Biodiversity Support Program

Designing Integrated Conservation & Development Projects

Michael Brown and Barbara Wyckoff-Baird

The Biodiversity Support Program is a USAID-funded consortium of World Wildlife Fund, The Nature Conservancy, and World Resources Institute

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REVISED EDITION

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Cover Photo by Kate Newman. During a Buffer Zone Workshop in Uganda (see Annex A), Dr. Edouard Tulilunkiko Shaban (left) confers with a landless Rwandan refugee whose cattle graze in the buffer zone of Kibale Forest.

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FOREWORD

Global biological resources are increasingly threatened by habitat alteration, overharvesting, pollution and introduction of exotic species. The current alarming loss in biodiversity calls for innovative solutions and creative partnerships. The solutions need to involve all lands, not just the 4 - 10 percent of a nation's area that may typically be protected in national parks and other types of conservation areas. Partnerships are needed among local communities, governments and private sector groups to develop programs that conserve biological resources while meeting basic human needs through economic development.

The mission of the Biodiversity Support Program (BSP) is to promote efforts to conserve biological diversity while enhancing human livelihoods in developing countries, through improved conservation and use of biological resources. Initiated in 1988, with funding from the U.S. Agency for International Development (USAID), BSP is a consortium of World Wildlife Fund, The Nature Conservancy, and the World Resources Institute. One of BSP's key objectives is to support and facilitate analyses of critical issues for conservation and to then disseminate the results and lessons learned to field practitioners, donors, non-governmental organizations (NGOs) and others. This report, *Designing Integrated Conservation and Development Projects*, marks BSP's first such assessment and publication.

Projects linking conservation and development have evolved over the last two decades. UNESCO's work on Biosphere Reserves in the 1970s, followed by the World Conservation Strategy (1980), focused international attention on ways to link core protected areas with multiple use zones. USAID's programming began to reflect the need to link conservation with development in a variety of new programs initiated in the mid-1980s, including the three USAID supported projects involved in this publication: WWF's Wildlands and Human Needs, PVO-NGO Natural Resource Management Support (NRMS) Project, and the Biodiversity Support Program.

The Wildlands and Human Needs Program was begun in 1985 to provide technical assistance, training, analysis and information dis-

semination to increase the effectiveness of WWF and implementing NGOs in meeting development objectives within an integrated conservation and development framework.

The PVO-NGO/NRMS Project, begun in 1989, aims to strengthen the technical and institutional capacity of NGOs to design and implement feasible natural resource management activities in sub-Saharan Africa. The project is managed by a consortium of World Learning Inc., CARE, and World Wildlife Fund-U.S.

It's important to note, however, that most of the efforts to link conservation and development are only recently reflected in the projects of multilateral and bilateral donors. For the past twenty years, pioneering work in this area has been done on the ground throughout the world by small community groups, local NGOs and national governments. International conservation organizations and donor institutions have much to learn from analyzing these projects. Other recent publications such as *People and Parks* (Wells, Brandon, and Hannah, 1992), *Resident Peoples and National Parks* (West and Brechin, 1991) and *Living with Wildlife* (Kiss, 1990), analyze some of the efforts to link conservation and development.

Designing Integrated Conservation and Development Projects builds on these analyses and focuses specifically on what has been learned about "how to" design "integrated conservation and development projects" (ICDPs). Brown and Wyckoff-Baird outline what categories of issues need to be considered in ICDP design, and provide guiding questions for assessing options and feasibility. They provide realistic suggestions, given the constraints in time and funding that all programs face. This report will hopefully be useful in strengthening implementation of ongoing projects as well. BSP welcomes feedback from any field practitioners that use the guidelines.

–KATHRYN A. SATERSON
Director,
Biodiversity Support Program

PREFACE

A decade ago the promotion of development activities in conservation projects was a novel approach within the conservation community. Today, this approach is increasingly accepted worldwide and lies squarely within the mainstream of conservation work. However, expertise in designing effective Integrated Conservation and Development Projects (ICDPs) continues to be limited.[1] While lessons learned from the much longer history of development experience can be adapted to ICDPs, there is a need to distill the design implications that are unique to ICDPs. This paper highlights some of the most recent conclusions about the successful design of ICDPs, focusing primarily on the nonbiological aspects.

We have drawn upon our combined experience of more than 25 years in rural development and natural resource management, including conservation, in Africa, Asia, the South Pacific, Latin America, and the Caribbean. We have also drawn upon the experiences of many other practitioners and academics. In addition, we reviewed the most recent published literature on Integrated Conservation and Development Projects (ICDPs), including *People and Parks* published in 1992 by The World Bank, WWF and USAID; unpublished papers; and project reports.

We would like to thank the staff of the Biodiversity Support Program for all of their substantial time and contributions to earlier drafts, in particular Kathy Saterson, Janis Alcorn, Meg Symington and Stacy Roberts. We would also like to thank Molly Kux, U.S. Agency for International Development (USAID) Asia Bureau, for her inputs into the conceptualization of this paper. At World Wildlife Fund (WWF), we received critical input from Eric Dinerstein, Mingma Sherpa, and Mimi Hutchins. Bradley Rymph, our editor, also provided invaluable inputs. The PVO-NGO/NRMS Management Consortium, including Bonnie Ricci, Remko Vonk, and Ira

[1]While now in common usage, the acronym ICDP (also referred to as ICADs in Asia) originated in the *People and Parks* report by Wells, Brandon, and Hannah (1992).

Amstadter, also made valuable contributions to the conceptualization and review of this document. Special thanks to Sylvie Barcelo who over many years encouraged Michael Brown, for quite the right reasons, to visit the Annapurna Conservation Area in Nepal.

We would also like to thank the staff of the King Mahendra Trust for Nature Conservation and the residents of the Annapurna Conservation Area Project. These include Chandra Gurung in Khatmandu, Nima Sherpa in Pokhura, Siddartha Bajracharya in Lwang, Sailendra Thakali in Ghandruk, and Om Gurung, trusted guide during the Annapurna tour.

This document was prepared and published with support from the Biodiversity Support Program, a USAID-funded program implemented by a consortium of WWF, The Nature Conservancy (TNC), and World Resources Institute (WRI). Staff time was also provided by the PVO-NGO/NRMS Project, a USAID-supported consortium of the Experiment in International Living, CARE, and WWF, and by the WWF/USAID Wildlands and Human Needs Matching Grant Program.

—Michael Brown and
Barbara Wyckoff-Baird

EXECUTIVE SUMMARY

Conservationists and development planners increasingly recognize that efforts to conserve biological diversity (biodiversity) in developing countries will not succeed in the long term unless local people perceive those efforts as serving their economic and cultural interests. With a dual goal of improving the management of natural resources and the quality of life of people, integrated conservation and development projects (ICDPs) offer new alternatives that, if properly implemented, could be successful at conserving wildlands and their biodiversity. ICDPs may offer a means of balancing the needs of local people, the environment, and future generations.

Integrated conservation and development projects are actually experiments using new methodologies in conservation and sustainable development. As such, they are not based on a body of tested knowledge, but rather are the building blocks of theory and future efforts. Thus, it is critical to understand that a proposed ICDP involves risks and uncertainty. With this in mind, any new ICDP should be monitored as a *test case*, so that over time a body of analysis becomes available to guide future project design and decision making. It is important that the research questions and hypothesized relationships between factors are clearly outlined during the initial project design; assumptions underlying the project rationale are stated and reviewed periodically for validity; and there is an effective monitoring and evaluation system, including collection and analysis of baseline data.

An essential element in the design of every ICDP is the consideration of the *linkage* between the conservation and development objectives. All material benefits of a project must be clearly tied to its conservation actions (Owen-Smith and Jacobsohn, 1988). Local project participants must perceive development activities as incentives for sustainable management of the resources, the ultimate goal of the project. ICDPs must offer viable, ecologically sound development alternatives, particularly when the conservation activity requires the alteration of existing extraction or production activities.

The first step in addressing linkages is to consider where the conservation and economic development goals intersect. When this intersec-

tion occurs, as is optimum, it is possible to effectively introduce development interventions that will result in conservation and wise use of the natural resources, provided several other factors (e.g. security of tenure, favorable policies, markets, etc.) are in place. If producers view the future of their livelihoods as a function of their present use of the renewable resources, they are likely to adopt more sustainable methods.

In a project where the conservation benefits are seen to serve individuals living outside of the area while local people pay the costs of the conservation actions, it is unlikely that the project will be successful in meeting its goals (Murphree, 1991). When this occurs, it is important to ensure that a high proportion of the benefits are received by those who pay the costs: local resource users. The objective of many of the recent community-based elephant management programs in southern Africa, for example, is to provide benefits at the local level through the distribution of revenues generated by safari hunting and ecotourism.

In some cases, development interventions cannot be built around the resource that the project seeks to conserve, for example, with highly degraded habitats and endangered species. In this case, provision of social infrastructure and other services may be planned. It is critical that local resource users view these benefits as worth the costs incurred by the conservation action and that they have viable options to replace their lost access to biological resources.

Perhaps the most important lesson learned in development over the last 20 years is that the failure to *equitably* involve projected beneficiaries as partners in all phases of project implementation, from design through evaluation, has consistently led to disappointing project results. Indeed, the empirical record of results ranges from disappointing (agricultural productivity projects, appropriate technology projects) to repeated failure (pastoral sector development, including livestock productivity and range management projects in Africa). Most of these failed projects (AID, 1987; World Bank, 1988; Cernea, 1991) have not involved intended project beneficiaries as active partners but rather as passive recipients or implementors of plans conceived by outsiders.

Local participants are not a homogeneous group of community members; rather they differ in terms of their access to resources, their use of resources, and their place within the community. It is essential that project planners identify and take into account this *diversity* to ensure that those individuals and groups expected to adopt new behaviors are in fact targeted and participate in the project. Furthermore, consideration of a community's diversity can allow for a better understanding of the unintended impacts of a project.

One approach used by many project planners is that of *stakeholder analysis*. In this process, individuals and groups with a vested interest in the outcome of the project are identified and then incorporated into all stages of project design and implementation. Often, one of the most important stakeholder groups is women. Ownership and management rights and responsibilities over resources as differentiated by gender must be understood for ICDPs to be properly designed.

If, during design, it appears that stakeholder conflict cannot be brokered or negotiated to the satisfaction of the different groups, the feasibility of the overall ICDP exercise should be reexamined. This does not necessarily mean forgoing an activity, particularly where the conservation or biodiversity values are especially significant and worth preserving. However, it undoubtedly will mean devising strategies that give priority to addressing the root causes of the conflicts between stakeholder groups. It may also mean reallocating efforts away from an emphasis on *things* (planting trees, digging wells, improving livestock health) to an increasing emphasis on *processes*—that is, promoting collaboration between stakeholders in project design and management, enhancing local organizational management capacity, and improving decision-making skills of all stakeholder groups.

Project planners need to pay as much attention to "how we are getting there" as to "where we are going." Unless the "how" question is addressed, the "where" question will not be reached.

The incorporation of *indigenous knowledge systems* is critical to the design of socially sound projects that build upon existing social arrangements, knowledge, and skills. In most situations, a project design has more of a chance of meeting its development and conservation goals if it expands upon the existing circumstances than if it tries to impose externally developed technologies and institutions. Indigenous knowledge systems, including information on specific aspects of resource management and use, trends in resource availability, and sociocultural factors impacting the resource base, have a critical role to play in the design of ICDPs.

Many planners consider access to resources, specifically the issues of stewardship and ownership, to be at the heart of sustainable conservation and development programming. Maximizing local stewardship over resources is so important that the onus of responsibility should be on project designers to guarantee, wherever feasible, that local communities and NGOs receive the necessary training to allow them to meet their objectives and assume optimal management responsibilities in an ICDP. In general, *maximizing* local responsibility and authority for natural resources results in more effective projects. However, maximizing local control must be done within the context of all stakeholders' interests. This frequently results in some form of co-management where project planners must balance, or ensure a process for balancing, the long-term, collective interests (frequently represented by the government) with the short-term individual or household interests of the resource users.

ICDPs will not meet their stated objectives unless adequate attention is devoted to the policy environment. Numerous studies (Leonard, 1989; World Bank, 1990) have demonstrated that projects have been stymied in their efforts because the policy environment, including economic, agricultural, and other resource policies, have worked counter to the project activities. In project design, it is important to review the relevant policies that can impact a project, identify changes necessary to enable project success, and assess the feasibility of achieving the policies' changes.

Optimally, at least five components comprise an ICDP strategy, including: (1) research for planning, monitoring, and evaluation; (2) conservation of the resource base and environmental management; (3) social and economic development; (4) institutional strengthening; and (5) brokering and balancing the interests of stakeholder groups. These project components should be supplemented by *assistance to ensure an enabling policy environment.*

Given the wide range of activities it is unlikely, and generally inadvisable, to rely on a single institution to implement these varied components; although frequently one body, composed of representatives of all stakeholders, oversees the overall project. Thus, the design phase should include a plan for who the actors are and what their responsibilities are, whether government bodies, local communities, development or conservation nongovernmental organizations, international private voluntary organizations, or universities or other research bodies (Interaction, 1991). With any ICDP, it will be relatively easy to verbalize or graphically present through a diagram or flowchart what *theoretically* should happen between different implementing organizations in the ICDP. Unless the participants in the ICDP actually *perceive* themselves as partners in the project, however, management responsibilities are unlikely to be undertaken in a manner consistent with achieving project objectives. Building partnerships in which participants in conservation and development mutually respect and reinforce each other is a tremendous challenge, particularly when many are approaching each other from positions of distrust, contempt, or hostility.

Integrated conservation and development projects employ innovative, experimental approaches to conservation of biodiversity and ecologically sound resource management. If successful, these approaches may provide viable alternatives for sustainable development with equity, where the use of the ecosystem is truly sustainable and local people benefit equitably. While this goal is certainly idealistic, examples of promising efforts are beginning to emerge.

INTRODUCTION

Integrated conservation and development projects (ICDPs) offer new approaches to conservation that, if properly implemented, are likely to be an effective means of conserving wildlands and their biodiversity. Some people believe that erecting barriers around protected areas and punishing poachers and encroachers are the best means of conserving biological diversity throughout the developing world. The effectiveness of such approaches is sometimes doubtful, however. Unless the people who are most directly impacted by conservation projects perceive that those projects serve their economic and cultural interests, it is unlikely that any approach based on barriers and punishment will prevent unsustainable resource utilization in wildlands and protected areas over the long term.

Fortunately, there are promising alternatives. ICDPs represent a range of innovative approaches to which resource owners and users can relate more positively and which may increase the probability of promoting successful conservation of biodiversity. Furthermore, ICDPs offer alternatives for economic and social development that should not deplete the very resources on which human populations depend for survival. Successful ICDPs may offer a means of balancing the needs of local people, the environment, and future generations.

Based on the belief that rural poverty is one of the primary factors contributing to overexploitation of natural resources and to encroachment on protected areas, integrated conservation and development projects seek to: (1) improve the quality of life of people living in areas rich in biodiversity and (2) promote the conservation and management of these areas. The underlying assumption is that by increasing the options for local residents to manage their resources for the benefit of current and future generations, better conservation will result. ICDPs provide local residents with economically and ecologically sound alternatives, the establishment and strengthening of institutional capacities, improved information, and an enabling policy environment. It is critical to note that ICDPs are not a panacea and may not be the most appropriate response in all situations (for example, they are generally not appro-

priate when the resources are critically endangered).

ICDPs represent a new methodology and philosophy and, as such, are still very much in a test phase. As a result, special flexibility is required of planners who might prefer to limit uncertainty and to anticipate all possible outcomes. ICDPs probably are more complex than standard development projects, since the possible permutations that can arise from combining development with conservation activities are only beginning to be understood. This reality is important to appreciate, yet one should not be daunted by it. The most crucial aspects of any proposed ICDP to comprehend are the risks that are involved and the levels of uncertainty that exist. With this in mind, any new ICDP should be monitored as a test case, so that over time a body of analysis becomes available to guide project design and decision making. In this way, ICDPs designed and implemented now will be able to inform future conservation and development planning.

This report is directed to policy makers, practitioners and donors interested in understanding what ICDPs have to offer and how to approach their design. However, a certain amount of contextual information is necessary prior to delving into the "how to" aspect of ICDP design. The report is divided into five chapters describing (1) the context, (2) design issues, (3) project components, (4) implementation arrangements, and (5) recommendations for implementing agencies. The authors of this report hope that it stimulates reflection on ICDPs as alternative approaches to the conservation of biodiversity.

CHAPTER ONE

THE CONTEXT OF ICDPs

ICDPs and Environmental Degradation

Around the world, attention is being focused on the rapid pace of global environmental degradation that threatens to profoundly shape the quality and future course of life on Earth. The loss of biological diversity (biodiversity), an indicator of the richness of the world's ecosystems, is among the most critical of these changes. Both species and habitats are in fast decline.

In much of the developing world, the flat, fertile, and irrigable lands have been producing crops for centuries, or even millennia. Now, more marginal, hilly, arid, and humid tropical areas are being placed under cultivation. Many tropical lands, however, are quite susceptible to excessive ecological pressures and, thus, are often unable to withstand the stress placed on them. As soil fertility and populations of flora and fauna decline, and as deforestation increases, unsustainable resource use and resource degradation also increase.

A theory outlining the general cycle for the Himalayas has been formulated by Ives and Messerli (1989) from a wide body of literature. They have labeled it the Himalayan Environmental Degradation Theory (see Box 1). While the theory has specific aspects relevant only to the Himalayas, the core elements in the theory are pertinent to many parts of the developing world.

The ecological zones in which biodiversity is often richest are also areas in which some of the world's poorest peoples live. These peoples depend on the natural resources around them for production and extractive purposes—for example, tilling the soils and harvesting forest products. Thus, environmental sustainability issues not only are relevant to the "haves" of the world but are of immediate relevance to poor people dependent on the viability of the resource base. Environmental degradation is not an issue that only wealthy people have the luxury of addressing but is an issue related to the failing livelihoods, fuel scarcity, longer and harder workdays, deteriorating health, hunger, and thirst of most of the world's people.

Integrated conservation and development

BOX 1. THE HIMALAYAN ENVIRONMENTAL DEGRADATION THEORY

The arguments in the Himalayan Environmental Degradation Theory have been used to justify a wide range of conservation and development work (see the specific case study of the Annapurna Conservation Area in Annex B). In addition to the following factors, government policies, national debt, declining terms of trade, and natural disasters further complicate the situation. The theory is as follows:

1. Improved health care leads to population growth (in excess of 3 – 3.5 percent per year in Nepal from 1971 to 1981).
2. Population levels increase in an area due to other sources (primarily immigration), putting pressure on the natural resources. For example, illegal immigration from India into the Nepalese Terai leads to increased fuelwood and construction timber demands.
3. This increased population exerts immense pressure on forest resources, leading to deforestation.
4. Deforestation leads to increased soil erosion and loss of productive land.
5. Increased runoff during summer monsoons leads to disastrous flooding and siltation on the plains and in reservoirs.
6. In the Himalayas, increased sediment load in rivers leads to formation of islands.
7. Loss of agricultural lands in mountains leads to another round of deforestation and terracing for hillside agriculture.
8. Dung is substituted for wood as fuelwoods become scarce.
9. Terraced lands are nutrient-deprived as dung is burned; crop yields diminish; soil structure weakens, leading to increased landsliding; and more trees are cut on more marginal lands for terracing to provide land for cultivation to meet consumption needs.
10. Land subdivision increases at both the family and macro levels, leading to progressively less viable family-based production units.

Source: Adapted from Ives and Messerli (1989).

projects (ICDPs) address some of the core issues related to environmental degradation. ICDPs attempt to create conditions for the poor to invest in long-term, sustainable exploitation strategies so that they can avoid depleting their resources to survive. Thus, ICDPs target human populations as primary beneficiaries so that biodiversity can survive and flourish. In designing an ICDP, it is important to review and build on the existing theories of environmental degradation and the relationship to poverty, as these are the two primary issues ICDPs seek to address.

CURRENT KNOWLEDGE OF ICDPS

ICDPs are quite recent introductions to the portfolios of the donor and conservation communities. There is still limited understanding of what ICDPs are and how well they work in practice on a broad scale. However, a number of projects indicate just how promising ICDPs may be.

A critical review by Wells, Brandon, and Hannah (1992) defines ICDPs to include: "activities in buffer zones, biosphere reserves, small-scale rural development projects on park boundaries, and protected areas included in regional development plans." These projects all aim to enhance the conservation of biodiversity in protected areas by focusing on the social and economic needs of people living in nearby communities. In each instance, ICDPs represent a shift away from traditional approaches to park management, which emphasize patrols and penalties for illegal use, to increased emphasis on promoting the participation of local resource users in conservation activities.

It is important to remember how recent and how small most ICDP initiatives are. It is arguably premature to try to judge whether or not the approach has been effective at this early stage. What is important, however, is to consider what actions can be taken to overcome, or at least mitigate, the constraints to the effectiveness

of ICDPs. Moreover, even if understanding of ICDPs is still elementary, and even if ICDPs represent a tremendous implementation challenge, efforts to develop and advance such projects must continue:

> One might well ask, why bother? Why promote the expansion of such a concept that appears so difficult to be put into practice? If the commitment to conserve biodiversity is sincere, then the answer is that ICDP approaches must be reinforced and expanded simply because there are few viable alternatives. (Wells, Brandon, and Hannah, 1992)

Initial indications are that ICDP approaches may be most successful with certain preconditions and approaches. Yet, even though the potential for success may not be clearly evident in many situations, the path of ICDPs must be wholeheartedly embarked upon if the full potential of these projects is to be realized. A certain amount of conviction in the potential of the approach will be required to make it work.

Achieving Development Objectives In ICDPs

Conservation projects or development projects in and of themselves present significant design and implementation challenges. When the two are combined under a single project umbrella, the challenges are multiplied.

The traditional approach to conservation that emphasizes strict protection of both species and habitat often does not work. Using this fact as a justification for ICDPs, however, implies that by integrating development activities, conservation objectives will more surely be achieved. Yet achieving development objectives is not straightforward either. Rather, development activities are complex endeavors that after 30 years of intense experience still present perplexing challenges. The number of national nongovernmental organiza-

Box 2. Separating Assumption from Fact: GNP in Nepal

For some decades, the World Bank has ranked developing countries using a variety of socioeconomic indicators. Nepal ranked among the five poorest countries in 1981. Yet on what basis was the ranking made? What statistics were used?

In Nepal in the early 1950s, there were no statistics on gross national product (GNP). The first attempt was made in 1954 by a Ford Foundation economist who estimated the national income at $40 per capita. He derived these figures simply by comparing the per capita income of Pakistan, which he guessed to be almost similar to Nepal's with respect to economic development during the period. The economist's approximation was *ad hoc*, yet it has served ever since as the basis for establishing growth curves in Nepal. In fact, this approach to "calculating" GNP was not even an approximation but was sheer fabrication (Stiller and Yadav 1979, quoted in Ives and Messerli 1989).

By 1982, Nepal's GNP had improved more than four-fold. Yet, based as it was on the initial fabricated data, this 1982 figure also must be regarded as unreliable. Subsequently, the World Bank has looked into income distribution and concluded that in Nepal the highest 10 percent of households accounted for 46.5 percent of total income. This figure is interesting, but it ultimately depends on the credibility of other per capita GNP figures.

Everyone admits that these figures (even only as orders of magnitude) reflect serious problems in Nepal, but do they justify placing Nepal in the same crisis category as Ethiopia or Chad? Clearly, the differences in political context and levels of rainfall stretch the comparison for the same time period between Ethiopia and Nepal.

The moral: planners must be cautious in basing ICDPs or programs on statistics that are of dubious value. Planners must be able to judge the credibility of statistics when using them to justify conservation and development programs.

Source: Adapted from Ives and Messerli (1989).

tions (NGOs), larger international private voluntary organizations (PVOs), or still larger donor organizations that design and implement feasible projects from a technical and social soundness standpoint is limited.

Experience has shown that far more is required of a development project than simply getting the prices or the policies right. While these conditions are essential, negotiating a set of commonly shared perceptions and understandings between all key stakeholders to a particular development activity is also essential. Similarly, for an ICDP to succeed, responsibilities in design and management must be shared between all concerned stakeholders. This must be done for both the conservation aspects and the development aspects of ICDPs. Yet how often do intended beneficiaries in development projects actively participate in the design of activities meant to benefit them? How often do those individuals responsible for project design share the same perception of development priorities with those intended beneficiaries whose participation in a particular project activity is critical to its success?

In general, negotiation and coordination between actors in conservation and/or development are quite poor. The challenge for ICDPs is to work effectively in a context where precedents for collaboration are so few, yet where the necessity for collaboration is clearly evident and significant. The nature of the challenge, and the necessity to forthrightly accept it, must be well understood from the outset.

Distinguishing Assumptions From Facts

Project designers need to understand why the implementation of a particular ICDP may

Box 3. When Unproved and Questionable Assumptions Lead to Inappropriate Policies: Ngorongoro Conservation Area, Tanzania

Ngorongoro Conservation Area (NCA) is a joint wildlife conservation/pastoralist land-use area in northern Tanzania, adjacent to the Serengeti Plains, and is part of the ecological unit used by the Serengeti wildlife population migrations. In 1987, plans were made to expel the 19,000 pastoralists from the crater, along with their livestock, because of environmental degradation.

Pastoralists deny that their way of life poses a threat to conservation of NCA. The main points of the pastoralist ecology are:

1. Pastoralism, livestock, and wildlife have coexisted in the region for over 2,000 years; pastoralist grazing and burning activities have helped shape the area's present highly valued landscape.
2. Livestock numbers monitored for more than 20 years have fluctuated but show no overall trend of increase.
3. Wildlife populations have undergone a dramatic increase over the same period, making the idea of adverse competitive impact of livestock dubious, if not untenable.
4. Disease interactions between cattle and wildlife populations favor the latter.
5. No evidence bears out the existence of suggested changes in vegetation composition, whether in pastoralist-occupied areas or in areas from which pastoralist stock have been excluded for 10 years or more.
6. NCA shows negligible erosion. Rates are lower than for all surrounding areas, despite the greater geomorphological and topographic predisposition of the area to erosion.

The pastoralists have a political history of voluntarily accepting exclusion from parts of the Serengeti plains at certain times in return for restricted rights in the NCA. Yet, despite this history and their tradition of ecological balance, the suspicion of pastoralist damage is so strong that their expulsion from the adjacent buffer zone remains a more or less foregone conclusion. Given the potential for illegal in-migration of agriculturalists and other people once the pastoralists are expelled, it is even possible that degradation will increase as a result. This example clearly illustrates how assumptions, either unproven or false, may lead to policies that exacerbate threats to biodiversity.

Source: Adapted from Homewood and Rodgers (1987).

BOX 4. ASSUMPTIONS AND THEIR IMPLICATIONS FOR DESIGN: FOREST DEGRADATION IN NEPAL

Recent massive forest degradation in Khumbu Himal, Nepal—the Mount Everest region—has generally been explained as caused by the combination of (a) intensive pressures put on the Khumbu Himal by trekkers since the 1960s; (b) nationalization of forests, alienating resource users from forests that they had traditionally managed and creating an open-access system where anyone could exploit the resources; (c) establishment of Sagamartha National Park in 1977, which some argue incited local people to extract as much as they possibly could from the forest prior to establishment of the park; and (d) the slow rate at which forests can regenerate.

Sherpa (1991) argues that these factors—combined with the influx of refugees coming to the Khumbu Himal from the Tibetan plateau with no prior exposure to dense forests—overtaxed the fragile montane ecosystems. He also argues that the region's traditional systems of forest management (shinga naua) were effective. Other experts (Byers 1987), however, argue that the process of degradation may be cumulative over the past four centuries, the time that the Sherpa people have principally inhabited this part of the Himalaya.

Disagreement exists over the rate and cause of loss of forest cover: Is deforestation gradual and part of a 400-year evolution, as Byers concludes? Is it reaching disastrous proportions due to continued mismanagement, as those supporting the Himalayan Environmental Degradation Theory conclude? Is it the product of factors acting simultaneously, as Sherpa concludes?

These varying opinions lead to different conclusions regarding the relevance of ICDPs as a solution to resource degradation in Khumbu Himal:

- Belief that the Sherpa people's management systems have changed and are irretrievable may make one reluctant to see Sherpas empowered in an ICDP with management responsibility.
- Belief that traditional Sherpa management systems still work in places and can be revitalized may cause one to argue for empowering Sherpas with management responsibilities in ICDPs (as increasingly appears to be the case).
- Belief that the nationalization of forests and creation of a national park led to poor resource management likely will cause one to prefer that ICDPs require, as a precondition, laws empowering indigenous management systems.

Different theories of forest degradation can lead to different conservation approaches. It is essential, as part of any project design process, that various theoretical propositions be examined and that the relative credibility of different theories be evaluated.

or may not be justified. To do this, they must be able to distinguish between "assumption" and "fact" in the development of theory on resource degradation. In addition, planners must ensure that assumptions are clearly stated and monitored as to their validity.

The word "assumption" has two related meanings to project designers. The first refers to expectations of conditions that will or will not exist at a specific time (for example, that a country's Ministry of Environment will employ adequate numbers of forest guards, or that political stability will continue in a country). The second meaning of "assumption" refers to those unproven beliefs, often mistaken for fact, that underlie and often justify a certain plan or action (for example, that the traditional natural resource management practices of herders degrade the environment and so must be discontinued). The term "assumption" is used in this report to refer to conditions that are only expected to exist and may, in fact, not exist at all. Miscasting these assumptions as fact presents great risks for a project, as activities may be undertaken for the wrong reasons and with the wrong priorities. (Boxes 2 and 3 illustrate how questionable assumptions can lead to inappropriate actions.)

Returning to the Himalayan example, Ives and Messerli (1989) illustrate that their Environmental Degradation Theory is not valid in its entirety for the whole Himalayan region. Furthermore, the linkage between population growth and deforestation in the Himalayan mountains leading to massive damage in the plains is unproved, though not necessarily false. Specifically, Ives and Messerli demonstrate that the quality of the data upon which the links in their theory are made is tenuous at best. The very imprecision in data leads in turn to imprecision in analysis during design, potentially leading to unsuccessful projects. Using the example of forest degradation in Khumbu Himal, Nepal, Box 4 illustrates this point. The point could be made equally well by examining the facts and assumptions regarding fuelwood consumption and biomass production or regarding human poverty in the Himalayas.

The ability to recognize that there are multiple problem definitions and numerous potential solutions is another key step (cf. Ives and Messerli, 1989:242). Planners must understand the theoretical and perceptual reasoning of different stakeholder groups so that they can design the most viable ICDP approach, one that will elicit the participation of all necessary parties.

CHAPTER TWO

KEY ISSUES IN THE DESIGN OF ICDPs

LINKAGES BETWEEN ECONOMIC AND SOCIAL BENEFITS AND CONSERVATION

Before considering the criteria for siting integrated conservation and development projects, it is appropriate to reexamine the goals of an ICDP. It is generally agreed that ICDPs have the dual goals of conserving biodiversity and improving socioeconomic development, although there is ongoing field-level debate in both the conservation and development communities as to exactly what this means (See West and Brechin, 1991). The issue of linkage addresses the interrelationship between these two goals, with development generally seen as a means of promoting conservation. As Owen-Smith and Jacobsohn (1988) explain:

> In economically deprived areas, some form of material benefit will be necessary to maintain the active support and participation of the community as a whole. However, it is essential that the benefits received are perceived to be valuable by the people themselves and not merely by the conservationists. All material benefits should be clearly linked to the conservation action. The relationship between action and benefit should thus be as direct as possible.

To assess the potential for linkage, it is imperative that financial and economic analysis are done as part of any ICDP activity which requires behavioral changes in land use management. These analysis should be done during initial stages of design. For the activity to become sustainable, resource users must be aware of the opportunity costs and potential benefits accruing to shifts in resource management strategies. Both the ongoing BOSCOSA project in Costa Rica (Cabarle, 1992), the Dzangha-Sangha Project in Central African Republic (Telesis, 1991), and the recently initiated Okari Nut Eco-enterprises Project in Papua New Guinea (Olsson, Manakuyasi and Kasira, 1992) highlight the critical importance that financial and economic factors play in resource user decision-making.

In BOSCOSA the ICDP has been able to accomplish a tremendous amount without a financial and economic analysis early on in the activity. Evaluation of the project has shown that these issues are now crucial to project sustainability. In Dzangha-Sangha economic analysis has been used to demonstrate the economic unsustainability of logging activities which has led to discussions of a potential buy-out of the logging concession and establishment of a research center instead. In New Guinea, twenty-nine Barai sub-clans appear committed to participate in forest management activities focused around sustainable extraction of okari nuts (Olsson, Manakuyasi and Kasira, 1992), but the baseline data on the tree/nut resource and on tree tenure is unavailable. Without this coupled to a marketing study, the viability of what appears ostensibly as a promising ICDP will remain conjectural. These three projects illustrate how financial and economic factors impact directly on potential ICDP sustainability.

If development objectives are not the means, but rather the ends, then the designers of a project must ask themselves if they are preparing an integrated conservation and development project or an environmentally sound development project. As Wells, Brandon, and Hannah (1992) explain:

> Many types of development activities have the potential for increasing local incomes and living standards. What is less clear is how such activities can be expected to enhance the conservation of biological diversity, particularly in the absence of more effective enforcements. In other words, very careful thought needs to be given at the design stage to the following question: what are the anticipated linkages between the planned realization of social and economic benefits by people living outside the park or reserve boundaries and the necessary behavioral response the project seeks to achieve to reduce pressure inside the boundaries?

Thus, all material benefits should be clearly linked to the conservation action (Murphree, 1991; Dardani, et. al., 1992). This implies examining whether underlying assumptions to the design are shared by the participants in the project.

In several ICDPs thus far, services and income-earning activities have been offered as a *quid pro quo* for respecting protected-area regulations. These services and activities have included improved access to markets, low-interest credit, shares of revenue, employment, and controlled access to resources, among other development options. One of the most critical questions at this point is whether local resource users perceive the development activity as an incentive to adopt conservation practices (Brown, 1984). If the resource users do not share this understanding, or if their understanding changes over time, the development activity is unlikely to change conservation behavior. Development activities frequently must be complemented with a conservation extension or education program that informs all parties of their responsibilities under the project and of the interrelationships between conservation and development.

An example is the Korup Project in Cameroon. This project aims to reduce pressure on the forest and wildlife by providing alternative means of generating income, such as poultry farming. When this project was discussed with a local hunter, it became clear that the hunter did not feel that training for his son in poultry farming would be adequate incentive for him, the father, to stop hunting. Whether it will be a strong enough incentive for the son not to start hunting remains to be seen. To date, the link between the Korup project's development and conservation objectives is inadequate, and hunting, while declared illegal, has not decreased significantly.

Even when the participants and those planning an ICDP share perceptions regarding

incentives and linkages, viable alternatives for meeting economic needs must exist for individuals to adopt conservation behavior. Social services, such as schools and clinics, may be used as incentives to stop hunting in a certain area. However, if these efforts are not accompanied by appropriate alternatives for meeting food requirements, they will not be effective in encouraging conservation.

Linkages between development and conservation activities can sometimes be strengthened by directing the activities toward groups or individuals whose current actions threaten the protected area. They can be encouraged to change not what they do but how they do it (Ack, 1991). This is true for hunting and slash-and-burn agriculture, both of which can often be made more sustainable.

At other times, conservation and development can be linked because the development objective, generally income generation, can only be met through conservation. For example, revenues earned by local people from tourism will be sustained only if the natural resources are protected and tourists continue to visit the area. Unfortunately, there are few practical options that generate adequate returns through conservation actions.

Criteria for Deciding Where, and Where Not, to Site an ICDP

Criteria used for identifying potentially viable locations for ICDPs fall into three broad categories: biological, socioeconomic, and political. The optimum situation is one in which a balance can be struck among these categories. To date, this has proved difficult. Decisions for site selection of conservation projects are still greatly influenced by political and other factors to the exclusion of biological factors. Nevertheless, biological and socioeconomic factors should, insofar as possible, take precedence over political factors. ICDPs are most likely to succeed in situations where there is significant biodiversity and there is potential for significant local participation and sustainable economic return (socioeconomic criteria).

Identifying what information is critical to project design is a key consideration. Often, more data are collected during preliminary research than can be assimilated. This can be due to faulty survey design, misunderstanding of the key issues, or the assumption that the information in and of itself is worth having. Conservationists, politicians, and development planners often have relied on their own political agendas to determine where conservation work should proceed. Without a matrix or model to enable analysis of reserve size, vegetation type, habitat coverage, threat, and biological richness (among other potential variables) of regions or within countries, these conservationists and others have had limited ability to prioritize where ICDP work (as a subcategory of conservation work) should proceed. Establishment of such matrices for both biological and socioeconomic criteria is the first important step for donors and host-country governments to address on a regional and, then, a country-by-country basis. Without this comparative data, the basis for decision-making will be clouded and decisions will more likely be based on political criteria alone.

Biological Criteria

The biological criteria to be considered in deciding where an ICDP should be located, and later what type of ICDP it should be, can be grouped into three broad categories: biological uniqueness/richness, threat, and use. Criteria in these three categories need to be considered at the genetic, species, and ecosystem levels. Examples include:

- **Uniqueness/Richness:** Species richness, habitat uniqueness, ecosystem diversity, endemicity, etc. Does the site contain genetic, species, or ecosystem diversity that is highly valued at the local, national, or regional level?
- **Use:** What is the utility of the genetic, species, and ecosystem composition to both

natural ecosystem function and to humans? Are important ecological processes such as watershed protection included in the site? Is the site important for migratory species? Both current and future utility should be considered (i.e. extremely rich sites may contain species that will be extremely important for protecting ecosystem function in the future given what is happening with development in the regional landscape).

- **Threat:** How threatened is the area by deforestation, agricultural practices, transmigration, mining, and other human activities? Is the size of the unit sufficient to protect ecosystem processes and diversity? Are the particular ecosystem and its species especially sensitive to disturbance?

Simply siting ICDPs near existing protected areas does not guarantee that biological criteria will be appropriate. Protected areas in many countries (including the United States) were not established based on an analysis of priority ecosystems for conservation; they were frequently established for political reasons or because they included natural features exciting to visitors.

Dinerstein and Wikramanayake (1993) have developed an approach that allows project planners and decision-makers to consider the application of several key parameters in protected areas planning on either a regional or national level. The model they propose specifically considers reserve size, forest habitat coverage, and biological richness (that is, species diversity and endemism) in the Indo-Pacific region, so that the region's conservation potential and threats to biodiversity can be identified. While this model operates at a broader planning level than is the norm for specific ICDP design, it can in fact be adapted to work at finer geographic scales appropriate to ICDPs. The model enables decisions to be made from a biological standpoint as to where conservation activities are most logical within a region, or at a national level. It is true that a balance should be struck between biological and human factors in the design of ICDPS, but ICDPs should be focused in areas where priority biodiversity conservation issues are addressed. Abramovitz (1991) and Dinerstein and Wikramanayake (1993) show that investments in conservation recently have increased dramatically in the Indo-Pacific region, but several biologically important countries have received insufficient funding to conserve biodiversity. These countries would provide great opportunities from a biological perspective to design ICDPs to preserve species diversity and endemism.

Priority in designing ICDPs should be given to areas where:

- a large proportion of forest remains and the host government has a good history of conservation policy, reflected by large tracts of protected forest (which can "link" with a proposed ICDP activity);
- high species richness and endemicity exist;
- conserving the most animal species in a particular ICDP area can be assured through conserving habitats with high plant diversity, such as (but not exclusively) tropical moist forests;
- governments already have begun efforts to preserve biodiversity in protected areas that are facing high population pressures. These areas may require immediate, expanded efforts to halt erosion of biodiversity (for example, in parts of Indonesia, India, and Thailand). This characteristic may require prioritizing and designing ICDPs that involve buffer zone approaches; and
- the key biological criteria of uniqueness, use, and threat have been evaluated.

Once biological criteria have been taken into account, then social and political criteria should be considered. A key consideration in ICDP design is identifying the trade-offs when projects are being planned in areas where biological imperatives for conservation appear rational if not pressing, yet the sociopolitical context is weak. Conversely, planners must consider the need for project activities in cases where sociopolitical factors present opportunities for integrating conservation and develop-

ment but, from a biological standpoint, conservation priorities are not the most crucial.

Socioeconomic Criteria

Socioeconomic criteria include the range of social, cultural, economic, and local organizational factors that must be considered when designing ICDPs. In recent years, the development community has increasingly recognized the value of socioeconomic data in project design. "People issues" are arguably of equal, if not greater, relevance in the successful design and implementation of ICDPs as compared with, for instance, "hard" technical factors (Brown, 1991).

Socioeconomic data relevant to ICDP design can be obtained through a combination of literature reviews (World Bank reports, national research documents, external research produced by anthropologists, geographers, etc.), rapid appraisal investigations tailored for the design or feasibility study at hand, and participatory rural appraisal (see pages 15 & 45). Several types of socioeconomic information are relevant to the design of an ICDP, including the following:

- location of communities relative to the proposed or intended conservation area;
- existing land use and other production systems;
- population size, structure, and trends;
- local decision-making structures;
- indigenous beliefs and values about wildlife and other natural resources;
- social sanctions as a part of indigenous resource management systems;
- socioeconomic differentiation within the community;
- attitudes of the relevant local resource user communities to the existing situations;
- perceptions of local environmental trends and their causes;
- social relations between indigenous peoples relevant to the intended protected area (if formal protection is an issue); and
- institutional capabilities for indigenous social groups to assume new roles in resource management (for example, the consistency of the envisioned conservation activity with the indigenous groups' own priorities).

Once a potential project site has been identified according to biological criteria, socioeconomic feasibility must be investigated based on the above data. Unfortunately, no systematic prioritization of socioeconomic criteria required for the design and implementation of an ICDP has, to the authors' knowledge, been made.

Social impact assessment (SIA) offers one tool for predicting where adverse social effects may be incurred in protected areas and for envisioning mitigative measures to deal with negative impacts (Hough, 1991). SIA is particularly important for restricted areas that are created to protect conservation values for the benefit of humankind as a whole, even if they are incompatible with local needs and perceptions. When outside planners impose a conservation plan on local peoples, issues concerning relocation, restricted access to resources, and alienation become vitally important.

ICDPs presuppose that local peoples will play a major role in project design from the outset and that the conservation activity will largely be consistent with their own priorities. The following criteria for ICDP selection are minimal requirements for a project to proceed from the conceptual into the design stage:

- any disruptions or alterations to indigenous land use and production systems proposed under the ICDP are acceptable to participating resource user/owner groups;
- local resource user/owner groups have the organizational capability to represent their interests so that activities can be modified or renegotiated;
- most people likely to be impacted perceive the conservation of biodiversity through the proposed activity in beneficial terms, and mechanisms to educate skeptics appear to have the potential to succeed;
- the activity will not exacerbate social differ-

entiation or internal stratification within the community in terms of making poor people poorer, or already marginal social groups or categories even more marginalized; and

- the presence of a local NGO that can constructively promote dialogue and appropriate action between local community and national/provincial/district government agencies that govern protected areas.

Political Criteria

Political criteria are factors at the international, national, or state/provincial level that influence where to undertake an ICDP. These factors relate to the pressures of powerful interest groups that by nature may not be objective. As a rule, political criteria should not be the deciding factor for locating an ICDP (or other conservation or development initiative), if both biological and socioeconomic criteria indicate otherwise. Given the scarcity of conservation funding, there is little point in embarking on activities that are solely politically motivated and unlikely to otherwise be feasible. Political factors can most constructively play a role in developing ICDPs by supporting the policy and implementation environment once an activity is identified as potentially feasible. Thus, in places where political will and policy environment are favorable, opportunities for embarking on ICDPs where biological and socioeconomic criteria may already be favorable are further reinforced.

Participation of Stakeholders

What Is Participation?

The terms "stakeholder" and "participation" can be interpreted in numerous ways. For this paper, a stakeholder is an individual or group with a direct interest in the use and management of the natural resource base. Stakeholders can include local resource users and owners (for example, hunters, farmers, loggers, and harvesters), women, government officials and planners, extension workers, representatives of industry, donors, indigenous and international NGOs, and other groups.

Inevitably, it may be impractical to include all resource user groups equally in design. Nevertheless, planning should include any groups that are involved in resource management activities within the envisioned project area. Ideally, the social and institutional analysis to identify such stakeholders should be done jointly with resource user/owner groups.

Participation is most commonly used to refer to some aspect of involvement of local populations in the design, implementation, and evaluation of the project. Participation may best be defined as a continuum, from limited input into decision-making and control, to extensive input into decision-making and ultimately stewardship of the resources. Thus, a situation may range from one in which local residents act as a source of information so that outside "experts" can plan the management of resources, to one in which the local population is directly involved in planning and decision-making as partners, to a project that involves local community stewardship and ownership of the resource base.

When community input and control are limited, ICDP designers may question local communities regarding their opinions, preferences, and aspirations. This questioning may be either systematic or random and either general or specific. Participants may be asked to consider the rationale behind a particular approach to conservation or development, with the input factored into decisions regarding the location or timing of interventions. However, rarely will this level of participation seriously question the rationale for implementing a particular ICDP, even when local people are skeptical of the proposed activity's underlying assumptions and feasibility. This is particularly true for cases where national parks or world heritage sites that transcend local community interests are proposed (Hough, 1991).

Any level of involvement of populations during design is both commendable and essential, but more often than not it does not lead to satisfactory project design. This is because participants in the design process usually are not true partners. Perhaps the most important lesson learned in development over the last 20 years is that the failure to equitably involve projected beneficiaries as partners in all phases of project implementation from design through evaluation has consistently led to disappointing project results. Indeed, the empirical record of results indicates a range from disappointing (agricultural productivity projects, appropriate technology projects) to repeated failure (pastoral sector development, livestock productivity and range management projects in Africa). Wells, Brandon and Hannah (1992) and other researchers have found that most of the projects they have reviewed have involved intended project beneficiaries not as active partners but rather as passive recipients or implementors of others' plans.

Token participation cannot suffice in the design process. Instead, participation includes all relevant stakeholder groups in a way that enables each to perceive a stake in, and the ability to impact, the process. In addition, the process needs to enable target beneficiaries to themselves initiate the flow of information and the decision-making.

As partnerships develop, it is also crucial to remember what participation is not:

1. It is not an easy process, and therefore depends on both physical and mental commitments by the stakeholders to see a process through.
2. It is not the occasional gathering together of target beneficiaries in *pro forma* forums wherein external change agents direct the timing and flow of information between beneficiaries and other "participants" in the development process.
3. It is not the occasional or intermittent querying of target beneficiaries as to their perceptions, needs, and wants regarding development.

Establishing equitable partnerships so that all stakeholders feel comfortable with their roles in the project design process is a first, necessary step in working toward what is generally referred to as empowerment of resource user groups and the rural organizations within which they are incorporated. These rural organizations may be NGOs in the sense that they have a specific mandate to provide services to local populations they serve, or they may be looser structures based on ethnic, kinship, religious, or occupational ties.

Participatory Rural Appraisal

Participatory rural appraisal (PRA) offers an alternative to conventional, top-down approaches to rural development. The methodology assumes that: (a) participation by local people is a fundamental ingredient in successful project planning; (b) locally maintained technologies as well as sustainable economic, political, and ecological systems are essential to reverse environmental decline; and (c) truly sustainable development initiatives must incorporate approaches that local communities themselves can plan, manage, and control.

PRA, like its parent methodology rapid rural appraisal, is a "systematic yet semi-structured activity carried out in the field by a multidisciplinary team and designed to acquire new information on and new hypotheses about rural development" (McCracken and Conway, 1988). PRA helps communities define problems, consider previous successes, evaluate local institutional capacities, prioritize opportunities, and prepare a systematic and site-specific Village Resource Management Plan for the community to adopt and implement. PRA is an excellent tool for bringing together, on one hand, development needs as defined by community groups and, on the other hand, the resources and technical skills of governments, donors, and NGOs.

BOX 5. RAPID APPRAISAL FOR WOMEN: THE NORTHWEST FRONTIER OF PAKISTAN

As part of the design of a Women's Program under the Malakand Social Forestry Project in Pakistan, a participatory rural appraisal (PRA) was conducted. Among the people in this region, the purdah system is normally followed, severely restricting men's access to women and women's mobility. Any interaction of local women with male outsiders would have been considered an affront to the honor of local men and would have jeopardized the whole project. This cultural system required that variations be made in the PRA methodology to enable the participation of local women and effective data collection and analysis.

1. The appraisal was carried out solely by women: a specialist from the USAID Office of Women in Development, working with local women who had been identified by the villagers as educated and capable. Being accompanied by these women ensured immediate access to any household and more ready acceptance of the outside researcher.

2. The research team's first moments in the village were spent notifying the local men of its arrival and explaining the objectives and methods of the appraisal. This served as an introduction into the village and facilitated access to the women. The team gained a male perspective on the different issues, which was important for the success of the program.

3. The research team held group discussions among the village's women. These provided an overview of the situation, including the women's needs. Next, individual households were visited. This allowed for a greater understanding of household dynamics and the specific needs of different socioeconomic groups. Household level interviews also helped engage women who might not be vocal in group discussions. Most women felt more comfortable discussing issues in greater depth in the privacy of their own homes, particularly issues related to income and expenditures. Where there were distinct social groups present in the village (for example, pastoralists or occupational classes), attempts were made to visit households of all groups.

4. The researcher relied primarily on "social chit-chat" to gather data, finding that questionnaires made people more "official" and less informative in their responses.

By conducting a PRA this way, the research team not only learned valuable information on social structures but also raised the awareness of the village women. The team found that information of relevance to the women had not been passed on by men, as the men felt the project related only to them. In using PRAs, ICDP staff should guard against the potentially mistaken assumption that information imparted to men will filter through to women.

Source: Adapted from Hosain (1991).

Fundamental to the approach is the empowerment of local communities as the "driving force" in the PRA process. Also critical to successful PRA design is sensitivity to cultural rules (as Box 5 demonstrates).

Techniques for more effective PRA design are explored in greater detail in Annex A.

Gender Considerations

Because women in rural communities interact with myriad forms of wildlife that are of fundamental importance, they constitute a major stakeholder group. Women gather wild plants and animals from forests, grasslands, and the sea for a wide variety of uses—food, medicines, construction, tool manufacturing, and income. Thus, they provide a critical component of the economic systems of most rural peoples.

As both users and managers of the natural resource base, women have extensive knowledge of their environment. They can often predict the location of indigenous wild products, and by using a variety of species, they help promote sustainable utilization. Women decide or help decide when and where small animals should be hunted, trees cut for firewood and fodder, wild fruits collected, and grasses exploited. In their role as primary subsistence producers, women are responsible for maintaining soil fertility. It is not surprising, therefore, that women are

becoming increasingly involved in efforts to conserve resources through projects like ICDPs.

Resource utilization projects can have both positive and negative impacts on women. When diversified economic activities are encouraged, or when community services (such as schools, clinics, and wells) are provided, women and children benefit. When projects result in increased wildlife populations, women may be negatively impacted if these animals cause increased damage to crops. Secondary impacts of utilization activities must also be considered. For example, increased levels of exploitation of fuel to process game meat can decrease availability and require women to walk farther to collect firewood for home consumption. This shortage of fuelwood may cause women to prepare fewer or more easily cooked, but less nutritious, meals (Dankelman and Davidson, 1988).

Women must be integrated into utilization projects as both participants and beneficiaries to meet the dual objectives of better management of the resource base and improved community welfare. Yet forest policies have largely ignored women, except in their role of firewood consumers. One of the most obvious means of increasing women's participation is to develop income-generating activities that utilize all forms of wildlife and target an appropriate level of funding to be reserved for use by women. It

BOX 6. GENDER FACTORS IN NATURAL RESOURCES MANAGEMENT: NAMIBIA

Among the pastoralists in western Kaokoland, women make baskets to hold milk and water. Since tourists have been coming to the area, these women have begun making baskets to sell to the tourists to generate income to buy corn flour. Citing the increased consumption of the palm tree, *Hyphaene ventricose*, conservationists working in the area warned the villagers not to make too many baskets. After much discussion with the local people at a community meeting, it was agreed that the palms would be managed as they always have been, with one or two fronds removed from each young tree during a season. In addition, a palm tree count would be undertaken and use of the palms would be monitored by one of the male lineage heads of the community.

A few months after the community meeting, it was noted that the palm trees were dying at an accelerated rate. The lineage head blamed the women: they were too stupid and lazy to sustainably manage the palm trees and instead were taking all of the fronds from the nearest trees, thereby killing them. However, a meeting with the women provided the following explanation:

> In the morning I milk my husband's cows. I milk into the wooden pails carved by my man. Then I pour the milk into the baskets I have woven. That milk is then mine to share as I wish. I would not refuse my husband if he asked me to give milk to his visitor but he would not take it without asking my permission. Now you are asking us to give the palm trees to the men. Who could be surprised if the men start behaving as though they own the cow's milk as well?

Thus, the project staff, by encouraging a man to monitor the palms, had altered the community's relationship with one of their natural resources and interfered with gender relations. The women felt their right to control and utilize cow's milk, as symbolized by the transfer of the milk from the "male" wooden pail to the "female" basket, was under threat by the fact that a man was now monitoring the use of the palm trees. Women were resisting the apparent attempt by the conservationists to change the social balance and were deliberately ignoring the old way of sustainably managing the palms. The palms were then "returned" to the women. They agreed to take responsibility for monitoring the use of the trees, and, hundreds of baskets later, the palm trees continue to thrive.

Similar instances of the central role that gender factors play in natural resource management could be cited from around the world. Ownership/management rights and responsibilities over resources as differentiated by gender must be understood for ICDPs to be properly designed.

Source: Adapted from Jacobsohn (1993).

is also critical to examine complementary activities, such as making the credit needed to start an enterprise equally available to women and men.

Women should be encouraged to participate in decision-making regarding the management and use of natural resources, as well as the control and use of revenues generated by utilization activities. Project planners and community organizers should hold separate meetings with women and, even more important, should encourage women to attend town meetings so that men and women participate together. Isolating women's issues from those of the greater community risks marginalizing women further than may already be the case. In addition, utilization projects may include a facilitator for women's activities who would assess women's needs, facilitate communication with decision-makers, and inform women of their rights and obligations under the project.

The process of integrating women needs to be undertaken with due consideration for traditional social structures. Women have informal means of gathering information and expressing their acceptance or rejection of decisions taken on their behalf. Women rely on other women with authority to represent their interests, including traditional midwives, teachers, wives of the chief, and successful entrepreneurs. (Box 6 illustrates the importance that sensitivity to traditional gender roles can play in the success of a project.)

A specific tool developed by USAID's Office of Women in Development for integrating gender issues into its programming is explained in Annex A.

Indigenous Knowledge

Indigenous knowledge, the objective and subjective understanding that local people have of the world around them, is unique to each culture or society. Indigenous knowledge is dynamic, not static; it changes through indigenous creativity and innovativeness and through contact with other knowledge systems (Warren, 1989).

One reason that it is helpful for a process to promote equitable participation of all stakeholder groups is that this inclusiveness facilitates the incorporation of traditional or indigenous knowledge systems. Placing value on indigenous knowledge and assuring its incorporation into project design leads to projects that are socially more sound—that is, more likely to achieve their conservation and development objectives. In addition, by understanding that their knowledge is valued, local people's confidence in projects can increase.

ICDPs are designed to involve a complex range of objectives and activities that cut across many, if not all, aspects of indigenous societies' activities. Unless it is clear from the outset that projects can either complement or induce socially sound change of existing resource-use patterns, project objectives will not be achieved. Full-fledged participation of resource users in project design should be guaranteed. Indigenous knowledge relevant to designing an ICDP may consist of information on specific aspects of resource management, the culture and society of the resource users, socioeconomic aspects that impact management, trends in natural resources, and the causes behind the trends. (Box 7 illustrates an indigenous Mexican community's conservation ethic in relationship to its use of agroforestry.)

ICDP staff need to understand a culture's belief systems and the relationships between those values and resource management. For example, one crucial category of indigenous knowledge for conservation and development work is that of local sacred areas. These areas represent earth spirits, peace, rain, etc., and are used for ritual purposes by many groups (for example, the "iiri" of the Mbeere of Kenya, the Peuhl of northern Burkina Faso, and the Jie of eastern Uganda, who have one sacred area for each subtribe). Some sacred areas are established on burial grounds of ancestors, as is the case with the Nyakyusa of southwestern Tanzania, who plant trees on the burial sites of their chiefs, and the Borana of northern Kenya, who plant trees around the graves of their ancestors

BOX 7. INDIGENOUS KNOWLEDGE AND SUSTAINABLE AGROFORESTRY: THE HUASTEC MAYA OF MEXICO

Agroforestry, as classically understood, involves the integration of trees for fuel, construction, fruit, and shade into farming systems. This generally occurs on already cleared land.

A variant to the classic model involves management of forests for forest-product extraction, in-forest agricultural production, and natural forest regeneration. Such agroforestry systems are often wholly indigenously conceived and managed. These indigenous systems are based on selective removal of the trees but not of the forest; total removal of the forest makes no sense to producers who for generations have made a living in tropical moist forests. Indigenous agroforestry systems incorporate strategies for using ecological processes and products for meeting farmers' needs for maintenance of soil fertility, water management, and nutrient concentration, as well as for food, medicine, construction materials, and other goods and services.

Among the Huastec Maya farmers, according to Alcorn (1990a), "Indigenous strategies work to manage deforestation in two basic systems: (1) sequential agroforestry systems that integrate secondary successional vegetation; and (2) managed forest grove systems." Within these strategies, patches and subpatches of land are cultivated and planted for varying lengths of time, with secondary succession also proceeding for different lengths of time. Patches of more intensely farmed plots (for example, sugarcane), as well as greenbelts of less disturbed forest, add to this landscape to create a mosaic of managed areas, or "eco-units." Alcorn (1990a) concludes:

> By maintaining such forest patches over time and across space, indigenous agroforestry systems keep forest regeneration as part of their system. The farmers have opened land for sun-loving crops, but they have kept the forest, its species and its regenerative processes, as well. At any given time, secondary successional species are reproducing somewhere in the mosaic, and mature forest species are reproducing somewhere else in the mosaic. In this way, the elements necessary to regenerate forest are retained in the system.... Forests have been retained despite the fact that the Huastec region has supported relatively dense human populations for many centuries.

Thus, indigenous knowledge and strategies can result in effective management approaches that meet farmers needs within the parameters of present constraints (for example, limited availability of inputs, including land, capital, labor, fertilizers, improved seed, etc.). Such indigenous agroforestry systems are widespread in Asia (Olofson, 1983) and Latin America (Alcorn, 1990b). By understanding the factors behind the success of indigenous systems and by adopting indigenous strategies, where feasible, agronomists and foresters can better design improved systems that meet farmers' needs and preserve biodiversity.

and prohibit any tree cutting on these sites. Although most sacred groves are protected for a very long time, some (as among the Tonga of Zambia) are only two-to-three generations old (Niamir, 1990).

Unfortunately, the effective knowledge and practices that indigenous institutions can now bring to bear in conservation work, given the enormous changes that such institutions have withstood since colonialism, is difficult to assess (Little and Brokensha, 1987). It may prove that, while indigenous knowledge remains widespread and viable, this is not the case with indigenous management institutions. Nevertheless, understanding the rationale of indigenous resource management systems, and the perception of indigenous peoples of the mechanics of ecosystems and the role of intervening actors, is an early step in ICDP design. The possibility of either reconstituting indigenous institutions or creating new ones that are sensitive to indigenous knowledge and understandings often should be considered.

All too often, "traditional knowledge" (the core of indigenous knowledge) is known only to the elders of a community and is slowly being lost. Where possible, ICDPs should incorporate mechanisms for maintaining this knowledge. As part of a conservation education project in Zimbabwe, for example, it is proposed that elders of the community be hired to act as guides to the local area for school and youth groups, thus passing their knowledge to younger groups. When respect and economic value are given to tradi-

tional knowledge—for example, when individuals are employed for their knowledge, either as guides for tourists, informants for scientists, or village game guards—it is more likely that a community will want to maintain this knowledge.

Despite the increasing number of studies illustrating the value of indigenous knowledge (see Poole, 1990 and Warren, 1989), this knowledge is still often seen by outsiders as less objective than "Western" knowledge systems. Indigenous systems are often seen as irrational or mythical, and projects trying to incorporate such knowledge are seen as unsystematic, unscientific, and therefore unacceptable. Scientists, NGOs, donors, and government officials need to guard against these biases.

Stewardship and Ownership of Natural Resources by Local People

Definitions of Stewardship and Ownership

Many planners consider the issues of stewardship and ownership of resources by local people to be at the heart of sustainable conservation and development programming. Some managers support the notion of maximizing local responsibility and authority for natural resources, while others claim that, particularly with common-property resources, this simply leads to degradation.

Stewardship seeks to enable and empower local communities to manage their indigenous natural resources on a sustainable basis for their own benefit and development. It may require that precolonial, traditional systems of authority and responsibility, or some adaptations thereof, be reenacted to regulate use of natural resources. Local stewardship over resources in areas abundant in wildlife has been called "the participatory approach to wildlife management" (Kiss, 1990).

Stewardship must include responsibility and authority, but not necessarily ownership or control of access, which are generally invested in the state on behalf of the "common good." Maximizing local control must be done within the context of all stakeholders' interests. This most frequently results in some form of co-management where project planners must balance, or ensure a process for balancing, the long-term collective interests (frequently represented by the government) with short-term individual or household interests of the resource users. In general, maximizing local responsibilities and authority for natural resources will result in more effective projects than not doing so.

Ownership and access rights are a function of civil and customary tenure policies. Ownership, or private property, is the legally and socially sanctioned ability to exclude others. Private property includes not only individual property but also corporate property (Bromley and Cernea, 1989). The ability to limit access by outsiders, and the security that one's ability to do so will continue over the long term, is critical to effective resource management. If resource users do not have control over access (that is, an open-access system, see below), the most rational management strategy is to use the resource to the benefit of insiders before "outsiders" expropriate the resource. Thus, for example, fishermen in the Peruvian Amazon overfish the valuable Paiche before government concessions come and take most of the best fish away. Without a change in government policy either to prohibit fishing by outsiders or to return some of the economic benefit gained from these concessions, overfishing will continue. (Box 8 describes another example, in Africa, of the potential consequences of denying property-management rights to local users.)

Management of Common Property

The issue of common-property resource management as part of ICDP strategies is being given increasing attention. Many conservation programs depend on communities' acceptance of common-property management plans, whether the common property is stewarded by

BOX 8. DIFFERENT PERSPECTIVES ON STEWARDSHIP: THE RWENZORIS

An example of the debate over just how much local people now are, and should be, empowered as stewards over natural resources was provided during a workshop on buffer zone management in Africa, held in October 1990 at Mwea Lodge, Uganda. As part of a case study, resource users in the area of Rwenzori Mountains adjacent to the inner forest reserve (the "outer buffer zone") indicated that trees from the reserve have been intruding onto their fields for several years. The local users noted that the Ugandan Forest Department discourages cutting trees on their fields, regardless of the species. The department claims eminent domain over the "state's" resources, even though these resources were found on farmers' traditionally tenured fields. From the farmers' perspective, this compromised stewardship seriously constrains agricultural productivity.

In the case of the Rwenzoris, local resource users have a limited sense of stewardship over natural resources, with government assuming management responsibility over resources that directly impact farmers on their very own fields. This situation could lead to questionable long-term resource management in the buffer zone and protected area. Where confusion and dubious rationality exist in the minds of local resource users over their use rights and management authority regarding natural resources, the viability of protected area management may be jeopardized.

To support the Forest Department's rationale for its retaining stewardship over highly valued common-property resources, a department representative indicated that, if the commons were managed by local resource users, degradation of the resources would result. In the case of the Rwenzori Mountain Forest Reserve, however, the common state-stewarded resource is leading to degradation of resource-user farming capability. This situation could lead to degradation of the very common-property resources over which the government now maintains stewardship, should local farmers react against the trend of forest incursion (and lack of stewardship) of resources occurring on their own fields.

Source: Adapted from Kigenyi (1990), PVO-NGO/NRMS (1991).

the state or by other units of social organization. Historically, successful stewardship over community resources for sustainable yield has been fairly common (Kiss, 1990). Common-property regimes are not the free-for-all they have sometimes been described to be but are structured ownership arrangements within which management rules are developed, group size is known and enforced, incentives exist for co-owners to follow accepted institutional arrangements, and sanctions work to ensure compliance.

In some parts of the world, open-access systems have become increasingly common as traditional authority structures have become unable to regulate the actions of their constituencies or to exclude outsiders from "their" territories. Bromley and Cernea (1989) conclude: "In open access systems the rule of capture drives each to get as much as possible before others do. While this has been referred to as the 'tragedy of the commons,' it is really the 'tragedy of open access.' The dissolution of traditional local institutional arrangements have not been followed by the establishment of more effective institutions." This problem exists where stewardship over territories formerly managed de facto by local communities has been compromised through particular government bodies claiming control over sections of land.

A problem increasingly encountered in community-stewarded resource management relates to the dynamics of social change and burgeoning human population growth in rural areas worldwide. Even when community organizational structures are strong, current population pressures make it increasingly difficult for communities directly dependent on natural resources for survival to defer present exploitation for the sake of future security of the resource base (Kiss, 1990). Many "traditional" structures are losing their viability in the face of pressures from both

BOX 9. THE EASTERN SENEGAL LIVESTOCK DEVELOPMENT PROJECT

Although not a biodiversity conservation project, the Eastern Senegal Livestock Development Project illustrates how a project focused on strengthening local stewardship capability in natural resources management can lead to more sustainable natural resources management in a pastoral area in Africa. When appropriate management units are identified and the people that live there are given resource management responsibility, natural resources will be more sustainably managed. By building a program on the participation of local pastoralists and ensuring that the approach is technically, financially, ecologically, and socially sound, the project was able to reduce pressure on tropical grasslands.

The project covered a 1-million-hectare area of grasslands that were undergoing rapid resource degradation owing to excessive grazing, lack of protection, and the disregard of traditional property rights of pastoralists by incoming herders. Traditional authority structures had eroded from years of central government interference, rendering a common-property resource management system into an open-access system.

The development project promoted an institutional and technical package wherein zones of three to five settlements were made into "pastoral units." These units were empowered with their own management committees having long-term management rights over portions of the "pioneer grazing zone" attributed to the project. The pastoral units provided legal clarity for both group size and management area. The government promised to support these stewarded groups against outside incursion from other resource users, except for pastoralists from this and other regions. As part of the technical package, wells, animal health services, functional literacy, revolving credit for improved breeding stock, and other services to support the new social units in their improved management of their rangeland were provided.

This project illustrates the positive impact that empowering local communities with resource stewardship can have. It is an especially poignant example, for pastoral areas in Africa are renowned to be among the most complex areas to sustainably manage from both a rangeland and biodiversity standpoint.

Source: Adapted from Bromley and Cernea (1989).

within their own societies (population growth) and without (in-migration of other resource users, unfavorable policy environment, the lack of means to exclude other resource users, etc.). (Box 9 contains a case study of traditional stewardship by Senegalese pastoralists.)

As with other aspects of ICDPs, too little experience exists to judge how far conservation objectives can be achieved through local stewardship of resources. The current assumption is that stewardship by local communities over natural resources occurring in their zones of intervention should be promoted wherever feasible. Many projects are now testing this linkage between stewardship and conservation.

Ownership and Its Importance to Conservation

Tenurial systems based on oral customary law often have "built-in contradictions" with the written regulations, codes, and statutes of modern laws relating to resource regulation. This is particularly true of the relation between forest law as codified by nation-states, and customary forest law as applied by forest peoples. Modern tenurial systems have come to overlap and, in many instances, preempt indigenous tenurial systems. This has imperiled the sustainability of tropical forest ecosystems, along with the sustainability of indigenous cultures and the management systems they have successfully adapted over centuries.

Such a situation regarding wildlife exists in much of Africa. The establishment of European settler regimes brought the concept of "King's Game," which held that wildlife once belonging to local people became the legal property of the state. Legal exploitation of the resources became the exclusive domain of white colonialists. For communal land inhabitants, wildlife became regarded no longer as a resource but as a liability, an alienated component of their environment to be tolerated or covertly destroyed. Many ICDPs, particularly in southern Africa,

are addressing this issue and returning wildlife, its management, and the benefits resulting from it to local communities.

Another, highly publicized example through the 1980s was the clear-cutting of Amazonian forest by state-subsidized immigrant commercial ranchers in areas where customary tenure and access rights to tropical forest lands had for centuries dominated.

In both dry and moist tropical forested countries today, ownership and access rights to natural resources are thus a function of colonially based forest law. In many countries, the state has also put into place a system where land cleared by an individual becomes the property of that individual, resulting not only in increased deforestation as farmers seek new land but also in the disempowerment of resident people. Such situations are found in Asia (Thailand), Australia (Queensland), Africa (Zaire, Cameroon, Kenya, Tanzania), and Latin America (Peru, Honduras, Guatemala, Colombia).

In some countries, the state has begun to cede to local residents its ownership or stewardship claims to forest resources. Where this has occurred, the contradictions in ownership, stewardship, and access rights have begun to diminish. The Brazilian government, for example, is putting into place legal entities known as extractive reserves, where indigenous Amazonian peoples have control over forest resources for the long term.

In some instances, ICDPs have been initiated with objectives that include the clarification of ownership and/or the empowerment of local stewardship of forest resources (PVO-NGO/NRMS, 1991). As part of the BOSCOSA project on the Osa Peninsula in Costa Rica, for example, community forest cooperatives have been established and given the authority to manage on a sustainable basis portions of the forest surrounding a core protected area. Each cooperative is allocated a piece of forest that its members manage as a group, limiting access to the area to members of that group (Kiernan, 1990).

Potential Impacts of Laws and Policies on Local Resource Use and Management Options

The design of any ICDP must consider the manner in which international, national, and local laws and policies impact both local resource-use patterns and the management options available to resource users. If local resource users perceive that policy conditions do not favor them but instead give preference to urban elites or international stakeholder interests, ICDPs will fail. But if local stakeholders do see policy conditions as favorable, conservation as well as development objectives may be achievable.

This means considering both (a) policies that directly bear on achieving conservation objectives within protected areas of immediate relevance and (b) more indirect policies that influence the behaviors people exhibit in resource-use patterns in buffer zones and adjacent areas. Existing resource-use patterns that do not result in resource conservation may in fact be rooted in socioeconomic structures and resource-use patterns from distant hinterlands. These patterns, in turn, can be the result of numerous factors, including government policy on both conservation and development issues.

One of the most complex aspects of designing conservation and development projects is the identification of the effect on achieving project objectives of factors that paradoxically do not seem to be directly relevant to project objectives. Thus, project planners need to consider from the outset the full range of issues both geographically and thematically that will impact project implementation. The policy environment is a priority area where underappreciated, subtle issues can derail the best designed project.

Policy may exacerbate the root causes of biodiversity degradation in both direct and subtle ways. Some of these include: (a) exacerbating rural poverty, leading to poaching; (b) supporting transmigration and resettlement projects,

moving people onto marginal lands and leading to nonsustainable agricultural practices in key ecosystems; (c) encouraging commercial interests for logging, leading to nonsustainable timber extraction in tropical moist forested areas; (d) perpetuating lack of perceived "ownership" among key stakeholder groups who utilize resources for either sustenance or commercial profit; (e) encouraging private-sector development with tax incentives; and (f) failing to provide coherent management guidance from government when policies conflict. Thus, an important aspect of conservation policy is examination of the wide range of assumptions that underlie policy and its implementation.

The example of Rwanda may be instructive. This central African country's population density exceeds 400 people per square kilometer, averaged over the entire national territory, and over 25 percent of the national land area is under protected-area status. Rwanda's biodiversity values in terms of species richness, endemicity, and keystone primate species are extraordinary, but the pressures that the country's conservation policy places on resource users nationwide, by reducing their access to farming land, are also extraordinary. Without access to necessary amounts of land or inputs, these farmers are unable to produce adequate amounts of food to feed the country's population. Since resource users have traditionally not had a voice in articulating policy, these policies are doubly resented. Some observers argue that the policy decision to set aside more land for conservation goals has indirectly led to increased political pressure on the government of Rwanda from both resource-poor farmers and some Rwandan refugees living in Uganda (Clausen, 1990).

The disruptive effects that conservation measures designed by "outsiders" can have on the rationale of effective indigenous management systems are further illustrated by the examples of pastoral production systems in the Kenyan and Tanzanian savannah lands of the Masai Mara and Serengeti—and, more particularly, the Ngorongoro Conservation Area (Chapter 1, Box 3). When people are denied access to resources to which they have had access under traditional systems of tenure and resource use, conservation policy runs the risk of backfiring over the long term.

When designing ICDPs, it is particularly important that policies related to land development and use be adequately considered; such policies could be considered through policy dialogue and nonproject assistance. Experience from Costa Rica, often cited as one of the most conservation-minded nations in Central America, demonstrates the potential for conflict between agrarian and conservation policies. In apparent contradiction, the Costa Rican government continues strengthening the system of natural protected areas and other conservation measures directed at long-term objectives, while simultaneously pursuing an environmentally destructive shorter-term agricultural development policy. The government has encouraged nontraditional export goods and, with the exception of bananas, discouraged traditional and subsistence crops due to their price inelasticity and supposed production inefficiency. In addition to pursuing short-term objectives by maximizing efficiency through mechanization, this economic strategy promotes the overuse of pesticides and chemical fertilizers, intensive use of land, and poorly paid labor. Thus, agrarian policies in Costa Rica are contributing to increased deforestation, contamination of water supplies, increased poverty among small-scale subsistence farmers, a related increase in unsustainable resource use, and, in some cases, new organized settlements in areas that previously were uninhabited.

CHAPTER THREE

COMPONENTS OF ICDPs

RESEARCH FOR PLANNING, MONITORING, AND ASSESSMENT

Ecological and other biological sciences together with social sciences provide the analytical and methodological tools for ICDPs. This grounding in the sciences is especially relevant given the need to develop viable models and learn lessons that can be applied on a broad scale. It is critical for ICDPs to include monitoring and assessment of a variety of indicators in order to (1) alter and improve implementation throughout project life and (2) determine project impact.

Applied research activities should be directed toward providing data for both monitoring and analysis. Baseline surveys should be conducted in project target areas, with periodic replications throughout the life of the project. All monitoring and evaluation should be based on an initial step of designing a defined, logical program framework. Without this, "evaluations" become mere descriptions and are unable to provide data and analysis for program improvement. A logical hypothesis trail linking problems/needs, to goals/objectives, to strategies to accomplish certain results should be generated by this component of an ICDP. Also included should be hypotheses about whatever else—in addition to the program—might affect causal linkages. The data collected and analyzed should focus on the problem and rationale, the goals and objectives of different interest groups, underlying assumptions, and intended and unintended effects.

Biological Monitoring

ICDP designers and managers use the biological sciences to monitor and assess a project's impact on the site's resources, such as changes in populations and their structures of key species, rates of deforestation and other habitat alterations, and loss of species diversity. Project designers should select several biological indicators at three organizational levels: regional landscape, ecosystem, and population. The rationale behind this approach is that a selected indicator population might increase while the condition of the habitat or ecosystem continues to decline.

Thus, there is less likelihood that false conclusions will be drawn about a project's effectiveness if indicators are chosen at several levels. If plant or animal species are used as indicators, one should take into account that some species are more important than others in helping to maintain ecological processes (for example, keystone species such as major herbivores, top carnivores, fruiting trees, and seed dispersers/pollinators of keystone tree species). By selecting appropriate indicators, conservation of species can be linked with conservation of critical ecological and physical processes.

These indicators should be selected and monitored at an appropriate ecological scale (over time and space) to adequately assess the impact of project activities on the status of selected indicators. If the project's goal is the recovery of an endangered animal or plant population, a short-term criterion for project success might be securing critical habitats. Longer-term criteria might include increased population growth rate, recolonization of former habitats, and other variables that might require several years of observations to determine accurately.

Socioeconomic Monitoring

ICDP managers also use applied social sciences to analyze a project's dynamics (motivational, technical, and administrative) and to suggest management options that are accessible and feasible to both central planners and local communities. In addition, socioeconomic analysis can help project staff monitor impacts on resources, for example, by providing data on the number and prices of poached or extracted animals and plants in markets near or far from protected areas.

Generally, the concept of "adaptive management" (PVO-NGO/NRMS, 1991) is a logical outgrowth of a strong socioeconomic monitoring component. It is most useful in ongoing project planning and implementation, as it allows short-term changes to be taken into account. The basic principle of adaptive management is that there is feedback between research and management, with management approaches used as experimental tests for understanding how ecological systems can be managed sustainably. This is particularly important since the environment in which natural resources exist is not static; changes in climate, rainfall, population levels, and other factors all affect the resources. The adaptive management approach is relevant to both ecological and social systems. When it has been applied in development efforts, it has been referred to as "rolling" or "flexible" design.

Within the socioeconomic arena, various topics need to be investigated and then analyzed for impact on conservation, among them:

- identification and analysis of culturally determined tenure rights, responsibilities, and practices relating to environmental, social, and economic resources, both marine and terrestrial;
- identification and analysis of micro-level individual, household, and community motivational and decision-making factors, including the domestic economy and the range of economic options individuals perceive; and
- investigation of the relationships between central government and local communities, and the inherent conflicts over resource control that these relationships involve.

ICDP research should use standard social science techniques. Social surveys involving questionnaires and interviews based on carefully constructed sampling frames should be used to gather quantitative data. This data should be supplemented by qualitative data gained from participant observation, open-ended interviews, and discussions and joint analysis with key informants. The use of rapid techniques for data gathering and analysis should be used whenever appropriate.

Finally, planners of an ICDP should follow a case study approach that examines community dynamics over time. This approach, sometimes referred to as "participatory action research," in effect, relies on natural, successive experiments

in which the communities involved participate in the data gathering. Thus, the research process is not only a data-gathering exercise but also a learning process for both management and communities, thereby enhancing planning by local communities for themselves.

Conservation of the Resource Base and Environmental Management

Management Planning

While ICDPs tend to focus on development activities outside the protected area, management of the resources inside the protected area is also important. Perhaps most critical is the provision, either during design or as the first step in implementation, for the development of a land-use plan that satisfies the needs of all stakeholders.

In many ICDPs, managers must work with local people to establish boundaries of protected areas. The Arfak Mountains Nature Conservation Area in Indonesia's Irian Jaya province offers one example. Biologists working to plan Arfak conservation among the Hatam people noted before initiating the planning process that "a coercive and strict approach to management will not succeed in these mountains" (quoted in Stone, 1989). Working with committees of villagers and representatives of the Indonesian government, project managers negotiated equitable divisions between land for farming and land for the reserve through a participatory process. Reports are that there have been no violations of boundaries. While the environmentalists call the reserve a "conservation area," it is called "the place we guard" in the Hatam language. In the view of the project managers, the local people support conservation because it gives them better control over their land (Stone, 1989).

Managers should develop an environmental profile of their project area, detailing its different ecosystems, resources, plant and animal species, uses, and physical landscapes—and the ways in which these different biological systems and resources interact. A complete environmental profile enables project decision-makers to begin defining categories of land use and preparing an overall management plan.

Information should be gathered on the different habitat types, populations of flora and fauna, presence of endangered species, seasonal changes, levels of disturbance, tolerances of frequently used species, etc. Human activities and their impacts on the wildland area are also important to assess. This requires site visits and conversations with local people; participatory rural appraisal and rapid rural appraisal methodologies can be particularly useful (see Chapter 2 and Annex A for more methodological detail).

Once an environmental profile is developed, management objectives can be determined. A series of workshops in which information from the profile is presented to stakeholders and objectives decided can be very useful, both to elicit local reactions and ideas and to open dialogue about integrating conservation and development objectives. Management objectives for an area can then be used to zone for different uses.

Buffer Zones to Protected Areas

Management plans for national parks and reserves frequently call for buffer zones, and several national conservation strategies have specifically promoted this concept. In fact, buffer zones have become so much in vogue that the concept now appears as a component of virtually all proposals for protecting natural areas or managing tropical forests (Wells, Brandon, and Hannah, 1992).

In 1990, the PVO-NGO/NRMS project sponsored a workshop on buffer zone management in Africa. Conservation and development professionals and key local stakeholder representatives met together at Queen Elizabeth Park in Uganda. Their draft conclusions (PVO-NGO/NRMS, 1991) included the following:

Definition

A buffer zone is an area inside or adjacent to a protected area where the harmonious relationship between the natural environment and people is promoted.

Objective

The objective of buffer zone management is to optimize the political, economic, social, cultural, ecological, and intrinsic worth of resources through active adaptive management, with fairness to all groups, and allowing for changing values over time.

Issues

When management systems are dependent on external incentives or sanctions, they will collapse if those external incentives or sanctions are not maintained. Therefore, management systems must be internalized by all users and managers. This assumes that individual users and managers have the option of pursuing these management systems. We hypothesize that popular participation in the management process is the best means of ensuring the internalization of these systems.

Buffer zones require the management of differing stakeholder interests. Buffer zone management requires: a flexible process of consensus building

BOX 10. BUFFER ZONE MANAGEMENT: MADAGASCAR

The Amber Mountain Complex of protected areas in northern Madagascar was established by the colonial government between 1956 and 1958 to conserve the area's unusual ecologies and important water catchment areas, as well as to develop their potential as important tourist sites. The population of the region is 390,000. More than 50 percent of the residents are immigrants from other parts of Madagascar in search of more fertile soils and the hope of year-round cultivation made possible by the constant water supply from the reserves. Seventy-five percent of the rural population is agriculturalist, 10 percent pastoralist, 10 percent artisan, 2 percent logger, and 3 percent civil servants and others.

An increasing human population has led to many pressures on the forests, including clearance for agriculture, grazing, extraction of timber, and the removal of endangered and endemic plants by tourists and other individuals. The main issues for the local population and conservationists are access to timber for construction and fuelwood, preservation of water supplies, availability of agricultural and grazing lands, hunting, and the gathering of honey and other forest products.

The only way to protect the reserves over the long term is to reduce human pressures. This is not possible through resettlement, which would only transfer the problem elsewhere. Recognizing this, the project has adopted a strategy of buffer zone management. The objective is to protect and manage natural resources in reserves through rural development activities that respond to the needs of people living outside these reserves. While there is no legal entity corresponding to a buffer zone, villages up to 10 kilometers from the protected areas are included as effectively falling within a buffer zone, for this is where people depend on, and exert pressure on, the forest.

Project activities include distribution of higher-yielding seeds, improved water supplies, promotion of reforestation activities, and the establishment of cooperatives. Further activities are planned in beekeeping, pasture development, agroforestry, and tourism, with a share of the revenues going directly to the local people. These activities, combined with education campaigns, are helping change local attitudes. For example, immigrant agriculturalists have agreed to refrain from further encroachment on the reserves. Initiated in 1989, the project is still too new to comment on its success.

Source: Adapted from PVO/NGO-NRMS (1991).

and partnership, a process of seeking maximum value for the common good, and a respect for the values of minorities and the disenfranchised.

The distribution of the responsibility of management is based on an understanding of stakeholders, their values and their capabilities, and can change over time as capabilities develop.

Buffer zone management requires the free flow of information between all stakeholders.

In Asia, illustrative examples of legally established buffer zones include Annapurna Conservation Area in Nepal, an area on the border of Gunung Leuser National Park in Indonesia, and Ranthambore National Park in India. In the first two cases, implementing the buffer zone concept has proved difficult, partially because the relevant management agencies lack the necessary jurisdiction for action either inside or outside the respective protected areas. Both Nepal and Indonesia, however, are considering enacting appropriate legislation (Wells, Brandon, and Hannah, 1992) that, in theory, would create the correct "enabling environment". At Ranthambore, both the buffer zone and the core protected area have undergone degradation (Groenfeldt et al., 1990). (An additional, recent buffer zone management project in Madagascar is profiled in Box 10.)

Theoretically, the concept of establishing a zone of limited or non-use around a protected area as a means of reducing human pressures is a rational proposition. However, the conservation and development objectives and strategies underlying the implementation of the concept have yet to be adequately defined. Perhaps most problematic has been the over-emphasis given to the physical basis and legal status of buffer zones as a means to protect high biodiversity in the core areas, ignoring the needs and aspirations of resource users living in those zones. This focus has not led to more sustainable resource management in either buffer zones or the protected areas being buffered.

Underlying the buffer zone concept is the assumption that, to achieve conservation purposes, land-use restrictions must be in place in the buffer zones. In this way, buffer zones are thought to provide an "added layer of protection to the protected area itself" (MacKinnon et al., 1986) while purportedly offering valued benefits to neighboring rural communities, primarily through compensation for loss of access to resources in the buffer zone or protected area proper (Poore and Sayer, 1988). Little attention hitherto has been paid to promotion of development activities in buffer zones, since development in a sense is anathema to the conservationist *raison d'etre* of the buffer zone.

According to Oldfield (1988), few buffer zone initiatives "can really claim to have succeeded in establishing stable and compatible land-use systems around a protected area in such a way that local people are genuinely reconciled to the conservation function of the area." This failure is no doubt due in large part to buffer zones and other protected-area strategies (similar to development program strategies) often having been "parachuted" by external planning agencies onto local people, with the assumption that local people would buy into strategies and activities that were generally not in their immediate- or long-term interests.

Conservation Education

Conservation education's goal is to improve natural resource management and reduce environmental degradation. It tries to (a) increase people's awareness of the value of natural resources, both now and in the future, along with the ecological processes that maintain these resources; (b) show people what threatens the well-being of their environment and how they can contribute to its improved management; and (c) motivate them to change their behavior in a way that leads to improved environmental management.

Box 11. Improving Production through Intensive Technologies: Irrigation Outside Dumoga-Bone National Park, Indonesia

An ICDP in north Sulawesi, Indonesia, has allowed more than 8,500 farmers to grow 11,000 hectares of irrigated rice. The Indonesian Ministry of Forests had asked the World Bank for a $60 million loan to finance two irrigation projects in Sulawesi's Dumoga Valley. As a condition of the loan, the Bank insisted that the Indonesian government establish a national park to protect the headwaters of the rivers supplying the irrigation systems.

The farmers who have benefited from this project have been almost entirely migrants and transmigrants from Java and Bali who were already familiar with the cultivation of paddy rice. The region recently became a net rice exporter for the first time.

This project has been successful in increasing farmer incomes, stimulating the regional economy, intensifying agriculture, stabilizing land use, and linking a national park to an economic development initiative. It also represents one of the more impressive transmigration projects in Indonesia.

The effective protection of the park to date, however, has been primarily attributable to the cancellation of logging concessions (a policy activity) and strict enforcement, the latter facilitated by a substantial park operating budget and the cooperation of the local government. The rice farmers presumably have little interest in clearing forest land and have sufficient income to make encroachment unattractive; the original Dumoga Valley inhabitants, who lived in and around the forest, gave up or were forced off their land by the project. They were prevented from clearing new agricultural sites by the park guards and ultimately forced to disperse to other areas. A different strategy clearly would have been needed in the development component had the target group been the original inhabitants.

Source: Adapted from Wells, Brandon, and Hannah (1992).

Conservation education is used to change attitudes so that change can also occur in how the environment is used. New attitudes do not always lead to new behaviors, however, so the conservation educator's task is not complete until people channel their new attitudes toward appropriate environmental actions.

To effectively promote new behavior and conservation practices, more than a one-way flow of information (from conservationists to the general public) is needed. Conservation extension—the extension of conservation practice to the general public—offers one alternative. It is usually initiated by an exchange of information from conservationist to a particular community, and from the community to the conservationists. This information must be related to actual local issues concerning natural resource management and is essential to making rational decisions. Scientific knowledge and technical skills may be passed on to the community, while local knowledge and skills are passed from community to conservationist. Ideally, this two-way communication should be followed by joint action aimed at solving these problems. Furthermore, extension work will fail if it is motivated only by conservation interests. The needs and interests of the local people, as they themselves perceive them, must be given high priority in all discussions and subsequent actions.

One model for developing an effective conservation education program is explained in Annex A.

Social and Economic Development

All ICDPs include a development component to generate social and economic benefits (Owen-Smith and Jacobsohn, 1988). The objective of the development component is to reduce or deflect utilization pressures on protected areas and on the natural resource base in general. Of crucial consideration when planning

this component is the issue of linkage (see Chapter 2). Projects may be targeted to (a) improve natural resource management outside protected areas, given the assumption that producers are exhausting these resources and must move into less disturbed areas to maintain production; (b) promote incentives for conservation as part of a contractual agreement, as is often the case with the provision of social services; or (c) diversify economies and promote "protective enterprises" that are viable as sustainable economic undertakings.

Improved Natural Resource Management

Promoting improved natural resource management has two main objectives: (a) to provide those individuals, groups, or communities holding rights and responsibilities for natural resource management with the skills and resources to increase their incomes while protecting the natural resource base; and (b) to encourage the substitution of more intensive agricultural production systems for existing extensive (not necessarily pastoral) systems where appropriate. This second objective applies to any activity that relies on depleting the resources in one area and then is moved to colonize another.

As is the case with similar approaches, particularly the promotion of protective enterprises, improving natural resource management assumes that (a) producers will limit their production to a certain level, therefore using fewer resources when they intensify production (that is, rather than using intensive technological approaches as the basis for expanding production); and (b) resource users share conservationists' perceptions that resources are scarce and that use should be reduced or limited.

In the absence of other incentives, merely suggesting or demonstrating better resource management practices is unlikely to bring about significant change. For example, although dependent on the supply of labor, farmers are unlikely to be willing to internalize the cost of soil erosion and take mitigating actions, such as contour planting, if they can burn and clear nearby forest land and continue extensive cultivation practices (Wells, Brandon, and Hannah, 1992). On the other hand, the ability of indigenous populations to both cultivate intensively and maintain traditional forest management systems should not be ignored. People such as the Ifugaos of the Philippines have kept their forests intact for over 500 years, while bearing the high costs of building and maintaining terraced agricultural systems. They chose to intensify agriculture because they valued the forests.

Improved natural resource management may be most effective in situations with both high population densities and a perception among producers of scarce resources, falling incomes, and adequate labor supplies for intensive production systems (see Box 11). Generalization is difficult, however, as increasing knowledge of the efficiency of many extensive, indigenous range management systems is revealing excellent resource management developed in situations of low population density.

Provision of Social Services to the Community

Designers of ICDPs cite two primary reasons for providing targeted communities with social services such as clinics, wells, grain mills, schools, and teachers' salaries. First, these social services can be a response to a community's expressed needs. Thus, provided that the linkage between receipt of the benefit and the desired conservation behavior is clear, local residents may see this as an incentive to cooperate with the conservation objectives of the project. The question then arises: if the community stops cooperating, what happens to the social services? This question has no easy answer; factors underlying the change in behavior must be carefully analyzed, preferably by the users themselves. Approaches to the financing of ICDPs and related social services, through trust funds and debt-for-nature swaps (in addition to project funding) can be found in Hoskinson (1992). (Boxes 12 and 13, respectively, illustrate examples of appar-

ent success and failure in providing community social services in exchange for conservation commitments.)

The second reason to provide social services is that they are part of a compensation package provided in exchange for setting aside lands as a protected area (Brown, 1984). This strategy may be successful in the short term, but, unless alternatives to the uses of that area are provided, the strategy will not be effective over the long

BOX 12. PROVIDING COMMUNITY SOCIAL SERVICES: POTENTIAL SUCCESS WITH THE OKU MOUNTAIN FOREST PROJECT, CAMEROON

When buffer zone projects take into account the needs of the local community, their land tenure systems, and the social and economic factors that influence resource utilization, they can be an effective tool to relieve human pressure on forest ecosystems.

The Oku Forest in Cameroon faces high population pressure from an area immediately adjacent to it, as well as heavy use patterns within the forest itself. Approximately 50 percent of the forest that existed 50 years ago has been lost, due to a combination of road improvements (allowing greater access to the forest), increasing population, more intensive farming, increased development of wood products, and increased goat grazing within the forest (which prevents regeneration of seedlings). The Oku Forest Project is attempting to develop new strategies for sustainable forest use based on the economic and cultural ties between local inhabitants and the forest.

Approximately 35 percent of the local population is involved in some way in forest-related industries such as honey production, wood carving, basket production, and the extraction of *Pygaeum* bark for medicinal use. The area is culturally respected as a medicinal center.

The key strategy of the Oku Forest Project is one of highlighting economic benefits that local people derive from the forest as a means to develop effective protection measures without resorting to policing actions. During the initial stage, the project worked with the local community social structure and traditional village councils and rulers to prepare a management plan. To help buffer the core protected area of the forest, the project uses the edges of the forest most heavily. This system is monitored and supported by the local communities because of the economic incentives to preserve the forest over the long term. The development of the cooperatives and improvement of marketing techniques strengthens the recognition by the local people of the benefits they derive from the forest. Conservation of the area's natural resources is tied to the "ownership" rights of the local people and cooperatives to exploit the forest; each exploiter is given a permit to operate in a designated area and is prohibited from working in other areas.

In addition, the local communities are being assisted in developing nurseries for *Pygaeum* to be grown in private woodlots surrounding the forest. To lower the reliance on the forest for fuelwood needs, nurseries and community woodlots are being established in the surrounding communities. Additional trees have been planted on the forest boundary to increase the availability of species used in basket production and wood carving. Agroforestry technologies to improve soil fertility and to reduce erosion have also been promoted, particularly alley cropping and the incorporation of multipurpose trees in shelterbelts.

But what of the remaining 65 percent of the area's residents who are not involved in forest-based industries? The newly introduced agroforestry techniques are helping address farmers' long-term needs by improving soil fertility. One stakeholder group that has not been included, however, is goat producers—primarily women. Thus, four years into the project, incursions by goats have actually increased. Realizing this, project staff members are involving these stakeholders in an analysis of the issues and plans to initiate activities in this sector.

Furthermore, this project highlights the need for immediate, positive, tangible results and benefits. Deforestation rates have decreased overall, but the extraction of *Pygaeum* bark for medicinal use has not. The seedlings, while well cared for, remain too young to use. Without a substitute for *Pygaeum* bark, further exploitation in the short term seems the only option available to local residents for this endangered species. [*Pygaeum* is so appreciated that it is now endangered, leading to recent calls for an intensive, government-supported regulation campaign. (PVO-NGO/NRMS, Cameroon, 1991)]

Source: Adapted from Van Orsdol (1987).

BOX 13. PROVIDING COMMUNITY SOCIAL SERVICES: DISAPPOINTMENT AT AMBOSELI NATIONAL PARK, KENYA

One of the major shortcomings of approaches highlighting provision of social services is that their provision is generally not economically sustainable and depends on donors or governments for subsidies. Alternatively, a system of user fees or revenues generated from the sustainable use of resources (for example, from tourism and safari hunting) could finance social services.

Amboseli National Park in Kenya provides one example of government inability to follow through on incentive packages negotiated with local resource user communities. An agreement with the Kenyan government to establish the park promised a number of benefits to local Maasai pastoralists. One of these promised benefits was a water pipeline system in an arid region outside the park, presumably eliminating the need for the Maasai cattle to compete with wild herbivores inside the park. The system was constructed and operated for a few years in the 1970s. Government funding cutbacks then prevented necessary repairs and maintenance from taking place, and the system broke down. The pipeline system has not been in use for the last decade and, as a result, the Maasai have taken their cattle into the park for grazing, particularly during the dry season.

Source: Adapted from Western in McNeely (1988).

term as pressures to use the resources increase. This will be true regardless of the best intentions of local resource users.

Protective Enterprises

Protective enterprises are business undertakings that depend on the wise use of resources to ensure economic sustainability over the long term. The underlying hypothesis is that ecosystems that are economically valuable are well managed in the short term since they must be used sustainably to generate financial returns over the long term. For example, the economic value of nontimber forest products, in many cases, exceeds the value of wood products per area of forest. The development of international markets for these products offers an attractive strategy for sustainability. Conservation benefits depend on meaningful profits being used effectively by indigenous people to protect their resource base for their future well-being.

At least five issues affect the validity of any protective enterprise project:

- *Market stability for goods and services derived from the utilized resources.* Markets for sustainably harvested and processed products need to be developed, fortified, and expanded to a level that offers a real option to markets for products produced through short-term unsustainable practices. In addition, the supply of products needs to be regularized.
- *Resulting net revenue.* The net revenue derived from conservation-dependent enterprises must meet or exceed the income generated from existing destructive practices.
- *Limited expectations of local entrepreneurs.* Protective enterprise projects assume that local entrepreneurs have limited expectations for economic returns and will not maximize income. Therefore, it is assumed that they will exchange one income-generating activity for another, rather than pursuing them all.
- *Tenure/rights of access.* Entrepreneurs are assumed either to have secure tenure and rights of access to the resource or to have negotiated these rights within the group, in the case of corporate ownership. Without ownership of the resource, every encroachment is a personal benefit for the short term, instead of a personal or corporate loss over the long term.
- *Questions about the long term.* That commercially valuable resources can be sustainably harvested over the long term generally remains an unproved assumption. There is a critical need for research and data on all of the products (and respective sustainable harvesting rates) being considered for mar-

BOX 14. NATURE TOURISM AS A PROTECTIVE ENTERPRISE: VOLCANOES NATIONAL PARK, RWANDA

The economic benefits that can be gained from tourism have long been recognized as potentially significant for conservation. Tourism linked to national parks and other protected areas is particularly significant to the economies of several developing countries such as Belize, Costa Rica, Dominica, Nepal, Kenya, Tanzania, and Thailand (Boo, 1990). The issue regarding revenues from nature tourism is often: "Revenue for what? National conservation or development among local people?" Unless a portion of revenues is returned to local communities in some form, it is unlikely that local residents will look favorably on parks and other tourist attractions that remove resources from local use and provide nothing in return.

The mountain gorillas in Volcanoes National Park, Rwanda, are an internationally acclaimed tourist attraction. Prior to the start in 1979 of the tourism component of an ICDP there, the park received about 1,200 visitors annually. Visits increased to nearly 5,000 in 1983 and over 10,000 in 1989. This growth in visitation, combined with an increase in gorilla-viewing fees (from $5 to $200 per person), has led to a 30-fold increase in tourism revenue. Project staff have habituated gorilla groups to human presence, permitting the animals to be closely approached by tourists. Current direct tourism revenue at the park is approximately $1 million annually. A portion of the proceeds is returned to conservation in Rwanda, but no cash dividends go directly to local people.

A recent report from Rwanda noted that rebel activity and aggressive incursions from Uganda into the area had all but eliminated tourism to the area. This illustrates a second concern with tourism components: market stability.

Source: Adapted from Wells, Brandon, and Hannah (1992).

keting. One opportunity is to look for wild resources that occur in very high densities. Once an idea is gained on what will sell, ecological studies should be conducted before markets are determined. In designing projects, it is best to consider managing a forest for a diversity of species as opposed to a single species.

Other issues to be considered in designing a protective enterprise are those common to any micro- or small enterprise—for example, availability of credit, infrastructure, and government regulations. (Boxes 14 and 15 illustrate two promising attempts at protective enterprises.)

INSTITUTIONAL STRENGTHENING FOR LOCAL STEWARDSHIP OF RESOURCES

When local stewardship over resource management is a central means of an ICDP, institutional strengthening must be a primary project component if objectives are to be achieved. Many indigenous institutions that continue to have management responsibilities, or that may be specifically mandated to regain formerly lost management responsibilities (as is the case in Sagamartha National Park in Nepal, for example), may not have rudimentary administrative skills. The lack of basic administrative skills may preclude or jeopardize whatever partnerships these organizations might establish with national or international NGOs, government agencies, or donor organizations. This, in turn, can jeopardize realization of the ICDP's objectives.

Institutional strengthening could be required in such areas as participatory rural appraisal, ecological and socioeconomic monitoring, financial management and accounting, and report writing. In addition, training in technical skills such as agroforestry nursery establishment and extension, and well construction and maintenance, might be necessary.

Training needs will differ depending on the nature of institutional responsibilities and partnerships that different organizations participating in the project can or will assume. In certain situations, service-providing NGOs or other intermediary institutions may best be able to

BOX 15. PROSPECTS OF NONTIMBER FOREST PRODUCT (NTFP) PROMOTION: PAPUA NEW GUINEA

The commercialization of nontimber forest products in Papua New Guinea (PNG), as is the case throughout the world, has high potential as a mechanism for sustainably managing natural resources. NTFPs urgently need to be explored as an alternative to the current heavy dependence on timber and mineral products as the major economic commodities that can be extracted from the forest. PNG's forest resources are integral to the life of rural residents, providing materials for construction, canoe building, energy, clothing, medicine, food, income, sorcery, and adornment. Wildlife also plays an important role in the villagers' lives and has a special symbolic significance. Legends contain characters that depict animals and birds, and the different clans have special relationships with certain species, which serve as their totems.

Examples of nontimber forest-product commercialization include:

- *Rattan*. Raw rattan processed and sold to countries overseas is a major source of foreign exchange for PNG. However, rattan's potential as a source of income for rural villages has not been fully realized. Similarly, value-adding activities have not been developed.
- *Insects*. Neither insect farming nor ranching in PNG has been well developed, except for butterfly farming. While world trade in butterfly and other insects is potentially very lucrative, to date little income has been accrued to the insect collectors themselves.
- *Orchids*. Orchid farming is a very productive enterprise in several countries in Asia and elsewhere. Given that there are over 2,750 species of orchids in PNG, the potential for development certainly exists, particularly development based on artificial propagation.
- *Mushrooms*. PNG could perhaps have a thriving mushroom industry. Research and development of the industry are needed to determine the commercial viability.

Source: Adapted from Aruga and Saulei (1990).

assume in partnership with community-based resource user groups many of the responsibilities indicated above. The ability of personnel from NGOs to receive training and to follow through on specific management responsibilities in an ICDP may justify their inclusion in project design. ICDP planners need to analyze the institutional feasibility of proposed partnerships with each specific project.

If few people in a local community are literate and therefore able to follow through on basic administrative tasks, placing management responsibility in local hands may require special consideration. ICDP designers, however, should guard against the assumption that widespread illiteracy prevents empowering a local community with management responsibilities. Maximizing local stewardship over resources and their management is so important that the onus of responsibility should be on project designers to guarantee, wherever feasible, that local communities (or the NGOs providing services with which they work) receive the necessary training to allow them to meet their objectives in an ICDP.

Studies (Murphree, 1991) show that a community-based focus for local development can lead to more effective resource management than can distant, centralized management. Community institutions generally remain an underutilized resource for planning and managing activities. Thomas-Slayter, Kabutha, and Ford (1991) draw several lessons about local initiative, institutions, and donor support (their report also contains an example of the implications of these findings in Kenya):

1. Communities often show the most initiative and self-reliance when conditions necessary for their livelihood are the most difficult. Activities are often born out of basic needs, isolation, and little hope of external assistance in the foreseeable future. Under these conditions, communities realize that if they are to prosper, they must learn to define their own problems, set priorities for action, and find ways to mobilize local and external resources.
2. Often, but not always, traditional groups

adapted to current needs and opportunities are more likely to result in viable local institutions than are new organizations created by the project. Other factors include a supportive political environment, committed and skilled group leadership, and the support and encouragement of traditional, governmental, and nongovernmental village leaders.

3. Training to strengthen the organizational capability of local government and village-based institutions in decentralized planning and implementation—as well as in skills to acquire materials and funds to purchase inputs not available locally—is critical to successful efforts to decentralize.
4. Linkages with external political, technical, and economic entities are fundamental for the long-term development of local institutions and the implementation of local initiatives in sustainable development. Mechanisms are needed to involve local communities more effectively in the planning process and to integrate community plans into the regional context on more than a token basis.
5. Development initiatives need to rely largely on local labor and available resources, rather than on external capital or resources that cannot be sustained. Cost sharing with village communities increases their involvement and ownership. However, a small development fund can supplement existing village activities that are part of a locally determined plan of action. The introduction of more complex technologies or donor-supported wage labor may bring new opportunities, but it may also disrupt the local economy, undermine self-reliance, and alter social institutions in unexpected ways.

Brokering and Balancing Stakeholder Group Interests

One of the most important, although least appreciated, aspects of ICDPs is the necessity to broker the interests of different stakeholder groups. As used here, "brokering" means the act of bringing different, often, disagreeing parties together to reach consensus over issues. If this aspect of ICDPs is not properly addressed, an ICDP is likely to fail.

The first step in brokering is to disaggregate resource users as a general stakeholder category into more refined subcategories. Historical, economic, legal, political, and perceptual factors all can create differences in stakes. These differences depend on traditional tenure rights, access rights to the most favorable resources, or diverse economic or cultural values placed on the resources.

During the design phase, if it appears that conflict cannot be brokered or negotiated to the satisfaction of the different groups, the feasibility of the overall ICDP exercise should be questioned. This may not necessarily mean forgoing an activity, particularly where conservation or biodiversity values are especially significant and worth preserving. However, it undoubtedly will mean devising strategies that give priority to addressing the root causes of any conflicts between stakeholder groups. It may also mean reallocating efforts away from an emphasis on things (planting trees, digging water wells, improving livestock health) to an increasing emphasis on processes—that is, promoting collaboration between stakeholders in project design and management, enhancing local organizational management capacity, and improving decision-making skills of all stakeholder groups.

Promoting collaboration between stakeholders in project design and management can, in some instances, be engendered only with patient persistence. Stakeholders—be they from government agencies, local communities, or international and national NGOs—are not in the habit of collaborating together in project design and implementation. Nonetheless, because of the integrated nature of the issues and methodologies involved in ICDPs, it is crucial that collaboration in the fullest sense of the term be engendered if project activities are to succeed.

(Guidelines for using workshops as a brokering mechanism with buffer zone management, in particular, are discussed in Annex A.)

CHAPTER FOUR

IMPLEMENTATION AGREEMENTS

PARTNERSHIPS BETWEEN DEVELOPMENT AND CONSERVATION NGOS, GOVERNMENTS, AND LOCAL PEOPLE

Integrated conservation and development projects are designed and implemented through partnerships. Through these partnerships, self-selected institutions develop working relationships that are equitable for all involved parties. Institutions agree on respective roles, objectives, and approaches to conservation and/or development. The pairings may involve, among others, northern and southern nongovernmental organizations (NGOs), development and conservation organizations, southern NGOs and government organizations, and rural organizations and NGOs, universities, and local communities (Interaction, 1991).

Workshops can help focus on key management approaches pertinent in ICDPs. For example, the Buffer Zone Management (BZM) in Africa Workshop held in Queen Elizabeth Park, Uganda, in October 1990 (see Chapter 3 and Annex A) and the Natural Forest Management Initiatives in Latin America Workshop held at the Centro BOSCOSA, Costa Rica, in December 1990 (Perl et. al., 1991) highlighted the need to reach consensus and define the responsibilities of different stakeholder and implementor groups in a conservation project (PVO-NGO/NRMS 1991; Perl et al., 1991). A crucial step is getting implementing agencies, as well as stakeholders, to the point where they perceive themselves no longer as competitors with each other but rather as partners in a process.

Identifying organizations with key roles to play in designing and managing an ICDP is essential (Development Alternatives, Inc., 1989). Responsibilities of all involved organizations, along with expectations regarding collaborative modes, must be defined. Different types of stakeholders can play different roles in an ICDP partnership:

- Government can (a) provide the policy framework that facilitates implementation of the ICDP, (b) provide technical assistance and extension services to resource-managing partners involved in the ICDP, (c) provide necessary infrastructure and basic services to

resource-managing partners, (d) support local users when they try to keep out poachers and other illegal "users," and (e) provide fair "due process" for settling resource-user disputes.

- Private voluntary organizations (PVOs) and nongovernmental organizations can (a) act as an "objective" broker between the local community and other parties to facilitate the partnership relations at all key levels, (b) provide technical assistance when appropriate, (c) provide services to strengthen the institutional capability of village partner groups, (d) help coordinate fund-raising efforts to guarantee financial sustainability for project activities and/or provide financing, (e) if international, strengthen the capacity of partner NGOs working at a national or regional level to work more effectively with resource managers on the ground, (f) stimulate information flow from village to capital city (sometimes involving lines to media in the capital city), (g) supply useful technical information to people in the village, and (h) help "level the playing field" for weaker partners.
- Resource users can (a) be responsible, if empowered, for the stewardship of natural resources management responsibilities in ICDP project areas when appropriate, (b) collaborate with all relevant partners (including other resource user groups, government agencies, NGOs, and perhaps even donors) in the management of natural resources according to the plan reached through consensus and negotiated agreements, (c) recommend ICDP projects to donors, and (d) monitor and report illegal activities of "outsiders" to state agents or NGOs.
- Donors can (a) establish flexible and timely funding mechanisms for the implementation of promising ICDPs that support partnership approaches to achieving conservation and development objectives and (b) work with the host government to promote policy reform that empowers resource user groups to assume a greater and more equi-

BOX 16. PARTNERSHIPS FOR IMPLEMENTATION: ZIMBABWE

A formal memorandum of understanding (MOU) provides the legal basis for the implementation of the CAMPFIRE Program in Zimbabwe. Signing partners include: the government of Zimbabwe, the University of Zimbabwe, a local nongovernmental organization (NGO), and an international private voluntary organization (PVO). While local communities are not signatories to the MOU, all these implementing organizations work closely with the local communities, as represented by district councils.

Responsibilities of the signatories include the following:

- Department of National Parks and Wildlife Management (DNPWLM) (government): Conducts strategic planning on a national scale of resources, undertakes resource surveys, sets national policy, and performs other management activities best conducted on a national or international level (for example, elephant monitoring with Botswana).
- Center for Applied Social Science Research (university): Undertakes socioeconomic data collection and analysis in the target areas, and provides advisory services to other agencies, including DNPWLM, Zimbabwe Trust, district councils, and local communities.
- Zimbabwe Trust (indigenous NGO): Works with district councils and local communities in the target areas to strengthen both their capacities for managing their natural resources, including providing training and advice on resource management and planning, administration, record keeping and accounting, marketing, etc. Has primary responsibility for monitoring and implementing development objectives in the field.
- WWF (international PVO): Undertakes ecological research on the feasibility, biological impact, and economics of mixed-species (cattle and wildlife) production systems.

table role in the design and implementation of workable ICDPs.

- Universities can (a) provide research and data on the impact of project activities and alternatives to decision-makers, including donors and local communities and (b) network with others implementing similar projects. In Thailand, for example, universities provide a neutral ground where conflicts between government, NGOs, and communities can be discussed. In many countries, universities also undertake studies at the request of NGOs, and many professors are actively involved with NGOs as well.

With any ICDP, it will be relatively easy to verbalize or graphically present through a diagram or flowchart what the theoretical relationship should be between different partners in the ICDP. Unless the participants in the ICDP *actually* perceive themselves as partners in the project, however, management responsibilities are unlikely to be undertaken in a manner consistent with achieving project objectives. Building partnerships in which stakeholders in conservation and development mutually respect and reinforce each other is a tremendous challenge, especially given that many are approaching each other from positions of distrust and sometimes even hostility. Building trust requires, first and foremost, an understanding of the sociopolitical dynamics of the project area from the perspective of all stakeholders. This can be accomplished through a combination of institutional and anthropological analysis, preferably by astute observers familiar with the project area. (Box 16 illustrates the interaction of different partners in an ICDP in Zimbabwe, while Box 17 describes the growth of environmentally oriented NGOs in Indonesia and how they work as partners with that country's government.)

Box 17. Environmental NGOs in Indonesia

The grassroots environmental movement has been steadily gaining strength in Indonesia over the last decade, encouraged by the national government's Ministry of Population and Environment. Interest in nongovernmental organizations (NGOs) committed to conservation extends across the Indonesian archipelago. These groups received a boost with the passage of the Environmental Law of 1982, which included a clause recognizing the role of NGOs in development, environmental protection, and conservation efforts. At a meeting of environmentally oriented NGOs, representatives from 79 organizations established the Indonesia Environmental Forum (WALHI), an informal network designed to conduct advocacy programs, provide training, and facilitate exchange of environmental information.

From that relatively modest beginning, the NGO movement in Indonesia has grown tremendously. Over 600 groups now promote or actively work for conservation, using diverse approaches, skills, and concerns. The majority of Indonesian NGOs are university-based clubs of students, but those organizations focusing on community development, yet also sensitive to environmental issues, are playing an ever more important role in conservation in Indonesia.

The Irian Jaya Community Development Foundation (YPMD), which first received WWF support in March 1987, has become one of the most prominent and effective community development organizations in the province of Irian Jaya. YPMD participates in the Cyclos Mountain Reserve social forestry training program. It also manages projects concerning water supply, women's issues, mariculture, and indigenous tribes and produces a highly regarded bulletin called *Village News*. YPMD helped raise public awareness about the dangers of a proposed shipyard that was to be built near Jayapura. Through the combined efforts of YPMD and others, the shipping company canceled its plans for the shipyard.

Elsewhere in Indonesia, WWF supports the work of SKEPHI, an NGO committed to preserving the country's dwindling tropical forests. SKEPHI actively monitors the Indonesian trade in tropical timber. WWF and the U.S. Agency for International Development also have designed a program that helps Indonesian NGOs become effective voices for the conservation of biological diversity.

CHAPTER FIVE

RECOMMENDATIONS FOR IMPLEMENTING AGENCIES

Implementing agencies should consider the following recommendations when designing integrated conservation and development projects:

1. **Consider Biological and Socioeconomic Criteria in Selecting Project Sites. Priority in designing ICDPs should be given to areas where:**

- a large proportion of forest or other target resources remains and the host government has a good history of conservation policy;
- high species richness and endemicity exist;
- conserving habitat in a particular ICDP area assures conservation of a large number of species;
- government has already begun efforts to preserve biodiversity in protected areas that are facing high population pressures; and
- use and threat to resources is weighed with opportunity to affect change.

Once biological criteria have been taken into account, then social and political criteria should be considered. Biological and socioeconomic factors should, insofar as possible, take precedence over political factors. ICDPs are most likely to succeed in situations where there is significant local participation and sustainable economic return (socioeconomic criteria).

2. **Use a Logical Framework or Hypothesis to Guide Design, Monitoring and Evaluation.** It is important to remember how recent and how small most ICDP initiatives are. It is premature to judge whether or not the approach has been effective at this stage. **It is therefore critical that adequate research and monitoring be built into a project to allow for effective assessment and feedback into planning and implementation.** A logical framework or hypothesis should be generated linking problems/needs, to goals/objectives, to strategies for accomplishing certain results, and finally to results from the strategy.

Project designers need to understand why the implementation of a particular ICDP may or may not be justified. To do

this, they must be able to distinguish between "assumption" (i.e. conditions that are only expected to exist and may, in fact, not exist at all) and "fact." **In addition, planners must ensure that assumptions are clearly stated and that these assumptions are monitored as to whether they maintain their validity. Feasibility analysis during the preliminary design stages is essential.**

All monitoring and evaluation should be based on this initial step of building a hypothesis. **Baseline surveys of indicators reflective of the hypothesis components should be conducted in project target areas, with periodic replications throughout the life of the project.** The data collected and analyzed should focus on the problem and rationale, the goals and objectives of different interest groups, underlying assumptions, and intended and unintended effects.

Because of the integrated nature of the issues and methodologies involved in ICDPs, it is crucial that a multi-disciplinary approach be taken to design and implementation.

3. **Ensure Grassroots Participation and Collaboration Between Stakeholders.** Experience has demonstrated that effective development projects require negotiating a set of commonly shared perceptions and understanding between all key stakeholders. **Similarly, for an ICDP to succeed, responsibilities in design and management must be shared among all concerned stakeholders.** Establishing working relationships and processes for communication, decision-making, and negotiation with the involvement of all parties is critical. During the design phase, if it appears that conflict cannot be brokered or negotiated to the satisfaction of the different groups, the feasibility of the overall ICDP exercise should be questioned.

   Recognize that there are multiple problem definitions and numerous potential solutions. Planners must understand the theoretical and perceptual reasoning of different stakeholder groups so that they can design the most viable ICDP approach, one that will elicit the participation of all necessary parties.

4. **Incorporate and Maintain Indigenous Knowledge**. Experience has shown that incorporation of traditional or indigenous knowledge into project design leads to projects that are socially more sound. Understanding the rationale of indigenous resource management systems, and the perception of indigenous peoples of the mechanics of ecosystems and the role of intervening actors, is an early step in ICDP design. Where possible, ICDPs should incorporate mechanisms for maintaining this knowledge.

5. **Promote Local Control Over Access to Resources and Effective Institutions that Set and Enforce Rules Over Use.** The ability of local people to limit access by outsiders in the short- and long-term is critical to effective resource management. If resource users do not have control over access, the most rational management strategy is to use the resource to the benefit of insiders before "outsiders" expropriate the resource. **ICDPs must work towards secure tenure for local communities.**

   Maximizing local control must be encouraged and implemented within the context of all stakeholders' interests. This most frequently results in some form of co-management where project planners must balance, or ensure a process for balancing, the long-term collective interests. In general, maximizing local responsibilities and authority for natural resources will result in more effective projects.

   When local stewardship over resource management is a central tenet of an ICDP, institutional strengthening must be a pri-

mary project component. Institutional strengthening could be needed in such areas as participatory rural appraisal, ecological and socioeconomic monitoring, financial management and accounting, and report writing. Institutions may be indigenous social organizations, or a modern interpretation adapted to the current context. An institutional analysis is necessary to ascertain the structure and function of ICDP institutions, particularly in cases where new organizational arrangements are envisioned.

6. **Ensure that the Relationship between Action and Benefit is as Direct as Possible in the Eyes of the Local People**. An essential element in the design of every ICDP is the consideration of the linkage between conservation and development objectives. All material benefits should be clearly tied to the conservation action, as perceived by the people themselves. Sometimes, linkages between development and conservation activities can be strengthened by directing the activities toward groups or individuals whose current actions threaten the protected area. Viable alternatives for meeting economic needs must exist for individuals to adopt conservation behavior, particularly when the conservation activity requires the alteration of existing extraction or production activities.

7. **Include a Conservation Education Component.** Development and conservation activities frequently must be complemented with a conservation extension or education program that informs all parties of their responsibilities under the project and of the interrelationships between conservation and development.

8. **Consider Policy and the Potential Impact on Project Implementation.** The design of any ICDP must consider the manner in which international, national, and local laws and policies impact both local resource-use patterns and the management options available to resource users. One of the most complex aspects of designing ICDPs is identifying those factors that do not seem to be directly relevant to project objectives, but could effect the success of achieving project objectives. **From the outset, project planners need to consider the full range of issues both geographically and thematically that will impact project implementation, particularly those policies related to land development.**

9. **Assure Financial and Economic Viability**. It is imperative that financial and economic analysis be done as part of any ICDP activity which requires behavioral changes in land use management. To become sustainable, resource users must be aware of the opportunity costs and potential benefits accruing to shifts in resource management strategies. Both the ongoing BOSCOSA project in Costa Rica (Cabarle, 1992), the Dzangha-Sangha Project in Central African Republic (Telesis, 1991), and the recently initiated Okari Nut Eco-enterprises Project in Papua New Guinea (Olsson, Manakuyasi and Kasira, 1992) highlight the critical importance that financial and economic factors play in resource user decision-making.

ANNEX A

TOOLS FOR DEVELOPING AN ICDP

1. GENDER INFORMATION FRAMEWORK

The Office of Women in Development at the U.S. Agency for International Development has developed the Gender Information Framework to address the need for practical, realistic guidance on how to integrate gender issues into the agency's programming and document review.

The framework includes a Gender Analysis Map to help a project design team identify important gender factors in the baseline situation and to examine gender-specific constraints and opportunities. In step one, the map guides the team in gathering both information on resource usage and data on four key socioeconomic factors—allocation of labor, income, expenditure patterns, and access to/control of resources. This information is used by the team to identify traditional male/female roles.

In step two of the Gender Analysis Map, the team uses its findings to infer constraints to men's and women's participating in, contributing to, and/or obtaining benefits from development projects and programs. Conclusions are then drawn about opportunities for increasing project effectiveness by recognizing and building on differences in gender responsibilities, skills, and knowledge.

(For more information, see USAID, Office of Women in Development, 1988.)

2. PARTICIPATORY RURAL APPRAISAL

Participatory Rural Appraisal (PRA) typically involves eight clearly defined steps, the first six steps taking a total of three to five weeks. An "outside" team works with members of the local community to:

1. select a site and gain approval from local administrative officials and village leaders;
2. conduct a preliminary site visit (steps 1 and 2 include community review and a planning meeting to initiate dialogue between all parties as well as full participation);
3. collect both secondary and field data (spatial, time-related, social, and technical);
4. synthesize and analyze that data;

5. identify problems and opportunities to resolve them;
6. rank opportunities and prepare a Village Resource Management Plan (a basic work plan for all elements in the community);
7. adopt and implement the plan; and
8. follow up, evaluate, and disseminate any findings. (Adapted from Clark University, World Resources Institute, and Kenyan Ministry of Environment and Natural Resources, 1989).

A variety of data collection tools exist: sketch maps, transects (which include more detailed and specific information than sketch maps), individual farm sketches, time lines and trend lines (used to determine how community views change over time in key sectors), seasonal calendars, household interviews, institutional diagrams (to understand how the community views these institutions and ranks them according to their contribution to community development), and technical data related to emerging priority problems. Based on these data, the local community organizes and ranks problems and opportunities, then creates a Village Resource Management Plan.

As a PRA team begins work, it meets with village leaders and other opinion makers to ensure that they support the project and perceive the potential for their "ownership" over the process. Town meetings with the community as a whole are then held to explain the process and initiate data collection. Separate meetings are also held with specific interest groups (for example, women, landless peasants, and youth groups) and with individual households. This mixture of meetings with the general public and with smaller groups makes it more likely that all members of a community will participate.

A PRA team generally consists of four to eight specialists, of whom at least half are technical officers assigned to the area. Their specializations commonly include water, soil, forestry, livestock, community development, anthropology, and other skills related to natural resources management. At least one member of the team should be a woman, and a minimum of two should be members of the community.

While the PRA approach emphasizes local participation, it must be noted that individuals from outside the society can have quite positive, sometimes catalytic roles to play. In his work in Nepal, Messerschmidt has found that "outsiders" often find gaining rapport with villagers easier than do "insiders." A Nepali researcher remarked

> You know, we Nepalis can't ask questions of the villagers like you expatriates do. You can laugh and joke with men and women along the trails, and they answer you. You can probe sensitive subjects, like illegal charcoal-making and wood-cutting, and you get answers and good information. It's because you aren't Nepali, and they assume you know nothing and don't suspect you [of being a government official]. If we asked questions and joked about those things like you do, they'd get angry or wonder if we were stupid or something. You can do it; you're an outsider. We can't, we're Nepali like they are. (Messerschmidt, 1991)

In contrast, in countries where outsiders are suspected (for example, Somalia), rapport will not be easily established.

PRA is a learned skill and several training programs are available. (Detailed information on PRA is contained in Clark University, World Resources Institute, and Kenyan Ministry of Environment and Natural Resources, 1989.)

3. Steps for Designing a Conservation Education Program

To be effective, any conservation education (CE) program must define the most critical environmental problems facing a community or

region and what people can specifically do to resolve them. An educator then works with a target audience, enabling participants to contribute to an environmental problem's solution and perceive the changes advocated by the program as being in their own best interest.

Wood and Wood (1987) explain in detail steps for developing an effective CE program. Groups frequently targeted for such a program include resource users, extension workers and educators, opinion makers and other influential community members, the general public, and both formal and informal decision-makers. Conservation educators often address schoolchildren as a target group, hoping to create environmentally responsible adults. While this is a desirable goal, it is an investment in a country's future, and the educator may discover that the country's present environmental problems are so serious that they require attention first.

Next, the conservation educator and representatives of the target group need to select and organize the program's content, including:

- creating awareness of the problem;
- promoting an understanding of how the audience is both affected by and affecting the environmental situation; and
- providing options of how they can contribute to the solution of the problem.

The audience must be motivated to implement the solution. Motivators or inhibitors can be economic (for example, increased profits), social (conferred status, prestige, or respect), and/or cultural (national pride). The design team must carefully consider motivators and inhibitors and the potential impact of these factors on implementation.

Once the content of a program has been determined, the educator and representatives of the target group must select an educational strategy or method. The strategy should do two things: (a) reach the program's target audiences and (b) effectively communicate the program's information. Examples include one-to-one communication; workshops with village, district, and provincial authorities and decision-making institutions; presentations, exhibits, and demonstrations to the general public; and the development of curriculum units and the integration of conservation issues into school programs.

Conservation education programs often produce printed materials, radio programs, audiovisuals (AVs), and other resources. It is important to note that while sophisticated AV aids may impress rural people, they can also emphasize the socioeconomic differences between the extension officer and the community. Nevertheless, AVs can be used to attract an audience or to explain a concept. They are not, however, a substitute for person-to-person communication.

Evaluation of a conservation education program should be carried out both while it is in progress and after the effort has ended. It is best if base-line data are established before a program is initiated as a basis for comparison. Most important is an assessment of how well the program's goal was met and how well the materials and methods that were used promoted increased environmental awareness.

(For more information, see Wood and Wood, 1987.)

4. Workshops as a Mechanism for Brokering Relationships

Perhaps one of the most innovative recent workshop methodologies has been the inclusion of all key stakeholder groups in the management process for buffer zones, together with an emphasis on the need for negotiated approaches to resource management in those zones.

The Buffer Zone Management in Africa Workshop, held at Queen Elizabeth Park, Uganda, in October 1990, brought together conservationists from government, the local and international nongovernmental organization communities, and resource users living in and around a number of protected areas and buffer zones. The focus of the workshop was on process issues related to management of buffer zones.

Perhaps the most important process issue in buffer zone management (BZM) to emerge from the workshop was the preeminent importance of forthright dialogue between resource users, government representatives, and conservation NGOs in buffer zone management, together with the role that negotiation must inevitably play in the process (Brown, 1991).

When designing such workshops, it is best to keep the following considerations in mind (PVO-NGO/NRMS, 1991):

1. In selecting buffer zone case study sites, focus on areas where resource-use issues pertaining to conservation and development intersect, and worry less about finding perfect "buffer zone" case studies per se.
2. In selecting stakeholder representatives for each case study, attempt to obtain the participation of all key stakeholder groups whose activities or influence impact on the area in question.
3. Try to accommodate as much of the stakeholder diversity from each case study area as is logistically feasible. However, in trying to accommodate the diverse stakeholder interests, do not exceed the facilitator's ability to manage the workshop.
4. Allow all participants to formally present their case studies to the plenary, but do not prioritize the formal presentations as the centerpiece of workshop activities.
5. Make communication between stakeholder groups—resource users, government representatives, NGOs, and possibly donors—the workshop priority, and promote discussion, negotiation, and patience among stakeholders.
6. Assure that sufficient time is allotted for field trips to case study areas, and assure that the divergence of stakeholder views inherent to each case study is presented to workshop participants.
7. Assure that prepared background documents focus on the central themes that transect most, if not all, of the case studies, and which ones the organizers of the workshop hope to address. Try to focus the workshop as much as possible on issues of common concern to all participants from any buffer zone context.
8. Assure that facilitators understand the workshop objectives and the central themes of the workshop, as well as what types of issues are worth discussing in depth.
9. Anticipate that there may be serious disagreement, if not occasional argument, between different stakeholder groups but that any such disagreements may lead to new understandings if discussions are properly facilitated.
10. Ensure that the least vocal workshop participants are encouraged to vocalize their opinions through proper facilitation; do not assume that resource users have little to say if they are silent during small group and plenary sessions. Organize with facilitators for maximization of resource user participation in the workshop.
11. Recognize that arriving at a definition of BZM may be easier to achieve toward the conclusion of a workshop, once the situation and its dynamics are understood.
12. Be prepared to design and hold more than one workshop before stakeholder groups accomplish concrete results, such as evaluating complex buffer zone situations and developing new, potentially more viable approaches to BZM.
13. Recognize that, in a first workshop, achieving consensus between all stakeholders is as important an output as any specific recommendations for BZM, if it will lead to new approaches to and understanding of the process of BZM.
14. Stress to stakeholder groups that a successful BZM workshop requires the forthright and sympathetic participation of all stakeholders, particularly from the government side.
15. Ensure that participating government officials (for example, from the Ministry of Environment, Forestry Department, or

National Parks) understand that they are one or a few stakeholder groups among several in attendance and that the objective of the workshop is to develop fresh dialogue and innovative approaches to resource management problems, rather than to offer a forum for a particular "party line."

5. Criteria For Sociocultural Feasibility Analysis

This set of criteria for sociocultural feasibility analysis was developed for projects with limited planning and assessment time, as is the case for most conservation and development design efforts, as well as monitoring and evaluation exercises.

The criteria identified are based on the following fields and methodologies: (a) rapid rural appraisal, (b) social soundness analysis, (c) social analysis, (d) sociological analysis, (e) social science knowledge, (f) social impact analysis, and (g) sociotechnical profiles. The following list is not exhaustive of the kinds of questions which must be asked to determine sociocultural feasibility.

The objective of sociocultural feasibility analysis is to determine whether the proposed conservation or development activity is socially and culturally sound on the basis of the following criteria:

1. Is the activity consistent with the objectives of the community(ies) which will participate in or be affected by the proposed activity?
2. Will the proposed activity create conflict at any level of the community(ies)? Will it result in increased socioeconomic stratification?
3. Will benefits spread equitably from the proposed activity to different groups (e.g. social or professional groups, men and women, religious groups, different class or caste groups) within the community(ies)?
4. Is there a realistic plan to mitigate any foreseen negative impacts of the proposed activity?
5. How much have local people participated in the design of the activity, and how representative of intra-community sociocultural diversity are the participants?
6. Has the project addressed all *relevant* sociopolitical issues, and socioeconomic issues that might impact the project?

It is important to restate that this type of information is required of any proposed conservation or economic activity.

Much of the success of social feasibility analysis undertaken anywhere in the world will depend on (1) **how** questions are asked, (2) **to whom** questions are directed (i.e. all key groups should be represented in the assessment), (3) how well **existing sources of information** are used, and (4) how well information is **verified** to determine its credibility.

The following publications provide additional information on sociocultural feasibility analysis.

Asian Development Bank. 1991. *Guidelines for Social Analysis of Development Projects*. Manila, Philippines: Asian Development Bank.

Brown, Michael. 1984. *Social Soundness Analysis of the PVO Project, Somalia*. Mogadishu, Somalia: U.S. Agency for International Development.

Brown, Michael. 1989. *Rapid Rural Appraisal of the Rural Marketing System in Burundi*. Washington, D.C.: Abt Associates.

Cernea, Michael. 1991. *Using Knowledge from Social Science in Development Projects*. World Bank Discussion Papers. Washington, D.C.: The World Bank.

de los Reyes, Romana. n.d. "Sociotechnical Profile: A Tool for Rapid Rural Appraisal." Manila, Philippines: Ford Foundation.

Food and Agriculture Organization of the United Nations (FAO). 1981. *Social Impact Analysis: A Model and Strategy for Implementation in Development Assistance*. Rome: FAO.

FAO Investment Centre. 1991. *Guidelines on Sociological Analysis in Agricultural Invest - ment Project Design*. Technical Paper Number 9. Rome: FAO.

Ingersoll, Jasper. 1985. *Social Aspects of Project Preparation and Appraisal*. Washington, D.C.: Economic Development Institute, The World Bank.

ANNEX B

THE ANNAPURNA CONSERVATION AREA PROJECT

A Case Study

This annex discusses what lessons for ICDPs can be learned from the Annapurna Conservation Area Project (ACAP) experience in Nepal. ACAP was visited by one of the authors (Brown) during a five-day period in September 1991. ACAP was selected because it may be one of the more advanced and ambitious ongoing ICDPs. It also has been critiqued by other students of ICDPs (see Wells, Brandon, and Hannah, 1992; Bunting et. al., 1991). In this discussion, ACAP is not necessarily proposed as a model for how ICDPs should or should not be designed in general.

Because a five-day period is insufficient to fully appreciate the strengths and weaknesses of a project, the visit to ACAP was not meant to be an evaluation. Rather, it was meant to offer Brown an opportunity to discuss with project staff and local resource user community representatives the strengths and weaknesses of an ICDP from their perspective. Many of the issues relevant to ACAP proved to be of likely relevance to other ICDPs as well.

PROJECT ACTIVITIES: THE CONTEXT

The bulk of information in this section is taken directly from the ACAP Three-Year Retrospective Progress Report (KMTNC, 1990) and Adams (1991).

Project Philosophy

According to the ACAP three-year report:

> ACAP is the first project of its kind that attempts to address the problem of conserving a fragile environment while at the same time improving the economic condition of the inhabitants of that environment. It recognizes that protection of a delicately balanced habitat and the maintenance of its biodiversity cannot be achieved without the support of the inhabitants, hence ACAP stresses maximum local participation in all its programs. Unlike national parks and wildlife reserves which aim to protect the flora and

fauna of a certain area to the exclusion of all else, the focus of ACAP is the human population. By working hand in hand with the people, ACAP hopes to ensure that all its projects are self-sustaining.

ACAP aims to improve the economic situation of the population on the condition that their exploitation of the natural environment is in a more sustainable and conservation-minded way. The term "trade-off" amply describes the concept—not giving something for nothing. ACAP does not want to make the same mistakes as previous development projects, where a key problem identified was the growth of what was termed the "begging disease," as the target population is given things/benefits without ever having to work for them.

"Lami"—the word for matchmaker in Newari, aptly sums up the last tenet of ACAP's philosophy. Since the project may not have the technical expertise or the financial strength to support all the projects proposed by the local people, it links up with other NGOs working in Nepal to bring the resources of the urban centers to the rural areas. The format is that after assessing the viability of a project ACAP approaches a particular NGO or government agency that specializes in a certain field for their technical expertise or financial support to undertake the project requested by the locals (KMTNC, 1990).

Long-Term Objectives

ACAP has three primary long-term objectives:

- to conserve the natural resources of the Annapurna Conservation Area for the benefit of present and future generations;
- to bring sustainable social and economic development to the local people; and
- to develop tourism in such a way that it will have a minimum negative environmental impact.

Short-Term Objectives

ACAP's short-term objectives are numerous:

- to improve the management of the existing natural forests through public participation;
- to plant saplings on denuded areas in an effort to rehabilitate land;
- to encourage and support farmers to grow fodder, fuelwood, and fruit trees on their land;
- to reduce the problems of soil and water erosion;
- to estimate the forest cover, biomass productivity, and forest-resource utilization pattern of the project area;
- to develop forest-management criteria and prepare a detailed forest-management plan (KMTNC , 1990);
- to introduce appropriate fuelwood-saving technology;
- to increase environmental, health, and sanitation awareness among the local people;
- to increase public participation in resource conservation and local development;
- to improve the basic health services in the local community;
- to support the local community in developing basic infrastructure;
- to assist and train local entrepreneurs in lodge management and environmental conservation;
- to monitor tourist numbers and activities and provide basic tourist facilities;
- to coordinate with travel and trekking agencies to draft a local nature tourism plan;
- to create nature conservation committees consisting of 15 villagers selected by

consensus for each "village development committee"—political units for villages with populations of 500 to 1,200 people—to oversee enforcement and management of development projects (Adams, 1991); and

- to optimally and responsibly use revenues generated through trekking fees directly for conservation and development of the area without turning these fees over to the central treasury.

ACAP Management Zones

To help address resource-management issues, the Annapurna Conservation Area has been divided into distinct zones (Adams, 1991).

The Wilderness Zone centered on the Annapurna massif contains a unique mix of ecosystems mostly unaltered by human exploitation. No consumptive use of this sanctuary is permitted, and trekking is strictly managed.

Although a formal agricultural zone is not included in the conservation area's management plan, the Protected Forest Zone and Seasonal Grazing Zone recognize the traditional income generating needs of the local population. It is within this zone that competition between trekkers and local people over fuelwood for cooking, heating, and construction is felt most acutely.

The Intensive Use Zone is being developed for tourism. Lodge owners have established standardized policies and have set up a series of check points for trekking permits and kerosene as an alternative fuel to wood.

The Special Management Zone and the Biotic/Anthropologic Zone have been established in the upper reaches of the conservation area. Both are for use by scientists studying mountain ecosystems. Together, these two research areas create a small-scale biosphere reserve within the conservation area complex.

Problems in the Pilot Program Area

The ACAP headquarters is sited in Ghandruk, in the middle of the Special Management Zone. Ghandruk was selected because the population pressures there have accelerated the conversion of forest lands into agricultural lands. Ghandruk is thus a central and representative development zone in the peripheral inhabited zone of the conservation area. It also is quite central to the major trekking route around the conservation area and inner sanctuary, which brings in upwards of 35,000 trekkers per year.

The formerly traditional mixed-production system incorporating slash-and-burn agriculture with pastoralism has been replaced with sedentary agriculture for most resource users. Traditional forest management systems that were successful from a strict conservation standpoint and politically instigated systems have been eliminated either through "natural selection" over time or through political upheaval (see page 57, "Traditional Organizations vs. New Organizations in Management").

Issues of Generic Interest Raised by ACAP

Process

The process used to establish and implement ACAP is of interest to all NGOs, donors, governments, and populations involved in ICDPs. What is process in the project context? Why is focusing on it so important? How can the best process be promoted to achieve conservation objectives while satisfying basic needs? What is the desirable balance between process and tangible product outputs?

In this context, process refers to the events over which a project may or may not have control and to which project implementors must be sensitive and responsive. Since there are limits to the control that any project can have over the shape and pace of events unfolding, a project that is process-oriented (a) will have built-in

flexibility; (b) will allow considerable time for discussion, negotiation, and sensitization of various project stakeholders or participants; and (c) will somehow give priority to this very flexibility as a means to achieve certain ends. That is, as much attention will be paid to "how we are getting there" as to "where we have gotten." Unless the "how" question is addressed, the "where" will not be reached.

At ACAP a strategy has been identified that recognizes process as a critical project objective. Project staff are committed to implementation of a long-term strategy, in which people living in the conservation area are central to the success of the strategy. The staff's approach is to tackle the complex logistical challenge of addressing resource-management activities in a 4,000-square-kilometer conservation area in stages, focusing on particular themes.

The quality of contact between project staff and resource users in the conservation area appears to have become a major priority. Respect for the culture and traditions of local resource users is a key theme in the project, as is addressing priorities that local people themselves identify. All project staff are Nepalese, and most staff are originally from the project area.

The net result is that ACAP has been able to obtain reasonable support and participation of resource users in those areas of the conservation area where it has worked. In attempting to assess the needs of local resource users, and not just what appear to be pressing conservation problems, the project is succeeding in winning over the confidence of local people. However, in this effort to win local confidence, the conservation message the project helps to transmit is simplified.

Participation in Conservation Area Planning and Management

ACAP has succeeded in eliciting the participation of many resource users in the Special Management Zone in particular. Resource users have been empowered to assume leadership in the different management committees. As basic needs continue to be met, and as the benefits (and costs) of conservation are more readily perceived by local communities, participation in conservation activities is growing, as is solicitation of support from the project at a number of different levels.

When ACAP started there were a number of challenges ahead. The major one was to prove that ACAP's concept could be translated into the reality. Next was to build credibility among the local people, which had the following two results:

- No clear demarcation of the activities that ACAP could or could not be involved in—in particular with community development projects.
- ACAP could not pay adequate attention to being a catalyst.

While ACAP is famed for being able to work at the grassroots level, bureaucratic simplicity has produced undesirable side effects. Local people tend to approach ACAP for many issues that other agencies should handle. This ranges from local people asking compensation for the damage caused by natural factors such as buffaloes, to trekkers reporting theft or burglary.

ACAP established a separate component to address women's issues due to the traditional exclusion of women from decision-making over resource management issues. Project staff, however, have noted that women have had a degree of "over-expectation from the project" and that they had become caught in "the begging disease." To address these issues, staff working on women's issues have decided to focus more on motivating women to concentrate on their self-development and on production activities, rather than on community development (KMTNC, 1990).

A continuing danger is that conservation among communities in the Special Management Zone still appears largely to be tied to the project, and the project in turn, inevitably, still is apparently perceived to be motivated by interests not always identical to those found in Nepalese society.

So long as this remains the case, there likely will be a dependency relationship between the project and communities. While conservation and development objectives may be achieved in the short term, sustainability of activities will be jeopardized unless the local people progressively internalize the rationale for conservation and increasingly get skills that enable them to both develop and conserve their resources. ACAP demonstrates the importance in any ICDP plan of addressing early on how to promote a process that balances short- and long-term objectives and how to deal forthrightly with the oftentimes inevitable increase in dependency of project participants.

Tourism

Tourism is a mainstay at Annapurna Conservation Area (ACA). All revenues from trekking permits are given directly to the project, providing financial sustainability for its development activities. Trekking revenues are expected to cover 80 percent of ACAP's costs between 1992 and 1994.

Over 37,000 tourists visited the Annapurna Conservation Area in 1991, significantly impacting the local economy and ecology. Tourists, for example, are major consumers of natural resources—fuelwood in particular—and also profoundly affect the local culture and socioeconomy.

Despite the uniqueness of the Himalayan biogeographic and cultural ecological context in which ACA operates, two fundamental questions faced by ACAP in promoting tourism are relevant to many ICDPs:

- How dependent should an ICDP be on tourism?
- Is the ICDP getting all it can from tourism, or is it undershooting the mark?

As of summer 1992, the fee for a trekking permit at ACA is $4.75 (US dollars). It is arguable that, at this level, the local population is subsidizing international tourists, a high proportion of whom (60 percent) are backpackers. Thus, various questions merit consideration:

- Is the project now forsaking revenues it could be earning?
- Is the project (including the local management committees) prepared to negotiate with the government to raise the trekking fee?
- Could the trekking fee be raised without losing tourist revenues (while at the same time reducing pressure on the resource base to support these tourists)?

Changing the trekking fee structure would be one opportunity to (a) increase the benefit stream and project resources to project participants, (b) thereby increasing the financial sustainability of the project and (c) potentially decreasing the demands on the resource base if a portion of annual trekkers were to drop out due to increased costs.

A second excellent opportunity would seem theoretically to exist for wildlife utilization activities. Populations of Himalayan tahr, blue sheep, and black bear exist that could possibly be sustainably harvested. An elite category of trophy hunters conceivably would pay premium prices to hunt in the conservation area.

However, if wildlife utilization is seriously considered by ACAP (or any other ICDP) as a means to achieve financial and natural resource sustainability, staff and local communities must address key questions concerning technical considerations, cultural feasibility, and revenue-sharing criteria and procedures.

Technical Considerations

Technical considerations in wildlife utilization involve the ecological or biological soundness of allowing individual species to be hunted. Obviously, any proposals related to wildlife utilization must consider whether a species (or population) is locally threatened or endangered or is listed on any appendix of the Convention on International Trade in Endangered Species (CITES). In addition, various other questions must be considered. For example:

- How many blue sheep, black bear, and Himalayan tahr in the conservation area could be sustainably hunted?
- Assuming non-protected CITES listing, could other species such as forest leopard also be considered for utilization at an ultra-high premium, or are such species' populations too impoverished to consider this?
- What would trophy hunters pay for licenses for the rights to hunt different game?
- What professional resources are required to determine hunting potential to launch a utilization program, as well as to monitor any required changes to sustainable hunting limitations due to changes in species populations?

Cultural Feasibility

In much of the Annapurna Conservation Area—specifically in the vicinities of Mustang and Manang—local populations consider professional hunting for trophies or meat to be unethical and would not accept it as part of a management plan (Sherpa, 1991, personal communication). These areas represent 60 percent of the conservation area. In areas around Gurung, however, this would not be the case, as many Gurung men have traditionally hunted. Thus, the potential for introducing wildlife utilization programs must be examined for sociocultural feasibility in specific areas of the project, not only for the project as a whole.

In areas where hunting is not feasible, such as Mustang and Manang, management committees may instead be able to develop specialized, appropriate photo safari ventures that highlight the sociocultural uniqueness of the Annapurna peoples and environment.

Revenue-Sharing Criteria and Procedures

How would revenues be shared between communities in the Annapurna Conservation Area? ACAP is not yet operating throughout the conservation area, though it intends to. As it expands its scope, ACAP designers will need to consider whether all communities benefit equally from the proceeds of a utilization program, or whether a separate system of tenurial rights to wildlife in different areas will need to be created for respective communities.

The Role of NGOs in ICDPs

The role played by WWF and the King Mahendra Trust for Nature Conservation in ACAP has been crucial. This participation may, however, have engendered an inevitable degree of dependency of local populations on these NGOs. A similar challenge likely will face all NGOs working with communities on ICDPs. The more dynamic an NGO is, the more it risks creating dependency links unless it specifically works from the outset against this.

In the case of ACAP, it is not yet clear whether communities see the crucial linkage between the conservation of natural resources in the area through natural forest management and the tourism revenues to the project and individual lodge owners. It is, however, conservation NGOs that are establishing programs that potentially link the benefits (and thus the rationale) of tourism revenues to conservation. At least in the Special Management Zone, there is insufficient evidence to be confident that the forest management committees (FMCs)—those committees that conserve the forests upon which Annapurna's flora and fauna depend—would continue to function in the absence of the project. The project's identity is still dominant, and communities have yet to internalize the values that ACAP is seeking to impart.

This situation may signal that the potential weakness of many ICDPs lies at the level of linkage. Linkage between benefits derived from "development activities"—that is, tourism revenues earmarked for building clinics, schools, roads, etc.—and the conservation of biodiversity may not be as easily made at the community level as ICDP planners would hope. There may be various reasons that this linkage is not yet

clear at ACAP and other ICDPs: (a) the linkage is not yet easily perceived in cases where projects are still young (as is the case with most ICDPs); (b) the project is not focusing on monitoring and evaluation of the linkage to actually demonstrate what is happening; and (c) the linkage is operating at a number of levels—for example, behavioral changes leading to differential impacts on flora and fauna; actual changes in species composition and richness as a result of human behavioral changes (see Wells, Brandon, and Hannah, 1992).

Thus, all stakeholders involved in ICDPs face a basic question: How do ICDP planners accurately assess the linkage between human behavioral changes in a project area and actual improvements in the status of biodiversity?

Trade-Offs in Government Control of Natural Resources versus Local Control

Defining the notion of control is important. At ACA, the Nepalese government maintains legal responsibility for resource management on all public lands. KMNTC has acted as a coordinating link between the government and local communities in establishing management plans for the different use zones in the conservation area (Sherpa, 1991, personal communication). ACAP communities have thus been empowered by government to be stewards of "their" land—that is, all publicly owned lands falling in the conservation area that local communities would otherwise consider themselves to have traditional use rights over. This is somewhat akin to receiving a long-term lease from government to the land.

The Parliament Act Amendment to the 1974 National Parks and Wildlife Act created the legislative context permitting government to devolve management or stewardship responsibility to resource user communities throughout Nepal. It is important that this legislative context be intact at ACA, or in the case of any ICDP, but it is also essential that the legislation be backed up with action. To date it appears that the government of Nepal has been successful in creating the enabling policy environment to allow for local stewardship over natural resource management planning, and ACAP and the resource user communities have begun to respond to this environment by seizing opportunities for local management.

Traditional Organizations versus New Organizations in Management

At ACA local communities perceive that the newly founded forest management committees actually have greater social legitimacy than the self-contained traditional management structures that existed during the Rana dynasty (1849-1953), known as talukdar. The talukdars were phased out during the installation of the panchayat administrative system. The latter system has only been abolished in Nepal in recent years.

During the 104-year Rana dynasty, natural resource management was imposed from the top. Resources were well managed empirically, but the very limited participation of local people in determining that system of management led to the paradoxical situation of a "Nepalese system" that did not necessarily represent the goals and methods that local people preferred.

For the people of Ghandruk, the talukdar system apparently was a less equitable system than is the new system of forest management committees. The Ghandruk Village Development Committee has been adamant that ACAP, with its basis in project-organized management committees, offers villagers a more participatory approach in resource management than did the talukdar system. The FMCs thus offer local resource users greater potential for equitable and sustainable resource management (Ghandruk, 1991, personal communication). It is, in a sense, natural that Annapurna peoples perceive that the potential for resource sustainability is higher through the FMCs than the talukdars, because resource users themselves define the rules and regulations of the system and are responsible for monitoring the system.

Another kind of resource management system that was traditional to this and other regions of Nepal was known as rithi thiti (Sherpa, 1992). The ACAP FMCs are actually adaptations from the traditional rithi thiti, as it was practiced in Annapurna. Rithi thiti, literally "customs and regulations," are rules defined by individual communities for livestock grazing, community cleanups, path repair, bridge repair, communal leech eradication, etc. Unwritten rithi thiti still operates throughout the Annapurna area, with provision of voluntary grain contributions for FMC forest guards a clear indication of the role that customary traditions play on contemporary conservation institutions. In this sense, the FMCs are logical outgrowths of traditional management structures that did have local legitimacy.

ACAP provides a valuable lesson about the importance of traditional organizations in designing and implementing ICDPs. It is neither necessary nor advisable to stumble into pat cliches that "traditional is better." In some instances, conservation and development objectives may be best achieved through existing structures that can be labeled traditional. In other instances, entirely new structures forging new coalitions between peoples may be preferable. Each case must be studied on its own merit, and a social organizational and management structure and plan must be developed on the basis of sociocultural feasibility and project objectives.

Conclusions

ACAP is a prime example of an integrated conservation and development project that is ambitious and is being well implemented, but that is still early in the process of maturing. Participating communities appreciate the services that ACAP provides them and believe that this approach will lead to improved natural resources management. Yet it is still too early to tell what the long-term project impact on biodiversity in the conservation area will be.

ACAP illustrates that conservation through development takes considerable time and patience, that involved stakeholders feel the time and approach is worthwhile, but that a combination of greater rigor in systematically and holistically linking development to conservation objectives in the minds of communities is needed. So too, donors need to recognize that, in most cases, more time and funding than they are accustomed to providing will be required to demonstrate the value of investment in ICDPs.

This is not a weakness of ICDPs. It simply reflects the reality that, on many levels, conservationists and other concerned people are embarking on a long-term process in which a modicum of faith and belief in the process is very much required.

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