers of the project and are in the process of building a cooperative to administer the forest management project. Several traditional groupings exist within the villages, all of which are involved in decisions about the project's activities. They include the chiefs and their advisers, the Women's Group, and the Youth Group (which actually takes in everyone else, regardless of age). Potential conflicts that arise between different interest groups are resolved through village debates, with final decisions being made by the village chiefs and their councillors.

As of 1995, a new CFO from VSO was continuing to assist the Ekuri people with their community forestry project. Local people had completed training in chain-saw operation and had started to fell and market trees selected from the plot inventoried in 1993.

The project has been successful largely because it is based on the recognition that local communities are the primary direct stakeholders in the management of the forests and because technical and financial support has helped give the communities the confidence to implement their own initiatives. It is the local people who have formulated the project's objectives and who make decisions on how those objectives are to be achieved. Without the project, there is little doubt that the Ekuri forest would have been logged by outside companies. The forest remains intact because of local people's confidence in their own ability to manage it themselves for their own benefit.

The Ekuri project demonstrates, in the Nigerian context, the value of decentralized decisionmaking.

Powers have been transferred from the CRS Forestry Department to forest-owning communities. As direct stakeholders, the Ekuri people have been supported by the Forestry Department and CRNP authorities in taking the first steps toward management of their own community forests. The strength of the project lies in the nature of the support, which has been both long term and focused on the grass roots. A community forester lived with the villagers for two years to assist them with technical information and support from outside. The project also has been successful because of the social cohesiveness of the villages and sense of community responsibility held by most villagers. This is rare in villages that have been more exposed to the commercial mainstream of Nigerian society.

The Okomu Forest Project

The Okomu Forest Reserve, of which the Okomu Wildlife Sanctuary is the core, is one of the largest and least-degraded areas of natural forest remaining in southwest Nigeria (Oates 1995). The intent of the Okomu Forest Project is to protect the sanctuary and to improve the management of the reserve so that the whole complex can survive as a viable and representative sample of natural ecosystems in this part of Nigeria. The project has several components, which focus on actively protecting the sanctuary, encouraging tourism, promoting sustainable use of the forest reserve, and raising environmental awareness among nearby communities. These efforts have been supported by the WWF, ODA, NCF, and Pro-Natura International.²

The Okomu Forest Reserve is in Edo State, which before 1991 was the northern half of Bendel State. It became protected in 1912 and later was extended to encompass about 1,340 square kilometers (later reduced by excisions, as described below). A section of 67 square kilometers was listed as a wildlife sanctuary by Bendel State government in 1985. In 1990 this was extended to about 112 square kilometers. By arrangement with the government, the NCF became responsible for managing the sanctuary, and the forest reserve was managed by the Edo State Forestry Department (White 1988).

The sanctuary is an important refuge for many species that live within the forest reserve and that now face possible extinction in Nigeria. These include the forest elephant (*Loxodonta africana cyclotis*), chimpanzee (*Pan troglodytes*), leopard (*Panthera pardus*), yellow-backed duiker (*Cephalophus sylvicultor*), short-snouted crocodile (*Osteolaemus tetraspis*), and royal python (*Python regius*). The sanctuary offers the

best and perhaps the only chance for long-term survival of the white-throated guenon (*Cercopithecus erythrogaster*), one of Nigeria's two endemic primates (Anadu and Oates 1982; Oates and others 1992).

A widely accepted guideline is that at least 500 square kilometers of natural forest are needed to maintain viable populations of larger mammals such as elephants, leopards, and chimpanzees. The Okomu Sanctuary itself is only 112 square kilometers in size, but it was assumed when it was created that it always would be surrounded by natural forest to conserve larger forest mammals. By 1994, however, land clearance for farming and plantations had reduced the area of natural forest to about 500 square kilometers (including the sanctuary), and such clearances continue (Oates 1995). This means that increasing numbers of species no longer may be able to survive within the sanctuary and forest reserve complex.

About twenty-five villages, with a total population of about 45,000, are within the forest reserve. The people carry out many activities that affect the forest, including clearing land for farming, underplanting the forest with cocoa, hunting, and gathering nontimber forest products such as chewing sticks and rattan canes (Morakinyo 1994b). These enclave villages are important stakeholders in the reserve, but they are not the only ones; others include traditional rulers, the state forestry department, other branches of the Edo State government, logging and plantation companies, and the NCF itself. Conflicts among some of these stakeholders are linked to considerable pressure on the sanctuary and reserve. Three plantation companies have been awarded concessions within the reserve to plant rubber and oil palm, thus reducing the area of natural forest and compounding the impact of enclave communities on the remaining forest. The latter also is being logged by several timber companies under the concessions issued by the state forestry department.

When the NCF first became involved in managing the sanctuary in 1987, it concentrated on installing tourist trails and other facilities for visitors within the sanctuary, and four game guards were employed to protect the area. As pressure increased on surrounding forests, however, project personnel realized that communities and institutions in Edo State would have to be involved in developing and conserving both the sanctuary and the reserve. The project therefore employed village liaison officers and education staff to carry out a community awareness program and to begin discussing conservation of the sanctuary with

the communities. The project undertook a socioeconomic survey funded by ODA, which was to lead to a buffer zone development program (Lloyd and Omorodion 1992).

Some of these initiatives were later criticized because they tended to promote economic activity in the area without providing adequate wildlife support and forest protection measures (Oates 1995). The importance of ensuring a proper balance between development and conservation in such projects is now acknowledged. In any case, a more immediate threat to Okomu began in 1992, when the French company Michelin was awarded a concession to establish a rubber plantation in the northeast of the reserve. This was done without consulting the enclave village of Iguowan, which traditionally harvested forest products from the area to be cleared. The villagers became increasingly outraged as forest clearance proceeded, particularly when they realized that it would extend to the village boundary. They noted that lakes in the cleared area had dried up and realized they would be forced to find alternative sources of clean water, wood, bush meat, and medicinal plants.

The village of Iguowan sought assistance from a Nigerian NGO, Environmental Rights Action (ERA), which protested the clearance of the forest to Michelin, with backing from the NCF and the forestry department. Michelin refused to stop and continued to clear forest despite a federal law prohibiting further land clearance within forest reserves (Oronto 1994). After much discussion among Michelin, ERA, Pro-Natura, the NCF, and the Edo State government, it emerged that the state forestry department's control of Okomu had been overridden by another state ministry, leading to Michelin's being awarded the concession illegally (Ashton-Jones 1994).

Because Michelin refused to change its policy, ODA suspended its support for the Okomu project until the issue could be resolved with a guarantee that no further forest clearance would occur (J. Hudson, personal communication, 1994). Discussions stalled in 1994. Michelin has agreed to leave some forest near Iguowan and has stopped clearing forest, but the company has not promised a permanent halt. Events at Okomu continue to be monitored by ERA and Pro-Natura International (Ashton-Jones 1994).

It is now recognized that a more systematic strategy involving local stakeholders is required for long-term conservation of the Okomu forest. The project is now preparing a land-use plan that will integrate the interests and activities of all the different stakeholders who

use the forest (Darling 1995). It is hoped that the plan can be agreed to by all parties, dividing the reserve into designated multiple-use zones. These will include:

- A buffer zone for harvesting nontimber forest products and for logging according to a management plan
- High forest, to be managed under long-term community leases
- A zone for plantations and tree crops
- Peripheral community farm lands with agroforestry
- Swamp forest fringes.

State forestry departments throughout Nigeria are both poor and weak, and this obstructs effective forest management. The forest departments have been required to generate revenue by awarding logging concessions, but they have not been able to retain, or otherwise obtain, adequate funds to allow supervision of logging, *taungya* farming, or the gathering of nontimber forest products within forest reserves (Morakinyo 1994b). In many cases, as in Okomu, decisions made by forestry departments have been overridden by other branches of state government or by the federal government, leading to the overlogging of reserves and often to their conversion to plantations. In the case of Okomu, more than 75 square kilometers have been replaced by oil palm and rubber plantations, and another 127 square kilometers are scheduled to be cleared and planted against the wishes of local communities and the NCF.

The needs of local forest communities are seldom considered in relation to the management of forest reserves even though such communities may have the most to gain or lose from the outcome of forest management. These communities also rarely have a say in forest management decisions. Having lost their right to use forest resources exclusively, they often join in the overexploitation of remaining resources. This is an example of a common problem in conservation, that of open-access exploitation, in which a lack of exclusive harvesting rights by one group leads to harvesting in competition with others. The inevitable result is degradation of the resource to the point where it appears to be of so little value that investment in helping the ecosystem to recover is discouraged. By then, its fate is likely to be sealed, and it is usually destroyed.

The Okomu project is trying to reverse this sequence by strengthening local control of the forest reserve in collaboration with the Edo State Forestry Department and other stakeholders. Some of the

groups involved have exclusive conflicts of interest with one another (for example, a given area of the reserve can contain a natural ecosystem or a plantation, but not both). This means that hard decisions must be made, but these will benefit from being transparent and strongly influenced in favor of the interests of local communities.

Notes

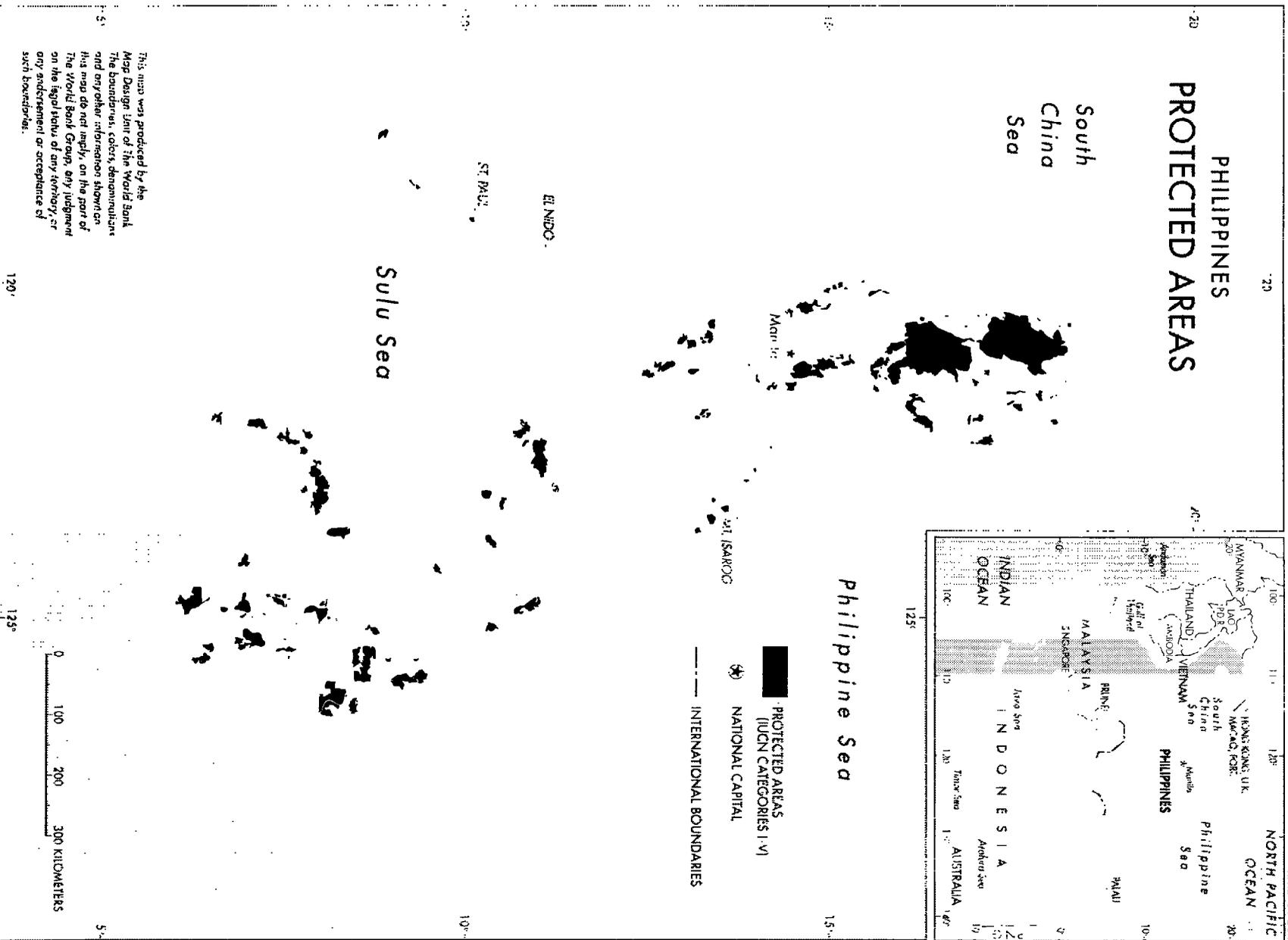
1. Information for the Ekuri case study is from Morakinyo 1993, 1994a; Shelagh C. Heard, personal communication, 1994; and Thornber, Otu, and Enuor 1995.

2. Information for the Okomu case study is from Anadu and Oates 1982; White 1988; Lloyd and Omorodion 1992; Ashton-Jones 1994; Oronto 1994; Darling 1995; and Morakinyo 1994a, 1994c.

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Philippines

Maria Dulce M. Cacha and Julian Caldecott

The Philippines is a tropical archipelagic nation between Borneo and Taiwan (China) and between the South China Sea and the Pacific Ocean (5–1°N, 116–127°E). It is made up of about 7,100 islands, with a total land area of some 300,000 square kilometers, two-thirds of which are the islands of Luzon and Mindanao. The Philippine islands were first visited by Europeans in 1521. They were annexed and ruled by Spain until the Spanish were expelled in 1898–99 (see, for example, Cruikshank 1985) as the result of an indigenous rebellion that lasted from 1894 until 1902. The rebellion was extinguished by American forces shortly after the country became a U.S. colony (see, for example, Schott 1964). The country became independent in 1946.

By 1992 the population was about 62 million, increasing by about 2.4 percent annually. Economically, the Philippines now falls in the lower-to-middle global income range. Average gross national product (GNP) per person in the early 1990s was US\$600, about the same as China and Papua New Guinea (UNDP 1991). Wealth is concentrated in urban centers and among elite groups; the poorer two-thirds of the population live in rural areas and are supported directly or indirectly by agriculture, fisheries, and forest harvesting.

Over many years, factors including landlessness, poverty, and the lack of effective land reform led both to a widespread communist insurgency and to regional separatist movements, especially in Muslim areas of Mindanao. These and other factors, such as the lack of a universal common language and the cultural diversity and mobility of the population, made it hard to run the country in a strongly centralized manner. Determined efforts were nevertheless made to do so, and martial law was used to this end

during 1972–86. During that time, an official perception that regional, environmental, and social causes were linked with the political left promoted polarization of views that discouraged decentralization and effective conservation.

Against this background, extreme pressure built up on the country's natural ecosystems (Roque 1994). Especially from the mid-1960s to the mid-1980s, excessive and often illegal logging, farming, and associated deforestation reduced forest cover to less than a quarter of the land area (Vitug 1991; ADB 1994). The country possessed at least 8,000 species of flowering plants and 1,000 species of vertebrate animals, of which about 40 percent of each group were endemic (Cox 1988; Collins, Sayer, and Whitmore 1991). The massive habitat damage in the country has caused many species to become endangered or extinct (for example, an estimated 40 percent of the flora; Petocz 1988; McNeely and others 1990).

The government's strategic response to environmental problems began with dramatic change in the political system in 1986, following which the new government adopted agrarian reform as a priority. This was resisted by influential landowning interests, however, and only public forest lands tended to be redistributed to the rural poor, thereby speeding deforestation. This period can be seen as transitional because the administration remained centralized and unsupportive of local tenure-based resource management. Official awareness was growing, however, that such management might slow the loss of terrestrial and coastal habitat by providing incentives to local people to manage them sustainably. Advocates of this strategy came no longer to be seen merely as communist sympathizers, and their ideas gradually were accepted into the mainstream of political

thought. This led to the beginning of a fundamental change in the philosophy of government, which opened the Philippines to new ideas of decentralization and conservation.

Further changes followed the Philippine Strategy for Sustainable Development, which has guided the policies of the Department of Environment and Natural Resources since the early 1990s. The strategy intended to integrate environmental, population, and social welfare concerns into decisionmaking and development planning and to promote environmental education and citizens' participation in resource management. Specific goals included properly pricing natural resources, strengthening usage rights and other forms of resource tenure, rehabilitating damaged ecosystems, reducing timber harvests, banning logging in intact forests, and forbidding the export of most wood and wood products. Additional reforms were then brought about through the Local Government Code of 1991 and the National Integrated Protected Areas System (NIPAS) Act of 1992 (described below). The code transferred many responsibilities from central government to the various levels of local government units, whereas NIPAS introduced reformed and consolidated protected areas under local and inclusive management by protected-area management boards.

The Local Government Code of 1991

Rapid change occurred during the early 1990s in the political and administrative context of conservation in the Philippines. This resulted especially from the Local Government Code of 1991 (Republic Act 7160), which came into effect in January 1992 and began to be implemented six months later (MacDonald 1992; Brillantes 1993; Nolleddo 1993). The code transferred many responsibilities from central government to the various levels of local government units (LGUs), which include the 73 provinces, various cities, 1,554 municipalities, and 41,882 barangays. The code also encouraged nongovernmental organizations (NGOs) to actively develop local autonomy. Areas of new LGU responsibility included most services in agriculture, public works, social welfare, and health, as well as school-building programs and community-based forestry projects, such as social forestry and management of community forests up to 50 square kilometers in area. Certain regulatory powers also were devolved, including those governing the reclassification of agricultural land and the enforcement of fisheries and environmental laws.

Arrangements for supervising LGU's activities are intended to ensure that relevant laws are implemented and that prescribed powers and functions are not exceeded. Barangays are placed under the city or municipality, the cities and municipalities under the province, and the provinces, "highly urbanized cities," and "independent component cities" under the president's office. The Department of Interior and Local Government assists the president in supervising the LGUs. The devolution of power and responsibility was accompanied by the transfer of assets and personnel of the national agencies and offices to the local government.

Under the code, the LGUs have increased corporate powers, including authority to execute proprietary rights in managing economic enterprises, to raise loans from domestic financial institutions, to secure grants from local, national, and foreign sources, to extend loans to other LGUs, and to provide assistance to calamity-stricken LGUs. They also have the power to generate revenue by imposing local taxes, fees, and charges (MacDonald 1992). The LGUs are entitled to raise funds through local taxes, and they receive a 40 percent share both of the tax revenue of the national government and of revenue arising from the exploitation of natural resources within their jurisdiction, such as minerals, timber, and fisheries.

As a result of these new arrangements, the LGU share of national tax revenue grew from ₱20 billion in fiscal 1992–93 to nearly ₱52 billion in fiscal 1994–95. Their share in revenue from the use of natural resources increased from ₱1.5 billion in fiscal 1993–94 to ₱2.1 billion in fiscal 1994–95. These increased levels of funding are conditional on 20 percent of LGU receipts from the national government being spent on local development projects, which in turn must be assisted by national agencies and government corporations. The code also requires that LGUs and NGOs be consulted on environmental and other implications of any national project before it is undertaken in their areas and that LGUs must participate in planning and implementing such projects.

The code promotes participation by NGOs in the LGU planning process, partly by requiring NGOs to be represented on the various councils and boards mandated by the code. These include local development councils; prequalification, bids, and awards committees; school boards; health boards; and peace and order councils. The LGUs may undertake, jointly with NGOs and private sector groups, projects to, for example, deliver certain basic services, build local capability, and promote livelihood programs and rural develop-

ment. Partnership between the private sector and local government in undertaking development projects is promoted and facilitated by their authority to enter into arrangements such as “build-operate-transfer” and “build-and-transfer.”

No reform on the scale of that mandated by the Local Government Code can be attempted quickly without some difficulty, as people adjust to their new roles and react to new challenges and opportunities. It has proved hard, for example, for LGUs to meet the salaries of former central government staff who have certain technical skills, such as environmental management (Brillantes 1993). Although the LGU revenue base has been greatly strengthened, the code requires that LGUs allocate funds to tasks (such as environmental management) for which few local officials have been trained and of which few appreciate the importance. Other problems include weak fiscal, planning, management, and administrative skills among local officers and staff. A recognized constraint on the process is the identification and packaging of programs and projects that may be funded by, with, or for the LGUs.

Pre-1992 Legislation

Under Section 3 of the 1987 Constitution, national parks constitute one of several categories of land in the public domain, the others being agricultural, forest, and mineral lands. All protected areas in the Philippines thus fall legally into the national park category. Section 4 of the Constitution provides that once an area is declared a national park, boundaries have to be marked and cannot be moved to reduce the size of the park except by an act of Congress. Earlier laws defined a national park as “any portion of the public domain which, because of its panoramic, historical, scientific, and aesthetic value, should be dedicated and set apart for the benefit and enjoyment of the people of the Philippine Islands.”

Many laws, proclamations, and executive orders set aside areas as national parks, including historical or memorial parks, tourist attractions, and other protected areas. The legal instruments often were inconsistent and overlapped one another, they placed the management of national parks under various national agencies, and they established several categories of park. In the absence of clear and consistent law and administrative arrangements, the following problems became entrenched (FSDI 1992):

- Legislation was outdated, and policy guidelines were lacking. The original (1933) legal concept of

a national park banned all settlement and hunting. This intent was rendered futile and obsolete by the pressure of upland populations on park premises, by neglect of the parks in budgetary appropriations, and by an international consensus that “fortress” parks were unsustainable. Policy weakness resulted, for example, in the whole province of Palawan being declared a game refuge and wildlife sanctuary. Thus, hunting and fishing were banned, despite the size of the island (7,630 square kilometers) and the needs of inhabitants who depended on hunting and fishing.

- Institutional arrangements were inadequate. Park management was the responsibility of regional, provincial, and municipal officers of the Department of Environment and Natural Resources (DENR). These same officers also were responsible for licensing mineral and forest exploitation, for controlling “alienable and disposable” lands, for regulating pollution, and for processing environmental impact assessments (EIAs). So few staff were available that very few field offices could assign full-time staff for parks.
- Management responsibility was fragmented. The legal instruments that established different park categories also designated various offices to manage them. Although the main body responsible for park management was the Protected Areas and Wildlife Bureau (PAWB) of DENR, not all such areas were under its jurisdiction. For example, tourist attractions were under the Philippine Tourism Authority, fishery sanctuaries were under the Department of Agriculture, and the National Power Corporation had jurisdiction over some parks where geothermal power plants had been built (for example, Mount Makiling in Luzon; Caldecott 1993).
- Community participation was limited. The old concept of national park, which excluded settlement entirely, greatly limited opportunities for the participation of communities eager to establish land tenure. This conflicted with the reality of traditional residence by indigenous people within parks and the needs of migrant settlers driven into the uplands by unemployment and landlessness elsewhere.
- Limited funds were available for park management. (The issue of financing conservation is discussed below under funding sources for conservation.)
- Definitions and criteria for selecting areas to protect were vague and unclear. The categories of park derived from existing laws were numerous and

overlapping; they included national parks, forest reserves, game refuges and bird sanctuaries, watershed reservations, reserve areas for tourism, tourist zones, fishery sanctuaries, marine reserves, and wilderness areas.

The National Integrated Protected Areas System Law of 1992

The National Integrated Protected Areas System (NIPAS) Law (Republic Act 7586) was enacted in June 1992 and today governs all parks in the Philippines. It specifies procedures for establishing and deestablishing protected areas and their buffer zones and defines categories of park for management purposes. It mandates the review and assessment of all existing parks. It also requires public consultation, promotion of community, and NGO participation in establishing and managing the parks and in preparing and implementing their management plans.

NIPAS further requires EIAs for activities that might affect parks but are not included in their management plans. It recognizes the rights of people to their ancestral domain as well as those of tenured migrants. It defines responsibilities for the management and administration of parks, allows field personnel to be deputized and special prosecutors to be appointed, restricts activities within protected areas, and imposes fines for violations. The law also provides a financing mechanism through the establishment of an Integrated Protected Areas Fund. Within a month of the enactment of the NIPAS law, the secretary of DENR issued Implementing Rules and Regulations through Department Administrative Order 25. This completed the introduction of the new law and made it possible to put a new management regime for protected areas into effect (table 9-1).

Management of Protected Areas under NIPAS

NIPAS was defined initially as including all areas that had previously been designated by any legal instrument as:

- National parks
- Game refuges, bird, and wildlife sanctuaries
- Wilderness areas
- Strict nature reserves
- Watershed or mangrove reserves
- Fish sanctuaries
- Natural and historical landmarks
- Protected and managed landscapes and seascapes
- Virgin forests.

Within one year of the NIPAS law's coming into effect, DENR was required to submit a map and legal description of the boundaries of each protected area. Within two years after that date, DENR was required to complete and submit to the president of the Philippines a review of the status and suitability of each area as a permanent component of NIPAS. This was to supplement the DENR secretary's discretion in recommending new areas for protection or existing areas for deestablishment. The review was to be based on a survey of occupants, an ethnographic study, a resource profile, land-use plans done in coordination with the respective regional development councils, and any other background studies that could serve as a basis for selection.

Public hearings on the establishment of a protected area are required under NIPAS. The period for public notification was set at a minimum of thirty days prior to the public hearing.

Administration of the System

DENR's Protected Areas and Wildlife Bureau (PAWB) is the central staff agency that implements NIPAS. To ensure that adequate staff are assigned to implement the law, NIPAS provides for creation of a Protected Area and Wildlife Division under the regional technical director in each regional office where a protected area exists. Areas that were under other government departments before NIPAS remain so, but these departments must coordinate with DENR in preparing management plans.

Each park has a superintendent, who is the chief DENR operating officer on site and who reports to the Protected-Area Management Board and the regional executive director through the regional technical director. The superintendent conducts liaison with the provincial and community officers of DENR who have jurisdiction over the park.

Protected-Area Management Board

Each protected area must have a Protected-Area Management Board (PAMB) comprising:

- The regional executive director of DENR, as chair
- A representative of the autonomous regional government, if applicable (for example, the Autonomous Region of Muslim Mindanao)
- The provincial development officer
- A representative of the municipal government
- A representative of each barangay that overlaps the protected area

Table 9-1. Sectoral Arrangements for Habitat Conservation in the Philippines

<i>Function or authority</i>	<i>Central government</i>	<i>PAMB and IPAF</i>	<i>Representative of central government</i>	<i>Local government (LGU)</i>	<i>NIPA</i>	<i>NGO</i>	<i>Private sector</i>
<i>Project execution</i>							
Clarifies land tenure	Yes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Creates boundaries	Yes	Yes	Yes	n.a.	n.a.	Yes	Yes
Issues permits	n.a.	n.a.	Yes	Yes	Yes	n.a.	n.a.
Designs projects	Yes	Yes	Yes	n.a.	Yes	Yes	Yes
Delegates to	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Operation and maintenance</i>							
Confirms enforcement	n.a.	n.a.	Yes	n.a.	n.a.	n.a.	n.a.
Executes directly	n.a.	n.a.	n.a.	Yes	n.a.	n.a.	n.a.
Delegates to	Yes	n.a.	Yes	n.a.	n.a.	n.a.	n.a.
<i>Revenue arrangements</i>							
Collects user fees	Yes	Yes	n.a.	Yes	n.a.	n.a.	n.a.
Shares revenue	Yes	Yes	n.a.	n.a.	n.a.	n.a.	n.a.
Provides conditional grants	Yes	Yes	n.a.	n.a.	Yes	n.a.	n.a.
Provides contract income	n.a.	Yes	n.a.	n.a.	n.a.	n.a.	n.a.
Borrows money	Yes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Revenue allocation</i>							
Among subsectors	Yes	Yes	n.a.	n.a.	Yes	n.a.	n.a.
To projects	n.a.	Yes	Yes	n.a.	Yes	n.a.	n.a.
To operations	n.a.	Yes	Yes	n.a.	Yes	n.a.	n.a.
To grants	n.a.	n.a.	n.a.	n.a.	Yes	n.a.	n.a.
To contracts	n.a.	n.a.	n.a.	n.a.	Yes	n.a.	n.a.
<i>Financial control</i>							
Approves spending	Yes	n.a.	Yes	n.a.	Yes	Yes	n.a.
Oversees accounts	Yes	Yes	Yes	n.a.	Yes	Yes	n.a.
Oversees procurement	Yes	n.a.	Yes	n.a.	Yes	Yes	n.a.
<i>Extent of local participation</i>							
Consults on priorities	n.a.	Yes	n.a.	n.a.	Yes	Yes	Yes
Approves plans	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Represented on boards	n.a.	n.a.	Yes	Yes	Yes	Yes	Yes
Represented on panels and committees	n.a.	n.a.	n.a.	Yes	Yes	Yes	Yes
Elects representatives	n.a.	n.a.	n.a.	n.a.	Yes	Yes	Yes
Participates in benefits	n.a.	n.a.	n.a.	Yes	Yes	Yes	Yes
Provides material or labor	n.a.	n.a.	n.a.	n.a.	Yes	Yes	Yes
Involved in quality control	Yes	Yes	Yes	Yes	Yes	Yes	Yes

n.a. Not applicable or not available.

Note: PAMB, Protected-Area Management Board; IPAF, Integrated Protected Areas Fund (parastatal organizations); LGU, local government unit (province or city, municipality, and barangay); NIPA, National Integrated Protected Area (beneficiary organization).

- A representative of each tribal community, if applicable
- At least three representatives of NGOs and local community organizations, where necessary
- Representatives of other departments or national government agencies involved in management of the protected area concerned.

Members of the board are appointed by the secretary of DENR, although local representatives must be designated by the head of the LGU concerned and NGO representatives must be endorsed by the heads of their organizations. The board may create and delegate powers as needed to an executive committee, composed of the regional technical director of DENR as chair and at least two representatives each from the LGU, NGOs, and tribal communities, if applicable. The board can make decisions and authorize action by majority vote in the following areas:

- Planning, resource protection, and general administration of the area in accordance with the General Management Planning Strategy (described below)
- Proposals, work plans, action plans, and guidelines for managing the park in accordance with its management plan
- Definition of the boundaries of the park, buffer zones, ancestral domains, and the rights and privileges of indigenous communities in relation to those boundaries and the management plan
- Rules and regulations to promote development programs and projects on biodiversity conservation and sustainable development consistent with the park's management plan
- Implementation of programs as prescribed in the management plan to provide employment for people dwelling in and around the park
- Control and regulation of the construction, operation, and maintenance of roads, trails, waterworks, fire protection, and sanitation systems and other public utilities within the park
- Monitoring and evaluation of the performance of park staff, NGOs, and local communities in providing for biodiversity conservation and sociocultural and economic development; reporting of these assessments to the NIPAS Policy and Programme Steering Committee and the governing board of the Integrated Protected Areas Fund (see below).

Park Management Planning

A management plan must be prepared for each protected area in accordance with the General Manage-

ment Planning Strategy developed by PAWB with the help of certain NGOs. The plan prescribes the management zones to be used within the parks, measures to protect the rights and interests of indigenous cultural communities and tenured migrants, and measures to achieve closer coordination among parts of DENR, the LGUS, the private sector, and the general public.

Management plans are prepared for each park by the Protected Areas and Wildlife Division of the DENR regional office, with the assistance of technical experts supplemented by dialogue with the public, including detailed consultation with local communities and NGOs familiar with the park area. The plan is reviewed and endorsed by the Protected-Area Management Board and approved by the DENR secretary. It is the basis of the annual operations for the area.

Actual Park Management at Present

Because protected areas are in the public domain, authority to manage them rests with the national government rather than with the LGUS, and this was not altered by NIPAS. The law promotes decentralization, however, by creating the protected-area management boards, through which the LGUS, indigenous communities, NGOs, and autonomous regions are represented. Subject to DENR guidance, the management board determines permissible activities within the protected area. The new management system therefore has both centralized and decentralized aspects.

One study has concluded that very little protection and management of parks actually are being undertaken in the field (FSDI 1992). This is attributed to a continuing culture of neglect and a lack of financial support from national government. These problems remain, even though parks and wildlife resources have begun to receive attention in the General Appropriation Act and as a distinct responsibility of national and regional government, rather than as an add-on to research, development, or general forestry enforcement programs.

Notwithstanding the lack of funds to manage protected areas, NIPAS has promoted conservation awareness and has encouraged action among NGOs, peoples' organizations, communities, LGUS, and DENR field offices. Some management boards have been set up and are operating even with insufficient funding support.

Funding Sources for Conservation

Before 1990, no national appropriation existed to support DENR's regional offices in development of protected areas and wildlife resources. Such activities, if

undertaken at all, were subsumed under environmental management or ecosystem research and development services. In 1989, DENR's Protected Areas and Wildlife Bureau received only P13.5 million, mainly for policy development and planning. In 1990, however, the regional offices were allocated about P17.2 million specifically for parks and wildlife, with a further central office budget of P25.7 million, for a total of P42.9 million out of DENR's appropriation of P4.8 billion. That year marked a watershed in conservation financing by government. By 1995, although total DENR allocations had decreased to P4.3 billion, the share for protected areas and wildlife development had increased to about P146 million.

These increased budgets were not intended to finance all park protection and management by DENR's regional offices. The money was intended only to allow DENR to comply with the NIPAS law by reviewing the initial components of the protected-area system and by conducting the studies needed to decide the future of each protected area and prepare an initial management plan. The funding also was intended to establish protected-area management boards for each park.

Integrated Protected Areas Fund

An Integrated Protected Areas (IPA) Fund was established to finance activities and projects of NIPAS. The fund receives revenue generated within the various parks and consolidates it with external donations and other funds that may become available from various sources. NIPAS allows the fund to obtain resources from:

- Taxes on the legal sale and export of flora, fauna, and other goods and services
- Proceeds from the lease of multiuse areas, including tourism concessions
- Contributions by industry and facilities directly benefiting from the protected area
- Contributions, donations, endowments, and grants from any source
- Fines and fees, including entry fees, that are derived from operation of the park
- Other revenues that may be derived from the operation of the protected areas.

The DENR secretary may determine NIPAS fees to be collected from government agencies or any person, firm, or corporation that derives benefit from the protected areas. At least three-quarters of all revenue generated by a protected area is retained for its own

development and maintenance, subject to guidelines set by the governing board of the IPA Fund. This board has seven members: the DENR secretary or a representative, as chair; two representatives of DENR or other government agencies; two members from accredited NGOs; and two representatives of indigenous communities.

Debt-for-Nature Swap Programme

One of the first programs for management of protected areas was the Debt-for-Nature Swap Programme (DFNS). The World Wildlife Fund (WWF-US) and the U.S. Agency for International Development (USAID) redeemed Philippine government debt paper with a face value of US\$2 million by exchanging it for its peso equivalent, to be used by the Philippine government for conserving biodiversity. The program also was the first cooperative arrangement with an NGO, the Haribon Foundation, as fund manager and as one of the project implementers.

Funds for the DFNS program were released in three tranches, equivalent to US\$390,000 in 1989, US\$900,000 in 1990, and US\$710,000 in 1992. The Haribon Foundation received the first two tranches. The WWF-US administered the third through Philippine Business for Social Progress, an NGO whose members and main contributors are large business corporations. The first tranche funded the management of two protected areas in Palawan—St. Paul National Park and El Nido Marine Sanctuary (see the case studies at the end of the chapter). Later tranches extended financing to three other parks: Mt. Pulog National Park in Benguet, Mt. Isarog National Park in Camarines Sur (see the case study), and Tubbataha Reef National Marine Park in and around Palawan. These five parks received a total of P23.3 million (US\$962,000) from the DFNS program between February 1989 and June 1993. The program also financed complementary projects, including four training, professional development, and research projects; three environmental education and public awareness projects; two ecological database and survey projects; and two institutional establishment and support projects.

Management and Impact of the DFNS Program

The DFNS-supported projects at St. Paul, El Nido, and Mt. Pulog were managed by DENR. Community organizing, extension, and awareness projects at Mt. Isarog were managed by the Haribon Foundation, and work to protect the Tubbataha Reef National Marine

Park was undertaken by the Tubbataha Foundation, an NGO based in Palawan. The DFNS funds flowed from the Central Bank to the Haribon Foundation and thence to the project implementers. Haribon managed and administered the funds and facilitated their transfer to the project sites.

This arrangement allowed the participants to benefit from the flexibility of working with an NGO and provided Haribon with the opportunity to work closely with government on park protection. Implementation of the projects funded under the DFNS program was supervised by a management committee whose members included the DENR undersecretary for environment, the president of the Haribon Foundation, and a representative of the WWF-US.

The DFNS program operated from February 1989 to November 1993. During this interval, the only protected areas in the Philippines with sufficient funding to build park infrastructure and to field enough personnel to manage and actively protect the areas were St. Paul, El Nido, and Mt. Pulog. Tourism was emphasized at St. Paul, and protection was the focus at El Nido and Mt. Pulog. The awareness program at Mt. Isarog motivated local people to begin protecting the forest from illegal loggers and poachers. The Tubbataha project focused on protection by helping the work of local coast guards, but without laying the groundwork for a permanent solution to threats to the park.

Foundation for the Philippine Environment

The Foundation for the Philippine Environment was created in January 1992 as a grant-making organization for biodiversity conservation, supported by an endowment fund financed by a US\$10 million debt-for-nature swap as part of USAID's Natural Resources Management Programme. By late 1993 this endowment had increased to about US\$23 million, and the structure of the foundation itself was being developed with WWF-US technical assistance. The foundation operates under a board of trustees and uses an external financial controller. It funds projects proposed by NGOs and community organizations, either under its Responsive Grants Programme (maximum grant ₱2 million) or under its Action Grants Programme (maximum grant ₱125,000).

The foundation has assumed the funding of all the parks formerly financed by the DFNS program except St. Paul. In addition to the regular components of the management program (protection, research, information and education, and institution building), support is given for establishing the protected areas in accor-

dance with NIPAS, including the organization of their management boards. Because the foundation can give grants only to NGOs, funds are routed through NGOs even where project leaders and some staff are from DENR. Where project personnel have been deputized, management and protection still are coordinated with DENR.

Donor Priority Sites

In 1990, a Japanese government grant administered by the World Bank allowed phase 1 of the Integrated Protected-Area System Project (IPAS) to be undertaken by DENR with a group of NGOs led by the WWF-US. This phase achieved the drafting of the NIPAS law; identification, mapping, and initial management planning for ten priority sites; training of technical staff, forest rangers, and DENR regional directors; and general consensus-building on IPAS development priorities. Phase 2 is concerned with implementing seven-year management plans for the ten sites and is supported by a US\$20 million grant from the Global Environment Facility (GEF), with US\$2 million in Philippine counterpart funding. Phase 2 was scheduled to begin immediately after phase 1 in June 1992 but was delayed until early 1995 (GEF 1994, 1995).

Phase 2 of IPAS depends strongly on the performance of DENR's partner NGOs because almost three-quarters of the GEF grant are to be released to the NGOs for Integrated Protected Areas, Inc., a consortium of about eighteen environmental and development NGOs. Host NGOs will be chosen to assist DENR at each site, and local NGOs and community groups will be involved in community development, livelihood projects, operation of protected-area management boards, delineation of boundaries, socioeconomic surveys, research, and training. The planned structure for phase 2 is both centralized and decentralized. The NGO organization, for example, almost replicates DENR's structure, except that it involves many independent organizations. Phase 2 is expected to upgrade experience of improved park management and to help establish effective partnerships between government groups and NGOs in undertaking conservation projects.

During the 1990s, the European Union (EU) has supported a number of rural development projects in the Philippines, including the Southern Mindanao Agriculture Programme and the Western Samar Agricultural Resources Development Programme. These projects employ community participation in which people learn to select, evaluate, plan, and implement microprojects to meet their own development needs in

the context of decentralization. In mid-1995, the EU initiated a five-year National Integrated Protected-Area Project (NIPAP), which assists in the management of eight protected areas through community-based resource management work at the municipal level and below. The parks affected are Mt. Pulog (Central Cordillera), Mt. Isarog (Bicol), Mindoro National Park, Sibuyan Island (Visayas), Coron Island (Calamianes), El Nido Marine Reserve and Malampayan Sound (Palawan), and Mt. Malindang (Mindanao).

Conflict between Development and Conservation

Under the Local Government Code, LGUs are allowed to plan and carry out their own infrastructure projects. Although the construction of community and barangay roads is the concern of the LGUs, many local road and infrastructure projects still are undertaken through or with the assistance of the national government. Decentralization must proceed slowly because public works and infrastructure projects demand capital investment and technical skills. Other categories in which the national government dominates include facilities funded by the national General Appropriation Act, special laws, executive orders, and works wholly or partially funded by foreign sources. Exceptions occur where an LGU is designated as the implementing agency. This limitation also tends to place projects that affect protected areas under the national government.

Protected areas and habitat protection in general are addressed by NIPAS, which provides policy guidance in these areas. National, regional, and local physical plans are supposed to take protected areas into account, and parks are a main consideration in national land-use policy. NIPAS therefore requires all levels of government to safeguard protected areas from planning failures and externalities.

Further protection is provided by the EIA system, which applies to all development in environmentally critical areas (Balagot and Briones 1994). Such areas include:

- National parks, watershed reserves, and wildlife sanctuaries
- Sites with tourism potential
- Habitats of threatened species (that is, most remaining natural habitats in the Philippines)
- Sites of unique interest
- Homelands of traditional peoples
- Areas vulnerable to natural calamities

- Areas with critical slopes, 40 percent (18°) or steeper
- Prime agricultural lands
- Recharge areas for aquifers
- Water bodies used for domestic purposes, or within protected areas, or that support wildlife and fisheries
- All reasonably intact mangrove areas
- All reasonably intact coral areas.

The EIA process also applies to environmentally critical projects, which include heavy industry; large reclamation, construction, and power projects; and industrial resource extraction. The latter may include logging and wood processing, introducing nonnative species to forest lands, extracting mangrove products, occupying forests, grazing, draining land, or developing fish ponds.

Any project to which the EIA process might apply is submitted to the regional DENR office, which decides whether to exempt the project or to require further documentation. If the project is not exempted, a project description must be submitted, from which DENR decides whether an environmental impact statement (EIS) is required. If an EIS is not required, an environmental compliance certificate (ECC) can be issued at once. If one is required, it is reviewed by the EIA unit and the review committee of the regional DENR office before an ECC is issued or denied.

Studies leading to the preparation of an EIS must examine likely effects on natural fauna and flora in the area, among other things. A recent addition to EIA criteria is the social acceptance of the project by communities likely to be affected by it. This feature lets the community participate in decisionmaking within the EIA system, although the system itself remains under DENR supervision.

Under the constitution and NIPAS, once an area has been protected legally, all activities within it become regulated and must be consistent with its management plan. An activity not included specifically in that plan is subject to the EIA process. Deestablishment of a protected area requires approval by Congress. Despite these safeguards, conversion of protected areas by settlement or agriculture can occur because of inadequate physical protection in the field. Settlements exist in many national parks, and NIPAS accepts that such people have a right to occupy the land, provided they were present from at least five years before the law came into effect or before the area became protected legally. This has encouraged families to settle within protected areas, particularly where lands were known to be part of the IPAS project (a situation aggra-

vated in this case by delayed implementation). Similar difficulty might be expected in parks affected by NIPAP and similar projects.

Conflict between rural development and habitat conservation arises when LGUS or other government entities initiate development within protected areas. Conflict occurs because of uncertainty over park boundaries or even the existence of the park. Discord tends to become obvious only when the project clearly violates rules that affect a park, and such conflicts often are resolved at the national rather than local level. The EIA process provides an important means of achieving such settlements, but it is not yet foolproof.

The process should have been able, for example, to resolve the conflict regarding establishment of a geothermal plant in Mt. Apo National Park (Mindanao). In this case, the main conflict was with indigenous communities rather than with park managers because protection of the park was almost nonexistent and the conflict arose before enactment of NIPAS. Other examples of EIA failure include the erection of telecommunication towers within protected areas, such as those approved by DENR in parks at Mt. Kitanglad (Mindanao) and Mt. Arayat (Luzon). These cases occurred before NIPAS came into effect, but other forms of legal protection apparently were ignored at the time.

One of the ten priority sites of phase 2 of the IPAS project is Mt. Canlaon (Negros). Here, local leaders were wary of planned conservation measures because they anticipated conflict with the area's role as a vegetable garden and tourist resort. The mountain serves as the boundary of six different LGUS (three cities and three municipalities), all of which had their own plans for the area's development. These plans were formulated as early as 1992 and well before the beginning of park planning. The creation of a park management board seems an obvious way to resolve the conflict because the LGUS would be represented on the board and would have to participate in approving the management plan. Delayed implementation of the IPAS project, however, so far has prevented dialogue and conflict resolution and has left the LGUS to undertake their own development plans.

Conflict between rural development and habitat conservation is seldom recognized as such, mainly because so little active management of protected areas occurs. Many problems arise as a result of overlapping jurisdictions or conflict of interest between communities. Influential local leaders or big businesses often have conflicts settled in their favor through enactment of a new law or by obtaining a necessary official permit by fair means or foul. A widespread

problem is that protected-area management boards have yet to be organized and funded at many protected areas, so they are not available as forums for discussing, avoiding, and resolving conflict.

Conclusions

The Philippines is a large, diverse, and not particularly wealthy country with a history of social strife and serious environmental degradation. The reform process that began in the mid-1980s has a long way to go before all the damaging effects of this history can be turned to benefit. Nevertheless, much progress has been made, and the pace of change has accelerated during the early 1990s. The former centralized and coercive style of governance, development, and conservation essentially has been abandoned in favor of a model based on participation, accountability, and community tenure in the rural areas.

This is being complemented by rapid growth in the role and influence of local, national, and international NGOs, by significant assistance from many official donor agencies, and by a general rationalization and consolidation of the country's main biodiversity assets within the protected-area system. Although abuses persist and shortages of funds and skills exist among the newly empowered LGUS, the decentralization process continues to accelerate and is probably now irreversible. The Philippines is exploring important stretches of the path toward sustainable development.

Case Studies in the Philippines

The following case studies present some successful examples of decentralized conservation in the Philippines: St. Paul Subterranean River National Park, El Nido Reserve, and Mt. Isarog National Park.

St. Paul Subterranean River National Park

The St. Paul Subterranean River National Park was created in 1971 with an area of nearly 60 square kilometers, of which about one-third is buffer zone. Its most outstanding feature is an underground river 8.2 kilometers long, which attracts many tourists. The park contains both metamorphic and karst (limestone) formations, with peaks above 1,000 meters, and settlements of indigenous Batak and Tagbanuas people who are partly dependent on park resources. The park is within barangay Cabayugan in the city of Puerto Princesa, the capital of Palawan Province. Proposals

have been made to enlarge the park to 860 square kilometers, which would extend it into two more barangays, New Pangangan and Tagabinin.

The population of Puerto Princesa grew rapidly during 1980–90, from about 60,000 to more than 92,000, but that of Cabayugan itself grew only from about 1,100 to 1,300 in the same period. Until 1992, no road led to the park from the city, and the park was accessible only by pump boat. Surveys in Cabayugan in 1990 showed that about 40 percent of the population were farmers exclusively. Everyone else combined farming with other work, such as laboring, weaving, carpentry, or proprietorship. Mean annual household income in 1990 was estimated at about P14,000, which is quite high by local standards.

The DENR was created in 1986 and took charge of St. Paul National Park shortly afterward. Lack of funds before and since limited management to simple protection, but more activity became possible under the DFNS program, which provided P9.7 million over five years. The project team comprised two to four staff from the DENR regional office, as well as park rangers, a planning officer, a community organizer and information officer, researchers, and support staff. The project included components related to resource protection and law enforcement; community organizing; research and restoration; visitor management; and infrastructure maintenance and development. Accommodation for visitors and rangers was added to an existing administration building on-site and an office in Puerto Princesa.

The next component to receive attention was visitor management. Registered visitors increased from fewer than 2,000 in 1983 to more than 16,000 in 1993, and most of this increase occurred during the project period itself (1989–93). Research received attention only later in the project and was undertaken by DENR staff. Studies were completed on the park's vegetation and the habitat requirements and behavior of birds. Despite management problems during the first half of the project, the park was successfully operated as a tourist destination.

The park was administered by DENR for most of the project period; during that time no fees were collected from visitors because of bureaucratic difficulty, but donations were accepted. Late in the project, while it remained under the DFNS program in 1993, park management was devolved by DENR to the Puerto Princesa city government through a memorandum of agreement. This was in line with the 1992 Strategic Environment Plan for Palawan, which gave responsibility for managing the province's natural resources and

environment to the Palawan Council for Sustainable Development.

A management board was organized and assumed control of the park in late 1993; it was chaired by the city mayor and included representatives of DENR, NGOs, and tribal groups. Under city government control, the park underwent substantial changes, and more visitor cottages, toilets, and bathrooms were added, along with equipment such as motorboats. Extra staff were hired, and many of the old project personnel eventually were replaced. Fees are now collected and are held in a trust fund in the city.

From the point of view of tourism development, the city's management of St. Paul has been successful. Significant investments have been made, and substantial revenues have accrued to the city. Because of a lack of expertise, however, the city has been unable to undertake much research or monitoring. Also, there has been a lack of integration between management programs and technical assistance provided by the Peace Corps.

St. Paul is a rare example of decentralized management in which an LGU has a leading role. Advantages include the operational flexibility allowed by the new powers of the LGU under the Local Government Code and its increased capability to invest in the park's operation and maintenance. Where local officials are interested in park management, this arrangement is good for the park. Where LGUs lack interest in conservation, however, their management of a protected area may be counterproductive.

Funding for the St. Paul project appears to be assured as long as the LGU is committed to maintain the park, making this a condition of sustainability. One constraint on LGU control is that most funding for biodiversity conservation is routed through NGOs. In the case of St. Paul, however, the city has proved to be creative and innovative in finding funds for the improved management of the park.

El Nido Reserve

El Nido Reserve started in 1984 as a marine turtle sanctuary covering 360 square kilometers of coastal waters and twenty small islands around Bacuit Bay in northern Palawan. In April 1991, the sanctuary was reconstituted as a marine reserve of 950 square kilometers, covering the bay itself and associated mangroves and critical inland watersheds. About half of the reserve is terrestrial, and a quarter is forested. The site is accessible by chartered airplane and by land or sea from Puerto Princesa.

The reserve covers twelve of the eighteen barangays of the municipality of El Nido, where population grew from about 16,000 in 1988 to 21,000 in 1993. The local economy is based on fishing, tourism, agriculture, forestry, and gathering the edible nests of swiftlets (nido). El Nido is a popular tourist destination with 5,000–8,000 visitors each year. Bacuit Bay has more than thirty dive sites, with coral communities, rock formations, and underwater caves. Tourism yields substantial income to local people, who provide lodging, boat rental, and other services. Several large resorts also operate in the area.

Active management of the reserve started in 1989 under the DFNS program, and support for critical protection work was continued until May 1995 by the Foundation for the Philippine Environment (FPE) through the Marine Turtle Foundation. Between 1989 and May 1995, the project received P7.8 million, P6.4 million from the DFNS program and P1.4 million from FPE. The flow of funds has not been entirely continuous, however, and there were years when the project had to wait six to eight months without money, pending a decision on continued funding. During these times, the reserve was run by a skeleton staff who often worked without pay.

El Nido is under the jurisdiction of DENR, and although management is funded from elsewhere it is closely coordinated with DENR. The project has a team leader and includes DENR technical staff and some protection, research, and support staff, all hired locally. From the beginning, the project has involved resource protection, conservation education, research and restoration, infrastructure development and maintenance, and general administration.

The project has proved to be most active in resource protection, but enforcement efforts have led to death threats to project personnel. Enforcement has greatly reduced damage to resources by trawling, purse seine fishing, dynamite fishing, and poaching but has caused conflict with local officials and politicians who have an interest in such activities. Meanwhile, the education component has raised awareness among local people and has prepared them for active participation in the management board or council. Project staff have participated in several training courses, conferences, and workshops. The project has established an administration office and ranger stations at strategic locations. Equipment has been acquired, including pump boats, radios, scuba gear, cameras, megaphones, office equipment, and furniture.

The project completed its five years of support from the DFNS program without guidance from an

agreed-to management plan. Although an additional grant was made by the WWF-US to produce a draft management plan, this has not been finalized due to the lack of technical expertise available to the project. The El Nido project has benefited from strong leadership and a dedicated staff and has firmly established itself in the project area. The NIPAS law, however, requires a change in the management structure of the reserve, and the transition and ongoing protection were funded with a grant from the FPE in 1994–95.

Palawan's Strategic Environment Plan places the management and protection of natural resources and environment under the Palawan Council for Sustainable Development (PCSD). The Department of Justice has interpreted this to mean that the PCSD has jurisdiction over Palawan's protected areas but that management should be undertaken in close coordination with DENR. The question, then, is whether El Nido should follow NIPAS or the Strategic Environment Plan. Local officials do not acknowledge that NIPAS applies to El Nido and have formed their own council to oversee management of the reserve. DENR also is attempting to form a "proper" management board, and the situation may be confused further by an executive order that is consistent neither with NIPAS nor with the Strategic Environment Plan.

Regardless of the outcome, the project anticipates the need for a permanent institution to continue protection in the reserve. It is therefore working to create and support an organization of local community members. This strategy stems from the recent trend among local and foreign donors of routing funds through NGOs rather than through government channels. El Nido is so valuable as a tourism asset that its protection is strongly in the interest of resort operators as well as funding organizations. While money has continued to be available, the project has continued protection work despite the confusion over jurisdiction. With the FPE grant ending in May 1995, however, the problem of confused jurisdiction is expected to become acute. It needs to be resolved urgently.

Mt. Isarog National Park

Mt. Isarog, a dormant volcano 2,000 meters in height in the Bicol region of southeastern Luzon, is one of the most important watersheds in Camarines Sur. It was declared a forest reserve in 1935 and a national park in 1938, with an area of about 101 square kilometers. The mountain is divided among the city of Naga and six municipalities. Twenty-three barangays exist within the park, which in 1990 contained 735 house-

holds (up from 250 in 1975). Most depend on upland farming of coconut, abaca, rice, and bananas, as well as hogs and poultry.

The Bicol region is one of the poorest in the Philippines, and the farmers of Mt. Isarog supplement their income illegally by logging, poaching, and farming within the park. Most people around the park have little access to roads, electricity, transportation, water, or basic social services. Average annual household income is about ₱3,000 (only about one-fifth of that at St. Paul in Palawan). Few tourist attractions exist in the area, and visitors to Mt. Isarog are mostly researchers and students, with a few climbing enthusiasts, campers, and bird watchers.

The goal of the Mt. Isarog National Park Conservation Project was to develop a protected-area management system model, using community organizing, park management, and research as principal project components. The project was implemented by the Haribon Foundation, and under the DFNS program of 1989–93 it received almost ₱2.1 million. The FPE continued funding in 1994–95, but there was a six-month interruption before the foundation approved the grant for the project in late 1994.

While it was supported under the DFNS program, the project succeeded in organizing five communities and setting up a people's organization in the pilot area. It also devised a management plan for Mt. Isarog, built a training center in one of the barangays, conducted socioeconomic surveys and biodiversity inventories, and administered a number of training courses on leadership and environmental education for local people. The project also helped prepare the communities for an active role in the area's management board.

The project had some unique features:

- The implementer was an NGO, and it undertook the project without DENR staff on the project team.
- The project strategy was based on organizing communities to protect the forest rather than on direct enforcement.
- The site was more a source of livelihood for people than a tourist attraction.

Although only five of the twenty-three barangays participated, this at least demonstrated the feasibility of working effectively with communities to conserve natural resources. Interviews with community leaders in the third quarter of 1994 (when the project was awaiting new funding) showed that the project had increased their concern for the environment. People now recognized the importance of protecting the wa-

tershed to maintain water supplies and agricultural productivity. The communities also had learned to work together to guard the forests against illegal loggers and poachers.

One concern that emerged from these interviews, however, was that local people had become dependent on the community organizers provided by Haribon. This raises the question of how long an NGO can continue to deliver assistance to communities without creating such dependency. The project had been under way for three years when the DFNS program was completed, but the local people had not become self-reliant. It is recognized that outside help is important and may be vital for the improvement of a given community, but a clear need exists for a phasing-out process to be designed into such projects.

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RUSSIAN FEDERATION PROTECTED AREAS

- PROTECTED AREAS, IUCN CATEGORIES I-IV
- NATIONAL CAPITAL
- INTERNATIONAL BOUNDARIES

1000 KILOMETERS
NORTH LATITUDE



OCTOBER 1996

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Russia

Margaret D. Williams and Michael P. Wells

The Russian Federation comprises one-sixth of the world's land area and contains an enormous diversity of ecosystems on a vast scale. These include one-fifth of the world's forests as well as its deepest and oldest lake (Baikal), which contains more than 20 percent of the world's freshwater. Russia's eight biogeographic zones encompass fifty-four distinct ecological zones, each containing unique associations of species. While providing buffers against climate change and periodic natural disturbance, these vast and diverse ecosystems offer one of the last opportunities to keep together the large blocks of contiguous habitat considered essential for conserving representative ecosystems, viable populations, and ecological processes (Dinerstein and others 1994; Krever and others 1994).

An impressive network of parks and reserves has contributed to conserving much of Russia's biodiversity. The first protected areas were established as early as the reign of Peter the Great (1672–1725), although some royal hunting reserves were in existence even earlier (Weiner 1988). More than 2,100 federal and regional protected areas had been established by 1991, covering more than 930,000 square kilometers, or 4.1 percent of the land area. This protected-area network is the largest and one of the most important in the world and, until recently, was one of the best organized.

With the demise of communism, a new and perilous situation has arisen that threatens to undermine biodiversity conservation throughout Russia. This new situation came about during a period of radical economic restructuring. Its characteristics include severe public sector budget reductions, unprecedented levels of inflation, profound political uncertainty, and a breakdown in law and order. As many as one-third of the population may have fallen below the poverty

line. One immediate effect has been to increase the attractiveness of turning natural resources into cash as one of the few viable economic activities with the potential to generate short-term gain.

Widespread and dramatic decentralization of decisionmaking has been an integral component of this transformation. The ability of the central government in Moscow to reach out and exert absolute power over vast areas has been significantly eroded. Many republics of the former Soviet Union (FSU) have become independent countries. Even within the Russian Federation, many regions have become increasingly autonomous and are often more responsive to immediate local concerns than to edicts from Moscow. Most government functions thus have been decentralized.

Law enforcement in Russia's protected areas has weakened, and illegal activities within park and reserve boundaries have increased sharply (mining, construction, hunting, fishing, and logging). As exploitation of natural resources has increased, the very existence of some sanctuaries has been threatened. Even as pressure mounts from the outside, the protected areas have been losing the ability to fend for themselves. Operating budgets have been cut to small fractions of their former levels. Many professional park staff have been forced to seek other employment, often in menial jobs offering significantly higher earnings (Krever and others 1994).

Compounding these problems, relatively little popular support for biodiversity conservation exists in Russia, as a consequence of an acute shortage of public information or awareness. Local support for protected areas remains limited because of the authoritarian manner in which most of the parks and reserves were originally established and then managed by the FSU government.

A few bright spots have begun to emerge in this dismal picture, however:

- Reacting to the formidable new challenges, some protected-area managers have succeeded in improving relations with local communities and have begun to work constructively with the recently empowered regional governments.
- Other managers have demonstrated entrepreneurial skill and have begun to find alternative financial support.
- Outside the government sector, greater freedom of speech and the increased ease of communication have helped to trigger explosive growth in the number and influence of Russian NGOs, especially those concerned with environmental protection.
- Several nongovernmental organizations (NGOs) are becoming effective in safeguarding and supporting protected areas. Some have even forged constructive relationships with nature reserve directors and their staffs; such relationships and coalitions between NGOs and government entities would have been unthinkable only five years ago.
- Some of the new partnerships of NGOs, protected-area managers, and regional governments have launched promising local conservation initiatives, which are potential models for broader application.

This chapter examines these recent changes in Russia, explores their relation to decentralization, and assesses the implications for biodiversity conservation.

Russia's Protected Areas

Russia has some of the oldest and largest protected areas in the world. These parks and reserves have been the site of an extraordinary scientific research effort spanning several decades, and they represent a unique reservoir of biological information.

Zapovedniki

Zapovedniki, or strict scientific nature reserves, are the Russian equivalent of IUCN category I protected areas (scientific reserves and wilderness areas). These are the most important part of the protected-area network. Zapovedniki are protected scientific research institutions that are responsible for:

- Conserving biodiversity and maintaining protected ecosystems in their natural condition

- Conducting ecological monitoring and scientific research
- Providing ecological education
- Training scientific personnel and specialists in nature conservation.

Until very recently, the zapovedniki were off-limits to the general public, and human activity within them was strictly limited to scientific research. Neither tourism nor any other form of economic exploitation or development was allowed. (Minor ecotourism has now begun in several reserves.)

The first law on protected territories was passed in 1916, authorizing the establishment of hunting preserves and providing the basis for creating Russia's first such territory, Barguzinski Zapovednik, on Lake Baikal (Weiner 1988). The statute establishing the zapovedniki system was signed by Lenin in 1921, formalizing the status of several large reserves that had existed either to protect certain species or to serve as hunting estates for the nobility before the revolution. The system grew steadily until 1951, when Stalin authorized a large reduction in response to economic development concerns.

After further reductions in 1961, the system grew steadily for three decades (Weiner 1988; Pryde 1991). In 1991, there were more than 150 zapovedniki in the U.S.S.R.'s fifteen republics, half of them outside Russia. By 1994, after the breakup of the FSU, there were eighty-nine zapovedniki in the Russian Federation, covering almost 290,000 square kilometers, or 1.4 percent of Russia's land area, and employing about 5,500 specialists (Williams and Belov 1994). Seventeen zapovedniki have been designated as UNESCO biosphere reserves (Blagovidov, Chebakova, and Williams 1995). Most zapovedniki are now managed by the Department of Biological Resources and Nature Reserve Management within the Ministry of Environmental Protection and Natural Resources (MENPR).

Employees often live in small villages deep within the zapovedniki. In these areas, several activities are reluctantly permitted, such as picking berries and mushrooms, developing fruit orchards, gardening, or keeping a few head of livestock. Without these opportunities to generate supplementary income, most employees would be unable to survive with their families in such remote areas on their meager wages. These settlements do, however, present problems for reserve managers. Before a 1995 law prohibited privatization of housing in protected areas, some housing on zapovednik lands was sold to non-zapovednik em-

ployees, creating problems in enforcement of the zapovednik rules, as well as housing shortages.

New rules allow for the designation of special zones inside zapovedniki where local people can undertake activities such as berry picking and fishing and where tourist nature trails can be established. Most zapovedniki are bordered by a 2-kilometer buffer zone under the jurisdiction of regional administrations. Visitation usually is permitted in these areas, although this is very low at present. Some forms of hunting or fishing are allowed, but large commercial activities, such as clear-cutting, are prohibited (Blagavidov, Chebakova, and Williams 1995).

Zapovedniki always have been managed by the central government and have little or no history of interacting with local communities, let alone providing them any benefits. Not surprisingly, few local authorities have shown any interest in protecting nature reserves on their territory. As central government support shrinks and the control of natural resources shifts to regional governments, local populations have proven less inclined to respect and obey the laws protecting zapovedniki.

There have been several proposals to subordinate the management of zapovedniki to regional environmental protection agencies, but these agencies have little political influence and virtually no experience in land management. Many observers predict that such decentralization would not only frustrate badly needed reform of zapovedniki policy and management practice but would also lead to the natural resources within many reserves being overexploited systematically and degraded for short-term commercial gain.

National Parks

National parks have a fairly short history in Russia, the first having been established in 1983. These are areas of special ecological, historical, and aesthetic value, intended for environmental, recreational, educational, scientific, and cultural activities. They are important in preventing the exploitation of valuable and comparatively large tracts of land that traditionally have been used for recreation and cannot or need not be completely protected from human use. Some national parks in regions occupied by native populations contain traditional-use zones.

By 1994, Russia had twenty-eight national parks covering 64,000 square kilometers, or 0.4 percent of the land area. National parks are established by the federal government, and park administration falls under

the Division of National Parks in the Federal Forest Service. About 3,000 people are employed in the national parks (Krever and others 1994; Williams and Belov 1994; Williams 1995; Blagavidov, Chebakova, and Williams 1995).

In contrast to international practice, most Russian national parks permit a variety of uses. Most were created by reclassifying forestry lands (Grigoriev and Lopoukhine 1993), although this process often was complicated and incomplete. Once an area of forestland has been designated as a national park, the park administration is considered the land user and has the right to manage and uphold the conservation regime. Agricultural lands, under the Ministry of Agriculture, can be included within national parks if park planners consider them to have special historic or cultural value or if they are considered to be part of the ecosystem represented in the park. Control of such agricultural land is not transferred to the park, however, and private farms, other government agencies, and villages often retain the right to manage the land as they please. The charter for national parks requires other landowners to observe national park regulations, but no enforcement mechanism exists.

Managing national parks as natural, cultural, and historical resources does not come easily to the Division of National Parks in the Federal Forest Service, for this agency is concerned mainly with the exploitation of forests for timber. Most senior managers in the Division of National Parks are individuals with professional experience in timber and forests; some are simply bureaucrats who lack any understanding of park management issues or concern for them. As a result, few effective national park management policies exist, and forest and timber interests usually are favored over park management and conservation needs.

By virtue of their status under the Federal Forest Service, national parks compete with state forests for federal funding. Regional management units of the Federal Forest Service often override park interests, using funding mechanisms and old alliances with local and regional authorities to manipulate the park administration. For example, until recently, the Federal Forest Service transferred funds earmarked for national parks to the regional units of that agency, which then disbursed the funds. Since 1994, however, these regional units have had the authority to decide how much of their budget should be allocated to the national parks. This change has ceded tremendous authority to local forest service management. Because timber and forestry interests usually take precedence

over conservation and park needs, this has led to reduced funding for national parks. Compounding this problem, Federal Forest Service funding for national parks can be used only for forest management. Other vital conservation or restoration activities such as education, tourism, wildlife conservation, and research have to be financed from other sources.

In April 1994, President Boris Yeltsin approved plans to establish seventy-two new zapovedniki covering 160,000 square kilometers and forty-two new national parks covering 100,000 square kilometers by 2005 (Williams and Belov 1994). But no arrangement for financing these protected areas has been announced.

Zakazniki and Natural Monuments

Zakazniki (special-purpose preserves) and natural monuments are the most common protected areas in the FSU. They can be established on regional or local levels (of which thousands exist in Russia), as well as on the federal level, which is more rarely done. Zakazniki have no permanent staff, and land users (that is, government enterprises and agencies) generally retain the right to use the territory with certain limitations. Natural monuments typically encompass less than 5 square kilometers and include features of special interest such as rock formations, bird rookeries, or scenic landscapes.

Both zakazniki and nature monuments put permanent or temporary limitations on land use. They are categorized by function, such as ecosystem (conserving valuable and rare communities), zoological (valuable animal species), botanical (rare plants), geological, and so on. Some zakazniki allow limited economic activity such as hunting or berry picking during prescribed seasons. Because they can be created more quickly and easily than zapovedniki, zakazniki have become the most widespread form of protected area in Russia and often constitute the greater part of protected areas in regions with long histories of settlement (Williams and Belov 1994). Federal zakazniki covered about 120,000 square kilometers in 1993 (Grigoriew and Lopoukhine 1993). In 1994, the enormous Franz-Josef Land Zakaznik was established in the Arctic, covering 42,000 square kilometers of polar bear (*Ursus maritimus*) habitat, of which only 15,000 square kilometers are terrestrial (Williams and Belov 1994).

Other Protected Areas

Other protected areas include microsacctuaries for insects, wetlands protected under international conven-

tion, scientific forest reserves, climate-regulating forests along the southern borders of tundra and northern borders of steppe, Siberian cedar nut-producing zones, greenbelts around cities and towns, and many others. Russia's first privately funded wildlife sanctuary, Moriviovka Nature Park, was established in 1992. This reserve, managed by an NGO, set a precedent for brokering agreements among state farms, local government, and NGOs to preserve critical habitats for endangered crane species. Moriviovka Nature Park is a cooperative effort of the Amur Branch of the Socio-Ecological Union (Russia's preeminent national environmental NGO), the International Crane Foundation, the Audubon Society, and the Wild Bird Society of Japan (Blagavidov, Chebakova, and Williams 1995). This nature park has raised funds for an educational program and a modest headquarters. The founder of the reserve is now attempting to establish a model in sustainable development, teaching local farmers organic, low-tillage methods, as well as transforming a meat-processing plant into a soy-producing plant.

Financial Resources for the Protected Areas

The budget for the entire protected-area system of the Soviet Union increased from R15 million in 1975 to R55 million in 1990, broadly in line with inflation. But inflation began to increase very rapidly after 1990, and the real financial resources available to the zapovedniki system have declined dramatically since then. By 1992, the real value of the budget for Russia's zapovedniki had fallen by about 90 percent from its 1989 level. The budget then barely kept pace with inflation in 1993 and 1994. Park managers tried to protect their employees, and about 75 percent of the budget was being spent on wages by 1995, even though most employees were earning significantly less than minimum subsistence levels (Blagavidov and Nikolskiy 1995). The MENPR allocated the equivalent of about US\$7 million to the zapovedniki system in 1994, an average of less than US\$80,000 per reserve (Daushev 1995).

These severe funding cuts have left some protected areas near collapse. Activities such as ranger patrols, fire control, new construction, and research have been sharply curtailed and in some cases suspended altogether. After several years of poor maintenance, serious deterioration has become obvious in technical and safety equipment, communications facilities, vehicles, research laboratories, and libraries, as well as in offices and employee housing. Violations in protected areas have grown rapidly as the park's law

enforcement capability declines, as local communities experience increasing economic hardship, and as commercial trade develops in protected plants and animals.

Rangers' monthly wages in Kandalaksha Zapovednik in 1991 were about one-eighth of the minimum salary of a worker sweeping floors at nearby Kandalaksha Nickel Smelter (R18,000). More than one-third of the local laborers working in zapovedniki lost their jobs in 1992 (V. Stepanitsky and V. Lukarevski, personal communication to E. Simonov). Kandalaksha Zapovednik, which consists of archipelagos covering hundreds of kilometers, had to sell seven of its twelve large motorboats and lay off two-thirds of the seamen. Studies by the Department of Nature Reserves Management in 1991 indicated that to attract workers with appropriate qualifications, zapovedniki would need to increase ranger salaries tenfold while investing four or five times current amounts in repair and construction of living quarters and on equipment (E. Simonov, personal communication). Since then, the situation has deteriorated even further.

The Soviet Legacy of Economic and Environmental Mismanagement

It is important to avoid the impression that environmental management, and conservation in particular, worked well under the totalitarian regime of the FSU. There were certainly advantages for the protected-area network in being able to ignore the needs and aspirations of park neighbors, to enforce the law rigorously on their territories, and to rely on the government as a stable source of income. But centralized decisionmaking under the communist regime was accompanied by inefficiency and corruption on a colossal scale.

Far from being a benign dictator to the parks and reserves, the FSU government and the communist party leadership presented significant threats to the zapovednik network. For example, the zapovednik system underwent devastating "reorganizations" that declassified 88 percent of their territories in 1951 and 35 percent in 1961. (Some of these lands were subsequently restored.) Both campaigns were initiated at the highest levels of the government. These severe attacks on the protected-area network were unrelated to any demand from local people and certainly were not based on conservation criteria (Simonov and others 1992).

The centralized FSU government also fostered a land-management system in which local conditions

and concerns often were overlooked. This especially was true in the many areas where large and extravagantly expensive development projects were undertaken. Such projects often were planned and carried out with little regard for their economic cost, let alone their environmental cost. Both natural resources and labor were treated as free goods by the communist state, causing both to be squandered.

For example, heavy manufacturing, especially of armaments and chemicals, was conducted virtually without consideration of the social or environmental consequences. Huge agricultural subsidies and the use of obsolete and unsuitable technologies caused enormous areas of agricultural land to become degraded. Overuse of fertilizer led to the eutrophication of river basins, and intensive tilling led to widespread soil erosion in areas unsuited to crop cultivation. Control of information sources, including official statistics, allowed a succession of governments to disguise these negative results (Martynov and others 1995).

The legacy of past mismanagement is evident across all natural resource sectors of the Russian economy. More than 40 percent of the forests have been overharvested, and only 45 percent of the harvested timber ever reaches markets, where it is used inefficiently by an underfinanced processing industry. For example, Russia uses an average of 32 cubic meters of timber to manufacture 1 metric ton of paper and cardboard, compared with 6 or 7 cubic meters in Sweden and the United States (Bobylev 1995). About 30 percent of agricultural land is affected by extreme soil erosion or surface or groundwater pollution, whereas only 40 percent of irrigated lands are fully productive. At least 40 percent of the water used in manufacturing is returned to the environment untreated, and purification of the remainder has been relatively ineffective.

As Russia began trying to adopt a market economy in 1989, the country's economy went into a free-fall not seen in any other large country in many decades. Production fell by at least 50 percent during 1990–95, and by 90 percent in research-oriented and high-technology sectors. During the same period, the energy used per unit of final production increased by one-third (Bobylev 1995). Unprecedented levels of inflation and the loss of formerly guaranteed employment devastated most of the population. The past five years also have been characterized by a race to control and exploit land and natural resources, often with scant regard for existing law, much of which is still ambiguous concerning private property rights (Martynov and others 1995).

Russia has yet to resolve how natural resource ownership should be divided among state, regional, and municipal bodies and authorities (Bobylev 1995). Traditional economic measures of gross national product (GNP) have not been adjusted to reflect environmental concerns. Attempts to maximize such crude indices as GNP are likely to lead to even more rapid exploitation of timber, oil, and other subsoil minerals, even though clear evidence from other countries indicates that such gains are often transient and illusory (Repetto and others 1989). The effects on biodiversity are likely to be disastrous.

Changing Attitudes toward Protected Areas

The interaction between protected areas and local communities in the FSU was limited to enforcement activities, paid employment of locals, and the use and maintenance of shared social services and transportation. The communities usually respected the laws protecting zapovedniki and rarely challenged the territorial integrity of reserves. Indifference, and occasional hostility, was the prevalent attitude toward the parks and reserves.

The zapovedniki were administered by the central government, and most local authorities showed little interest in the parks and reserves because they gained no direct benefit. This situation began to change dramatically in the late 1980s. Many of Russia's federally protected areas now are suffering from the growing influence of autonomous regional administrations, some of which are pushing for even greater independence from Moscow. Russian institutions, and even ethnic Russian people, often are unwelcome in these areas. As central government support shrinks and control of natural resources shifts to regional governments, local populations are far less inclined to respect and obey the laws protecting the zapovedniki. As a result, illegal activity in the protected areas has expanded dramatically.

The reasons are political as well as economic. New local governments are exerting greater control over their territories, reducing the influence of Moscow's central government on all local institutions and activities, including federally administered zapovedniki. At the same time, governments now lack the law enforcement capability they had under the totalitarian regime. New economic freedoms expand the opportunities to turn natural resources into cash, creating a strong incentive for local people to exploit the natural resources protected in zapovedniki. Finally, the overall economic crisis, especially the high inflation rate and

disruption of supply systems, has made rural populations more dependent on local natural resources. These closely interrelated factors are imposing pressure on the zapovedniki system in a way never before experienced (Simonov and others 1992).

Typical violations in zapovedniki and national parks have included the following (Zabelin and Simonov 1992):

- Poaching of endangered species in many nature reserves (such as the Siberian tiger in the Lazovsky and Sikhote Alinski nature reserves)
- Attempted construction of a road through a forest (in Samarskaya Luka National Park)
- Livestock grazing in buffer zones (in Dauriski Zapovednik)
- Illegal fishing in lakes and streams within nature reserves (as in the Magadanski and Kostomuksha nature reserves)
- Clear-cut logging in the protected buffer zones of several reserves in European Russia.

Some violations are blatant and involve senior conservation officials. The director of Pri-Oksky Terrasny Zapovednik, for example, permitted dachas to be built in the reserve's buffer zone. Although it was claimed that the cottages were for employees, their prices were affordable only to local elites. Some of the illegal activity in parks is being blatantly sponsored or conducted by regional government authorities. Blagavidov, Chebakova, and Williams (1995) cite some examples:

- The Irkutsk Regional Soviet of Deputies in Siberia illegally took 6.25 square kilometers from Pribaikalski National Park and allocated the land to local agricultural committees.
- A state farm in the Olkhonsk region has been attempting to establish pastures and carry out hay-cutting in Baikalo-Lensky Zapovedniki.
- Livestock from the neighboring Tuva Republic often violate grazing prohibitions in Altaiski Zapovedniki.
- The High Soviet of Karabdin Balkaria approved a decision of the republic's cabinet of ministers to remove 11 square kilometers from Kabardinski Zapovednik in 1992, including 6.2 square kilometers of unique high mountain forest land.

An extreme case illustrating the poor relations between some zapovedniki and local people occurred in 1994, in Sayano-Shushensky Biosphere Zapovednik

in Siberia. A team of four law-enforcement rangers on patrol disappeared without a trace. Foul play was suspected because of a history of tension between the reserve authorities and local Tuvintsi residents, who are mainly sheep and cattle herders. These tensions derive from conflict over property rights and access rights to grazing areas within the reserve. The dispute dates to at least 1971, when a hydroelectric dam flooded some of the Tuvintsi people's best grazing land as well as their ancestral burial grounds. Establishment of the zapovednik in 1976 compounded these grievances and led to open clashes between park rangers and Tuvintsi people, culminating in the suspected multiple murder of the rangers in 1994. Not surprisingly, this incident further inflamed resentment and hostility among both the park authorities and local people. Recent signs, however, indicate that the parties to this dispute are willing to begin dialogue to avoid further tragedy (Williams and Simonov 1995).

Emerging Positive Signs

Amid this depressing situation for conservation are some notably positive developments. As an example, some Russian regions have established broader and more innovative protected-area regulations than those at the federal level. The president of Sakha Republic (Yakutia), Russia's largest administrative unit, decreed in 1994 that at least 20 percent of the area of every ulus (district) in the republic should be a nature reserve or park.

Regional Protected-Area Associations

Some managers of protected areas are responding directly to decentralized decisionmaking. As regional administrations have become stronger and the influence of the MENPR's Department of Nature Reserve Management has diminished, park managers have begun to organize on their own initiative. During the first-ever national meeting of managers of Russian national parks and zapovedniki in Sochi in 1994, a decision was made to organize regional professional associations that would bring together representatives of protected areas with the capability to address a host of issues regionwide. Such associations have since been formed in the middle Volga region, in northwest European Russia, in the Far East, in the Urals, and at Lake Baikal.

The charters of these regional associations vary, but in general, members plan to cooperate by sharing information and expertise, by exchanging personnel

and scientific data, by developing joint ecotourism strategies, and by organizing regional campaigns for public support. This means they will constitute a larger and more formidable body when dealing with regional political and administrative authorities.

A Conservation Coalition in Nizhny Novgorod Region

The vacuum left by weaker direction and control from the center has opened the way for new actors to become involved in conservation policy. A growing number of NGOs are becoming involved in nature conservation and protected-area management. Alliances between NGOs and other stakeholders are starting to demonstrate that they can play a significant role in conservation at the regional level.

In Nizhny Novgorod, a partnership between a federally protected area (Kerzhenski Zapovednik), an NGO (Dront Eco-Center), and the regional unit of the Ministry of Environmental Protection (Goskompriroda) has proved exemplary, with the three groups working together to produce regional strategies for nature protection. The region's natural systems are threatened by wetlands drainage, extensive lumbering, and agricultural activity, compounded by recent changes in landownership. Only 5 percent of the region's territory is currently protected, but local experts believe that 50 percent of the remaining taiga and 30 percent of the mixed broadleaf forest should be protected. In this case the task is less to preserve an existing nature reserve system than to work with an amenable local administration to establish a system that can be fully implemented toward the end of the decade.

Critical elements of Nizhny Novgorod's conservation planning are to complete documentation on more than 200 areas targeted for protection, to develop a data base for endangered species, and to develop an enforcement service. A comprehensive thirty-year Regional Biodiversity Conservation Programme has been drafted by Dront, and it may serve as a model for regional conservation planning efforts throughout the FSU. According to Bakka and others (1995), the main elements of this plan include:

- Development of regional legislation for species and ecosystem conservation
- Creation and strengthening of a regional agency for species and ecosystem conservation
- Enhancement of the capability of regional research institutions to conduct biodiversity inventories, re-

- search on endangered species and ecosystems, planning of protection measures, and the like
- Incorporation of biodiversity surveys into standard forest surveys conducted by the Federal Forest Service to plan and regulate logging
 - Development of public participation mechanisms in protected-area planning and species conservation
 - Dissemination of information on endangered species and ecosystems and building of local constituencies to support conservation actions
 - Development of mechanisms to secure critical species habitats during the massive privatization of land that is currently taking place
 - Professional training of local conservationists
 - Development and implementation of a viable regional conservation plan.

Protected-Area Initiatives with Neighboring Landowners

Several interesting examples can be cited of new relationships between protected areas and their neighbors, particularly where zapovedniki adjoin state farms. Many of these farms have recently been privatized, especially in western and southern Russia, but only a few are viable without government subsidies. Many have closed down, but some of the new private farms are reorganizing themselves into larger cooperatives to share marketing, transportation, and other costs.

Les Na Vorskle Zapovednik, in Belgorod, one of the most intensively cultivated regions of Russia, protects one of the few remaining old-growth broadleaf forests in the southern Russian plain. Intensive tilling and pesticide use on a neighboring collective farm have all but destroyed the soil microfauna at the zapovednik's edge. Like most state farms in the Belgorod region, this farm has dilapidated facilities and poor-quality livestock, and employee wages are often several months in arrears. Hunting and firewood collection by the impoverished residents of the farm pose a constant threat to the zapovednik. Although the farm no longer can afford the massive pesticide doses formerly sprayed on the fields and orchards next to the zapovednik's oak forests, this has not stopped stray aircraft from dumping pesticides on the edge of the zapovednik, as well as on a local village.

Les Na Vorskle Zapovednik is now attempting to benefit from the farm's situation with support from the Laboratory for Ecological Designs, a Moscow-based NGO. The zapovednik proposes to reduce the pressure on the reserve by acquiring land from the

collective farm for a buffer zone, where oak forests will be planted for future harvesting by local people. On another border of the reserve, a now-polluted river will be restored and restocked with native fish for harvest by local people. The future funding prospects for this initiative have been reduced, however, by the regional government's recent consolidation of environmental funding into the general regional budget.

Dauriski Zapovednik in south-central Siberia has been encroached on by increasing numbers of small landowning farmers and herders, leading to conflict between the zapovednik's staff and local farmers. Livestock have degraded grazing areas around the reserve and now threaten the native steppe and wetland habitat within the reserve. The zapovednik proposes to improve relations with its farming neighbors by developing model programs in agriculture within a buffer zone, and it plans to organize training courses on the use of pesticides and fertilizer for those who wish to obtain pasture rights in the buffer zone. Model plots will be established and farmed using only organic, ecologically sustainable methods. The zapovednik also will acquire the rights to plots in the buffer zone that were granted to pensioners leaving the collective farms. In exchange, these pensioners will receive monthly dividends from the sale of agricultural products.

Tourism and Protected Areas

Reliable data are hard to find, but tourism in protected areas is minute at present. Until recently, tourism would have been unthinkable in zapovedniki, where human activity was strictly limited to research, conservation, and education. This is changing rapidly, and nature tourism is widely seen to offer one of the few opportunities in Russia to raise money for conservation.

Income generation through tourism should be easier for national parks than for other protected areas because recreation is part of the parks' mission. But underinvestment in infrastructure has prevented national parks from exploiting this potential. In 1993 only 8 percent of their budget came from their own earnings, and little of this was generated from tourism. But there are some signs of progress in all types of protected area. Some of the examples that follow may seem small and tentative by international standards, but in Russia they are considered dramatic and pioneering initiatives.

Tour operations are springing up throughout the Russian Far East. In some cases, these are led by

eminent scientists who no longer are able to support themselves by doing research. For example, in Magadan, a city that was closed until 1989 to foreign and Russian visitors, a leading ichthyologist, Mikhail Skopets, takes foreign anglers to fish for the area's extraordinarily large and numerous salmon. On the Kamchatka Peninsula, which also was closed until 1989, bear biologist Igor Revenko supports his research by showing foreigners Kamchatka's bears and volcanoes.

In Magadan, an ecotourism firm has been founded by scientists of the Institute of Biological Problems of the North, part of the Russian Academy of Sciences. The company is called Talan, after an island on which dwell some of Russia's largest seabird colonies. Its international clients are mainly bird watchers attracted by the Far East's diversity of seabirds. A portion of each visitor's US\$25 fee is used to support Talan Island's biological research station and has supported an ecological expedition to a remote area that is under consideration for inclusion within the national park system.

In the southern Far East, the indigenous Udege people on the Bikin River are building traditional homes, a hotel, and a studio where crafts will be sold. This area was recently the site of a controversial attempt by Korea's Hyundai Corporation to begin extensive logging around the Bikin's headwaters. Environmental damage was feared, especially destruction of Siberian tiger habitat. An international outcry and threats of a boycott ensued, and logging plans were shelved. The Udege community's participation in planning their ecotourism project is an organized attempt to find a nondestructive means of exploiting their natural surroundings.

The rich cultural and natural heritage of the Chukotka Peninsula and Bering Strait region has begun to attract visitors, who travel in a variety of styles, from luxury tour boats to local umiaks (kayaks). In the same area, tours sponsored by national conservation organizations and by smaller Alaskan ecotourism companies bring large numbers of tourists ashore to visit archaeological sites, native villages, and seabird and walrus colonies. A new tour company founded by Russian entrepreneurs received help in marketing, pricing, and planning from an Alaskan tour operator and is now cooperating with a variety of American agencies.

Kronotski Nature Reserve on the Kamchatka Peninsula, a region once closed to protect Soviet military bases, now attracts affluent tourists, many from Japan. Those wealthy enough to afford a helicopter tour of Kamchatka's impressive active volcanoes are guided

by a commercial firm that has a concession from the reserve.

Foreign adventure tourists increasingly are visiting Lake Baikal in Siberia to hike, kayak, and explore the cities of Irkutsk and Ulan-Ude. A 1993 Forum on Ecotourism in Nature Reserves brought together a number of Siberian and Far Eastern zapovednik managers with NGOs from the United States and the United Kingdom. This conference was one of the first attempts in which protected-area specialists addressed a market that is very new to Russian nature reserves and tour operators. The meeting led to a proposal to create a center for coordination of ecotourism.

Although undoubtedly capable of providing benefits to nature conservation, ecotourism in developing regions has its shortcomings. In Siberia, for example, visitors are enjoying and learning about spectacular wildernesses, but almost none of these visitors come from Russia itself. Introducing Russians to wilderness recreation as a stepping-stone toward developing grass-roots awareness and concern for environmental conservation has barely begun.

Expanding Roles for NGOs

As governmental support for protected areas, conservation, and scientific research has eroded, conservation NGOs have emerged as a significant force in Russia. For the first time, such organizations have been able to lobby, campaign, raise funds, access and disseminate information, enter into partnerships and agreements, take risks, and generally engage in activities that previously were forbidden or limited to official government bodies. Russian conservation NGOs have also successfully influenced and written legislation governing protected areas, exposed and halted illegal activity in protected areas, organized international conservation campaigns, developed environmental education programs, helped start building public support for protected areas, worked with the media, raised funds, conducted scientific research and environmental monitoring, and provided public access to information through publications and electronic mail. Having demonstrated their effectiveness, particularly in comparison with most government institutions, these NGOs have been able to recruit talented and motivated individuals from a variety of sources, including top scientists who are frustrated with underfunded research institutes and skilled experts who are mired in ineffective bureaucracies.

Although the number and diversity of conservation NGOs continue to grow, several have played particularly pivotal roles. The Socio-Ecological Union (SEU)

has been an important forum for outspoken environmentalists and has spawned many other member organizations. Although the SEU officially focuses on nature protection, ecosystem conservation, and protected-area management, it has adopted a wide mandate. Among its diverse activities, the SEU:

- Has contributed to stopping several huge development projects (including a plan to construct more than ninety hydroelectric power stations on Siberian rivers)
- Has participated in local and federal elections
- Has worked with the federal government to draft an Agreement on Environmental Protection for the Commonwealth of Independent States
- Has planned national parks and other protected areas
- Has conducted an environmental impact assessment for the federal government's draft Energy Policy and Program for Nuclear Development in Russia.

In 1995 the SEU received a U.N. award as one of fifty "exemplary communities."

The Biodiversity Conservation Center (BCC), a member organization of the SEU, is an NGO that provides a range of services to organizations in Russia and the FSU that the central government cannot. The BCC is governed by a board of advisers and has a staff of twenty, ten of whom are full-time employees, and many volunteers. The BCC was launched with a grant from the MacArthur Foundation and subsequently received financial support from several other international donors. The BCC also has begun acting as a matchmaker for donors, assisting foundations and other foreign funders in designing and implementing grant programs for Russian conservation. BCC programs include:

1. **Fund-raising.** The BCC has a library, consults on grant writing, has published "How to Ask for Money," and has analyzed Russian conservation funding support for the Global Environment Facility (GEF).
2. **Publications.** The BCC produces two widely distributed free bulletins. It has published the first compilation of laws affecting protected areas and an analysis of research on protected areas.
3. **Media.** The BCC holds regular press conferences and works with a popular wildlife television program to introduce parks to the public.
4. **Protected-area management.** The BCC has provided specialist legal advice and information to parks,

drafted protected-area legislation, and prepared the comprehensive national training component of the current GEF biodiversity conservation project.

5. **Field programs.** These include conservation initiatives on many aspects of biodiversity in Russia, such as the protection of endangered cranes, the identification and protection of old-growth northern taiga forests, and production of an *Atlas of Biodiversity of Northern Eurasia*.

The BCC has put considerable emphasis on raising public awareness of protected areas and their role in society. In 1995, it initiated and organized the Russian "March for Parks," the first nationwide holiday for national parks and zapovedniki. The March for Parks took place on Earth Day (22 April 1995) at more than twenty different protected areas. School programs, nature walks, press conferences, a professional roundtable, and tree plantings all helped to increase public awareness of protected areas. Journalists, schoolteachers, local businesses, local government officials, and families took part in the March for Parks events. This was the first collective effort by national parks and zapovedniki to work directly with their local communities. Although the MENPR's Department of Nature Reserve Management could not have organized such an event itself (given its staff shortages, inadequate funding, and lack of experience in community organizing), the department supported the event in principle and encouraged zapovedniki to participate in the 1996 Russian March for Parks.

The Laboratory for Ecological Designs (LED) is a small NGO focusing on ecosystem restoration. Run by a forest ecologist and a soil scientist, LED has been effective in working with local and regional governments to develop plans for the restoration of fragmented broad-leaf forests and of steppe and forest-steppe communities. The Druzhina Student Nature Protection Corps (Druzhina), an important training ground for young naturalists and conservationists, is one of Russia's oldest nature protection groups. Among many other activities, Druzhina volunteers have planned protected areas, conducted raids on collectors of endangered plants and animals, and started public awareness campaigns.

Another important function of NGOs has been funding support. ISAR—International Clearinghouse for the Environment—with USAID funding, started a small grants program, "Seeds for Democracy," to support nongovernmental initiatives, including nature protection. ISAR grants have nursed many emerging NGOs through their early development phases. Working with the BCC, ISAR also has supported the establishment

of electronic mail networks for NGOs throughout the country, helping to mitigate some formidable communication barriers.

International NGOs have also been important in assisting protected areas, including World Wide Fund (WWF)-Russia, the Taiga Rescue Network, and Greenpeace-Russia.

Alternative Funding Sources for Protected Areas

Inadequate financial support for biodiversity conservation by governmental agencies has left protected areas unable to support their basic operations. Directors of national parks therefore are obliged to seek other sources of income. Neither grants from local and regional ecological foundations nor the receipt of fines from environmental violators are sufficient to supplement the small federal budget for protected areas. Fund-raising and development are new skills that the Soviet period certainly did not encourage.

Fund-raising possibilities outside the public sector are being explored actively. Foreign private foundations have become a significant source of funding for conservation. But the success of some private sector businesses has yet to result in many corporate donations by Russian-based corporations to support the environment. In 1995, however, Mezhkhombank of Russia signed a contract with the international advertising agency Young and Co., to use endangered species to promote its business through television commercials and billboard advertising in Moscow. Images of the Siberian white crane and Siberian tiger now remind the public of Russia's disappearing natural heritage and are helping to nurture the nation's environmental movement. This may set a precedent for newly formed Russian firms and foreign joint ventures to help preserve the nation's biological heritage.

Under acute pressure to replace missing central government support, protected-area managers have explored many new ways to generate income, most of which would have been inconceivable until very recently. Some national parks have acquired commercial enterprises to raise funds, forcing park managers to confront problems unfamiliar to park managers elsewhere. When reviewing the following examples, one should bear in mind that the concept of commercial and business enterprises supplying goods and services in response to consumer demand is still viewed with considerable skepticism throughout Russia, particularly outside the larger towns. These ex-

amples are quite radical in the Russian context, even if they appear modest from the outside.

Vodlozerski National Park, created in 1992, includes a lake of 350 square kilometers, a village of 500 on the shoreline that has strong economic ties to the lake (and no other local work opportunities), and a fishery and fish-processing factory. Decisionmakers in the factory chose not to privatize, and the factory was purchased by the park, which since has operated the business successfully. Of the villagers, 90 percent now work either for the fishery or for the park itself, and earnings from the factory have financed the park headquarters, guest quarters, an environmental education summer camp, park shelters, and camping grounds.

By contrast, local government also insisted that the park take on an unprofitable dairy and meat farm that produced nothing of interest to villagers (who have their own animals), although it did provide a few jobs at high cost. After exploring various options, the park authorities decided to reduce the unhealthy, poorly kept herd, which was a severe drain on their resources. This decision has caused tension with members of local government, who see the park as destroying the village's agricultural life.

Kenozerski National Park in the Archangelsk region of northwestern Russia is noted for its architectural riches, including a complex of sixteenth- and seventeenth-century wooden churches. Federal Forest Service rules prevented the park from paying for anything but forest management, so the park had to find other ways to finance the restoration and preservation of the frescoes, panels, paintings, icons, and buildings lying within the park boundaries. This problem was solved when the park acquired a profitable dairy operation, which has led to additional investment opportunities in the local dairy sector.

The Role of Foreign Development Assistance

Given the perilous state of the Russian economy, it would be unrealistic to expect significant government investment in biodiversity conservation in the near future. At the same time, the opportunities for funding from other sources within Russia are limited at present. Recognizing the vulnerability of Russia's biodiversity during this painful transition period, a variety of foreign and international organizations have provided financial assistance or plan to do so.

The Chicago-based MacArthur Foundation supported a priority-setting biodiversity study undertaken jointly by WWF-Russia and the MENPR with the involve-

ment of more than a hundred Russian scientific and other experts (Krever and others 1994). Several of the initiatives prioritized in the investment portfolio developed by this landmark study have since been funded and launched. In 1994 MacArthur provided a further \$680,000 and other U.S. foundations another \$700,000 for conservation projects. Foreign organizations provided about one-third of all financing for biodiversity conservation in Russia in 1994 (Daushev 1995). Most of these funds were used for planning and preparatory studies by the larger international development agencies.

Based on plans existing in 1995, Russia is expected to receive about US\$15 million in foreign assistance for biodiversity conservation during 1995–97, about half of which represents a USAID project in the Russian Far East (Daushev 1995). In addition, the Biodiversity Conservation Program for the Russian Federation is expected to receive a US\$20 million grant from the GEF through the World Bank, with additional financing from bilateral donors.

The need to counteract the negative effect of political and administrative decentralization on Russia's biodiversity was an explicit justification for the GEF project. The project includes an ambitious and wide-ranging set of national conservation initiatives. Short-term assistance in critical areas is to be balanced with support for strategic planning and the establishment of more effective conservation institutions and policies over a longer period. Model projects will be launched in the Lake Baikal region. Although this project targets many of the principal weaknesses in the protected-area system, it recognizes that more effective biodiversity conservation ultimately depends on changing the overall relationship between economic development and the environment in Russia.

Some cooperative efforts between Western organizations and their Russian counterparts have been unsatisfactory because of misunderstanding and misconception on both sides (Simonov 1993, 1995). More recently, as larger biodiversity conservation projects have been planned with support from international development agencies, frustration has been expressed at the substantial time and money consumed by consulting studies performed during the preparatory stages of projects and the comparatively small amounts of money that have reached conservation programs so far. Such frustration is understandable on both sides. Although many highly qualified and motivated Russian individuals and organizations are capable of beginning work immediately with comparatively little funding, development agencies

are necessarily cautious about investing their money in such a complex and unstable environment.

Conclusions

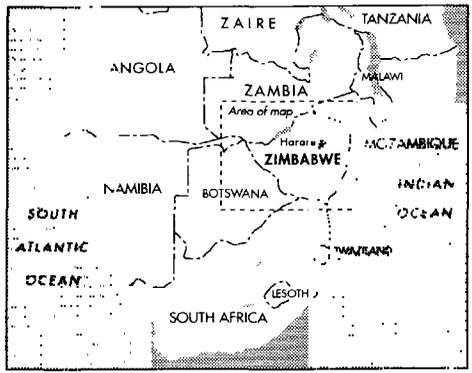
Recent events in Russia have clearly shown that decentralization can have a profound, negative influence on biodiversity conservation. But decentralization has different meanings in different contexts. The top-down, authoritarian style of protected-area management in the FSU arguably was in need of decentralization. But such decentralization needed to be linked to effective conservation institutions, policies, and funding at both national and subnational levels.

This did not happen. Decentralization in Russia has largely happened by default, the result of the crumbling of central government power and the social and economic stresses of the transition. Decentralization was not planned or deliberate, and it has occurred in a country that lacks functioning legal, administrative, and regulatory frameworks. The power vacuum at subnational levels caused by the central government's virtual collapse has been filled by political authorities that lack experience and often competence. Combined with the legacy of rigid, centralized mismanagement of both the economy and the environment under the Soviet system, this lack of subnational institutional capability has now exposed the Russian environment, especially its biodiversity, to an uncertain and highly dangerous future.

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Zimbabwe

Brian Child

Habitat conservation historically has been the responsibility of central government in most developing countries. Natural resources in areas occupied by rural people have tended to be controlled by the central government through line ministries, such as those responsible for agriculture, forestry, fisheries, and wildlife conservation. Because of the failure of this administrative strategy to protect resources and to develop and integrate rural economies, current thinking is promoting the alternative of decentralized, community-based natural resource management. As yet, however, little empirical evidence exists to justify this new strategy. This chapter reviews Zimbabwe's experience in devolving responsibility for wildlife management and in increasing local access to the benefits arising from it.

The central question is whether devolving management can improve the management of natural resources in marginal rural economies. This issue is explored through the example of Zimbabwe's Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), which was formed when the authority for wildlife management was devolved. This apparently simple reform has had an important and continuing effect in Zimbabwe on many aspects of the relationship between citizens and government, most of which were not previously thought to be directly related to wildlife. As Murphree (1995) puts it, the "khaki shorts brigade" set out to conserve wildlife and to buffer protected areas but has found itself at the center of a debate on sweeping agrarian reform, governance, and democracy.

This process began when the authority to manage wildlife was given to private landholders. It later was extended to communal farmers—that is, to the lower-tier elected structures of local government, which in-

clude the rural district councils and the wards, villages, and households they represent. CAMPFIRE has come to be viewed globally as a model for community-management programs. This chapter looks at the process whereby this devolution was achieved and how it is affecting rural development and habitat conservation in Zimbabwe.

The Roots of CAMPFIRE: Lessons from Game Ranching on Private Land

The government agency responsible for wildlife conservation in Zimbabwe is the Department of National Parks and Wildlife Management (DNPWM). Throughout the 1950s, the DNPWM and its predecessors operated under centrally imposed laws that prohibited any commercial use of wildlife, and these remained in force until 1960. Meanwhile, cattle ranching was strongly encouraged by marketing and pricing systems that tended to transfer capital from communal to commercial cattle producers. Other incentives acting in the same direction included the low price of land and labor, subsidies for capital inputs such as fences and for recurrent ones such as veterinary care, and government investment in the elimination of tsetse and foot-and-mouth disease (Child 1988). While cattle production thus was heavily subsidized, wildlife had no commercial value that could offset the cost of its management, and the result was rapid disappearance of wildlife populations. Wildlife was sometimes eliminated actively and through poaching, but neglect was more serious, for example when livestock watering places were fenced to help in livestock management.

The DNPWM recognized that the cause of the decline was not overharvesting but the inability of wildlife

populations to compete economically with alternative land uses, such as livestock. The department saw that the solution lay in harvesting rather than in blanket protection and that wildlife populations would survive only outside the national parks or protected areas if they were treated as a useful resource in successful competition with others.

This analysis began a period of fundamental policy reform, during which two measures were taken to make wildlife financially competitive. First, private landholders were given "appropriate-authority" status, which allowed them to retain benefits derived from wildlife management. Second, steps were taken to increase the magnitude of those benefits. Commercial use of wildlife was encouraged, but from 1960 to 1975 it was regulated through a system of permits. Lessons from this period were consolidated within the Parks and Wildlife Act of 1975, which introduced the principles of proprietorship and fiscal devolution.

By 1975, therefore, both policy and law had abandoned the model of blanket protection in favor of using wildlife resources for maximum landholder benefit. This created direct and transparent linkages between cost and benefit and between quality of input and quantity of output, and it introduced an economic mechanism that allocated resources to wildlife. Landholders became in practice the real "owners" of wildlife, with the power to retain much of the marketing margin.

A second problem at the time was that the public perceived itself as having a right to cheap wildlife products, which meant that they were underpriced. As the largest producer, the DNPWM took steps to increase the price of wildlife. To avoid undercutting wildlife producers, for example, it ended cheap hunting on state lands. Because it was a large producer and price leader, the DNPWM also was able slowly to raise the price of hunting. Elephant trophy fees, for example, increased from US\$500 in 1975 to US\$10,000 in 1995. With only an intuitive grasp of the underlying economic concepts, the DNPWM set out to establish a new system of resource tenure and to remove pricing distortions. Given the political situation of the day, the focus was primarily on private land.

These principles were established in law by the Parks and Wildlife Act of 1975. Private landholders received rights equivalent to ownership of wildlife resources: they were allowed to manage these resources and to benefit from disposing of products derived from them. Means also were needed, however, to safeguard the ecosystems supporting the resources. Using the 1942 Intensive Conservation Area

(ICA) Act, commercial properties in Zimbabwe had been grouped as ICAs, each with a legislated and elected committee having the power to control grazing, tree cutting, and poor arable practices. This system proved to be so effective at conserving natural resources on private land that the Parks and Wildlife Act gave the committees additional powers to manage wildlife, for example by setting quotas or by protecting species completely. In case of a failure of management at the ICA committee level, the government retained the right to intervene as a last resort. This right was used only three times in the period 1975–95, in all cases to set quotas on properties neighboring national parks.

The system has worked well and is largely self-regulating. Wildlife-based industries have grown rapidly, and the government has achieved its wildlife conservation goals at remarkably low cost, while also improving the economic productivity of many marginal rangelands. By 1990, some 75 percent of ranches in areas too dry for rain-fed crop production had some form of wildlife-based enterprise, showing that ranchers had recognized the comparative advantage of such investments in these habitats (Child 1988; Jansen, Bond, and Child 1992). The basis for this comparative advantage is that wild species convert dryland grasses into products of higher value than can be produced by cattle, including tourist photographs and hunting trophies as well as meat and hides.

The arrangements in place from 1975 onward caused wildlife populations on commercial ranches to increase. Calculations based on economies of scale then led ranchers to organize themselves in "conservancies" of five to twenty properties each, with common rules and objectives. These larger groupings were able to reintroduce species to their lands, including herds of elephants and buffalos that had been eliminated only twenty years before. In the case of private land in Zimbabwe, devolution of responsibility for wildlife worked dramatically. It allowed the ecological and economic advantages of native wildlife systems to show themselves in the form of increased profit, employment, and economic growth, in growing wildlife populations, and in markedly improved range condition.

Transferring Lessons to Communal Areas

While these events were unfolding on private land, wildlife resources on communal land were in rapid decline. The DNPWM therefore sought to reform the pricing signals in the belief that wildlife populations

would look after themselves if their economic advantages were reflected in their price. This process has been much more complicated than for private lands, but the first signs are that the effects are similarly positive.

A prime ministerial directive in 1984, on which Zimbabwe's system of local government is based, divided each district into ten to thirty wards, which in turn contained four to six villages of 100–200 households each. Each community had a village development committee, which was represented on the ward development committee. The chairman of the latter became the ward councillor on the district council, served by a staff of five officers. A traditional leadership coexisted with this modern structure in various degrees of conflict and cooperation. The chief executive officer of the district council was also the district administrator, so in practice the elected system of local government was effectively an extension of the Ministry of Local Government, Rural and Urban Development. These arrangements were later modified; rural district councils were created by fusing the former rural councils and district councils, which had previously represented white and black community interests, respectively. Each rural district council had its own chief executive officer.

The village and ward boundaries of rural Zimbabwe provide a useful framework for allocating rights and responsibilities in wildlife management. Within these units, however, rights are less clear; in law, communal areas are state lands managed through the elected rural district councils and the Ministry of Local Government, but in practice the land often is allocated by traditional leaders. Thus the rules are unclear regarding who belongs to which legal community, making it hard to regulate access to resources and to control the serious problem of immigration. Unlike private landholders, the inhabitants of communal lands have weak property rights.

Lower-tier wards and villages are merely advisory. They are not legal "bodies corporate"; they have limited authority over resources, and they are expected to advise councils on their needs and plans rather than to implement anything themselves. This means that devolving rights to wildlife in Zimbabwe must be based on permission and persuasion, not on mandate—an important factor that was taken into account in designing CAMPFIRE. Arrangements for communal areas to benefit from wildlife management thus had to overcome several difficulties that did not apply to private land (Murphree 1995). As well as those just mentioned, these difficulties are that communities are

more complex than private ranches; that wild animals are a community asset rather than a private good; that few communities had institutions or knowledge appropriate to managing wildlife; and that many communal lands had been degraded by the demands of human population growth and immigration.

CAMPFIRE's Goals

The central intent of CAMPFIRE is integrated resource management that is coordinated through tenure and pricing signals. It envisages a situation in which a community has strong and defined use rights over its resources, using mechanisms such as shares to guide resource use. It also recognizes that to achieve this, democratic institutions need to be built and knowledge must be transferred to support the newly devolved systems for managing resources. CAMPFIRE has yet to achieve all of its goals, and the program remains focused mainly on wildlife. It does seem to be spreading spontaneously to other resources, however, because wildlife cannot be managed in isolation from them.

Wildlife management has proved to be a useful route into the highly politicized area of natural resource tenure. In sharp contrast to livestock, wildlife systems have supported few entrenched interests and power elites. In the case of recreational ("safari") hunting, large cash revenues can be generated quickly, and these have few immediate opportunity costs because the wildlife populations already were present and often were perceived to be causing damage. The prospect of quick rewards encourages rural communities to experiment with new systems, which often have low immediate transaction costs (for example, in the form of intracommunity conflict) and significant, often highly visible, benefits in the form of cash payments.

The Beginnings of CAMPFIRE

When drafting the 1975 Parks and Wildlife Act, the DNPWM sought to devolve authority over wildlife resources to local communities. This intention was thwarted by the Ministry of Internal Affairs, which wanted to maintain control over wildlife revenue and communal land in general (G. Child 1995). In 1982, following Zimbabwe's independence, the act was amended to allow the devolution of appropriate authority to district councils. The rationale was that black communal farmers should be treated in the same way as their white commercial neighbors. This pro-

vided the legal mandate for CAMPFIRE, but it was seven years before this amendment was used.

Meanwhile, farming by the rapidly growing population of the Sebungwe area in northern Zimbabwe threatened to turn the Chirisa, Chete, Matusadona, and Chizarira national parks into ecological islands. Based on their experience with commercial farms, the DNPWM's ecologists persuaded the government to return to local councils the revenue from wildlife on communal land and in protected areas expropriated from communal land, such as the Chirisa Safari Area. The DNPWM continued to administer and market the wildlife products, with revenue deriving largely from safari hunting and elephant culling. Revenue was paid to the national treasury, which was under political pressure to pay local authorities but did so reluctantly, slowly, and with conditions. The payments could be used only for public works proposed by the district council and approved by both the Ministry of Local Government and the DNPWM.

This system was badly flawed because the links between wildlife and benefits were indirect and obscure and benefits derived from wildlife were often indistinguishable from general investment by government. Revenue from wildlife was often spent where many voters lived rather than in more sparsely populated areas (the "producer communities") where it was generated. No responsibility or control was vested in local people, who also had no reason to develop a proprietary interest in wildlife. Thus, little benefit was obtained by the individuals who really determined land-use practices; wild species such as elephants continued to cause damage and fear; and no countervailing incentive was present to tolerate such problems.

After analyzing these issues, Martin (1986) outlined CAMPFIRE. Its core concepts included comparative advantage and land use, devolution, tenure and resource pricing, flexible adaptive management, and community involvement through natural resource co-operatives. This provided the conceptual framework for implementing the amended Parks and Wildlife Act in 1989 and thereafter.

The Learning Process

By 1985 a good understanding had been attained of the economic basis of CAMPFIRE, including the causes of pricing distortion and mechanisms to address them. The concept of grazing shares, for example, had been described in the National Conservation Strategy (MNRT 1985). A much weaker understanding existed,

however, of administrative structures and institutions, governance, social and cultural factors, and politics. In the early days of CAMPFIRE, simply getting wildlife revenue paid directly to district councils was perceived as a successful end point. The DNPWM did not then anticipate addressing issues of community-council relationships, democracy, accountability, and governance, nor did it foresee that this would propel CAMPFIRE into the forefront of fundamental agrarian and political reform. As these factors emerged, social workers and sociologists soon came to join ecologists and economists as integral members of the CAMPFIRE team.

An example of the complex issues to which CAMPFIRE had to respond is provided by the Nyaminyami District in the mid-1980s (NWMT 1987; Metcalfe 1993). Local residents had settled in this wildlife-rich area after having been displaced by the filling of Lake Kariba, and they had survived on food relief since 1955. Ironically, hunting and photographic safari operations were well established there and were generating significant revenue for the treasury. The DNPWM began to work with Save the Children (an international non-governmental organization—NGO) to arrange for the capture of revenue derived from wildlife by the Nyaminyami District Council, with the intention of promoting both conservation and food self-sufficiency. Appropriate local institutions began to be needed, leading to the involvement of the Zimbabwe Trust, a national NGO with skills in institutional development.

Meanwhile, the Center for Applied Social Studies (CASS) of the University of Zimbabwe, which was active in the eastern Zambezi Valley, was trying to empower communities as a way of avoiding the mistakes of earlier centralized planning and resettlement projects (Derman 1990). The potential of the amended Parks and Wildlife Act was recognized by CASS, which joined the DNPWM to start CAMPFIRE in Guruve District. As a result of these initiatives, Nyaminyami and Guruve were given appropriate-authority status in 1989. Summarizing the experience before and since, the implementation of CAMPFIRE can be viewed as having five main steps:

1. An enabling economic, legal, and political environment was created. The comparative advantage of wildlife was first demonstrated on private land; legislation allowed fiscal devolution of wildlife revenue; and this led to a grass-roots CAMPFIRE movement.
2. Awareness of the potential for wildlife in commu-

nal lands was promoted, leading to requests by councils for help in starting the program. Tangible benefits and verbal advocacy were required to overcome historical antagonism toward wildlife, which was seen as a symbol of colonial oppression and perceived as valueless, damaging, and dangerous.

3. Tangible benefits were earned, and were seen to be earned, in the form of money. This involved inventoring the resource and then marketing it.
4. The money earned was used effectively to generate both development (in its broadest sense) and conservation. Examples from Chipinge and Beitbridge illustrate these processes. (See the case studies at the end of the chapter.)
5. Communities became aware of the value of wildlife resources and the need to manage them properly, and systems for doing so were developed. The example of Masoka illustrates progress in this direction (see the case studies).

The Duplication Process

The experiences of Nyaminyami and Guruve were shared in 1989 at a workshop in Makuti to which other councils were invited. This and subsequent workshops led to a growing demand for CAMPFIRE country-wide, and by 1990 another ten districts had joined the program. Their applications were quickly approved by the DNPWM, but bureaucratic rules made it technically illegal to return funds directly to the councils. The program was implemented nevertheless; had not this risk been taken, it might well have suffocated. This stage of CAMPFIRE was marked by instability, crisis management, and risk taking and was a time of rapid conceptual development and excitement as the wider implications of the program became clear.

The DNPWM at first proposed a special unit to implement CAMPFIRE (Martin 1986) and later found a suitable donor to support it (G. Child 1995). The proposal failed, however, because the parent ministry refused to endorse it. The DNPWM therefore co-opted three NGOs to replace the proposed unit: CASS, to provide sociopolitical research and monitoring; the Zimbabwe Trust, to help with institutional development; and the World Wide Fund for Nature (WWF-Zimbabwe) to provide economic analysis and scientific and practical advice on wildlife management. These parties evolved into the CAMPFIRE Collaborative Group (CCG), which was chaired by the DNPWM and therefore possessed a government mandate.

International restrictions on the sale of elephant ivory in 1989 both challenged and strengthened CAMP-

FIRE. They threatened an important source of community revenue but at the same time drew participating councils together to resist the restrictions. The CCG organized workshops, leading to formation of the CAMPFIRE Association, which became the lead agency in 1992 after the CCG was reorganized (CAMPFIRE 1992). The DNPWM then steadily withdrew into a monitoring rather than a management role. CASS, the Zimbabwe Trust, and the WWF provided support but intended eventually to become redundant. The six agencies (counting the Ministry of Local Government) involved in CAMPFIRE have worked together very effectively, considering their diverse backgrounds and cultures. This reflects their common goals, different but complementary roles, and good communication based on many personal contacts.

The Political Backlash

One logical way in which CAMPFIRE might have been introduced was through analysis of the underlying pricing problem, policy formulation, political endorsement and legislative change to support devolved proprietorship, and implementation. But this would not have worked, for several reasons. First, devolution would have been resisted by existing bureaucracies, especially had they predicted the widespread implications of rural empowerment created by the devolved control of wildlife revenue. Second, such established groups would not have trusted the lower tiers to manage wildlife resources. Third, the knowledge needed to plan the program had to be accumulated as actions were tried, their effects monitored, and the actions analyzed, redesigned, and tried again.

CAMPFIRE provided an inconspicuous means of introducing fundamental tenurial and administrative reform under the guise of technical recommendations (Murphree 1995). Although justified on the grounds that they corrected past discrimination against black communal farmers, the new policies had been endorsed at a high level and had taken firm root before their deeper implications were fully grasped, either by the implementers or by the government. A grass-roots political movement developed to defend the gains of fiscal devolution. The reforms were logical and effective and captured the imagination of enlightened mid-level officials. The timing also was fortunate because the government was promoting the principle of decentralization at the same time as a structural adjustment program was pruning government budgets and forcing a shift from a centrally planned economy toward a more decentralized one. The system of local govern-

ment also was reformed, and the amalgamation of rural and district councils favored devolution.

Programs, such as CAMPFIRE, that bring about fundamental change to property rights are inherently political and cannot evade central political processes forever (Murphree 1995). In Zimbabwe, CAMPFIRE would have been badly damaged had not the CAMPFIRE Association evolved to defend its underlying principles. The program was vulnerable at first because it was initiated largely by whites, whose motives often were neither understood nor trusted. Thus, a sound technical basis was insufficient on its own, and the program had to develop a grass-roots base and political legitimacy to survive.

An essential function of CAMPFIRE is to develop systems whereby wildlife revenue is managed by rural communities. The communities manage bank accounts, projects, and activities and in many cases allocate some benefits as household dividends. This process produces well-managed microprojects while creating a sense of proprietorship and self-confidence, teaching communities to manage their affairs, and promoting conservation by linking wildlife to benefits. Involvement in revenue distribution is critical. The same results would not be expected if the money were used simply to build projects for communities because that would create dependency while contributing little to education, conservation, and sense of ownership.

The CAMPFIRE process has been seriously threatened since about 1992 by moves to recentralize the distribution of wildlife revenue. The underlying causes lie in a failure to give rural district councils (RDCs) the funds with which to meet their expanded mandate and, ultimately, in the fear among some line ministry officials of losing their influence. This fear is a reaction to the RDCs' having been given more autonomy and broader responsibility than their predecessors, the rural councils and district councils. At the same time, because of the structural adjustment program, the RDCs were urged to become self-financing while their government grants stagnated in real terms. The RDCs were given access to no source of independent finance because all tax revenue (such as it is in remote rural areas) was still directed to the central government. The budgets of the line ministries also were cut, reducing the resources for development projects and prompting calls to recentralize wildlife revenue to fund the projects. These calls arose mainly among high-level officials, not from the RDCs themselves.

The debate over recentralization is marked by the following arguments and counterarguments:

Charge 1: Money allocated to communities is abused.

The program encourages communities to open bank accounts to promote community-based management. (See the case studies at the end of the chapter.) Misappropriation is estimated to be less than 5 percent of the money allocated, and in most cases these small losses are exposed by the communities themselves with the help of the RDCs, showing that effective accounting systems are developing. Such losses are a reasonable price to pay for introducing a new system and are considered far less wasteful than the previous overloaded system whereby all projects were implemented (and appeared to be "owned") by the councils.

Charge 2: People are drinking away their development.

The idea that communities have the right to allocate their revenue to households as cash led to fears that funds for investment in development projects were being wasted. Part of the motivation for this charge was that with cash goes the power to decide its use. The CAMPFIRE Association took the view that people have the right to drink wildlife revenue if they wish (and asked pointedly whether civil servants who drink are also "irresponsible"). Most community revenue was being invested anyway in projects such as schools, clinics, and grinding mills, and cash was preferred only early in the program, or where the leadership committee was not trusted, or during drought and other uncertain times. The fact remains that the priorities of governments and local communities are bound to differ at times—as, for example, when a community opts for cash rather than for building a road. In this context, the DNPWM asked why the small wildlife sector should be expected to finance all public works, effectively taxing it far more than other sectors.

Charge 3: Devolution is illegal because the RDC, not the community, is the recipient of appropriate-authority status. The DNPWM and the CAMPFIRE Association argued that the formulation of laws lagged behind policy, that the policy should take precedence, and that the RDCs were given appropriate-authority status on the understanding that revenue would be further devolved in line with the DNPWM's own guidelines (Child and Peterson 1991).

In trying to consolidate the progress made by CAMPFIRE, the DNPWM worked with RDCs and the CCG to prepare guidelines and procedures (B. Child 1995a). These include principles such as fiscal devolution, accountability upward and downward, and democratic choice regarding expenditure of wildlife-related rev-

enue. The political and administrative arms of the RDCs have strongly endorsed these guidelines, despite the bureaucratic impulse to recentralize, and this tends to support the idea that a devolutionary process must have strong political support, and perhaps even must become a political movement, if it is to succeed (Murphree 1995).

CAMPFIRE's Growth: Earning Money

The preceding account and the examples in the case studies at the end of the chapter illustrate the processes underlying CAMPFIRE. Although one tends to emphasize the most successful cases, the following national data do show that the process is general and is spreading within Zimbabwe. Data on the growth of income in CAMPFIRE are given in table 11-1; revenue increased from the equivalent of about US\$550,000 in 1989 to more than US\$1,370,000 in 1993. These data indicate that CAMPFIRE is highly dependent on trophy hunting by foreigners. Elephants do contribute 64 percent of this income, with the result that a map of the primary CAMPFIRE districts closely corresponds to the range of elephants within Zimbabwe.

Three factors contributed to the growth of CAMPFIRE income. First, in 1990-93 the size of the quota increased by more than half as the program expanded. Once councils learned to link the price of quotas directly to the U.S. dollar, depreciation of the Zimbabwe dollar (Z\$) boosted local income from wildlife because funds were disbursed to communities in local currency. Improved marketing also helped to improve the unit price of trophies fourfold in Zimbabwe dollars and twofold in U.S. dollars by 1993 (B. Child 1995b; see the first case study at the end of the chapter).

Preliminary data and discussions with safari operators suggested that price ceilings had been reached by 1995.

The dependence of CAMPFIRE on trophy hunting is partly a result of trade restrictions on ivory. Had it not been for the ivory ban of 1989, for example, CAMPFIRE districts might have doubled their earnings by selling the ivory that is now accumulating in stockpiles. Almost half of the 35 metric tons in storage is from communal areas, representing a loss to communities of more than US\$5 million at an ivory price of US\$300 a kilogram. Many of CAMPFIRE's resources have been diverted into efforts to keep open the international trade in trophies, and there is a continuing risk that a law banning the import of trophies to a large client (such as the United States) could destroy overnight CAMPFIRE's financial basis.

This vulnerability has encouraged the search for other sources of revenue. Of these, tourism is among the most significant, although it takes longer to develop than trophy hunting and requires a resource of higher natural quality than that generally found in settled communal areas. Tourism generated less than US\$20,000 for CAMPFIRE in 1993, but it is poised for rapid growth. The Chipinge CAMPFIRE District (see the case study), for example, has negotiated an agreement whereby a large hotel chain is to build a forty-bed lodge in a community with access to the nearby Gonarezhou National Park. The payment is to be 10 percent of gross income, with a guaranteed payment of Z\$250,000, but investments of this kind can also help remote communities obtain services such as water, electricity, and telephones. Another five to ten sites of comparable quality are found in CAMPFIRE areas, suggesting that future revenue from tourism

Table 11-1. Marketing of Trophy Quotas in CAMPFIRE Districts in Zimbabwe, 1990-93

<i>Item</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>
Income (Zimbabwe dollars)	1,448,840	2,357,292	6,304,022	9,536,394
Income (U.S. dollars)	548,803	466,790	1,150,369	1,374,120
Quota value (at standard price)	1,774,135	1,901,000	2,758,417	2,724,804
Zimbabwe dollars per value	0.82	1.24	2.29	3.50
U.S. dollars per value	0.31	0.25	0.42	0.50

Source: Child 1995b.

Table 11-2. Wildlife Income and Expenditure for the Twelve Primary CAMPFIRE Districts in Zimbabwe, 1989–93
(thousands of Zimbabwe dollars)

<i>Item</i>	<i>1989</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>
Income	628	1,743	2,872	7,167	9,741
Trophies	601	1,387	2,357	6,334	9,546
Other	27	356	515	833	195
Expenditure	730	1,489	2,941	7,195	10,081
Council	280	656	962	2,413	2,005
CAMPFIRE	27	183	555	1,023	1,972
Communities	423	650	1,424	3,759	6,104

might match that from hunting. It is recognized, however, that tourism development is expensive, complex, long term, and riskier than hunting.

CAMPFIRE's Growth: Spending Money

The fate of revenue derived from wildlife can be divided into three categories of expenditure: that retained by councils for general functions, that retained by councils to manage CAMPFIRE, and that allocated to communities (table 11-2). The last category can also be divided into projects done by councils on behalf of communities and those projects, activities, or cash payments managed by the communities themselves. The year 1989 was unusual, with only two participating RDCs, both of which received external grants to allow funds to be released to communities. Two councils failed to meet the guideline of devolving at least 50 percent of gross revenue, but this was fully corrected by 1994.

Leaving aside these two, from 1990 to 1993 the share of revenue retained by councils declined from 33 to 14 percent, that allocated to communities increased from 43 to 73 percent, and the share of revenue managed by communities increased from 16 to 65 percent. These changes were linked to others such as those described for Beitbridge and Masoka. (See the second and third case studies at the end of the chapter.) In several cases, the first payment to a community transformed its attitude toward wildlife and CAMPFIRE, helping to create a strong grass-roots political base for the program.

These data show a remarkably powerful devolutionary trend—strong enough to overcome “Murphree’s Law,” which states that any layer of a bureaucracy will attempt to wrest power from above while resisting any devolution of power. Despite strong pressure to resist decentralization, or to

reverse it, ten of the RDCs have reached a point at which nearly three-quarters of their wildlife-based revenue are reaching producer communities, with much smaller amounts being spent on administration or diverted to other RDC functions. The latter is permitted by CAMPFIRE as a means of encouraging the RDCs to support the program. The share allowed was at first 15 percent, but it was later reduced to 5 percent because of the DNPWM’s reluctance to burden wildlife enterprises with excessive RDC funding demands, relative to those made on other sectors such as cattle and cotton. The RDCs themselves now realize that it is unwise to tax wildlife too heavily because it may damage a productive and useful resource. Instead, they are trying to introduce taxation for other marketed produce.

CAMPFIRE's Growth: Natural Resource Management

The number of councils applying for appropriate-authority status increased from two in 1989 to twelve in 1991 and twenty-four in 1992. The number awarded that status rose from two to twelve during the same period. This status is the effective beginning of CAMPFIRE capability, and Child (1993) used a simple ranking system (table 11-3) to trace the progress of CAMPFIRE through some of the five steps previously described. The ranking system shows that RDCs quickly learned how to market well and that progress toward decentralization was occurring. Improved natural resource management, however, takes several years to occur after a community becomes a full participant in CAMPFIRE, and this period is not fully covered by table 11-3. Anecdotal evidence is beginning to accumulate to fill in some details.

Safari operators in ten of the twelve primary dis-

Table 11-3. Percentage of the Twelve Primary CAMPFIRE Districts That Received Excellent Performance Scores in Zimbabwe, 1989-92

<i>Step</i>	<i>1989</i>	<i>1991</i>	<i>1992</i>
<i>2: Awareness of CAMPFIRE at council level</i>			
Awareness of wildlife value	50	67	79
<i>3: Earning money</i>			
Effective use of hunting	42	90	92
Quality of marketing	23	63	77
Full use of tourism	0	8	28
Marketing skills	0	15	50
<i>4: Spending money</i>			
Participation in distribution	33	65	73
<i>5.1: Understanding and attitude toward CAMPFIRE</i>			
Council	23	75	85
Communities	10	31	46
<i>5.2: Wildlife management and institutions</i>			
Monitoring safari hunting	0	53	61
Setting quotas	0	0	64
Managing problem animals	11	44	56
Antipoaching	17	61	64
Keeping financial records	22	56	58
Implementing microprojects	3	28	42
<i>5.3: Expansion into other resources</i>			
Grazing	0	8	8
Trees and woodland	6	8	8
Land-use planning	8	19	33

districts have reported some improvement in the control of poaching. In Hwange, for example, the safari operator said that poaching stopped immediately after revenue was distributed and that animals were "coming down out of the hills," while in southern Chiredzi the people have reduced poaching and have assisted the DNPWM in putting out fires within the safari area. Some control over the use of trees has been attempted in at least five districts, and four have exerted some control on overgrazing. Three of the six districts affected by serious immigration have made strong efforts to solve this problem. Five of the districts have done some sort of land-use planning.

In Muzarabani, meanwhile, a member of the wildlife committee noted that his community had become aware of the scarcity of resources through CAMPFIRE, and wasteful use of trees was being prohibited. In Bulalimangwe and Tsholotsho, traditional rules governing the access of cattle to winter grazing areas have been restored. This was done to protect wildlife habitat and the local safari operation and to allow thatching grass to be collected before it is grazed or burned. In Beitbridge, communities have developed

plans that use irrigation to consolidate settlement and to reallocate land to wildlife from unproductive agricultural use. In Binga, workshops and studies have helped the council to develop land-use policy. Fences have been used to protect communities from wildlife, to consolidate settlement, and to reduce squatting, and others have been built to consolidate the main wildlife habitats. All councils have separate wildlife accounts that generally are well kept, and most are now submitting off-take returns, annual reports, and quota recommendations.

The period 1992-94 also has seen rapid improvement in understanding of and concern about natural resources among RDC officials. Councils have allocated some of their best staff to CAMPFIRE, and the chief executive officers give CAMPFIRE a high priority, to the extent that they regularly attend the frequent meetings and workshops.

Can Decentralized Management Work?

Success is hard to measure in a long-term process like CAMPFIRE, but the program has had wide-ranging posi-

tive impact and few obvious negative effects. It has promoted a more decentralized style for managing natural resources, and the ability of the RDCs to support it has improved as they have become its primary implementing agents. As the program enters a consolidation phase, the RDCs will need support if they are to keep filling this role. Substantial donor funding has been offered, but it remains to be seen whether such investments will achieve a sustainable managerial capability to run the newly devolved systems.

The functioning of local institutions has also improved. Elections are contested more vigorously, more transparent systems are improving accountability, and opportunities to develop project management capability have come with local financial empowerment. Of great importance is a change in attitude: the perception of wildlife is shifting from negative to positive, and communities are developing a sense of independence, self-worth, and vision for the future.

Improved management of natural resources is not yet so clearly evident, but improved understanding of resource issues certainly exists, and many specific problems are being tackled. At this time, there are cases of community effort to control poaching, burning, grazing, and tree-cutting, but there are also places where poaching may be worsening. Poaching tends to be associated either with a failure to devolve revenue in a local and transparent forum or at an appropriately small scale or with severe resource pressure, where population growth is exacerbated by rapid immigration. Solving the first problem—devolving revenue—is central to the CAMPFIRE process and is happening steadily. But the second problem—poaching where population growth is rapid—is perhaps the greatest threat to CAMPFIRE and to the communities that depend on its success.

In its most severe form, poaching is a consequence of immigration and the tendency of both traditional and modern institutions to disintegrate when large numbers of people of different cultures move in. There are, however, cases in which CAMPFIRE has helped some communities to gain the power and cohesion to exclude outsiders, as in Masoka (see the case study). The RDCs have also improved their general understanding of resource problems and tenurial issues, to the extent that some have taken the difficult step of evicting squatters. In other places, however, CAMPFIRE remains too weak to resist immigration.

As in many developing countries, this problem has more than one root cause. Severe overcrowding elsewhere in Zimbabwe forces people to move, while unclear rules on settlement rights make controls diffi-

cult to enforce. Although chiefs allocate land by tradition, in law this is done by the RDC. The Liberation War was fought largely over land, so when RDCs try to control “squatting,” their efforts may be overruled for political reasons, or undermined by chiefs willing to “sell” land. Open-access property regimes also suggest to rural people that resources are plentiful, when they are in fact critically scarce. Finally, outsiders are often welcomed because the presence of more people may encourage the government to provide services such as clinics, buses, and schools. These factors mean that people continue to flood in, even to such areas as the Omay part of Sebungwe, where residents have been receiving food relief for thirty years because the land cannot support them.

CAMPFIRE can help by clarifying resource tenure and management responsibility and by assisting institutions such as those in Masoka. The question is largely one of timing, the issue being whether new arrangements can be introduced before the resource base is overrun and destroyed. It is also partly a question of natural resources per person and the development strategies adopted by the various levels of society. The land may not be able to support the current population, but perhaps the economy can develop fast enough to reduce people’s dependency on a dwindling resource base. But it must be kept in mind that Zimbabwe’s population is doubling every twenty years and that its rural landscape is already badly degraded.

Is Fiscal Devolution Sufficient?

Decentralization is a complex and political process. It may be strongly resisted because it removes power from the currently powerful. Several factors were critical in initiating fiscal devolution in the case of CAMPFIRE:

1. The DNPWM saw the potential for devolving wildlife management and embodied the legal basis for achieving this in legislation, at least partially.
2. Using its strengths as a technical agency with a mandate to conserve wildlife, DNPWM was able to develop policy in the form of devolutionary guidelines and to insist that these be followed.
3. A grass-roots political movement developed in the form of the CAMPFIRE Association, which represented almost half of the country’s RDCs. The movement was able to lobby strongly in support of these principles. The combination of a political movement and a technical agency proved very effective.

4. The program was based on sound social, economic, and ecological principles, developed by a cohesive multidisciplinary team through a practical process of adaptive management.

These efforts have been sufficient to start the program, but CAMPFIRE represents a fundamental shift from centralized to community-based natural resource management. Wildlife management decisions are no longer in the hands of a few skilled technicians but are now made by 600,000 people in seventy to eighty wards in twelve to fifteen districts. The indications are that community-based management is probably the best option for the future, but additional input is needed on at least three topics: tenurial reform, information and knowledge systems, and the process of change. A brief look at each follows.

Tenurial Reform

Two models often are proposed to overcome tenurial problems. The first model is based on centralized management. This was a feature of past systems and is resurfacing to some extent in contemporary calls for increased regulation to preserve the "global" wilderness. The other common model is based on private ownership, which in Zimbabwe would so fragment communal lands as to make the system unworkable and would provoke social disaster by driving the weak from the land.

CAMPFIRE has devised a third option: if communities are to manage natural resources, they must have a clear right to control those resources. The key to this model is proprietary self-interest, with ownership being exerted at the community level, represented by the village development committee. For this to work, however, agrarian laws must be changed toward private community resource ownership, and to achieve this a political process is unavoidable.

Information and Knowledge Systems

To make wise management decisions, individuals and communities require information and knowledge. The real challenge for CAMPFIRE is to make these available to people who are only partly literate and in such a way that the information cannot be captured and used by a few people for their own ends. An example of the problem is when, for practical reasons, only three members of a wildlife committee are able to attend training meetings on behalf of the community as a whole. A similar problem is

encountered when wildlife revenue is given to community representatives, who are assumed to be honest but may not be. There are two implications: resource management decisions must be transparent to whole communities, and to overcome the literacy constraint, this transparency often must be achieved through face-to-face contact.

Process of Change

The goal of establishing a community-based management system should not divert attention from the process by which this goal is achieved. CAMPFIRE shares with other programs in other countries the intent of community proprietorship, supported by suitable knowledge systems. This end point can be reached in various ways, and each path will make different demands according to its own mix of cultural, economic, and other circumstances.

Conclusions

By combining the high untapped value of wildlife with sound principles of democracy, accountability, transparency, and local control of resources, middle-level technical officials have catalyzed fundamental reforms in the governance of natural resources. Moreover, it appears that the CAMPFIRE principles are widely valid for community development and resource management in much of the developing world, even in urban situations. The greatest hurdle is the quantum shift to this decentralized community-based strategy. In CAMPFIRE, this shift was made possible by the combination of a "new" valuable resource, fortunate timing (for example, coinciding with improving markets and decentralization rhetoric), and the work of dedicated, innovative personnel.

A valid question is whether this process can be replicated. Community-based wildlife management is spreading through southern and central Africa, but little progress has been made with other natural resources. Does this imply that the shift can be made only if a new and highly valuable resource such as wildlife provides the incentive for change or even that these circumstances must be complemented by a unique combination of people? If this is true, the experience might not be repeatable. Alternatively, given the model provided by programs like CAMPFIRE, can this "success" be replicated under a more formal project-type strategy? Will governments allow it, if they know the ultimate consequences? Time will tell whether governments are prepared to devolve and

support community-based natural resource management or whether control is more important to them.

Case Studies in Zimbabwe

The following case studies present some successful examples of decentralized conservation in Zimbabwe: marketing in Chipinge, revenue allocation in Beitbridge, and natural resource management at Masoka.

Marketing: An Example from Chipinge

Prior to CAMPFIRE, hunting quotas on communal lands were sold by the DNPWM on the basis of published price schedules. With the rapid softening of the Zimbabwe dollar in the late 1980s and early 1990s, this system significantly undervalued wildlife in the global market. New methods based on open and competitive marketing therefore were developed (Child and Bond 1994). In Chipinge, for example, a quota of four elephants and a few other species was sold for US\$26,515 in 1990. The same quota was remarketed in 1991, using new competitive procedures, with considerable gain. The quota was advertised nationally, the bids were short-listed, and the two operators who offered the best bids were invited for an interview. The bids, US\$37,030 and US\$50,405, were improved on negotiation to US\$59,405 and US\$68,515, respectively. Thus competitive marketing nearly doubled the value of hunting in Chipinge, which is consistent with CAMPFIRE's overall finding that competitive bidding is the main means to increase prices and that interviews improve prices further.

The process has other important but less tangible advantages, of which the most significant is the empowerment associated with the interview stage. Bids usually are evaluated by council officials with the assistance of the DNPWM and the WWF. Decisions based on such evaluations usually are validated by councilors in the relevant committees, but the technicalities of these choices are not always clear to them. In line with CAMPFIRE thinking, therefore, the process of choosing operators was deliberately made more participatory and therefore transparent to people with low levels of literacy or numeracy. The result was the marketing interview. It usually requires two days, is attended by members of village or ward wildlife committees, and is facilitated by the DNPWM and the WWF.

The first day of the interview is used for knowledge transfer and skill development. For example, safari hunting is explained, helping participants to under-

stand that safari operators buy the quota, split it into "bags," market it overseas to foreign clients, and provide quality outfitting services. Selection criteria are debated and decided, taking into account such factors as price, trustworthiness, and what happens to the meat. Interviews are practiced using role-playing techniques.

On the second day, operators are interviewed separately for one to two hours until their offer is final and clear. Offers are summarized on flip charts and then compared in matrices to make choice easier. The primary factor in choosing operators usually is price, but personality also can be significant. In Chipinge, for example, the quota was awarded to the lower of two bidders because of that individual's long and productive relationship with this community. The interview provides a means to develop relationships and adapt contracts to the specific strengths of an operator and to the needs of the community.

Interviews also can alter dramatically the nature of the past relationship between the operator and the community in favor of the latter. Spontaneous applause may erupt among community members during interviews, seeming to express growing feelings of self-worth, bargaining ability, and control over their own affairs. When communities are trained, it is often emphasized that the only differences between bargaining over a goat or over a multimillion-dollar concession are knowledge and confidence, and as communities grow in these qualities, their bargaining ability increases greatly. The DNPWM and the WWF may help this process by providing information on the price structure of the hunting industry (Child and Bond 1994; B. Child 1995b). The operators themselves regularly comment on how impressed they are with the ability of the community leaders and seem to enjoy the transparency inherent in the process. The interviews are also educational, with leaders reinforcing their knowledge of the industry by reviewing wide-ranging issues with several operators in face-to-face discussion.

Allocating Revenue: An Example from Beitbridge

Early in CAMPFIRE's history, wildlife revenue was not distributed so as to make the pricing and incentive structure reflect the advantages of the wildlife resource, nor was revenue used to support projects that would promote local managerial capability. Revenue instead was managed centrally by councils, which usually lacked the capability to support many small initiatives or, if they did, found that it undermined rather than built local

self-sufficiency. The program's solution was to devise a process for distributing revenue that was transparent, democratic, and educational.

An important breakthrough occurred in Beitbridge District in 1991, where, at the time, communities were not benefiting directly from wildlife (Child and Peterson 1991). There was strong opposition to their doing so, and they were kept dependent on central processes by a general feeling that it was almost unthinkable to give ignorant rural communities cash or even significant responsibility. This view was overturned through the close collaboration of a committed council and a determined technical agency (the DNPWM), which together pushed through a vision that revolutionized CAMPFIRE and later the relationship between central and peripheral institutions in rural Zimbabwe. These innovations grew out of close personal relationships within and between the council and the DNPWM.

At two meetings of the Beitbridge District Council, decisions were made that later became embodied in the CAMPFIRE concept and in subsequent guidelines:

1. Wildlife revenue would be returned to the "producer communities" in which the animals were shot. This created the critical economic linkage between cost and benefit and between quality of input and quantity of output.
2. Producer communities were defined as villages—relatively small, homogeneous communities where business could be conducted face-to-face. Social scale has emerged as an ingredient that is essential for democratic, transparent, and accountable management in communities that are only partly literate.
3. The council agreed to keep its share of the revenue small, thereby promoting devolution and avoiding differential taxation to the disadvantage of wildlife.
4. It was decided that the choice of how to use wildlife revenue rightfully belonged to communities, in the same way that the choice of how to use income from agricultural and other activities was theirs. Thus, no restrictions would be placed on their decisions, and revenue could be paid in any form, including cash dividends to households. This was vital in changing the perception of wildlife from that of a public or unowned resource to that of a private or owned resource, thereby ensuring that it would be "priced" by individuals and communities when making land-use decisions.

These principles were to be put into effect through a revenue distribution process that was transparent to rural communities. This was first achieved in Chikwarakwara (Child and Peterson 1991). The means of doing so later were formalized through national guidelines published by the DNPWM (B. Child 1995a).

In Chikwarakwara Village, Beitbridge, the whole community gathered under their meeting tree. The council chairman explained the sources of wildlife revenue, listing the names of animals to be shot and their values. The village then debated rules of membership and, after considerable discussion, agreed that there would be 149 members. With wildlife income of Z\$60,000, each member was entitled to Z\$400, a large sum in such remote areas. The young men, in particular, wanted all the money as cash but were overruled by the women and elders. The final decision was for each household to invest Z\$170 in a much-needed grinding mill and Z\$30 in the school, leaving Z\$200 for take-home cash.

During this process, Child and Peterson (1991) noted a change in attitude from one of dependency to one of self-sufficiency, a "new" ability to make reasoned decisions when tradeoffs were required, and a reversal of attitudes toward wildlife. At an earlier meeting, when discussing the use of revenue, the people had produced a wish list in the hope that some items would match donor requirements. Project viability was given little consideration, for which the community was strongly criticized by the DNPWM. Once community members knew that they were dealing with their own money, opportunism was replaced by pragmatism, and sound decisions were made. Similarly, because of the close and transparent link between wildlife shot in the village and the revenue received, the attitude toward wildlife changed from strong hostility to considerable enthusiasm.

Once the money was allocated, further measures were debated and agreed to by the whole community sitting under their tree. Committees were formed to purchase and manage the grinding mill, and functions and responsibilities were established. The process culminated in a ceremony to distribute revenue, which was designed to ensure transparency and to reinforce a feeling of proprietorship. Each household head was called up and paid in cash the full Z\$400 to which he or she was entitled. Household heads then placed Z\$170 and Z\$30 each in containers representing the school and the grinding mill, respectively, before signing the register and placing the remaining Z\$200 in their pockets.

This technique presented a literal accounting of the community's assets, far more comprehensible to partly literate people than a financial statement read aloud. The income statement was the Z\$60,000 placed on the table as cash, or the Z\$400 given to each member. Expenditures were Z\$30,000 for a grinding mill and school improvements, again highly visible as cash in containers on a table in front of the entire community. Furthermore, the council chairman introduced the grinding mill committee to the whole community, described their functions and responsibilities, and pointed out that they were responsible for using the money. This is the essence of accountability: functions and responsibilities were clearly defined and known to everybody. [Editors' note: in some remote areas, such large amounts of cash placed in plain sight would invite armed robbery or worse; readers are advised to weigh the risk before attempting the technique described.]

The system worked at Beitbridge with wide-ranging benefits. The grinding mill was soon in place and was being managed by the community. The link between wildlife and benefit was made, encouraging community action to control poaching, both by social means and by employing a game guard. The community also began to develop managerial capability, and projects were being implemented effectively by the community. The likelihood of sustainability was improved because the community understood how the projects worked and knew that they themselves had paid for and implemented them. This experience also helped in other projects and activities. The overall result was a shift from helpless dependency to a cohesive community that was beginning to plan and manage its own affairs. Democracy, transparency, and accountability were all important elements in this shift and were incorporated into the process described.

Natural Resource Management at Masoka

The community of Masoka lies between Chewore and Doma Safari areas in Guruve District in the eastern Zambezi Valley. It has perhaps made more progress than any other CAMPFIRE district. This can be attributed to the community's assertiveness, its access to a large area of wildlife habitat, its small population of 127 households, and the supportive attitude of local officials (Murphree 1995). As a favored location for researchers, it also has received considerable outside help. The cohesiveness of the community and the close collaboration of its traditional, spiritual, and modern leaders helped the community overcome ini-

tial resistance from the council, which later became far more supportive.

Before CAMPFIRE, Masoka was poor, dependent, disorganized, and demoralized, and agreement to experiment with the program was achieved only after much debate. Using a land-use plan developed by the community, a fence was constructed by WWF to encircle most of the homesteads and fields. This fence delineated the community and clarified its land-use goals while also greatly reducing conflict with wild animals, which previously had terrorized the people and devastated their fields. To the benefits of the fence were added revenue from harvesting wildlife (between Z\$200,000 and Z\$600,000 annually), meat from trophy animals, and employment in the safari camp next to the village. High benefits and low cost meant the net benefit from CAMPFIRE was large, and the local attitude toward wildlife quickly changed as wildlife management became the focus of community activity.

Visits to Masoka in 1993 and again in 1995 would have shown dramatic development in the economic, organizational, environmental, and human spheres. Wildlife revenue at first was controlled tightly by Guruve District Council, which managed them in limited consultation with the community. The council has since stepped back, and the community manages its own affairs, deciding, among other things, how to use their money. Where money is allocated to households (usually about Z\$1,000 annually), the wildlife committee collects and disburses cash dividends. A mix of cash and food may be provided if this is the choice of the community, as it may be in times of drought. Money allocated to projects is transferred into community bank accounts, which are managed by relevant committees. These committees report to the community at regular meetings and to the council, which provides training and audits their books. Financial accounts, scruffy and tatty two years ago, are now well kept by the treasurer.

The community has implemented a wide range of projects, and its skills in doing so are increasing rapidly. It started by building a school and then a clinic and has now purchased and is operating a tractor, which is a challenge but so far is working well. It also has invested in social activities—for example, the football club, which travels throughout the district and is a useful vehicle for spreading the CAMPFIRE message to other communities.

The community employs seven game guards and four fence menders, and rules have been devised and are enforced to regulate hunting, fishing, and the use of

wood and grass. Although the members of one household that persisted in burning grass were evicted, miscreants usually are fined by losing a share of their dividend or are made to do community service such as carrying water or maintaining the fence. The community uses its resources in a socially sensitive manner; for example, destitute families were the first to be employed as laborers in building the clinic. Visitors to Masoka from industrial countries often lament the loss of such a sense of community in their own societies.

In 1990, resources were being used at Masoka in a typically open-access way, but since then matters have been improved through tenure clarification, education, and clear rules. The community also is making the kind of hard tradeoff decisions that often elude communities in open-access situations. Important land-use decisions have been made, prompted especially by the fence, which has consolidated settlement and allocated most land to wildlife enterprises. The community decided not to have cattle, and if asked about this, members are inclined to say "buffalo are our cattle." Hauling and long-distance transport remain important needs in this remote location, and the community has met them by buying and maintaining a tractor.

Solidarity has allowed the community to make rules that tend to resolve conflict between individuals and the community in favor of the latter. The result is a fundamental change in the system of land management, ending the resource free-for-all that formerly was typical of many communal areas. Poaching and general misuse of resources by the inhabitants of scattered settlements have been replaced by community-based management. Although "management by committee" has a poor reputation in the capitalist West, in the case of community-based resource management the opportunity cost of time is low, and the beneficial effect of democracy and consensus-building is considerable. Zimbabwe's first leadership slogan was "Growth with Equity," and this is exactly what CAMPFIRE has achieved in Masoka. It also has achieved conservation with development.

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Good Governance in Model and Real Countries

Julian Caldecott

A number of principles seem to be emerging as a reasonable basis for visualizing what an “ideal” decentralized country might be like (see also Caldecott forthcoming). First, it seems necessary that all members and levels of society should have sufficient power to protect their own interests. Second, they all should be able to negotiate freely with one another on the management (such as avoidance, mitigation, or compensation) of impacts among people and within and between levels of society. And third, mediation or arbitration should be available to minimize the transaction cost among those individuals, groups, and levels in achieving a settlement.

It also seems reasonable to assume some constraints on bargaining. The first constraint is that everyone will seek maximum bargaining power. The parties therefore welcome the removal of obstacles (laws, policies, regulations) that block their own empowerment but may be less interested in the removal of obstacles for other people. A second constraint is that all will seek maximum compensation for impacts on their own interests. And finally, everyone will seek to pay minimum compensation for damage to other people’s interests. These three points provide ample scope for conflict, which suggests that a social good can be served if everyone agrees to be bound by arbitration that can result in a principled, fair, and durable distribution of power and settlement of claims.

Real societies may contain no group that has a clear interest in minimizing the cost of negotiating transactions. Indeed, asymmetries in this cost can be used to obtain a better deal for one side, provided that side is

willing to accept higher (or different) costs than the other. For example, a national government might use expensive consultants and senior officials to negotiate the placement of a boundary with rural people. The rural people may value their own time quite differently than the government team. In such cases, negotiations can be so protracted that the government may be tempted to use legal force rather than consensus to obtain a settlement. Such an asymmetry suggests that it may be impossible to achieve a completely efficient arrangement in practice, no matter how perfect the consensus in favor of a fair and durable settlement (Bromley 1991).

Many problems can be avoided, however, if local empowerment is accompanied by lines and procedures for communication, appeal, and supervision, through which each local group can continue to relate to national authority. Good governance therefore should be associated with arrangements that distribute power according to necessary function, that promote dialogue, negotiation, and mutual supervision between levels of society, and that facilitate the transfer of compensation for negative externalities within and between them. This suggests that the way in which a society avoids or settles conflicts of all kinds should be a good indicator of the general quality of governance within it.

Methods

This chapter summarizes, analyzes, and compares the ten country studies reported in this volume. It presents an idealized model country that is organized accord-

ing to principles of sound environmental management and “subsidiarity” (meaning that responsibility for action is taken by the least central level that can act efficiently for each purpose). In this ideal country, transfer payments are made between levels of society with maximum efficiency and minimum transaction cost. The factors considered most important to this country are shown in figure 12-1.

In defining the model, my intent was to depict a country that (a) has achieved a stable distribution of power among social levels in proportion to the need for them at each level, (b) has established permanent linking mechanisms that allow arbitration and supervision between levels when necessary, and (c)

has created mechanisms for bargaining between levels that have been institutionalized within the power structure. A list of fifteen attributes of this ideal country is shown in table 12-1. The descriptions in the country chapters then were searched for these attributes.

In this analysis, the local level of society is separated into the community and bioregional levels, and the national and global levels are added, each level being defined as the sum of all units at the next lower level. By using societal levels for analysis, the aggregate role of all important actors is emphasized at each level, whether private, governmental, or nongovernmental. The effects of local variation in culture and

Figure 12-1. Relationships Modeled between Societal Levels

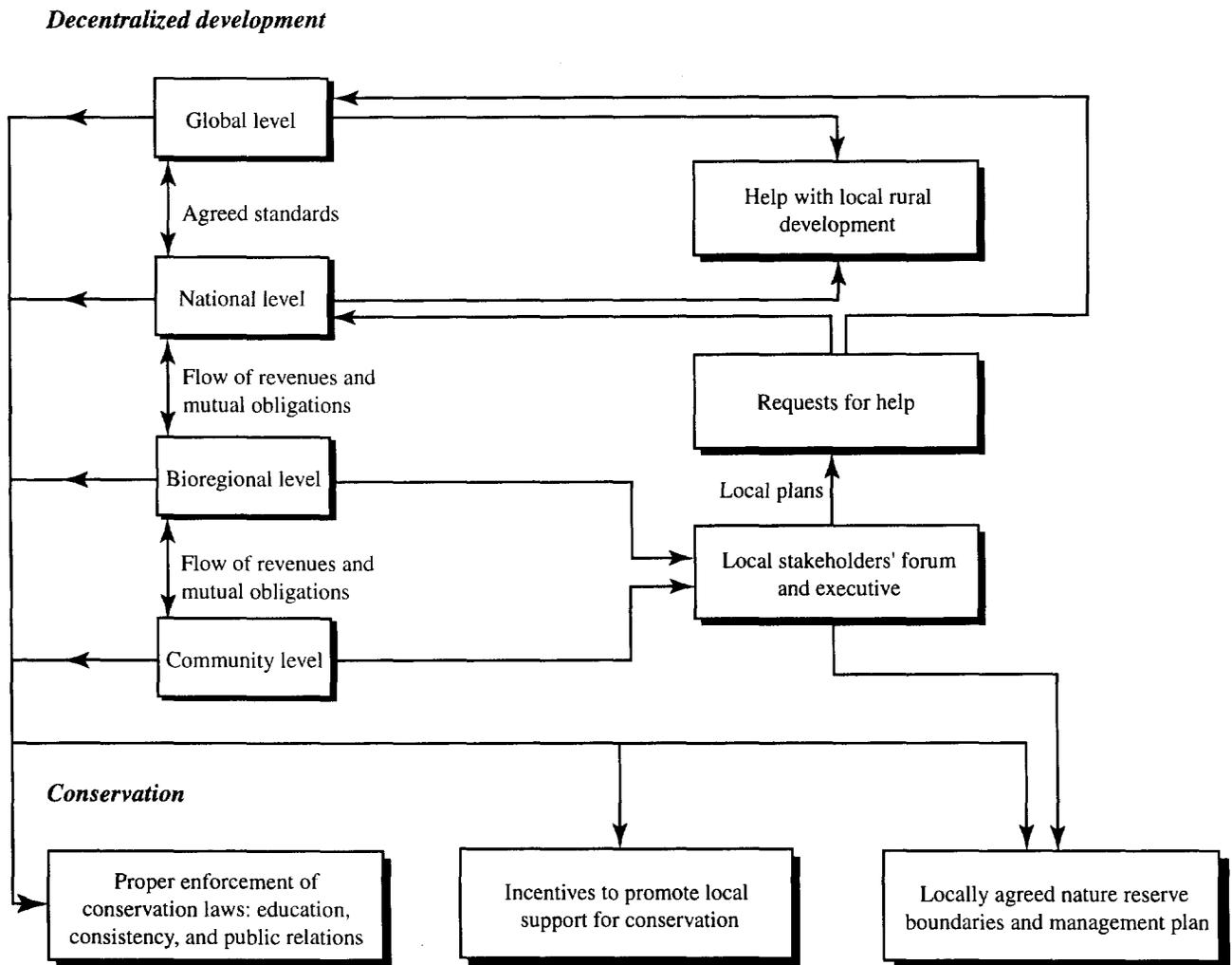


Table 12-1. Indicators of Decentralized Development and Conservation in an Ideal Country

Key indicators at the national level. These suggest the role of the country's central or federal and state or provincial laws, institutions, and procedures.

1. Existing policy and legal frameworks and procedures help to resolve conflicts among local people and groups when this help is requested by them.
 2. Existing procedures provide guidance to local people (for example, by helping to set and achieve standards for planning, environmental management, and environmental education).
 3. Existing procedures help to guarantee local autonomy and to defend local ecosystems and lifestyles against threats from outside.
 4. Existing procedures are conducive to proper enforcement of conservation laws (for example, by managing nature reserves in a vigilant, consistent, and just manner).
 5. Existing procedures apply incentives to reward conservation effort (for example, by clarifying resource tenure, by ensuring benefit sharing, by promoting investments to meet local needs, and by providing local employment).
-

Key indicators at the bioregional level. These suggest arrangements that affect a country's bioregions, which are the main units of coordination and oversight for environmental management and rural development (see text).

6. There are enough funds and fiscal autonomy at the bioregional level to meet local development needs (for example, through guaranteed block grants, sharing local revenues, and returns on local investments).
 7. There is enough operational autonomy at the bioregional level to meet local development needs (for example, authority for work plans and for hiring or firing employees).
 8. There is a mandate for an inclusive and accountable bioregional organization to involve all stakeholders, with the authority to direct work to meet local development needs and to request outside help in meeting them.
 9. There is a mandate for an inclusive and accountable bioregional forum to involve all stakeholders, with the authority to discuss and resolve conflicts of interest and to request outside help in resolving them.
-

Key indicators at the community level. These permit assessment of arrangements as they affect the communities in which the country's rural population lives (see text).

10. There is a bioregional organization with balanced objectives that represents all major groups.
 11. There is opportunity for grass-roots participation in a bioregional forum.
 12. There is community control of the process of setting development priorities (for example, by preparing community development plans).
 13. There is community control of the process of defining microprojects by which to meet development priorities.
 14. There is community control of the process of implementing and learning from microprojects.
 15. There is community participation in negotiating boundaries of nature reserves relative to those of private and communal lands and water, and the terms on which those reserves may be entered and used.
-

ecology also are discounted, as are those of high-level changes in government administration, such as the passing of powers from officials in large cities to those in smaller ones. More attention is given instead to what goes on in the countryside, where most natural ecosystems exist, and where their fates often are determined by the actions of local or nonlocal people in exploiting and selling local resources or by local people through such day-to-day decisions as when to set fires or where to graze goats (Caldecott and Fameso 1991).

The strategy used here gives special attention to biodiversity conservation, which implies a rural setting and the presence of natural ecosystems that often are within nature reserves. A typical conservation project to protect a tropical ecosystem of viable size and global significance is likely to involve fieldwork in an area of 2,500 to 25,000 square kilometers with 25,000 to 250,000 inhabitants, and this is adopted as the definition of a bioregion. The meaning is similar to that of ecoregion, which has been related closely to biodiversity by Caldecott and others (1994) and to landscape ecology by Johnson (1993), Olson and Dinerstein (1994), and Saterson and others (1994). This intends only to provide an approximate scale and is equivalent, for example, to that of one or several municipalities in the Philippines or local government areas in Nigeria.

Many rural development projects, however, work best at the grass-roots level, where face-to-face interaction and personal relationships among people are important to achieving responsiveness, transparency, and accountability in project planning and implementation. This often means designing microprojects and putting them into effect by working jointly with villages (for example, the barangay or bario in the Philippines and the desa or dusun in Indonesia). To reflect this, the community level refers to a social unit comprising 250 to 2,500 residents, considered together with the natural and artificial ecosystems that sustain them.

The national level of this analysis represents all levels above that of the bioregion, up to and including the country. After all, from the point of view of rural people or nature reserve managers, any large administrative unit is equally remote for most day-to-day purposes.

The final level is that of global society, which has a special role in working with countries to help them achieve minimum standards of public well-being, social justice, and environmental quality. The global role is particularly relevant to biodiversity conserva-

tion because it affects countries in the context of the Convention on Biological Diversity, as well as through the efforts of numerous donor agencies and nongovernmental organizations (NGOs). The minimum standards continue to evolve and change, but guidelines are provided by U.N. declarations, global conventions, and other forms of hard and soft international law, including priorities identified from time to time by multilateral development agencies such as the World Bank.

Findings

The real nations described in the country studies were scored according to the presence or absence of the fifteen indicators in table 12-1. Scores depended on whether each indicator seemed to be present in the country from the information available, with 2 points awarded for a yes, 1 point for a partial (or unknown, which comprised four in Nepal and two in Kenya), and 0 points for a no answer. These scores were summed, first, to give a total for the country at present and, second, to represent the medium-term future, based on the country's current plans and best-practice projects.

This second number is intended to show what the score is expected to be when the country's laws and plans are fully implemented, and its best-practice projects are replicated widely. The scores for each indicator are given in table 12-2 and summarized in table 12-3, from which it can be seen that the countries with the highest current scores are Costa Rica (19), Zimbabwe (17), and the Philippines (16). The lowest-scoring countries are Kenya (5), which has yet to attempt systematic decentralization, and Russia (3), which formerly was extremely centralized and is now in a uniquely chaotic transitional state. The other countries all have current scores of 10 to 13.

The future scores in table 12-3 show that all the countries seem to be moving in the same general direction, toward greater conformity with the model. If current laws, plans, and projects are implemented, Costa Rica, Zimbabwe, the Philippines, Nepal, India, and Colombia are expected to score 25 or more points out of a possible 30, and the remaining countries will score 14 to 20 points. This seems to indicate a real trend, and one that was visible in the independent data base of World Bank and GEF projects (Banerjee and Lutz, chapter 13 of this volume), where projects conceived and implemented before 1992 achieved consistently lower decentralization scores than those planned after 1992. The ratio between pre-1992 and

Table 12-2. Scores of Real Countries Using Ideal Country Indicators in Table 12-1

Country	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total score
<i>Current scores for each indicator</i>																
Costa Rica	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	19
Zimbabwe	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	17
Philippines	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	16
Nepal	0	1	1	1	1	1	1	1	?	1	?	1	?	?	0	13
India	0	1	1	1	1	0	0	2	2	2	2	0	0	0	1	13
Colombia	0	0	1	1	1	0	0	2	2	2	2	0	0	0	1	12
Nigeria	1	1	0	0	0	1	0	0	2	0	2	1	1	1	0	10
Indonesia	2	1	1	1	1	0	0	0	0	0	0	1	1	1	1	10
Kenya	0	1	0	1	1	0	0	0	?	0	?	0	0	0	0	5
Russia	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	3
<i>Planned or best-practice scores for each indicator</i>																
Costa Rica	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Zimbabwe	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Philippines	2	2	2	1	2	2	2	2	2	2	2	1	1	1	1	25
Nepal	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	26
India	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	25
Colombia	2	2	2	1	2	1	2	2	2	2	2	1	1	1	2	25
Nigeria	1	1	1	1	1	1	2	0	2	0	2	2	2	2	2	20
Indonesia	2	1	1	1	2	2	1	0	0	0	0	2	2	2	2	18
Kenya	0	1	0	1	1	0	2	2	2	2	2	2	2	2	2	21
Russia	0	0	0	1	1	1	1	1	1	2	2	1	1	1	1	14

Note: 0 = not present; 1 = partly present; 2 = clearly present; ? = unknown but scored as if partly present.

Table 12-3. Decentralized Development and Conservation Scores of Real Countries Relative to an Ideal Country

Country	Current overall score (maximum 30)	Planned or best-practice score (maximum 30)
Costa Rica	19	30
Zimbabwe	17	30
Philippines	16	25
Nepal	13	26
India	13	25
Colombia	12	25
Nigeria	10	20
Indonesia	10	18
Kenya	5	21
Russia	3	14
Total score	118	234

post-1992 scores for administrative decentralization in the project analysis was about the same as between the total current and future scores for all ten countries in the model comparison, being 1:2 in both cases.

The author of the India country study proposed several amendments (S. Singh, personal communication, 1995), not all of which are reflected in the scoring outcome. Some amendments were used to fill in missing data, but others were left out in favor of the information contained in the country study itself. This was intended to maintain comparability with other countries, probably at some cost to accuracy. Similarly, observations made during a site visit to Kenya (E. Lutz, personal communication, 1996) suggest that both the current and future or best-practice scores for that country should be increased, in view of actions taken by the Kenya Wildlife Service since the country study was written. Again, the original scores are retained here to preserve comparability at a particular time.

Conclusions

The uncertainties in this procedure mean that the findings should be used cautiously, even though they seem realistically to reflect significant differences between countries, especially at the extremes. They also appear to show a real trend toward "better governance." These findings tend to confirm the impression that governments are reforming themselves and participating in a widespread redistribution of power. These changes are in a direction consistent with a pattern of increasing decentralization and more widespread localized management of ecosystems. It is possible that individual countries may experience a reversal of these trends because vested interests associated with existing power structures may mobilize against further change.

One test of the procedure used here would be to ask whether a new reader would award similar scores on the basis of the information in the country studies. A

more formal test of the model itself would be to determine how closely the resulting scores match informed readers' independent assessments of the systems of governance in the same countries.

Pending further testing, it should be noted that there are a number of uncertainties in this strategy, including assumptions about the nature of "good governance," the choice of indicators, and subjective bias in assessment. It is hoped that this discussion will contribute to further debate.

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Analysis of World Bank and GEF Projects

Ajit Banerjee and Ernst Lutz

The need for habitat conservation now has been accepted in principle by most countries. Large areas of countries have been designated to preserve natural ecosystems, traditional landscapes, and wild species. These areas are termed national parks, wildlife sanctuaries, and heritage reserves. Although there are some success stories, and our collective knowledge has greatly improved on how to solve particular conservation problems, many habitats and species remain under serious threat. This is the situation globally, but it is particularly so in developing countries.

Over the past several years, the World Bank has grown increasingly concerned with habitat conservation. Innovative task managers have grappled with conservation issues for an extended period, seeking ways to provide effective project support. For example, at the policy level, increased attention to conservation is reflected in the Bank's evolving forest, wildland, and habitat policies (Ledec and Goodland 1988; World Bank 1991, 1995). Habitat conservation also was facilitated by creation of the Global Environment Facility (GEF) in 1991, through which grants are given to protect critical habitats and other components of biodiversity.

The Bank has supported habitat conservation mainly by projects or project components in forestry, natural resource management, and biodiversity, as well as through policy dialogue regarding individual economic sectors. We have reviewed Bank projects from the viewpoint of decentralization to examine the extent to which these projects were carried out in a decentralized manner and to determine how this has influenced their effectiveness in achieving habitat

conservation. In doing so, we also have reviewed the policy and institutional instruments used to achieve the project objectives.

Our study analyzed (a) the types of decentralization applicable to the habitat conservation project or component, (b) the types of instruments and incentives used, and (c) the social factors significant to project implementation, including means for resolving conflict. Furthermore, we attempted (d) to judge the extent to which each project intervention actually was effective in protecting habitats and (e) to correlate decentralization with habitat protection. These issues are discussed below, following a brief explanation of the strategy and methods used in the study.

Strategy and Methods

The year 1992 was one of important transition for organizations, people, and policy:

- For the World Bank, the new Forest Policy and GEF came into effect (see, for example, World Bank 1991, 1994).
- For global sustainable development policy, the U.N. Conference on Environment and Development was held and Agenda 21 was agreed on (see, for example, UNCED 1992).
- For global decentralization policy, new national laws and policy initiatives appeared in many countries (see Prud'homme 1994).
- For conservation practitioners, integrated conservation and development projects were formally recognized (see, for example, Wells, Brandon, and

Hannah 1992); the Fourth World Parks Congress was held (see, for example, Barzetti 1993); and the Convention on Biological Diversity was signed (see, for example, de Klemm and Shine 1993).

For these reasons, we divided projects in the present analysis into two groups:

- Those approved before the end of fiscal 1992, comprising twenty-two projects with a total cost of US\$2,006.6 million and a total Bank allocation of US\$1,185.5 million
- Those approved after fiscal 1992, comprising ten projects, half of which are partly or entirely financed by GEF, at a total cost of US\$552.4 million.

We grouped the projects this way because we recognized that they often begin slowly, meaning that some indication of practical conservation effectiveness would be possible only for the earlier group and that for the later group it generally would be possible only to review project plans. The cost of the conservation components of these projects ranged from 0.9 to 55.7 percent of total project cost, with a mean of 16.3 percent.

The earlier group comprised eight projects in Africa (approved fiscal 1985–92), nine in Asia (approved fiscal 1983–92), and five in Latin America (approved fiscal 1989–92). The later group (all approved fiscal 1993–95) comprised two projects in Africa, seven in Asia, and one in Latin America. The thirty-two projects can be categorized as follows:

- Projects in which habitat protection was or is the main objective, such as freestanding GEF projects (no earlier projects; four later projects)
- Forestry projects with multiple-use or protected-area components (ten earlier projects; four later projects)
- Projects in which rural development and protected-area management are joint objectives (often called natural resources management projects), consisting of policy-based loans or investment loans and involving different degrees of policy or institutional reform (nine earlier projects; two later projects)
- Rural development projects with a small protected-area component (three earlier projects; no later projects).

Those approved before the end of fiscal 1992 form a large sample of all World Bank projects that include habitat conservation among their objectives. The

sample from the later period is still reasonably representative of projects undertaken in Africa, Asia, and Latin America. Many European projects, however, were approved only during the past two years; they have very limited implementation experience and therefore were not considered. In addition to a review of Bank documentation (Forms 590 and staff appraisal, supervision, mid-term review, and project completion reports), we interviewed many current and former task managers of the projects.

Decentralization of Habitat Conservation Projects

The word decentralization refers both to a process and to a condition of organization and embraces several aspects of both (Minis and Rondinelli 1989; Prud'homme 1994):

- Spatial decentralization involves diffusing urban populations and activities geographically away from population centers.
- Market decentralization creates conditions in which goods and services are provided by market mechanisms rather than by government policy and decisions.
- Administrative decentralization involves transferring responsibility for planning, managing, taxing, and spending from the central government to other groups within the country.

The last is of most immediate interest here, and we have sought to disaggregate it into purely administrative and fiscal forms to reflect the primacy of taxing and spending decisions in influencing events. The groups to which powers are transferred can include field units of government agencies, subordinate units or levels of government (state, province, district, county, and so on), semiautonomous public authorities or corporations (housing authorities, river basin authorities, and so on), regional or functional authorities, user groups, communities, and nongovernmental organizations (NGOs) of various kinds.

Administrative decentralization is of three distinct types:

- Deconcentration, in which decisionmaking powers are redistributed among different levels of central government
- Delegation, in which powers are transferred to organizations that are not wholly controlled by central government but are ultimately accountable to it
- Devolution, in which powers are transferred to independent subnational governments.

Scoring Projects

Analyzing World Bank projects was a complex task because different government agencies in the same country may be conducting business in different ways or changing their methods at different rates. Also, decentralization may be limited only to a certain project or component. Our analysis focused mainly on the types and degrees of decentralization in the projects selected for study.

We used the available information and our judgment to make crude assessments of the degree of planned and actual decentralization in each case. We therefore assigned a score of 0 where no significant decentralization existed, a score of 1 for partial decentralization, and a score of 2 for significant decentralization. We noted the government level to which the ratings applied (region, district, village or block, users, and so on). We applied this scoring system to project administration, fiscal management, land-use decisionmaking, empowerment of local stakeholders, NGO involvement, and effectiveness of habitat protection.

Administrative Decentralization

The findings, summarized in table 13-1, show an average score for planned administrative decentralization of about 1.0, indicating partial decentralization; actual administrative decentralization was only about 0.6. An explanation may be limited ownership by the executing agencies of the decentralization idea, giving rise to reluctance to transfer power to lower levels.

An example is the Nepal Forestry Project III, under which the government agreed to transfer the middle-hill degraded forests to the forest users and enshrined this provision in the Forest Act. The actual transfer has been very slow, however, because the Department of Forests was not sufficiently active. In India, the idea of joint forest management between the state and the users has been supported at the policy level but has not been backed by legislation.

Lack of decentralization has been identified in some projects as a key factor hampering project implementation. The mid-term report for the Madagascar Forest Management and Protection Project, for example, cites "centralized management and control, that restricts individual initiatives to conduct field activities" as one reason for failure of the protection component. The June 1994 Project Completion Report (PCR) for the Second Forestry Project (Credit 1654-MLI) concluded that "The motivations and attitudes of the forest rangers conflicted with the component's objectives. Commit-

ted as they were to repression, forest rangers were unable to win the trust of the rural population. A radically different attitude would have been required." The government eventually abandoned the policy of state management of natural resources, and a new strategy of participatory forest and plantation management was developed and implemented, with support from the Natural Resources Management Project (Credit 2370-MLI, Staff Appraisal Report No. 10370-MLI, 1 May 1992).

Fiscal Decentralization

The average score for planned fiscal decentralization, 0.2, was much lower than that for administrative decentralization, and the score for actual fiscal decentralization was only 0.1. This is a significant problem because lack of authority over fund-raising and spending decisions stifles initiative and action at local levels and depresses morale. These results can be explained by an even greater reluctance of central decisionmakers to delegate financial decisions. It may also in part be encouraged by the Bank's own procedures.

An example of how central decisionmaking can affect a project is found in the Nepal Forestry III Project. At one time, because of the failure of one project unit to submit accounts by the due date, the central financial authority withheld funds for all the project units. This produced uncertainty among the implementers and adversely affected the project.

Land-Use and Stakeholder Empowerment

Land-use decisions were planned to be partially decentralized, with an average score of about 0.8; the score for actual achievement was about 0.5. The score for planned local stakeholder empowerment was 1.7, but the achievement score was 0.5. This large discrepancy between the plan and the achievement in such a critical area reflects a number of adverse factors acting together. These include, in particular, the reluctance of local government officials to refer issues to higher authority, bureaucratic delays in formulating orders and legislation, and the lack of political will to transfer power to the local people.

NGO Involvement

The score for NGO involvement was approximately 0.5, both in the project plans and in actual achievement. One explanation for the lack of any discrepancy is that once NGO involvement has been agreed on in

Table 13-1. Summary of Decentralization and Habitat Conservation Scores for Projects Approved before 30 June 1992

Region	Project information			Decentralization								Incentives (actual)				
	Number of projects analyzed	Total project cost (Bank finance)	Share of conservation to base cost (percentage of total cost)	Administrative		Fiscal		Land use		NGO involvement		Effectiveness of habitat conservation	Benefit sharing	Conditional investments	Government support against outsiders	Conflicts between stakeholders
				Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual					
Asia	9	983.2 (573.5)	18.0	11	9	2	1	5	4	6	6	12	4	2	11	6
Africa	8	244.3 (109.3)	14.7	7	4	3	2	7	5	4	4	4	7	13	5	12
Latin America	5	779.1 (503.0)	15.6	4	1	0	0	6	3	0	0	4	0	0	7	6
Total	22	2006.6	16.1	22	14	5	3	18	12	10	10	20	11	15	23	24
Normalized scores				1.0	0.6	0.2	0.1	0.8	0.5	0.5	0.5	0.9	0.5	0.7	1.0	1.1

project documents, the NGOs themselves, being by nature pressure groups, are willing to mobilize public support against “backsliding” or evasion of commitment by government entities. With regard to NGO involvement, the PCR for the Central Visayas Regional Project in the Philippines states, “Competent NGOs with a track record of community organizing could be contracted by local government to undertake organizing and associated activities at each watershed site. What remains unclear is when to phase out community organizers and how to initially attract competent field staff to live in field sites.”

Overview of Decentralization Scores

As noted, the score for planned administrative decentralization was 1.0, whereas that for actual implementation was 0.6. Where carried out, decentralization has been made effective at different levels in different projects, extending to districts, to management units (national parks, microcatchments, and so on), or to users. Examples include the following:

- In Indonesia, the conservation component of the Forestry Institution and Conservation Project strengthened the division in charge of national parks (PHPA), which therefore became more effective.
- In Malaysia, the Sabah Land Settlement and Environmental Management Project achieved administrative decentralization at the reserve level, and this helped to improve protection of the Tabin Wildlife Reserve, even though some illegal activities continued there.
- In Sri Lanka, the Forest Sector Development Project created a new Environmental Management Division that not only improved conservation but also assisted in developing information management systems for monitoring.
- In Brazil, the Land Management Project—Santa Catarina promoted decentralization, first to the municipal level and then to the microcatchment level, with good results.
- In India, a series of forestry projects extended decentralization to forest users and achieved remarkable improvement in habitat conservation.

It is mostly too early to assess the implementation of the ten projects approved by the Bank after June 1992. Interestingly, however, the project plans show higher scores than those of earlier projects. Thus, the projects appear to have been formulated to promote decentralization more strongly than those in the ear-

lier group. Among the newer projects, the score representing administrative decentralization was 1.2, that for fiscal decentralization was 0.9, that for local involvement in decisionmaking on land use was 1.1, and that representing NGO involvement was 1.0.

We conclude that decentralization, by itself, is not a sufficient condition for achieving better habitat conservation. We also conclude that indiscriminate and universal decentralization is unlikely to be desirable for conservation because local decisionmakers may not be sufficiently concerned with regional, national, or global priorities. A significant degree of decentralization, however, does appear to be an important factor in promoting conservation.

Decentralization can pass management responsibility to people or groups not well equipped to handle it, and capacity building becomes important in such cases. Assistance may be needed, for example, in the formation of local management groups, to achieve equitable representation in stakeholder groups, or for training on technical issues.

Some Bank projects have promoted the formation of protection committees for forest work planning and management. In India, for example, the West Bengal Forestry Project led to the formation of about 4,000 local forest protection committees. The project assists them with planning, forest management, and distribution of benefits among their members. The committees are helped to function by NGOs selected for their expertise in group facilitation, which emphasizes that any group’s internal social dynamic is critical to its functioning.

Adding women to groups can have a significant and usually highly beneficial effect. In the West Bengal Forestry Project, it recently became mandatory for each committee to accept women. Personalities also are important in group dynamics, and some cases have occurred in which project success depended more on the ability of a local leader or a uniquely innovative government official than on the formal process of decentralization itself.

Instruments and Incentives

Decentralization is often correlated with participation, but even decentralization, capacity building, and participation together do not necessarily lead to better habitat conservation without a conducive incentive framework. As one task manager put it, “Decentralization is meaningless without giving rights, resources, and appropriate incentives to local communities.”

Much of the cost of habitat conservation is specific to the local or national level of society, whereas the benefits may accrue anywhere—to local communities, to others in the same watershed, to other nationals, to people in adjacent countries, or to the global community. These benefits and costs depend on the actual resources present in the particular habitat and the actual or potential uses and users of those resources. Other and often-connected variables include the identity of the stakeholders in each case and the likelihood and kind of conflict among them.

Thus, depending on the particular situation in question, one needs to design incentives that encourage behavior in line with the protection objective. We have used a crude system to summarize the incentives and regulations applied under the projects studied. The summaries include information on whether benefits were shared with the local population, on whether investments in rural development were conditioned on compliance with agreed-on rules concerning the use of habitat, and on whether the government would support local interests against outside ones. We also considered disincentives, including the nature and degree of conflict between local stakeholders and outside groups that have different interests in the use of resources. Under regulatory measures, for example, we considered whether the projects provided for the physical demarcation of habitats into core areas and restricted-use zones.

The results, summarized in table 13-1, show that benefit-sharing scored an average 0.5, indicating its limited use, even though its results can be positive under certain conditions. The latter appear to include cases in which control of production forests has been decentralized to the village level (for example, in China) or to the users (for example, in Nepal's Forestry III Project or India's West Bengal Forestry Project). These measures were successful when the villages or users reaped a large part of the forest management benefits, meaning usually 100 percent of the intermediate products and 25 percent of the final products. In these circumstances, forest habitats tended to improve considerably in quality and quantity, and levels of production tended toward apparent sustainability.

Examples of incentives used in the joint forest management components of the Maharashtra, West Bengal, and Madhya Pradesh forestry projects in India include a long-term conditional usufruct lease of the habitat, some intermediate products to meet the subsistence needs of the participants, and a share of the final product. These are not examples of how directly

to preserve critical habitat for biodiversity of national or global importance, but they illustrate that regeneration of degraded forest under these forms of management can complement conservation efforts in various ways. One way is to help meet the needs of people who depend on forest buffer zones around conservation areas, thus relieving pressure on such reserves and providing habitat outside the reserves that many species can occupy and use to increase their populations or geographic range.

Conditional investments were made in a few projects and produced an average score of 0.7. The Central Visayas Regional Project PCR stated, "In the short term, attention should be focused on activities which prepare and ensure community participation, respond to more immediate quality-of-life needs and provide income first, and conservation as a secondary benefit." The September 1994 Form 590 for the Guinea Forestry and Fisheries Management Project noted, "It has been demonstrated once again that forest conservation cannot be addressed in isolation; to ensure continued development of surrounding areas, alternatives need to be provided for the people who depend on the forest for a living."

In the Congo GEF Project, it was recognized that "The participation of the local population in developing the necessary alternative economic activities to protect biodiversity will be a critical part of the project." Unfortunately, the last project cited was unable to achieve this for various reasons, leading to a failure of the project in meeting the habitat conservation objective.

In China's Forest Resources Development and Protection Project, an investment fund for industrial development was proposed to provide alternative employment for people whose subsistence and employment base would be adversely affected by the habitat conservation component. This project also supports the idea of comanagement of nature reserves by providing for communities to sign a contract with the government as the owner of the reserve. The contract specifies the communities' roles, responsibilities, and benefits.

The concept that livelihood assistance is needed if dependence on conservation forests is to be reduced appears in several other projects. In the ecodevelopment project being prepared in India, for example, investment funds for development activities are to be provided for villages in and around conservation areas, on the condition that villagers will respect agreements with regard to those conservation areas. In Indonesia, the Second Forestry Institution and Conservation

Project provides for protection of the core area of a nature reserve by creating a buffer zone that is to be available to local people as a source of firewood.

Government support for local interest groups, as opposed to outside interest groups, was partial, with an average score of 1.0. In Guinea, for example, the September 1994 Form 590 of the Forestry and Fisheries Management Project noted that "Illegal commercial logging by companies from outside the local community was stopped, thanks to the project's persistence in drawing Government's attention to this." In five projects, no demarcation of habitat boundaries was attempted, but in seventeen there was demarcation into core and buffer zones or restricted-use areas.

Land tenure issues were also analyzed (but without applying our crude scoring system). In three projects, a partial land transfer was made to the local population and in two projects, usufruct rights were specified for them. In the remaining sixteen projects, no such actions were taken. Without further analysis, we cannot say whether the reason for lack of action in those sixteen cases was that tenure issues were not critical or that they were considered too difficult to tackle.

We can confirm, however, that clarifying land tenure is of great importance. The process can be tedious, but failure to perform it can lead to project failure. In the Philippines, for example, the November 1993 PCR for the Central Visayas Regional Project and Natural Resources Management Project noted, "Difficulties of operating without a legally authorized framework either for common property management or privatization of public resources were underestimated." The project suffered throughout from a lack of tenure instruments allowing access to or management of forest lands. About 70 percent of all certificate of stewardship contracts were awarded during the two years preceding the (extended) closing date of the project. The PCR plainly states, "Without legal access it is doubtful that Forest Occupant Stewardship Associations have any incentive to protect the forest." Similarly, one lesson from pilot work for the Burkina Faso Environmental Management Project, as stated in its staff appraisal report, was that "the Agrarian and Land Tenure Reorganization Law neither guarantees the property nor the usufruct or the permanent exploitation right that would encourage individuals or communities to make long-term investments on their land."

Conflict Resolution

Conflict among stakeholders was judged negligible in two cases, significant in thirteen, and severe in five.

An important, but of course not always sufficient, step for avoiding or resolving conflict is to create a forum in which all relevant stakeholders can exchange views. In India, for example, the West Bengal Forestry Project is encouraging a forum to help forest protection committees come together to discuss their conflicts and common problems. In Ghana, the Coastal Wetlands Management Project provides for each site to have a "site committee" of ten to fifteen stakeholder representatives. These include, among others, the head of the district assembly, the district forest officer, the agricultural extension agent, the health agent, paramount chiefs, the head of the artisanal fishermen's association, and the head of the women's movement.

The Guinea Forestry and Fisheries Management Project is another example of conflict resolution through increased dialogue. The September 1994 Form 590 states, "While the project has not solved all problems related to the protection and sustainable management of the Ziama and Dieke forests, it has had the merit of promoting dialogue at all levels, from the forest hamlet to the ministerial level, making all concerned aware of the complexity of the issues and the need to find specific solutions."

Effectiveness of Habitat Protection

Baseline surveys of the habitats likely to be affected by the projects were not undertaken before project approval in most cases, but surveys and monitoring work were often undertaken as part of the project. Such studies, however, generally concentrate on the more easily measurable features of each environment. Given that ecologists are not always certain as to the best variables to measure in assessing habitat health, and given the time and cost involved in careful monitoring, it is not entirely clear what should be done in this area, other than to try harder. By analogy with rapid rural appraisals, one way forward might be to develop rapid habitat appraisals, in which ecologists and others would quickly assemble and assess holistically a wide range of information from many sources, including remote imagery, field visits, and local informants.

This study uses information from secondary or tertiary sources, which are far removed from real-life habitats. We have used our judgment to classify effectiveness of habitat conservation into three groups: negligible, weak, and strong. For the twenty-two projects approved before the end of fiscal 1992, five of the habitat protection components were judged to

be strongly effective, ten were judged to have a weak or partial effect, and seven appeared to have a negligible effect.

Conclusions and Recommendations

One hypothesis animating this study was that a significant degree of decentralization, combined with a suitable incentive structure, would be associated with effective habitat conservation. We therefore tried to document the relationship between our various indicators of decentralization and incentives and our measure of conservation effectiveness. No significant quantitative patterns emerged, however. This is not surprising, given the range of variables, the heterogeneous data base, and our crude analytical tools.

We nevertheless believe that under most conditions, a highly centralized strategy for habitat conservation has not worked well and that highly centralized line agencies often have been part of the problem. We think that one of the preconditions for successful decentralization is a clear government commitment to achieve it. Without such a commitment, outside agencies are clearly limited in what they can do. Even where a commitment to decentralize exists at the central government level, officials at various levels must be willing to carry out the policy, local institutions must accept responsibility and ownership, and supportive legislation is necessary.

Building institutions and promoting local ownership, however, often take more time than is available within a normal project cycle. It is therefore important to note that even where circumstances are not conducive to decentralized development and conservation, local initiatives (often aided by NGOs) can still achieve impressive results. These initiatives can help ecosystems and species to persist temporarily, while contributing to the more comprehensive reform needed to achieve permanent solutions to conservation problems.

Assuming that a country possesses an enlightened central government, and one that is willing to decentralize, several other conditions must be met if decentralization is to succeed in conserving habitats. The process is dynamic and complex, but basic recommendations include:

- Carry out fiscal decentralization. Not only should a significant degree of administrative decentralization occur, but the local level should be given power to make fiscal decisions. This requires a

smooth flow of allocated funds to decentralized decisionmaking units.

- Encourage participation. People living in and around critical habitats must be involved in making decisions, in particular about land-use zoning (for example, core areas, buffer zones, multiple-use areas) and protection.
- Build capacity. Capacity building and technical assistance are needed, aided by NGOs and based on the results of socioeconomic surveys to identify the constraints that need to be relieved.
- Establish a proper legal framework. Legislation is needed to create incentives for sustainable use, to resolve uncertainty concerning land tenure, and to protect local people from the depredations of outsiders.
- Create the right incentives. The incentive problem must be solved because otherwise one cannot expect local communities to behave in ways that the nation or global community desires.
- Meet livelihood needs. Livelihood needs must be met, for example, through increased or diversified productivity or a broader rural development process.
- Monitor and evaluate. This is important not only to manage individual projects but also to allow lessons to be learned reliably and applied in new locations.
- Integrate conservation with rural development. The various subsectors in rural development, particularly infrastructure and planned settlement, must give full consideration to conservation concerns. This may require that decentralized decisionmaking units be supported with technical assistance in, for example, environmental impact assessment and may still require supervision by a central environment agency.

Case Study: Local Community Land Management (Terroir) in West Africa

This account of the terroir strategy is adapted from the experience of the Natural Resources Management Project in the Benin Republic. The strategy is community-based, participatory, and holistic. Its critical element is the preparation of a land-development plan by a community, with the help of a multidisciplinary technical team. The plan includes rules governing access to and use of natural resources, including the necessary land-improvement works. These improvements must start with and be accompanied by awareness-building measures and specific diagnostics and

should be based on the villagers' accepting the resulting management responsibility. The plan is implemented with technical and financial assistance from governmental and nongovernmental sources.

The terroir strategy has seven correlates: policy reform; strengthening of the planning, monitoring, and evaluation capacity of central services; decentralization of field activity management; provision of training; promotion of new farming systems and production methods; research and development support for community land management; and coordination with other ongoing activities.

Land tenure policy reform. The most important issue to be resolved is the definition of clear land tenure. This requires an experimental, pragmatic, and gradual effort. Land tenure problems must be addressed:

- At the local level, by terroir, to take account of traditional customs and organizations
- At the regional level, through, among other activities, monitoring local actions
- At the national level, through such activities as gathering data on which to base land tenure policy.

The strategy must consider the specific features of local land tenure conditions and must enjoy substantial political support. Environmental legislation must provide a basis for policy and action in the concerned sectors (forest, hunting, water, settlement, and resettlement).

Strengthening of planning, monitoring, and evaluation capacity of central services. Data are needed on:

- The changing condition of natural resources
- The dynamics of land occupation and productivity
- The demographic carrying capacity of the land and the identification of zones at risk
- The production-to-consumption balance for fuel wood
- Climatic changes.

This information will facilitate the preparation, at the national and regional level, of sector policies and plans for natural resource management.

Decentralization of field activity management. Local management units should bring together villagers and support technicians under a local manager who oversees preparation and implementation of land-use management plans in a partnership between the technicians and the community. Programs and budgets are agreed to annually between the management unit and

central authorities. The units must ensure coordination with local public services, NGOs, private entrepreneurs, and credit agencies. Local management units benefit from central government support services such as training, information, and monitoring.

Training. Training is needed by villagers, technicians, extension workers, and local and central public servants. The training of producers along with extension agents creates a convergence between traditional practices and knowledge and the possibility of acceptable technical improvements. Training is needed on recruitment for teams participating in pilot operations, and for extension agents and technicians working with those teams. Training should cover new methods of working with rural people, including techniques for joint analysis and testing, and agricultural techniques in the context of natural resource development and management. By involving both pilot operation teams and extension agents, training helps to build a national capacity, ensuring the expansion and replicability of the method.

Promoting new farming systems and production methods. These include new agricultural, silvicultural, and pastoral systems needed to improve traditional agriculture. Under the terroir approach, promotion of new farming systems and production methods must ensure compatibility between collective and individual interests. The strategy comprises:

- Actions at the individual farm level—for example, anti-erosion techniques, crop rotation improvements, use of organic fertilizers, crop and forage diversification, and integration and intensification of stockraising
- Actions requiring the active involvement of all members of the community—for example, anti-erosion works and development and management of forestry, pasture resources, bottomlands, and watering points
- Other actions at the village level to improve community infrastructure and services—for example, water supply, access roads, input purchases (fertilizer, seeds), agricultural credit, marketing, and maintenance.

The method must take into account the specific circumstances of different groups within the community, with particular emphasis on women and young farmers.

Research and development to support community land management. The strategy used should allow researchers, extension agents, and producers to work

together at all stages of the planning, execution, and evaluation of the tests undertaken. Research activities are refocused on the fields of rural producers, who work together with pilot operation teams. The goal is to identify constraints with better accuracy, to generate a technology better suited to local needs, to improve technology transfer by encouraging closer collaboration among all parties, and to ensure management by rural producers themselves.

Coordination with other activities. Coordination should lead to regular exchange of experiences and to transfer of skills and technologies and should enable practical training for technicians. This helps to ensure more balanced rural development and to provide information needed for improving management of natural resources by sensitizing and empowering local communities.

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Conclusions

Julian Caldecott and Ernst Lutz

The ten country studies revealed certain common features of decentralization processes. Until the mid-1970s in Kenya, Nepal, and Zimbabwe, and the late 1980s and early 1990s in Costa Rica and Colombia, countries had a centralized but fragmented approach to environmental management and rural development (table 14-1). Control over resources was divided horizontally and vertically among line ministries and other agencies, which competed among themselves for power and funds. It is unclear what prompted changes to this system in each country, but we know that attempts were made to rationalize and consolidate authority over protected-area systems, creating more integrated but still centralized arrangements.

As these new institutions were created, it became possible to reform them by amending the laws under which they were established. Thus, Nepal's National Parks and Wildlife Conservation Act of 1973 was amended in 1989 to authorize multiple-use conservation areas and the involvement of nongovernmental organizations (NGOs) and again in 1993 to authorize buffer zones and local revenue-sharing arrangements. Meanwhile, Zimbabwe's Parks and Wildlife Act of 1975 was amended in 1982 to give the district councils responsibility for wildlife.

In some cases, reform was driven by events in the field rather than by the national legislature. Thus, in the early 1990s the Guanacaste Conservation Area in Costa Rica and the first CAMPFIRE districts in Zimbabwe had to go beyond what was then current law to develop local conservation arrangements.¹ In these cases, leadership by inspired individuals encouraged local groups to take risks that were rewarded later when laws were changed to authorize what had already been implemented. But in other cases, local environmental activism has provoked reactionary ef-

forts to restore central control. An example is Ogoniland in the Niger Delta region of Nigeria, where local action against environmental damage caused by the oil industry has been harshly suppressed by the Nigerian military.

In Indonesia, field projects that have been effective in influencing the central government seem to have done so by cautiously going beyond the previous official interpretation of certain laws. Examples include projects at Arfak in Irian Jaya and Kayan-Mentarang in East Kalimantan, where community mapping of resource boundaries and local participation in resource use helped create subtle but important changes in official attitudes toward local empowerment.

In Zimbabwe and Costa Rica, reforms that gave local people far greater control over and opportunity to profit from the management of wild species and natural ecosystems led to political reaction. Aggressive questioning of CAMPFIRE began in Zimbabwe in about 1992, and SINAC reforms were suspended by a conservative regime in Costa Rica during 1990-94.²

These experiences confirm that decentralization is inevitably and fundamentally a political process because it involves redistributing power. Because of this, an important factor in decentralizing a country is the presence of a body able to mediate among various interest groups and to promote smooth and effective transfer of power. Such bodies often are officially sponsored NGOs, such as the CAMPFIRE Association in Zimbabwe, the National Biodiversity Institute (INBio) in Costa Rica, the King Mahendra Trust for Nature Conservation in Nepal, and the autonomous regional corporations in Colombia. All were created by government and have close formal—and especially informal—links with government. But they also have a clear, independent role and much operational

Table 14-1. Changes in National Conservation Institutions in Select Countries

<i>Country</i>	<i>Fragmented and centralized</i>	<i>Integrated and centralized</i>	<i>Mediating body</i>
Colombia	1968–93: National Institute of Natural Renewable Resources	1993: Ministry of the Environment	1993: reformed autonomous regional corporations
Costa Rica	Before 1989: National Parks Service, Forestry Directorate, Wildlife Service	1989–95: National Parks Service, National System of Conservation Areas (SINAC)	1987: National Parks Foundation; 1989: National Biodiversity Institute (INBio)
Kenya	Before 1976: National Parks Board, Game Department, Forestry Department	1976–90: Wildlife Conservation and Management Department	1990: Kenya Wildlife Service (parastatal)
Nepal	Before 1973: royal hunting preserves	1973: Department of National Parks and Wildlife Conservation	1986: King Mahendra Trust for Nature Conservation
Philippines	Pre-1992: Protected Areas and Wildlife Bureau, Tourism Authority, National Power Corporation, Department of Agriculture	1992: National Integrated Protected Areas System (NIPAS); Department of Environment and Natural Resources	1992: Foundation for the Philippine Environment
Zimbabwe	1960–75: Department of National Parks and Wildlife Management (DNPWM)	1975: DNPWM and intensive conservation areas	1989: CAMPFIRE Association

and financial autonomy in fulfilling it. Other attempts at making such arrangements are represented by the parastatal Kenya Wildlife Service and the national parks boards in Nigeria, but these have tended to be vulnerable to political interference.

In the absence of an effective mediating body, other NGOs may adopt a less formal but analogous role. This may involve a local NGO developing a partnership with official agencies in its area of operation. An example is that in Nizhny Novgorod, Russia, among Dront Eco-Center (the NGO), the regional unit of the Ministry of Environmental Protection, and the managers of the federally funded Kerzhenski reserve. Here, the three groups collaborate to devise and implement regional conservation initiatives.

International conservation NGOs such as the World Wide Fund for Nature (WWF) often position themselves as intermediaries between official agencies and the public in the countries where they work. Some specialize in integrating themselves as closely as possible with the government and can be effective in providing technical advice and policy guidance. Conservation NGOs with close links to government are evident, for example, in Indonesia and Nigeria. However, NGOs were kept more remote from government in

Colombia before 1993 and still remain so in Kenya. Establishing a new and effective mediating body in a country means that existing NGOs have to reposition themselves accordingly, and adjustments of this kind (which are seldom smooth) have been seen in Zimbabwe, Costa Rica, and elsewhere.

Local and international NGOs have several important roles in conservation and rural development projects (Wells, Brandon, and Hannah 1992; Castilleja, Poole, and Geister 1993). They have tended to be the seedbed for new concepts that are later adapted and used by official donors and governments. This role mainly arises from their ability to attract innovative individuals, to promote their ideas through advocacy, and to try out their concepts through small and highly visible pilot projects. Because the NGO style tends to be flexible, consultative, and sensitive to local needs, NGOs can act as buffers between large projects and small communities, helping to scale down project activities to a more appropriate level. Local NGOs are therefore often used as contractors to deliver community services on behalf of large projects. Finally, NGOs can reduce the shortfall between the local empowerment planned by a project and that actually achieved, as evidenced in chapter 13, by Banerjee and Lutz. This

is because they are sensitive to the betrayal of ideals, will campaign in public if they see this happening, and therefore have an important role in keeping elite institutions honest.

The most potent form of decentralization is the transfer of authority over spending decisions, and this particular power is retained by elite groups far more diligently than power over other administrative functions. Thus, the most complete cases of decentralization are those in which local people collect revenue and decide how it will be spent. This autonomy was the key to the strength of the CAMPFIRE districts in Zimbabwe and the Guanacaste Conservation Area in Costa Rica, and the same kind of autonomy is seen to some extent in the joint forest management areas in India, buffer zone areas in Nepal, autonomous regions in Colombia, newly empowered municipalities in the Philippines, and certain project areas in Indonesia.

Arrangements for making decisions on how to spend local funds vary, and some are more transparent than others. Zimbabwe's CAMPFIRE communities give an example of full participation in a process of debate and decision, with allocations to public works and private pockets being made openly and in cash. At the other extreme is the Masai Mara Reserve in Kenya, which is under the control of the district council but is affected by a serious lack of accountability and transparency in decisionmaking. Here, the large sums of money collected from entrance fees contribute little either to maintaining the wildlife and biodiversity assets on which nature tourism is based or to creating incentives to encourage conservation among the local population.

Ecosystems within nature reserves contain resources that can contribute to local revenue under certain circumstances. These circumstances vary according to the nature of the resource and other factors, such as the presence of markets. Selling trophies to hunters (as in Zimbabwe) or biodiversity prospecting permits to pharmaceutical companies (as in Costa Rica) or lodging and food to tourists (as in Nepal or Indonesia) all require technologies and attitudes that may not have existed previously in the country. If arrangements allow revenue to be captured by local people, this tends to promote decentralization and, if other conditions are favorable, conservation. But the opposite effects are seen if most benefits are obtained by nonlocal groups, such as corporations exploiting timber, fish, minerals, or tourism without the consent of local groups. Many such cases appear in the country studies—hotels in the Royal Chitwan National Park in Nepal and the Amboseli National Park in

Kenya, and plantation developments and logging concessions in and around the Okomu reserve and Cross River National Park in Nigeria, for example.

Nature reserves have potential value, which can be turned into revenue if the technology and markets with which to do so exist. But if the revenue is large, it may attract the interest of powerful groups or individuals. Thus, as wildlife resources in Zimbabwe came to generate local revenue for the CAMPFIRE districts, pressure grew to use the income in ways that relieved central government of its spending responsibility. The effect was similar to that of expropriating local funds. Such a response can be expected of central governments that have limited resources when they see some groups of citizens becoming wealthier than others. Unless the central government has a special reason not to intervene, or the newly enriched groups have enough political influence to defend their wealth, at least part of it will be taken away from them. Thus, at some stage a political response is needed to ensure that enough benefit is retained by local people to sustain the decentralized decisionmaking unit.

There are two possible explanations for the apparent tendency toward decentralization. First, rural people may be growing better organized, better educated, more aware of economic and ecological realities, and hence more assertive in protecting their interests. Alternatively, the rapid degradation of ecosystems in most countries may simply be making those ecosystems less valuable and less interesting as objects of control by powerful groups and individuals. Virgin rain forests and unfished seas can be exploited profitably by corporate investors, but hacked forests and exhausted fisheries are not worth such investment and may be passed by the elite to local control until they recover or until new technologies or markets change their value. Both processes probably are at work and will interact in a complex and patchy way, depending on many factors in each country.

The balance emerging in each place and time reflects government commitment to decentralize, but this is not enough on its own. Appropriate laws, policies, the building of human capability and institutions, and time are needed as well. These requirements flow from the many ways in which local autonomy can be threatened and the many kinds of response needed to overcome those threats.

Links to Conservation Effectiveness

Some threats to communities and their environments are solvable locally; an example is the Masoka area of

Zimbabwe, where secure land tenure allowed local people to evict nonlocal squatters. But well-armed poaching gangs provide a challenge that local people alone may be unable to meet, as happened in several of Kenya's national parks and reserves. This also applies to planning failures and to cases where impacts on the environment were not anticipated, such as those caused by road projects in Colombia's Salamanca National Park and by water diversions in Kenya's Amboseli and Tsavo West national parks.

A requirement of local autonomy is therefore the protection of local environments through proper central planning and properly enforced laws on assessing and managing environmental impacts. This is one reason why conservation can be seen as a joint venture between local and nonlocal levels of society. It suggests that as local actors become stronger, a need exists to strengthen the willingness and capability of nonlocal institutions to support decentralization. This highlights the role of central government in promoting action that local people may be unable or unwilling to perform unaided, such as conserving biodiversity.

Willingness of local people to respect boundaries and rules to protect nature reserves should be increased by obtaining the people's agreement before the controls are put in place. Government has an incentive to seek prior agreement because fewer resources are needed for policing when strong local support exists for conservation. ("Policing" here refers to all forms of publicly authorized surveillance and intervention with intent to prevent harm.) As shown in the Arfak Mountains in Irian Jaya, Indonesia, for example, local consultation on reserve boundaries can help people accept the boundaries as permanent and inviolable. Such cooperatively developed boundaries are much cheaper to maintain than boundaries imposed by central authority alone. Similarly, from Zimbabwe we know that local participation in wildlife management decisions and the associated revenue can reverse long-standing hostility toward wildlife (see also Pye-Smith and Feyerabend 1994).

An apparent paradox here is that local threats to nature reserves also can arise from private motives to exploit resources. Examples can be drawn from the country study on Russia, which documents the effects of a sudden collapse of highly centralized governance of long standing. Violations of reserves by or with the connivance of local people and local authorities now are common. They include poaching of endangered species (Siberian tigers in Lazovsky and Sikhote Alinski, for example), construction of roads (as in

Samarskaya Luka) and buildings (as in Pri-Oksky Terrasny), livestock grazing (as in Dauriski and Altaiski), fishing (as in Magadanski and Kostomuksha), and clear-cut logging in several reserves of European Russia.

These are cases in which local groups have taken power without being able to limit resource exploitation; they are unaware of the value of nature reserves to themselves or they have no tradition of holding those in power accountable, or both. Similar problems have arisen elsewhere, where local elites have received new opportunities to profit by the arrival of mining or logging companies. In these cases, much damage can be done before local awareness of environmental consequences gives birth to local opposition to the elite's actions.

To offset such risks requires appropriate incentives and policing to complement community-level motivation and action. Enforcement may be welcomed by local people if it is carried out justly and impartially, if the people are involved in defining its scope and approach, and if it clearly benefits them, directly or indirectly. An example of indirect benefit is seen in northeastern Kenya, where antipoaching work by the Kenya Wildlife Service is welcomed locally because it helps protect local people against armed Somali intruders.

For the government, a critical issue that guides investment in policing is the likely cost-effectiveness of different kinds of effort. Two factors that contribute strongly to this are the style of enforcement and the level of local compliance (Caldecott 1996). Style is influenced by factors such as vigilance, consistency, public relations effort, staff quality, and legal process. Compliance is influenced strongly by the style of policing, local involvement in setting rules and awareness of why they are needed, and the economic incentives that apply to local people's use of nature reserves and wild species. These factors interact: proper policing has a positive effect on compliance, and improper policing is ineffective or worse.

Proper policing requires that local people view the enforcers as acting on behalf of an authority that has a legitimate claim to their loyalty. At the community level, such social pressure is the main means by which endogenous cultural rules are enforced in any society. Examples include hunting taboos and sacred forests, both of which are common among tribal peoples (for example, Caldecott 1988; Kiss 1990). Exogenous rules, however, such as those protecting biodiversity, may have no equivalent basis in people's upbringing and may be hard to enforce at the community level

because of kinship ties and friendships among the people responsible. Finally, most rural communities lack an adequate tax base to finance more than the most rudimentary volunteer protection efforts, and these efforts will be effective only in exceptional cases.

Conservation enforcement services have the best morale and are best accepted locally when they work on behalf of a level of society higher than that of the community but not as remote as that of the nation—the bioregional level. This is the case in the Guanacaste Conservation Area in Costa Rica, where wardens work on behalf of a regional committee of local stakeholders. The main drawback is likely to be resources, which are limited in most rural bioregions (although not to the usual extent at Guanacaste, which by 1992 had access to an externally financed US\$12 million endowment). Without adequate funds held locally, and considering that threats can occur through external planning failures, the national level of society must accept considerable responsibility for conservation policing. Such policing therefore often is best done on behalf of local authorities with the assistance and supervision of the national level. The central government should provide block grants and other forms of assistance to help in monitoring and applying environmental impact assessment and spatial planning laws.

A final issue is whether policies and decisions are scientifically sound. Conservation biologists, for example, are trained to make judgments on the minimum size of viable reserves, the location of their management zones, and the likely consequence for wildlife of the hunting laws applied in the buffer zone. Unless they possess such skills, local groups will need support from specialists if they are to make such judgments or set up the essential monitoring systems for ecosystems and populations. Conservation obviously requires attention to the social, managerial, and financial aspects of proper policing. But it also requires just as much attention to ecology and to the economic and psychological factors that operate through incentives to regulate the use of resources and thereby increase the likelihood of conservation success.

Final Observations

The diverse experiences reported in the country studies and project analyses show that decentralization and conservation are complex processes that interact with one another in many ways. From the historical reviews, we can conclude that centralized, top-down

conservation has seldom been effective except where large budgets are available for enforcement and the society concerned is willing to accept a rather undemocratic conservation process. Looking at the more recent experience of countries in giving new responsibility to local government units and NGOs, we can see that this creates both opportunity and potential problems. To take advantage of the former while avoiding the latter, it seems that a cluster of arrangements must be made as a whole if conservation is to work well in a decentralized setting. Of these arrangements, seven merit special attention:

1. Local participation, especially in a way that allows local people to understand and endorse the boundaries and management plans of nature reserves and that promotes clear tenure over land and other resources in and around the reserves
2. Capacity building, especially to increase skills and accountability among local government units and NGOs so they can work together to promote conservation and rural development
3. Incentive structures, especially those that allow local communities to retain income from the sustainable use of nature reserves and other biodiversity assets
4. Conditional subsidies, especially where divergent costs and benefits of conservation are experienced by local and nonlocal groups, making it necessary for global and national society to bridge the gap with livelihood investments or grants
5. Appropriate enforcement, especially against powerful local or central interests, and always in the context of education and public relations
6. Stakeholder forums and ecoregional executives, which need decisionmaking and fiscal authority to fulfill their three main roles of avoiding conflict through dialogue, authorizing conservation action, and requesting help from nonlocal society to meet local development priorities
7. Enabling policies, laws, and institutions, to provide a clear and supportive framework for conservation on behalf of national government, thus creating incentives at the local level to harmonize development with conservation and reducing the need for enforcement.

The country studies also illustrate many critical issues in sustainable development, even though they report only a small sample of recent global experience. A review of this material and other evidence in this volume and elsewhere (for example, Barzetti

1993; IIED and ODA 1994; Western, Wright, and Strum 1994; White and others 1994; UNEP 1995; Caldecott 1996) leads to the conclusion that conservation problems usually can be traced to one or more of the following underlying causes:

- Local people who depend on an ecosystem may not be fully aware of the connection between the ecosystem's well-being and their own.
- Local people may be incautious in changing the ecosystem to make it more productive, without realizing that this can do more harm than good to the interest of the majority.
- Local people may have no accepted rules governing the use of the ecosystem, often because a traditional management system has broken down or has been replaced by a central and ineffective one.
- Local people may not have the authority or ability to manage the ecosystem exclusively in their own interest.
- Important decisions that change the use of the ecosystem may be made without involving all the people affected by those decisions, including distant people, who may be affected by local actions.

Weaknesses in environmental awareness, caution, self-regulation, tenure, and accountability are typical of conservation problems. They usually can be discerned, whether alone or in combination, obviously or disguised, wherever the components of biodiversity are being eroded by human action. Decentralization can directly help to solve problems of self-regulation, tenure, and accountability, but it has a more indirect role in improving environmental awareness and caution. The latter depends on public understanding of how ecosystems work. Decentralization can help increase local responsibility for environmental management, making this process more relevant and interesting to local people. Greater interest then tends to promote willingness to learn about ecology.

Self-regulation, tenure, and accountability are strongly interconnected. Some reforms that a country might make will help ensure that people who decide how to use environments are directly affected by the consequences of their decisions. By shortening the feedback loop between a decision and its effect, such reforms will reward cautious decisionmaking. Moreover, changes that give authority specifically to people living within the managed environment encourage decisions that are responsive to local conditions. If, in addition, other local stakeholders are encouraged and enabled to question the decisions,

responsibility will be promoted and a strong force for good governance will have been created.

All such changes will tend to improve environmental management and are often consistent with the key elements of the conservation process (see Janzen 1991, 1992; WRI, IUCN, and UNEP 1992):

- The components of biodiversity must be saved to preserve the option to use them.
- People must learn what those components are and how they might be used.
- The components of biodiversity must be used sustainably to meet the economic, intellectual, and other needs of society.
- People must be taught about biodiversity and its benefits so that they will value biodiversity.

From this standpoint, decentralization can be important in allowing biodiversity to be perceived as a local resource for local husbandry, which in turn can motivate local people to preserve the biodiversity in their own environment.

Such reforms yield benefits beyond those to local people because the reforms also can reduce a government's cost of meeting its own conservation goals (Caldecott, Bashir, and Mohamed 1995). The reforms work partly by encouraging local understanding of how better to use ecosystems (thus reducing the need for inducements) and by prompting people to insist on and assist in proper environmental policing (thus reducing its recurrent cost). Reforms also promote dialogue and trust and may reduce the cost of negotiating the settlement of claims that arise from impacts within and between local and other levels of society. If combined with strengthened resource tenure, participation can help local people capture some of the economic benefits of conservation, thus further rewarding local policing effort at little cost to government. Finally, better environmental management helps governments avoid the cost of rehabilitating societies that have been blighted by environmental damage.

By promoting local participation, decentralization can have an important role in all this, but it is not a panacea and must always be seen, judged, and planned in context. This leads us to five main observations:

1. Precipitate and unplanned decentralization can neutralize national and global influence while giving powers to local societies that may lack adequate skill and accountability to use those powers properly. The

social context should be analyzed carefully before changes are attempted.

2. Redistribution of power may affect those who were formerly doing well, prompting them to resist the change. Thus, mediating bodies are needed to smooth the transfer of power. These bodies must be trusted enough by all sides to reassure them. Such bodies may have to slow the process while studies and consultations occur and while people seek alternative livelihoods and adjust their expectations of the society in which they live. These bodies can take many forms, but they must be genuinely independent of the main parties and competent to act as well as be trusted and trustworthy.
3. A locality or bioregion can empower itself by unilateral action, but this can provoke efforts to reassert control by groups that feel threatened. The latter might seek to reclaim bioregional revenue or to reverse events through political, administrative, or military intervention in the name of national unity. To prevent this, other changes in law and policy may be needed to protect the newly empowered bioregion and permit it to sustain itself.
4. A bioregion or community no longer sheltered by a national government may become vulnerable to groups wishing to exploit it—for example, as a source of raw materials or as a dumping ground for waste. Where national governments no longer are able to control such threats, localities must be helped to communicate and collaborate to prevent them from being singled out and overwhelmed one by one.
5. Uncertainties abound in any political process, including decentralization. Thus the risk always exists that the need to protect nature reserves may be forgotten for a time.

The last observation points out that the decentralization process in many countries is not driven by public interest in biodiversity conservation but rather by a desire for better access to the fruits of economic development through democratic participation. Conservation will benefit from this only to the extent that ecosystems and the biodiversity they contain are seen as resources to sustain development—in other words, as valuable resources that some may wish to control for their own benefit. If no such perception exists, then conservation benefits will accrue from decentralization only accidentally and, if biodiversity continues to be perceived as valueless by newly empowered local groups, only temporarily.

Because conservation requires permanent solutions to problems of species extinction and environmental degradation, it must involve changing perceptions and values among the people who control the fate of ecosystems. In decentralized circumstances, this means local people. Because their main motive for seeking more power is likely to be to enhance their economic position, the link between conservation and local enrichment (or poverty avoidance) must be made very explicit. This is an important theme in modern conservation projects, which have to show that real benefits can come from conservation. To do this, the definition of wealth may have to be expanded to include its biological and cultural dimensions, as well as its more conventional economic aspect. People also may require help to perceive the value of long-term and future benefits as greater than those of temporary get-rich-quick schemes.

These new and demanding conditions for successful conservation projects imply the need to identify and sustain those features of the project area that allow creation of wealth and ensure avoidance of poverty. A goal is to neutralize forces that may damage local ecosystems and erode biodiversity, while promoting the local capture of economic benefits and the more productive use of natural and artificial ecosystems. Adequate levels of environmental awareness and security of resource tenure are needed (figure 14-1). If these are achieved in a project area, they will create more favorable conditions for other forms of investment, both by strengthening local institutions and by improving local knowledge and management skills. The interplay among all the above factors means that appropriate decentralization of relevant functions is as much a necessary (albeit insufficient) condition for conservation, as conservation is for sustainable development.

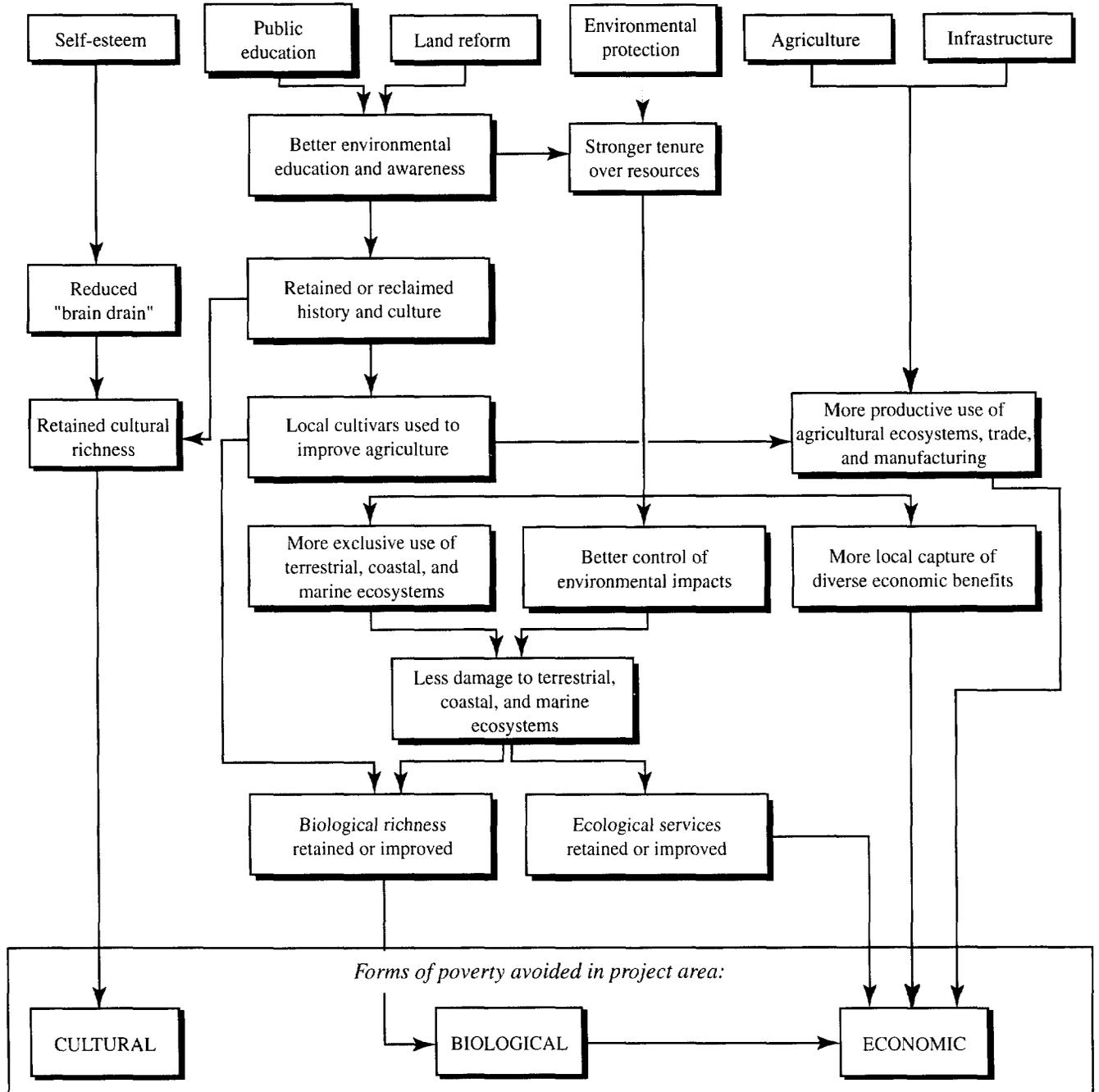
Notes

1. Under CAMPFIRE (Communal Areas Management Programme for Indigenous Resources), local people own the rights to manage and profit from wildlife resources in their communal lands. This gives them a strong incentive to keep wildlife populations as productive assets rather than allow them to be overharvested or lost through habitat destruction.

2. Sistema Nacional de Areas de Conservación (SINAC), Costa Rica's National System of Conservation Areas, incorporates a number of reserves, each managed by a locally appointed and locally accountable committee with a high degree of autonomy in all areas of decisionmaking.

Figure 14-1. Pathways to Poverty Avoidance in a Typical Humid Tropical Conservation Project Area

Global, national, local society responds to ecological, socioeconomic, historical, and political weaknesses and risks in project area, targeting:



Source: Caldecott and others 1996.

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