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**The Social Challenge of Biodiversity Conservation**

Guillermo Castilleja

Peter J. Poole

Charles C. Geisler

Edited by Shelton H. Davis

Working Paper  
Number 1



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**GLOBAL  
ENVIRONMENT  
FACILITY**

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## **The Social Challenge of Biodiversity Conservation**

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This volume is an exploration of the sociology of biodiversity conservation. Starting with the assumption that indigenous communities and non-governmental organizations (NGOs) are essential to the success of any conservation measures, it examines how best their participation can be achieved.

The first paper is by Guillermo Castilleja, Senior Program Officer in the Latin America and Caribbean Program of the World Wildlife Fund in Washington, D.C. His paper looks at the role of NGOs in biodiversity protection, highlighting both their strengths and limitations. It suggests ways in which these can be taken into account and recommends NGO participation at all stages of a project, including evaluation.

The second paper is by Peter J. Poole, an expert on environmental and renewable resources who has worked extensively on environmental projects with Canadian indigenous groups. The paper focuses on the roles that local and indigenous communities can play in conservation and how can these can be linked with global efforts.

The third paper is by Charles C. Geisler, Associate Professor of Rural Sociology at Cornell University. The paper reviews the literature on Social Impact Assessment as it applies to protected areas, considers several issues related to this means of "putting people first," and advocates an adaptive management approach in its use.

Shelton H. Davis, the editor of this volume, is Senior Sociologist in the Social Policy and Resettlement Division of the Environment Department at the World Bank.



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## Abbreviations

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AEA	Adaptive Environmental Assessment
GIS	Geographic Information System
ICDP	Integrated Conservation and Development Project
IUCN	International Union for the Conservation of Nature and Natural Resources (now World Conservation Union)
PASIA	Protected Area Social Impact Assessment
SIA	Social Impact Assessment
TFAP	Tropical Forestry Action Plan
WWF	World Wildlife Fund (now World Wide Fund for Nature)

# Introduction

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*Shelton H. Davis*

The success or failure of biodiversity conservation projects will in large measure depend upon the ways in which local people are brought into the protected area management process. No amount of additional funding for protected area management will have a positive effect if local peoples and communities are not convinced, trained and empowered to be the key actors in biodiversity conservation. The fundamental question relates to how this can be achieved. What concepts, methods and strategies exist for incorporating local peoples and communities into the biodiversity conservation process?

Several recent studies look at the experience of local communities in relation to protected area management and other biodiversity conservation projects. These studies indicate that there is a significant amount of worldwide experimentation taking place in this area; and while there are still no tested formulas for successful community participation and mobilization (like so many things social, popular participation is as much an art as it is a science), there is a social learning process taking place which could be supported and strengthened by international funding institutions like the Global Environment Facility (GEF).<sup>1</sup>

The following set of papers is conceived as a contribution to this growing body of knowledge and experience in the area of what might be called the “sociology

of biodiversity conservation.” Each paper takes up a specific theme in the interface between local communities and protected area management, analyzes what is currently known about this theme, and makes a series of recommendations for incorporating the thematic issue into the ongoing work of the GEF.

The first paper by Guillermo Castilleja looks at the issue of the role of non-governmental organizations (NGOs) in biodiversity protection. Castilleja argues that national and international NGOs are particularly well-suited for the tasks being financed by the GEF in the biodiversity area because of the general weakness of government parks and natural resource management agencies; the strong commitment of NGOs to conservation, environmental protection and rural development; and their abilities to mobilize and work with local communities. However, he also describes the limits of NGOs, especially in terms of their capacities to handle and administer relatively large sums of money and work jointly with governments, regional powerholders and local communities. He suggests that much more attention should be given to this capacity-building process within the GEF. He also argues that NGO participation should not be a “one shot effort” during the design phase of a project, but an integral aspect throughout the project cycle, from identification and preparation to appraisal, implementation and evaluation.<sup>2</sup>

<sup>1</sup> For background, see Patrick C. West and Steven R. Brechin, eds. *Resident Peoples and National Parks* (Tucson: University of Arizona Press, 1991); and Michael Wells, Katrina Brandon and Lee Hannah, *People and Parks: Linking Protected Area Management with Local Communities* (Washington, D.C.: World Bank, World Wildlife Fund-U.S., and U.S. Agency for International Development, 1992).

<sup>2</sup> For more detailed discussions of the developmental capacity of NGOs, see Albert O. Hirschman, *Getting Ahead Collectively: Grassroots Experiences in Latin America* (New York: Pergamon Press, 1984); and Thomas F. Carroll, *Intermediary NGOs: The Supporting Link in Grassroots Development* (West Hartford: Kumarian Press, 1992).

The second essay by Peter Poole looks at the role of indigenous peoples in biodiversity protection. One of the reasons why the participation of indigenous peoples is so critical is because they inhabit many of the remaining areas of high biodiversity and possess traditional knowledge and practices which have proven historically to be sustainable in such environments. Another reason is because indigenous peoples, either through national laws or ancestral claims, possess rights to relatively large amounts of land which either overlap or are contiguous (being in the so-called buffer zones) with protected areas.<sup>3</sup>

Drawing upon the Canadian experience and some examples from Latin America and Africa, Poole argues that there are several new experiments where indigenous peoples are cooperating with government agencies and NGOs in the protection of wildlife, forest, and fisheries. In contrast to most conventional park programs, these indigenous initiatives have usually resulted from land claim settlements and are based on the economic use of renewable natural resources. In many cases, the protection of biodiversity by indigenous peoples is a direct result of their subsistence-oriented domestic economies. However, where indigenous peoples move into more market-oriented relations through such activities as commercial wildlife hunting or wild plant extractivism, it is necessary to introduce more systematic environmental research and management on the model of institutional conservation programs in order to ensure the sustainability of biological resources.

Poole suggests that the types of indigenous environmental research and management programs being pursued by Canadian indigenous groups have implications for other areas, such as the Amazon region of South America. He recommends the creation of a pilot program, perhaps under GEF auspices, in which indigenous groups who are experimenting with innovative models of environmental research and management could serve as "technical assistance specialists" to other indigenous communities. The design and organization of such indigenous technical assistance

programs would have to be adapted to specific socio-cultural and ecological circumstances, but could provide models where biodiversity protection activities are under the direct control of indigenous communities.

The third paper by Charles Geisler reviews the literature on Protected Area Social Impact Assessment (PASIA). Social Impact Assessment (SIA) was designed by social scientists to deal with the potential, probable or unintended social effects of a proposed development project (such as a hydroelectric scheme, road building project or land settlement program). Over the past few years, social scientists have adapted this methodology to protected area projects and in the process obtained a greater knowledge of the complex social and natural system interactions which result from such initiatives.<sup>4</sup>

Geisler argues that the social impacts of protected area projects are so variable and dynamic that it is impossible from first principles to predict what effects they will have on such critical issues as demographic and land ownership patterns, land values, regional development trends, social stratification and power structures, and the values and perceptions of local resident populations. Therefore it is vital in factoring SIA into protected area projects that a *post hoc* or adaptive management approach be taken. Such an approach, which the author argues is well-adapted to the World Bank's project cycle, provides the opportunity for continuously monitoring and evaluating the people/protected area equation during the life cycle of a project and beyond. The GEF can again take the lead in this area by selectively requiring adaptive management PASIA for its biodiversity conservation financing.

In summary, the following papers review the current state of the art in incorporating NGOs, social impact assessment procedures, and indigenous peoples into protected area management and biodiversity conservation projects. Obviously, much more applied and analytical work needs to be done in these areas before there are tested models and strategies. The size and geographical scope of GEF-funded

<sup>3</sup> For an earlier discussion of this thesis, see Peter J. Poole, "Developing a Partnership of Indigenous Peoples, Conservationists and Land Use Planners in Latin America," Policy Research Working Paper 245 (Washington, D.C.: World Bank, 1989).

<sup>4</sup> See K. Rao and C. Geisler, "The Social Consequences of Protected Areas Development for Resident Populations." 1990. *Society and Natural Resources* 3: 19-32.

biodiversity projects provide excellent opportunities for supporting such innovation and experimentation.

Such innovation could potentially take place in three areas. First, in the increasing participation of national and international NGOs in providing technical assistance, training, and institutional support for the design and implementation of protected areas in developing countries. The GEF is already involved in the financing of several projects where NGOs, or NGOs in collaboration with government agencies, are the key players in protected area design and management. With these projects now underway, it is important for GEF to evaluate the lessons learned from such NGO participation. One of the major issues which needs more investigation, for example, is the relative importance of NGOs not only in mobilizing local communities for purposes of rural development in the buffer zones surrounding parks and other protected areas, but in influencing the institutional capacity of government agencies responsible for natural resource management and biodiversity conservation. The sustainability of the current generation of GEF biodiversity projects may, in fact, depend as much upon the nature of the relationships which evolve among NGOs, local communities and government agencies, as it does on the capacities and strengths of any one of these sectors.

Second, the GEF needs to make much greater use of social science expertise in the preparation, appraisal, monitoring, and evaluation of biodiversity conservation projects. Nowhere is this clearer than in the institutionalization of SIA procedures, as suggested in the Geisler paper. The creation of parks and other protected areas is a form of human intervention which has impacts upon the social as well as the natural environment. Such intervention is a dynamic process, the evolution and outcomes of which are seldom understood without systematic sociological inquiry and analysis. In a recent article published in *Ambio*, two Canadian researchers write:

*Conserving biodiversity over the long run requires understanding past and present human land use and effects in a holistic way. Biodiversity in an area is a product of the history of*

*interaction between human use and the environment. This legacy or heritage encompasses not only changes in climate, hydrology, geology and other biophysical factors but also changes in human activities, culture perceptions, attitudes and values, technology, and institutions. Indeed, what are often called natural patterns are frequently strongly influenced, if they are not the result of patterns of land and resource use associated with particular ways of life over a long time....To ignore, misinterpret or break these land-use, cultural and institutional patterns in planning and managing for biodiversity or other purposes, could lead to unforeseen and unwanted effects. Measures to conserve biodiversity based on indicator species, rarity and other biological parameters are unlikely to be very successful as long as human use and institutions are neglected.<sup>5</sup>*

This statement has particular relevance for the sorts of expertise which must be brought to bear on GEF biodiversity projects. Without adequate social science input at all stages of the project cycle, biodiversity conservation projects will suffer from too narrow a scientific and technical vision and be doomed to repeat many of the errors of the past.

Lastly, the GEF needs to pay more systematic attention to the ways in which indigenous peoples can be incorporated into biodiversity conservation projects. This is already taking place in some countries such as Bolivia and the Philippines, where the land or ancestral domain rights of indigenous peoples or communities are recognized, and special provisions and programs are introduced for their participation in wildlife management, forestry conservation and protected area regimes.

As part of its learning process, the GEF should study and disseminate the lessons learned from these experiments in indigenous participation. One area which may be worthy of more systematic attention by the GEF, as the Poole paper suggests, is the incorporation of indigenous peoples into the process of environmental research and management.

<sup>5</sup> J.G. Nelsen and R. Serafin, "Assessing Biodiversity: A Human Ecological Approach." 1992. *Ambio* 12, 3: 213.

To do so, it will be necessary for some of the international and in-country agencies which are currently designing GEF biodiversity projects to have a greater sensitivity to and understanding of indigenous people's traditional cultural knowledge and environmental expertise.

Where appropriate, GEF-funded biodiversity research and training programs should promote the intellectual protection and application of this indigenous environmental knowledge and expertise. They should also provide indigenous peoples with adequate training and technical assistance in scientific conservation and natural resource management skills so that they may eventually assume direct management and control of the protected areas in which they live.

In conclusion, the papers in this collection pose a set of challenges to the bilateral and international donor agencies, national governments, NGOs, scientific experts, and local communities involved in GEF biodiversity projects. By working together on these challenges, we shall have a better chance of conserving the fragile habitats and life-support systems upon which the health of the human race and the planet depends.

# 1 Opportunities for Collaboration between the Global Environment Facility and Non-Governmental Organizations

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*Guillermo Castilleja*

Conservation efforts limited to the official designation of protected areas and the traditional management of parks and reserves are increasingly proving to be insufficient for preserving habitats of biological importance in developing countries. Land invasions and over-exploitation, often resulting from land-use conflicts, are common threats to protected areas. Approaches that integrate official support with habitat conservation which benefits local populations are now seen as the last resource available to counter the rapid species loss afflicting many countries. Experience shows, however, that the success of these so-called Integrated Conservation and Development Projects (ICDPs) is far from a simple formulation, and that it requires efforts beyond the domain of any individual institution (Wells, Brandon and Hannah 1992; Hough 1988).

In many countries, the capabilities of government agencies to design and implement biodiversity projects are limited. Biodiversity protection often ranks low in national priorities and is the responsibility of agencies that have limited power, expertise and resources. Since their conservation efforts rarely go beyond park policing, many government agencies are ill equipped to resolve conflicts between park management objectives and the needs of local communities. Official accounts of protected area failures commonly describe agriculture, timber harvesting, and hunting as illegal activities that require reinforced policing.

The institutional gap between government conservation activities and habitat protection tends to be filled,

with varying degrees of success, by academic institutions, non-governmental organizations (NGOs), grassroots agencies and other interest groups. In contrast to government programs, conservation is often a priority for these groups, as reflected in their technical expertise, fund raising for protected areas, and interest in ecologically sound development schemes.

In spite of their limited political power and financial resources, NGOs are increasingly being recognized as key players in the efforts to protect biodiversity, particularly by donor agencies but also to some extent by recipient governments. Participation of environmental NGOs in environmental initiatives sponsored by donor governments is incipient but promising. For example, in countries where environmental NGOs have been able to participate in the Tropical Forestry Action Plan (TFAP) exercises, action plans have tended to have a stronger conservation component (Cort 1991).

This paper identifies opportunities for collaboration between the Global Environment Facility (GEF) and NGOs in the area of biodiversity conservation. The objective of the paper is to provide practical guidance for the pursuit of these opportunities. Specific attention focuses upon involving national intermediary groups, grassroots organizations, and international NGOs in GEF projects. The paper primarily addresses aspects related to the establishment and rehabilitation of protected areas.<sup>6</sup>

<sup>6</sup> Protected areas include the ten categories used by the International Union for the Conservation of Nature and Natural Resources (IUCN, *United Nations List of National Parks and Protected Areas* (Gland, Switzerland) 1985). They also include the transition or buffer zones in which certain productive activities are compatible with the more strictly protected core zone.

NGOs may be involved in GEF activities as:

- Participants in GEF component and stand-alone projects, contributing to the identification, design, implementation, monitoring, and evaluation of projects
- Applicants for free-standing projects
- Brokers and managers in the United Nations Development Programme's (UNDP) Small Grants Programme for NGOs
- Trustees in Trust Funds.

This paper concentrates on the first item—the potential role of NGOs in the entire cycle of GEF component and stand-alone biodiversity projects.

### **International environmental NGOs**

The involvement of large international environmental NGOs in the GEF is evident in the considerable role they have played in project identification and design in GEF biodiversity projects. Their role as implementors is also expected in some of these projects. The advisory functions of the “expert” NGOs are not limited to GEF projects. The International Union for the Conservation of Nature and Natural Resources (IUCN), the World Wildlife Fund (WWF), Conservation International (CI), and others are commonly contracted by governments for advice and technical training on park management and other aspects of biodiversity conservation. Some of the activities undertaken by large international environmental NGOs in biodiversity conservation consonant with GEF objectives include:

- Data collection on the geographic distribution of biodiversity; the threats to biodiversity; the extent and status of protected areas; and the rates of habitat loss and species extinction. Examples include the network of conservation data centers of The Nature Conservancy (TNC) in Latin America and the World Conservation Monitoring Center (WCMC).
- Development of global and regional conservation strategies, including identification of critical areas, habitat representation and, in some cases, the analysis of policies and legislation affecting conservation.
- Technical assistance and fund raising for the establishment of protected areas and environmentally sound development projects, including the estab-

lishment of site-specific protective measures and, in some cases, the provision of expertise in buffer-zone management.

- Building and strengthening of local conservation institutions, both governmental and non-governmental. Local environmental NGOs commonly receive technical and financial support from the large international environmental NGOs (Abramovitz 1991). By strengthening the role of local NGOs in project development and voicing their concerns in international forums, international NGOs help in promoting a partnership among local NGOs, governments and donors.
- Conservation efforts complementary to GEF goals such as support for research programs, promotion of debt-for-nature swaps, and establishment of conservation trust funds.

### **National intermediary NGOs and grassroots organizations**

Large national NGOs (also known as indigenous intermediary NGOs) and national consortia of environmental NGOs in developing countries perform functions similar to those of the international environmental NGOs. National environmental groups are sometimes affiliated to or work in close collaboration with international groups and specialize mainly in conservation. In grassroots groups, however, technical expertise in conservation tends to be replaced by local rural initiatives and other approaches to social development. While the grassroots groups may be less “environmental” in their focus than the national groups, their participation in biodiversity projects is critical.

The prominence of local NGOs and their effectiveness vary from country to country. In general, national NGOs and grassroots groups are particularly effective in the following areas relevant to biodiversity projects:

- *Design and implementation of management plans for the conservation of protected areas.* Usually these plans are formulated with the support of bilateral or multilateral agencies and international NGOs. In some cases, local NGOs are supported by contributions from larger NGOs, with the main purpose of ensuring the sustainability of individual protected areas.

- *Identification of local conservation needs.* National NGOs, grassroots groups, and academic institutions are an important source of information on the state of the flora and fauna of specific regions and their threats. This knowledge often includes an understanding of the impact of national legislation and local land use on biodiversity. Such information permits NGOs and academic institutions to make sound assessments of the viability of proposed conservation projects.
- *Rural development initiatives.* Experience with rural development initiatives applicable to buffer and transition zones in protected areas may best be communicated through NGOs. Sound ICDPs and consultations during the elaboration of action plans under the TFAP have revealed the existence of grassroots initiatives on rural development compatible with and supportive of conservation projects.
- *Educational programs.* National NGOs are particularly well placed for educating the urban population on the importance of biodiversity conservation as well as for providing rural populations with information on official initiatives and policies affecting their natural resources. NGOs may also be instrumental in the production of educational materials and programs to be offered in protected areas.
- *Advocacy on behalf of vulnerable communities.* This function of national NGOs is particularly valuable for the defense of the rights of marginalized communities and indigenous peoples. Numerous examples show the risks of neglecting these groups in the planning of biodiversity conservation projects. In many places, however, indigenous peoples and local groups are developing the organizational capacity to voice their own concerns and defend their rights directly.

There is also potential for the participation of NGOs experienced in rural poverty alleviation and development projects, such as Oxfam and CARE International, in biodiversity projects. Conservation activities in collaboration with international social development NGOs are still limited, but there is a growing sense that integration of their activities with conservation projects could be valuable.

### **Factors limiting GEF-NGO collaboration**

While the inclusion of NGO expertise and initiatives in biodiversity conservation in GEF projects would

be advantageous, several factors may limit this participation. A complete evaluation of the potential role of NGOs in GEF projects requires an assessment of these limiting factors.

International conservation NGOs tend to have limited experience in targeting poor rural peoples and promoting local development. This shortcoming is relevant to *in situ* conservation. The long-term sustainability of biodiversity projects (a key indicator of project success) is strongly dependent upon local participation. Projects that fail to accommodate the needs of local people will continuously be threatened by land invasions and over-exploitation. Most international environmental NGOs recognize the need to collaborate with national and local NGOs and extension agencies whose activities are directly linked to local communities.

Few local NGOs have developed expertise in combining community development with the protection of biodiversity in areas subjected to rapid habitat destruction and impoverishment. NGOs working in these areas need to address some of the most demanding social problems before they can focus on biodiversity conservation.

Involving NGOs in GEF projects may reveal institutional constraints in some groups, especially in those NGOs limited to specific communities and accustomed to operating with low budgets. Brown and Korten (1989) have identified some of the most common limitations that NGOs face internally when implementing development projects. Some of these limitations apply to NGOs which have the potential to be incorporated in GEF biodiversity projects. These include:

- Limited ability to broaden the scope and outreach of successful projects or to transfer successful methodologies
- Limited ability to develop organizational arrangements in the community that can be maintained once special staff and resources have been withdrawn
- Limited managerial and organizational capacities to absorb overhead costs and administer relatively large amounts of funds.

Experience shows that some of these limitations can be overcome with the assistance of more experienced groups and in some cases adequate funding (Brown and Korten 1989). However, managerial and technical limitations alone should not discourage project designers from involving local NGOs and other grassroots groups, since their contribution in initiating action, promoting local support, and voicing concerns of the local community is highly relevant to biodiversity conservation.

Another factor limiting the contribution of NGOs to GEF projects can be governmental resistance to their participation. NGOs from developing countries may be perceived as pursuing political goals that are threatening to government interests. Governments inexperienced in public consultation often view national NGOs as having objectives that are incompatible with those of the state, or as threatening the nation's sovereignty. Some governments may also consider NGOs as potential competitors for limited external funding.

Wells, Brandon and Hannah (1992) conclude that the design and management of ICDPs could benefit from the formation of partnerships between groups and agencies which often work in isolation or with limited communication. Conservation and development NGOs working alone often lack the necessary expertise to identify, design, implement or evaluate integrated projects. Increased collaboration is also needed between NGOs and government agencies. The GEF can play an important role in promoting these partnerships.

### **NGO involvement in the GEF project cycle**

The GEF should encourage cooperation and facilitate participatory processes in all the stages of project development.

#### **Project design**

The design of a GEF-supported biodiversity project should begin with the consultation of all concerned parties. In most projects involving the conservation of protected areas, concerned parties include:

- The local populations and resource users in the project areas

- Government agencies and NGOs providing institutional support and technical expertise
- Financing agencies.

Most biodiversity conservation projects, especially those involving the establishment of new protected areas or a change in protected area status, are likely to introduce changes in the relationship between local communities and their use of natural resources (Hough 1988). Effective project design requires consultation with those groups most likely to be affected by a project, identification of their needs, and consideration of their initiatives. These groups may include:

- *Indigenous communities.* Concerns to be addressed with these groups are likely to be the need for official recognition of their customary land or ancestral domain rights; their vulnerability to displacement and impoverishment; their close dependence on biodiversity (for medicinal plants, food or other materials); and their access to and use of resources in the protected area.
- *Occupational groups.* Project design will invariably require an understanding of how biodiversity protection competes with or reinforces other livelihood activities in the area of the reserve. Persons to be consulted here include agriculturists, herders, hunters, artisans, wood harvesters, fishermen, and other occupational specialists.

Depending on the project, accommodating the needs and desires of all parties affected by biodiversity conservation will require some degree of conflict resolution, especially when the project consists of the establishment of a new protected area. Negotiations involving resettlement and the resolution of land tenure disputes should be pursued at the design stage of a project.

Consultations with local communities should also assess the relative advantages of and compatibility between the initiatives for managing the protected area and its buffer zone proposed by the official agencies, and those initiatives developed or proposed by local communities and groups. Opportunities for employment in the management of the protected area, tourism, and other activities that could result from the operation of the reserve will have to be carefully weighed against the resulting changes in land use and

social relations. An overestimation of the potential for employment and other benefits can result in a lack of local support and continued threat to the protected area.

Environmental and development NGOs can play an important role in suggesting management designs that incorporate the best initiatives for the sustainability of the protected area. NGOs can also be useful in devising long-term financial and institutional arrangements such as endowments, trust funds, and other partnerships with the official agencies in charge of the project.

NGOs with experience in community development can assess the compatibility of conservation with the welfare of local communities and the feasibility of productive activities aimed at replacing unsustainable uses of the protected area. They can also assist in understanding the needs of marginalized groups, whose views may not be known by government agencies or conventional environmental or conservation groups.

National and environmental NGOs with experience in management and the ecological aspects of the habitat types included in the protected area are key to the technical design of a project. Together with local experts, they can provide guidance on conservation strategies and other relevant technical information not available through official channels.

Specific and specialized NGO input during project design may include:

- Suggestions for the designation of critical habitat areas to be strictly protected and the different protective measures required for each. This may include information on species that will require special protection or monitoring.
- Analysis of institutional incentives and constraints relevant to the sustainability of the protected area, including recommendations on policy and legislative changes. This could alert planners to serious local misunderstandings, opposition or other problems with the proposed project. Issues of land tenure are particularly critical to assess in such policy and legislative analysis.
- Preparation of conservation and rural development proposals to support grassroots initiatives which

could become incorporated in the management scheme of the protected area and its buffer zone.

- Comprehensive presentation of the project (including land use maps and other visual materials) that cannot be provided by government agencies concerned with individual aspects of the management plan.
- Outline of research needs, including the terms of reference for studies to assess the environmental and social impacts of gazetting land in the case of new protected areas, and the impact of land reclamation or expansion in the case of protected areas already gazetted.

### **Project implementation**

Participation of environmental NGOs and local communities beyond the design stage of a project is a requirement for the sustainability of biodiversity projects, especially where rural development is a key factor in the preservation of protected areas. In such cases, the distinction between participatory and passive beneficiary approaches is relevant (Wells, Brandon and Hannah 1992). Biodiversity projects where local groups are the passive recipients of economic benefits (such as agricultural subsidies and access to alternative resources) are usually not sustainable once the project is officially completed and the benefits cease. Similarly, projects in which local benefits are limited to a few managerial or menial jobs in the protected area or in its tourist services, do not discourage other members of the local population from the exploitation of natural resources. Conversely, biodiversity conservation projects which are supported through the development and active participation of local communities have a greater chance of survival, because the supply of benefits is dependent on the long-term success of the project.

ICDPs should be actively promoted as a biodiversity conservation strategy by the GEF. Under this type of scheme, local groups are directly responsible for activities designed for multiple-use areas or buffer zones. These activities may include agroforestry, wildlife farming, and fisheries management.

NGOs and community groups (in collaboration with local authorities) can assist in administering a community development fund financed by income from park admissions and other tourist activities.

Where appropriate, local groups may also be contracted for the provision of community services and maintenance of the protected area.

Environmental and development NGOs can provide support for productive activities in buffer zones, management of the protected area, field personnel training, cataloging of flora and fauna, special conservation programs, and field guides. Ideally this support should strengthen the capacity of local NGOs and other institutions to take over the management of the protected area.

Local managerial self-sufficiency will require a realistic assessment of the organizational capacity of the implementing NGOs and the types of support and training that they will need to fulfill project needs. The capacity of NGOs to manage project activities will vary according to the nature of the activity. Some of the criteria which can be used to assess implementing capacity are:

- *Technical capacity for operations in protected areas.* NGOs may be contracted for specific operations (such as drafting management plans, implementing special protective measures, cataloging biodiversity, and monitoring project development) or the overall management of a project. In either case, potential implementors should demonstrate their capacity to respond in quality and scale to the technical needs of the proposed project, including the ability to sustain the planned technical activities. Where appropriate, the assessment should include a review of NGO technical support needed to organize productive activities or other projects (in areas such as health, education, and cooperative formation) in the buffer zones surrounding the reserve.
- *Administrative capacity to manage funds.* Arrangements that assign NGOs the management of funds (such as admission fees, donations, and government funds) should reflect the organizational ability of the implementor to manage these funds for the purposes intended. This is particularly critical when a local group with limited experience in financial management is targeted as the administrator of a revolving fund or the beneficiary of potentially large funds generated by the protected area.

- *Proven political ability to reconcile local interests and resolve conflicts.* NGOs administering projects where arrangements on land use and access to resources are likely to result in conflicting interests should have demonstrable abilities to negotiate in such situations. Large international NGOs who are in charge of the overall management or co-management of a protected area may not have an adequate understanding of local politics. The technical capabilities of these NGOs may not be matched by their abilities to understand and resolve local conflicts.
- *Juridical capacity to act as project implementors.* Arrangements involving NGOs as contractors should take into account the specific limitations that these groups may be subjected to as a result of their legal status. Certain grassroots groups may lack the required legal status to be the recipients of government funds. Contracting done through an intermediary institution (another NGO) is possible in many cases. This alternative, however, should be assessed carefully since these relationships can elicit further conflicts of accountability.

A challenge in designing projects with NGOs as implementors is deciding when financial or legal support is needed to develop the capacity of the implementing agencies. Financial and legal support is not a universal solution to strengthening NGOs. Even when legal limitations are overcome, NGOs may not be able to absorb and manage relatively large sums of money. In some grassroots organizations, a new legal status and an unprecedented influx of financial resources can result in an over-dependence on external funding and a shift of priorities from organizational cohesion to more extensive service delivery.

### **Monitoring and evaluation**

Finally, national and international NGOs may assist in the establishment of geographic information and other systems to monitor land-use patterns and changes, and catalogue biodiversity in protected areas. A monitoring system has both technical and political relevance. A reliable and updated information base can facilitate planning activities and provide a continuous assessment of the reserve status, including changes in the protected area, location of productive activities, and human settlements. Politically, such information can attract

institutional attention to deviations from original targets.

Having access to such a monitoring system, local NGOs can continuously assess the status of a project, deviations from original targets, and the adequacy of any corrective measures. Furthermore, NGOs can contribute to a balanced evaluation of the sustainability of the biodiversity project. While official evaluations may concentrate on the administrative and financial aspects of the management of the protected area, evaluations carried out by NGOs could emphasize the current status and changes in the biodiversity protected.

### **NGOs and the consultation process**

The design of GEF biodiversity projects could benefit from the incorporation of some of the mechanisms for consultation with NGOs and local communities outlined in the World Bank's Operational Directive on Involving NGOs in Bank-Supported Activities (OD 14.70). However, since NGOs are also likely to play a role as implementors in GEF-funded biodiversity projects, these mechanisms may have to be extended to NGO participation beyond the project design stage. Therefore the mechanisms for consultation should also include modalities for establishing NGO and local community participation in the implementation, monitoring, and evaluation stages of biodiversity projects.

The establishment and rehabilitation of protected areas financed by the GEF could also benefit from the introduction of the sorts of consultation mechanisms required by the World Bank for the preparation of environmental assessments (OD 4.01). This directive states that:

*The Bank expects the borrower to take the views of affected groups and local NGOs fully into account in project design and implementation, and in particular in the preparation of Environmental Assessments (EAs). This process is important in order to understand both the nature and extent of any social or environmental im-*

*pact and the acceptability of proposed mitigation measures, particularly to affected groups. Consultations also are a valuable way to improve decision making, to obtain feedback on the EA process and draft report, and to increase community cooperation in implementing the recommendations of the EA.<sup>7</sup>*

In order to ensure adequate consultation, some adaptations of the EA participation mechanism to GEF projects may be necessary. These might include:

- The production of information on the project in sufficient detail to clearly identify opportunities for collaboration with NGOs.
- The use of an international information broker to attract the attention of potential NGOs with expertise in activities relevant to the project but not present in the project area.
- The use of a national information broker to secure consultation with relevant organizations and communities and to identify potential NGO initiatives relevant to the project. The national broker could also propose methods of participation in order to maximize constructive dialogue among all the parties concerned.
- Provisions for incorporating initiatives of local groups and NGOs relevant to the project; identifying project management activities to be implemented by NGOs and local groups; determining the capacity of available groups to perform these activities and provide the support they will require; and establishing the terms of reference for the assigned implementors.
- Provisions for the monitoring and evaluation of the project.

This paper has provided an overview of the role which national and international NGOs might potentially play in the identification, design, implementation, and evaluation of GEF biodiversity projects. It has also indicated some of the limitations of developing country NGOs, and suggested ways in which these limitations could be mitigated or overcome to ensure effective project participation.

<sup>7</sup> Specific guidelines for public and community consultations in the EA process are also found in chapter 7 of the *Environmental Assessment Sourcebook* (World Bank 1991). Many of these guidelines and recommendations are appropriate for GEF biodiversity projects.

To conclude, the following actions are suggested to facilitate greater participation of NGOs and local groups in the GEF biodiversity project cycle:<sup>8</sup>

First, the GEF could release an Initial Executive Project Summary (IEPS), or an equivalent document containing site-specific information, to an assigned information broker for distribution to international NGOs with relevant expertise, and national NGOs with the capacity to reach relevant NGOs and community organizations in the project area.

Second, national NGOs could organize a round table with relevant NGOs, the implementing agency responsible for the design and implementation of the project, and the preparatory GEF mission. The national information broker should have the ability and resources to carry out a survey to identify local groups, their activities and constituencies. The objectives of this round table would be:

- *Information feedback.* The GEF mission and implementing agency (and if different, the government counterpart) would clarify aspects of the GEF project, and when appropriate, the associated World Bank project (if the GEF project is one of its components), with interested NGOs and representatives of local communities. In this way, project designers could obtain information directly from local experts and the communities in the project area. The round table would identify information gaps and propose areas to be covered in the terms of reference for studies to assess the environmental and social impacts of the project.
- *Collaboration with NGOs on project design.* The round table would provide an opportunity for the implementing agency, government, and GEF missions to hear the views of NGOs and local communities on the design and implementation of the project. Local grassroots initiatives would be presented and evaluated in the context of the overall project design. Although some international NGOs may find it more convenient to send their views directly to project designers, their participation in the round tables with the local NGOs should be encouraged.

- *Identification of potential implementor NGOs.* According to established criteria, members of the round table would identify, as needed, project activities which could be performed, pending implementing or government agency approval, by local communities or NGOs and potential implementors. At the end of the round table/s, the organizers would produce a written account of the consultations and a schedule for further meetings and collection of additional information.

Third, the implementing or government agency responsible for the design of the project would incorporate agreements reached at the round tables in the project's management plan, including contracting terms for NGO implementors. The implementing agency's role here would be to negotiate a mutually agreeable plan of action whereby NGO involvement would be justified as part of a conservation strategy, thus minimizing political mistrust.

Fourth, upon completion of the design of the project, participants in the round table would reconvene to discuss it with the implementing agency, the government, and the GEF appraisal mission.

Lastly, the round table members, or a representative group of them, would meet periodically to assess and monitor project development and report to the implementing agency, the government, and the GEF. At the termination of the project, the evaluation would include an assessment of accomplishments and future activities. Evaluations of ongoing projects would provide useful suggestions for, *inter alia*, improved guidelines and criteria for NGO participation in other GEF projects.

<sup>8</sup> These actions would apply mainly to the establishment or rehabilitation of protected areas in specific sites selected according to criteria established by the GEF.

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## 2 Indigenous Peoples and Biodiversity Protection

*Peter J. Poole*

This paper focuses upon two questions:

- What roles can local communities, especially indigenous communities, play in biodiversity protection?
- How can such community-based activities connect with global efforts and programs?

The paper looks specifically at communities located in natural landscapes which may have been subjected to resource exploitation but have not been permanently transformed, and are recognized as having high biodiversity. Human presence in these landscapes is permanent but not ecologically reductive. Human activity may in fact increase biodiversity. The economies of such traditional resource-oriented villages are often subsistence-based or marginally market-oriented, and biodiversity protection gains acceptance only to the extent that it is compatible with economic goals. For conservation of this type, there is an acute shortage of models.

In confronting the prospect of large-scale and remotely-directed resource development, traditional communities have adopted a different strategy from that applied by the early conservationists. Defense is based upon the adaptation and reinforcement of vernacular patterns of use in ways that are compatible with biodiversity protection, rather than the exclusion of all forms of use in parks and protected areas. Progress in this direction carries considerable significance for conservation in general since such practices correspond to the kinds of sustainable economies advocated by the World Conservation Strategy (WCS) as appropriate for lands that are not designated as protected areas.

Historically, the presence of indigenous peoples in habitats of critical importance for biodiversity protection has served as a guarantee for protection. In some cases, such occupancy has increased biodiversity. In the South American Amazon, for example, Indian groups have demonstrated the ways in which they contrive to increase biological productivity in the localities most accessible to them. What outsiders regard as natural forest is in fact an artifact of their presence. A similar effect occurs in Australia, where aboriginal groups burn vegetation in mosaic patterns, both as a means of controlling larger, spontaneous fires and diversifying accessible resources.

Many natural areas under threat are occupied by indigenous peoples whose ecological knowledge systems are equally endangered. Indigenous peoples are constantly engaged in application and experiment; revision and refinement. Their knowledge base is sustained by this process and intimately tied to specific places. It will disappear if these places are transformed or the people move elsewhere, or are displaced, and therefore deprived of their operational resonance.

The value of indigenous knowledge has been recognized by scientists in conservation organizations and there have been symposia and studies on its applicability to mainstream environmental management. But such projects often presume that indigenous knowledge can be extracted from its mental and cultural context, and useful fragments injected into institutional systems of environmental management. This may happen in isolated cases and with apparent success, but it does not guarantee the security of the source—

those who conserve, transmit, and continually adapt indigenous knowledge.

This paper highlights the important role which indigenous communities could play in biodiversity protection when their ancestral land claims are legally recognized and they are provided with effective control over the natural resources contained on such lands. For purposes of discussion, a distinction is made between two models of conservation: “vernacular,” based upon site-specific traditions and economies; and “institutional,” based upon scientific conservation as it has evolved in Western societies. The distinguishing mark of vernacular conservation is compatibility between economic activity and biodiversity protection, a compatibility that is difficult to maintain in the face of economic pressures to maximize immediate returns from resource exploitation.

Emerging expressions of vernacular conservation include co-management arrangements between agencies and indigenous communities for fisheries, forest, and wildlife; projects specific to the buffer zones around parks; and indigenous initiatives in environmental research and management in protected areas. Cases of Canadian indigenous projects in these areas are cited to reflect the unique contribution that indigenous environmental knowledge can make to biodiversity protection and natural resource utilization.

Efforts by park agencies to accommodate the interests of resident indigenous communities have invariably led to tension rather than compatibility. This paper argues that the people-conservation relationship could be better explored and expressed in areas that are specifically dedicated for that purpose, such as in Man and the Biosphere (MAB) reserves or in lands under indigenous control after a land claims settlement.

The paper also describes various compatible economic activities such as extractivism, ecotourism, sports hunting, wildlife husbandry, and the environmental information industry. It suggests that these are both potentially compatible with biodiversity protection and potentially reductive. Therefore development assistance projects should be coupled with capacity building in environmental research and management, to enable indigenous organizations to monitor the impacts of such activities upon biodiversity protection.

The paper concludes that the Global Environment Facility (GEF) should consider supporting indigenous initiatives in capacity building for environmental research and management. Such a program would have three basic elements:

- Financing of several projects where indigenous peoples would be the major protagonists in the environmental management of areas of high biodiversity
- Providing technical assistance to these peoples by indigenous groups who are currently involved in environmental research and management and have developed some of the tested models described in this paper
- Monitoring and disseminating the lessons learned from these projects to indigenous peoples, conservation organizations, scientists, and government agencies in other countries where vernacular conservation strategies may be the only means of protecting areas of important biodiversity.

### **Two models of environmental conservation**

To understand the role which indigenous and other traditional peoples can play in biodiversity protection, it is important to distinguish between two models of environmental conservation. One model, termed “vernacular conservation,” refers to ways of life and resource utilization which have evolved in place and, like vernacular architecture, qualify as direct expressions of the relationship between communities and their habitats. The other model, called “institutional conservation,” refers to what is often termed “Western” or “scientific” conservation, typified by national parks and wildlife management regimes. Such practices are no longer confined to the West, nor are they always strictly scientific. In contrast to vernacular conservation, they are remotely directed, imply transplanted methodologies, and reflect metropolitan interests and perceptions of nature.

For several reasons, vernacular conservation is very much in vogue at present. Exponents of institutional conservation have discovered the limits to the amount of land that governments will allow to be sequestered in protected areas. Moreover, parks already in existence can rarely be effectively protected when their boundaries are marked by an abrupt change between

natural and domesticated landscapes. Buffer zones, where vernacular activities are encouraged, provide both this protection and revenues, thereby increasing their appeal to governments. But despite this increasing interest, vernacular conservation is not as widely recognized a conservation measure as certain institutional measures, such as the designation of national parks.

Indigenous peoples who have a close attachment to their ancestral lands<sup>9</sup> and still maintain and transmit their traditional systems of environmental knowledge have a distinct advantage in developing such vernacular approaches to biodiversity protection. Furthermore, indigenous peoples hold an advantage over other rural social sectors because they have the possibility, through ancestral land claims, of regaining some measure of control over lands and resources.

What happens in land claim areas is significant from the perspective of global biodiversity conservation because:

- Claim settlements provide traditional communities with some capacity for independent action and therefore the opportunity to demonstrate their approach to conservation.
- Such areas are extensive and still increasing. In the Mackenzie Delta and Western Arctic regions of Canada, for example, lands traditionally used and occupied by the Inuvialuit cover 435,000 square kilometers; while in the Brazilian Amazon, lands identified as belonging to indigenous tribes cover over 800,000 square kilometers.

At present there are few examples of dedicated indigenous conservation areas, because indigenous land claim areas or reserves are seen to fulfill this function. However, those indigenous protected areas which have emerged, such as the Awa Ethnic Forest Reserve in Ecuador, experiment with innovations which express the sustainable use principle in conservation, as in the concept of extractive reserves or the use of "forest belts" to protect natural areas.

Finally, in the buffer zones surrounding parks and other protected areas, intensive efforts are underway to find ways of involving local communities in conservation in order to maintain such zones as transitional areas between the core natural areas and lands transformed by monoculture. Many indigenous peoples occupy these zones or possess models of land and resource use which could be transferred to the non-indigenous rural communities which inhabit them.

Several recent statements by international indigenous organizations express their perspectives on biodiversity protection. These include:

- "Agenda for Environmental Groups" of the Coordinating Body of Indigenous Organizations of the Amazon Basin (COICA)
- "Indigenous Peoples and Conservation," contribution of Indigenous Survival International (ISI) to the World Conservation Strategy
- "Forest People's Charter" of the World Rainforest Movement (WRM).<sup>10</sup>

These statements have a different quality from those of earlier encounters between traditional peoples and environmentalists: they are proactive rather than reactive. They announce the potential for rapprochement with organizations occupying the center ground in conservation and lay down the terms under which cooperative action could be contemplated. Preparations by indigenous organizations for the United Nations Conference on Environment and Development (UNCED) and the Columbus Quincentennial may together or separately define the terms under which indigenous and tribal communities intend to deal with resource development, environmental issues, and the environmental community. These positions are relevant to the GEF and other global environmental initiatives.

### **Emerging forms of vernacular conservation**

The categories of actions taken by traditional communities and their representative organizations in defending and consolidating their environmental interests

<sup>9</sup> See World Bank, *Indigenous Peoples*. Operational Directive 4.20 (Washington, D.C., 1991).

<sup>10</sup> See International Work Group for Indigenous Affairs (IWGIA, Copenhagen), *Indigenous Peoples Yearbook* (1990); and *Arctic Environment: Indigenous Perspectives* (1991).

sometimes resemble the mechanisms of institutional conservation, but have different origins and purposes. They usually emerge from crisis or conflicts, negotiations over land or resource rights, controversies over resource use between traditional users and conservation agencies, campaigns against animal use by animal rights and protection groups, and actions resisting the impacts of industrial development.<sup>11</sup>

The land claims process in Canada has advanced far enough to yield well-defined models but comparable models are also emerging in Latin America, Africa, and Asia. Their purpose is usually to defend both indigenous lands and ways of life. This defense may entail a certain degree of adaptation to external circumstances as well as requests for external financial and technical support. But the process is directed from within the communities and sometimes assisted by both indigenous and non-indigenous non-governmental organizations (NGOs).

#### **Co-management arrangements: the Canadian experience**

Current interest in co-management, especially in Canada, marks a recognition on the part of environmental agencies that they must take account of local and community resource interests. Cynics remark that the intent is co-optation rather than co-management. Undoubtedly, there are subtle variations in the development of authority and responsibilities in such regimes but they have been shown to work in certain cases and should not be dismissed on account of this potential for internal tension. Co-management arrangements are evolving in the areas of wildlife, fisheries, and forest management.

The Caribou Co-Management Boards of the Canadian North have all emerged since the early 1980s. Each of the five boards manage migratory herds of 250,000 to 500,000 animals and follow the example set by the Kaminuriak Herd Board in the early 1980s. This board emerged as a mechanism for resolving a dispute between aboriginal hunters and wildlife management agencies over the contribution of hunting to what appeared to be a serious decline in caribou numbers. After increased survey effort, this decline was re-

vealed to be illusory and, in fact, attributable to the results of the herd shifting its calving ground to an area that was not censured.

By this time, the issues had polarized the protagonists and reached the southern press. A communications specialist, using video and encounter techniques, intervened and managed to bring the opposing groups to the point where they agreed to make an effort to work together to manage the herd—on the governing principle that caribou be recognized as a resource to which Inuit and Indian communities have prior access. Now hunters, biologists, and officials jointly review all aspects of caribou management: quotas, seasons and research; and recommend actions to regional agencies. A major factor in evolving the first Caribou Management Board was the provision of several years of strong support by government agencies.

In British Columbia, the Department of Fisheries and Oceans (DFO) spent Canadian \$10 million during 1991 to support 120 separate fisheries co-management community-based projects, and is planning a further expenditure of Canadian \$150 million over the next five years. The motivations behind these investments are interesting in light of GEF objectives. The northwest fishery is generally regarded as being in crisis, both ecologically and in terms of competing interest groups. From their participation in land claims negotiations elsewhere, DFO officials recognize that agreements over resource access and management are essential and inevitable elements of a settlement and this will certainly be the case with the forthcoming British Columbia aboriginal land claims negotiations.

Though land claims negotiations have not commenced in earnest, DFO has decided to work proactively with indigenous groups in exploring structures for co-management. In this, they have elected to take the expressed needs and priorities of Indian communities as the starting point: all project proposals must originate within communities and tribal councils. Program managers have explicitly stated that they expect the aboriginal fishery to eventually be managed entirely by indigenous communities and NGOs.

<sup>11</sup> For background see Peter J. Poole, "Developing a Partnership of Indigenous Peoples, Conservationists, and Land Use Planners in Latin America," Policy Research Working Paper 245 (Washington, D.C.: World Bank, 1989).

### Community-based environmental research and management

Once a land rights agreement has equipped communities with some measure of control over their resource base, some have gone on to develop a formal capacity to undertake ecological research and monitoring; formal in the sense that it yields data acceptable to institutional conservation agencies. Such capabilities reinforce local control over the environment and enable local people to replace visiting ecologists. Sometimes these arrangements are represented as integrations of Western scientific and traditional knowledge systems. But the question of whether both knowledge systems can survive this encounter intact is troublesome and yet to be resolved.

Some examples of these environmental research and management projects are:

- *Dene Cultural Institute (DCI)*. In the Mackenzie Valley, DCI has been running an indigenous environmental knowledge project. The principal objectives are to gather knowledge through interviews with elders and to explore ways of applying this to current environmental management.
- *The Alaska Eskimo Whaling Commission (AEWC)*. In 1975, faced with an attempt to curtail the hunting of bowheads by the International Whaling Commission (IWC), Inupiat set up the AEW. In response to the assertion by the IWC that hunting was endangering bowheads, the AEW formed a scientific commission to conduct its own whale surveys. Since AEW recruited internationally-known marine biologists, the results could not easily be dismissed by the IWC. From the outset, hunters collaborated on the surveys and applied their knowledge of whale behavior. Young Inupiat were trained in underwater acoustics. As a result of more efficient surveys, estimates of the whale population have since increased five-fold. This increased scientific efficiency was a major factor in resolving the crisis.
- *The Inuvialuit Game Council*. The Inuvialuit Land Claims Agreement includes a comprehensive set of mechanisms for resource management, environmental impacts assessment, and research. One element of this research is the training of young people as "whale monitors" who visit the beluga hunting camps of the Mackenzie Delta, record the

number and characteristics of the whales taken, and remove certain parts for shipment to marine biology laboratories in southern Canada. Whale monitors have both disseminated and increased the output of government biologists.

- *Sanikiluaq Inuit Community*. With external support, the Hunters and Trappers Association of Sanikiluaq took years to evolve a locally-run reindeer management regime. Local hunters now conduct herd censuses from the ground and regularly conduct carcass sampling in the course of winter community hunts. Throughout the year, they monitor the range and movement of herds. The University of Alberta assists with technical analysis.
- *The James Bay Agreement*. In 1975, Makivik Corporation, representing Inuit in Arctic Quebec, set up the Kuujuaq Environmental Research Laboratory, initially staffed by two southern biologists and six Inuit trainees. Inuit staff regularly conduct research and monitoring projects on beluga, caribou, and other Arctic wildlife, sometimes in collaboration with southern agencies, and enter the results in a Geographic Information System (GIS).

### Indigenous protected areas: the Latin American experience

A few indigenous groups have established protected areas which resemble the parks and reserves familiar in the West. This familiarity may obscure the fact that motivations for setting up such areas are quite distinct from those leading to national parks, even though in terms of biodiversity protection the ultimate effect may be similar. Such areas are established to protect land for rather than from use; more specifically for local use rather than exploitation by outside interests. From the indigenous perspective, they are more like an area over which they have gained control as a result of a land rights agreement.

There are a few examples of indigenous groups in Latin America who have spontaneously decided to establish conservation areas. Two such examples are described by Poole (1989). In Panama, Kuna Yala is a strip of island designated as a nature reserve but designed to protect the coastal areas used by Kuna from the colonization front advancing from the interior. In Ecuador, the Awa have

secured rights over a traditional area, which has been designated the Awa Ethnic Forest Reserve.

In defending their lands, some indigenous groups in Latin America have found themselves obliged to demonstrate that they are being used. The objective is to counter the assumption, or the claim, by outsiders that their incursions are justified on the grounds that the land is “going to waste” by not being used. The Awa have systematized this defensive tactic by surrounding their forest reserve by a 200-kilometer *manga* (a 30-meter wide clear-cut swathe planted with gardens and orchards) announcing to the advancing logging front that the land is under active occupation.

Though security of tenure and culture have been the main driving forces for these groups, they have not excluded the possibility of considering institutional conservation areas when this reinforces their activities. In Ecuador, the Awa, after discussions with related Awa groups directly across the Colombian border, are investigating the prospect of extending their area as an international biosphere reserve. Both groups are embarking upon research into the Western conservation methodologies they may adopt if this happens.

The Kuna and Awa projects have been the subject of much attention from the mainstream conservation community and several articles have extolled them as models for environmental protection. Such assumptions are dangerous when they imply that such models can be easily duplicated. Such efforts are contingent and fragile. They are exposed to internal communal tensions between traditional and modernizing tendencies and persistent external pressures. In fact, project leaders command virtually negligible financial resources compared to those at the disposal of mainstream conservation organizations and agencies.

#### **Buffer zones and African wildlife protection**

Interest is increasing in developing the capacity of the habitats surrounding protected areas to act as buffer zones between the core protected area and domesticated landscapes. This entails a complex of activities such as monitoring and mitigating flows of exotic and industrial materials conveyed via

water and air currents, allowing for the passage of migratory species, and exploring forms of compatibility between domestic and wild animals. In many cases, such prospective buffer zones are occupied by traditional peoples whose main interest lies in maintaining and reinforcing traditional economies and cultures.

The relationship between environmental agencies and such buffer zone communities is the mirror image of that within core park areas. Within parks, communities are obliged to adapt to park conditions; outside parks, environmental agencies are obliged to adapt to community priorities. In East Africa, this has led to several intensive efforts to enlist the support of local communities occupying land near national parks. In Kenya, for example, ninety percent of wildlife habitat lies outside protected areas and it is widely felt that the prospects for maintaining that habitat ultimately rest upon gaining the active engagement of local people.

The African Wildlife Foundation recently commenced a “Neighbors as Partners” program in the area around three national parks in northern Tanzania. Wildlife Conservation International has been working successfully with Maasai communities in the vicinity of Maasai Amboseli National Park. Friends of Wildlife is starting a community and conservation project amongst nomadic pastoralists near Maasai Mara National Reserve. In Uganda, the World Wildlife Fund (WWF) and CARE International are working jointly on finding ways of involving local communities in a new national park.

The Wildlife and Human Needs Program of WWF-US has done much to demonstrate the compatibility between the objectives of remote communities and conservation. Though its reach is becoming increasingly global, most of the effort to date has been concentrated in Latin America. The focus of these projects is upon communities within and adjacent to protected areas; they are regarded as extensions of the biodiversity protection programs specific to those areas. However, the lessons learnt should be transmitted to distant communities that do not benefit from such proximity.

## **Economic dimensions of local biodiversity protection**

Six kinds of activities have the potential to provide income for local communities, while providing for biodiversity protection. Four involve the harvesting of plants or animals:

- Extractivism
- Subsistence
- Wildlife husbandry
- Sports hunting.

Two involve observation:

- Ecotourism
- Environmental data gathering.

The ecological impact of these activities varies from minimal when gathering environmental data, to potentially reductive, in the case of extractive practices. It is conceivable that the economic success of harvesting projects may impel extraction towards thresholds of sustainability. It then becomes vital to collect and supply the environmental information enabling managers to monitor the impacts of extraction and respond accordingly.

In the context of a remote community economy, these activities tend to blend into each other in informal ways which increase the uncertainty of conventional economic analysis and forecasting. The following discussion and examples cited support the general proposition that, when a new economic activity can be grafted on to an existing and traditional practice, the results may be less spectacular or quantifiable in the short term, but they are more likely to find long-term acceptance. This is especially the case in the relationship between extractivism and subsistence.

Economic development programs in these areas have often foundered when assumptions were made about the reception that such programs would get. The well-known argument about appropriate rather than industrial technology equally applies to economic organization. Often, the programs that succeed resemble traditional activities, in that they are opportunistic, seasonal, and information-intensive rather than capital-intensive. The activity itself is seen as task rather

than a job: the same person may participate in several of these activities rather than exclusively in one as a job or career.

### **Extractivism**

Extractivism has gained ground as a compelling argument for forest preservation. It is usually cast as a comparison between estimated, one-time value of rainforest as lumber and its higher and continuing potential revenue as a source of fruits, nuts, and other materials. Much attention is being paid to finding new markets for such materials and introducing new technologies for extraction, processing, and storage. All promise to raise production and add local value. Such projects are often presented as amplifications of traditional practice. This may be true as far as initial gathering is concerned, but beyond that they call for economic reorganization and linkages with distant markets which may have unpredictable impacts upon local social and economic institutions.

The extractivist idea evolved in the Amazon region as an extension of rubber tapping: a sustainable practice which could be extended to other materials. In its economic relationships, rubber tapping is similar to trapping and fishing. However, experience in these other industries indicates the problems that should be taken into account in a program to encourage extractivism.

In the Arctic, Inuit took to commercial trapping and contract whaling with alacrity as these required only an adaptation of traditional skills. However, as trapping gradually became a more significant economic activity, subsistence hunting began to suffer. This prompted a reliance on imported foods, which in turn called for more income from trapping.

A recent scheme to systematically harvest the George River caribou herd of Quebec (at 700,000 the largest in the world) encountered opposition from subsistence hunters on the grounds that the capital investment required would be such that, if the herd numbers fell, the subsistence quota would be reduced before the commercial quota assigned to the business operation.

On the other hand, similar but small-scale ventures of this type have succeeded when a commercial

quota of caribou, beluga, or musk ox is assigned to a community and the hunters use it when they obtain a surplus. The surplus is simply sold to the local Inuit Cooperative and resold locally or sent to other communities. With this arrangement, hunters know that they can obtain some extra income without this affecting their subsistence activities. The problem from the economic perspective is that this opportunistic arrangement produces an irregular flow of raw materials and would not be satisfactory for a market-oriented form of extractivism.

### **Subsistence and biodiversity protection**

“Subsistence” is summarily defined as the harvesting of resources to meet local needs for food and materials. It includes traditional forms of communal distribution and may entail some local trade or barter, but excludes the kinds of commercial harvesting cited above. From the economic and biodiversity perspectives, subsistence is significant in two ways:

- As a motivation for biodiversity protection
- As a socioeconomic structure setting terms for the introduction of new extractivist activities.

Subsistence can also contribute to biodiversity protection in two ways:

- By confirming a valid, sustainable use of resources as an alternative to industrial-scale exploitation
- By placing the responsibility for habitat protection upon the user communities and the NGOs that assist them.

Below are two examples of programs which recognize that although traditional economic activities are marginal, there are social and environmental benefits which justify providing support to the extent of basic needs.

Following the James Bay Settlement of 1975, the Cree of Northern Quebec embarked upon a hunter support program which may have implications for biodiversity protection. To qualify, hunters, trappers, and fishermen must spend a minimal period of the year living in camps on the land. Once qualified, they receive amounts calculated to cover basic needs and in some communities can expect guaranteed prices for the local sale of surplus harvest. For expenditures

well within the amounts received from the James Bay Settlement, the Cree have managed to sustain traditional practice over their lands. It is conceivable that their current campaign to stop the extension of the James Bay Hydroelectric Project would have had less force without this evidence of continued and vigorous use.

A similar program is operated by the government of the Northwest Territories: the Outpost Camp Program. Families which elect to return to traditional hunting areas and remain there for a season receive start-up funds for building a camp, a short-wave radio, and two supply airlifts per year. The families otherwise receive none of the benefits or transfer payments accessible to people in the communities. The government has estimated that the per family costs of maintaining people in outpost camps are substantially less than the per family costs of maintaining Arctic settlements. They are, moreover, considered to yield significant social benefits. Recently, Inuit elders in Baffin Island decided to expand the Outpost Camp Program as a measure to deal with an alarming suicide rate among young people. These Canadian Arctic programs have their counterparts elsewhere: in the Outstation Program among Australian aboriginal communities and the Camp Fire Program in Zimbabwe.

### **Wildlife husbandry**

Another current focus is upon various forms of wildlife breeding and husbandry. These may be presented as part of an ecological restoration project, such as those for turtles and wallabies, or as a simple commercial enterprise, such as those involving crocodiles and reindeer. Sometimes both merge, with restoration projects aiming to produce a surplus for commercial sale. Such projects entail various degrees of ecological manipulation besides the killing of animals. The maximum effect occurs in those forms of aquaculture where fish are subject to genetic manipulation. These latter practices mark a threshold between wild and domestic husbandry and perhaps do not conform to the biodiversity protection objective of conserving natural genetic materials.

In general, such husbandry projects are positive as long as manipulation does not include reductive or disruptive practices. The threshold is not always clearly visible; even the most traditional form of

husbandry, such as reindeer herding, sometimes resorts to reductive practices like predator control. Collectively, these new approaches to resource extraction call for a monitoring and management capability. At present, this is usually done by remote agencies and visiting study teams. This is not inevitable; there are also prospects for locally-based environmental research and management.

### **Sports hunting**

Though not all conservationists would agree, sports hunting can act as a major incentive for biodiversity protection. In the world's first national park, Yellowstone, the wardens were expected to support themselves by hunting within the park. The conservation organization Ducks Unlimited, which has many hunters as members, has an impressive track record in terms of waterfowl habitat preservation. Many of the current African national parks were first declared game reserves. In Tanzania, with the most outstanding national parks in Africa, seventy percent of total wilderness recreation revenues derive from sports hunting in game reserves and only thirty percent from tourism in national parks.

Some indigenous groups have opened their lands to sports hunting as an extension of traditional practice. The Inuit, for example, modify their traditional practice to provide an authentic experience for sports hunters. At the same time, government regulations both enforce strict quotas and ensure that Inuit earn reasonable sums from guiding sportsmen.

In Pakistan, the Tor Ghar Mountain provides an important habitat for the markhor and snow leopard. After weapons became available in the 1970s, these species became seriously depleted. In 1985, a local *sardar* and a group of elders decided to set up a trophy hunting scheme and hired seven game watchers to guard against poachers. After five years, the animals had recovered so well that twenty-five watchers are now employed and one young man has been sent to Georgia University to train in wildlife management. All of this has been done with local resources and the revenue from sports hunting. Ironically, it is also illegal.

### **Ecotourism**

By some estimates, tourism is becoming the world's largest industry and ecotourism is one of its most

thriving sectors, accounting for perhaps \$12 billion a year. Nature and adventure tourism are often advocated as appropriate and benign ways for remote communities to obtain revenue from their lands. However, it should not be assumed that entry into this activity will be easy simply because ecotourism appears to be so appropriate. Like other forms of tourism, it is dominated by companies located at the market end, and for communities to become substantially involved will require a determined and directed effort in this sector, equivalent to that needed to serve extractivist activities.

In Panama, the Kuna community exerts a reasonable amount of political control over their *comarca* (reserve); but this region, of over 300 islands, is also the last undeveloped stretch of Caribbean coastline with a high tourist potential. At least two hotels built by outsiders without the consent of the Kuna leadership were destroyed before their determination to control tourism was recognized, and visiting is now limited to ecotourism in Kuna Yala and brief visits to the coast by cruise ships.

Though most indigenous communities may not need to react as aggressively as the Kuna, their experience suggests that they may share the vulnerable position occupied by the producers of primary commodities, and assertive action is needed to secure a position in this powerful industry. Fortunately, examples are emerging where communities benefit from tourism without being exploited as its objects: the Maasai example in East Africa is a strong case in point.

### **The environmental information industry**

Programs promoting community-based resource development tend to focus on the economics and technologies of resource harvesting, processing, and marketing. Their scope should be expanded to include the encouragement of local capabilities to participate in the environmental monitoring, research, and management regimes needed to support resource utilization. Such environmental monitoring and management, besides being an essential complement to resource harvesting, also qualifies as an economic activity on its own account.

The following paragraphs look at the environmental knowledge industry along with other ways in which

revenues may be derived from natural areas, whether these take the form of wages, fees, support for research and conservation institutions, ordinary profits or raw materials. The question addressed is: what kinds of economic activity take place and to what extent can local communities take advantage of these opportunities?

The collection, processing, analysis, and application of ecological data has become a growth industry, conspicuously so in the Arctic, where its fortunes have been closely coupled with hydrocarbon developments and the need to assess and manage their environmental impacts. There has not been any systematic exploration of how local communities could share in this growth. The indigenous projects in environmental research and monitoring regimes described above evolved informally and sporadically, but nevertheless illustrate the potential for such sharing. However, it would be misleading to attempt to generalize about the potential for indigenous participation in the environmental information industry on the basis of these few examples. The following illustrate the possibilities.

#### *The Arctic Inuit environmental training and other programs*

A research study in support of an Arctic Inuit Environmental Training Program revealed that federal contract expenditures alone for Canadian Arctic environmental impact research over four years averaged \$27 million. A private enterprise, the Arctic Research Establishment (ARE), Pond Inlet, is run by a southern oceanographer, but all other staff (between four to five) are local Inuit and the work language is Inuktitut. Over the same four-year period, the ARE obtained twenty-seven contracts from this government expenditure, the value of which represented a gross income of almost Canadian \$10,000 per month. However, Pond Inlet is strategically located in the Northwest Passage, a critical sea-route for impact assessment, and not all Inuit communities possess the same geographic advantage.

There is a complex and often opaque blend of institutional and commercial interests within this industry. Penetration can take two routes. One is to train local people to take over field positions and operations of central government agencies—a form of import sub-

stitution. The other is to compete directly as a private consultancy. A third possible route is via a post-land claims settlement. For example, Cree in Northern Manitoba acquired a GIS as a tool for storing information on local knowledge and resource use patterns related to their lands. They have since branched out into selling data to Manitoba Hydro for this company to meet its needs for environmental impacts assessment and management.

Given an appropriate program, indigenous communities have responded vigorously to invitations to become more involved in environmental management. For example, the Canadian Department of Fisheries and Oceans has decided upon a strategy of devolution of environmental management on the West Coast. This program, as mentioned before, now supports 120 indigenous community projects in fisheries management.

#### *Indigenous peoples and geographic information technologies*

This evolution has been catalyzed by the emergence of geographic information technologies well-suited for local and remote area applications. The Grand Council of the Cree, which is the decision-making body of the James Bay Cree, has started a project to use a GIS as a means of using their traditional knowledge for land management, as well as for processing data for sale.

In December 1991, a seminar was held in Brasilia on the ways in which indigenous groups can use low-cost, satellite-generated, global positioning systems (GPS) for the demarcation of their lands. Such technologies enable communities to reference land boundary data and to locate boundaries to an accuracy of between a few centimeters and 25 meters. Once referenced in this way, such data can be entered into a global environmental database such as the Global Environmental Monitoring System (GEMS), the Global Resource Information Database (GRID), or the Earth Observing System (EOS). These sophisticated technologies, now available to remote indigenous communities and to national agrarian and indigenous affairs agencies, can facilitate the land demarcation and patrolling processes, and open potential markets for locally-generated environmental data.

Among indigenous communities and organizations, there is a strong drive towards increasing their participation in the technical process of environmental research and management, in a manner which combines their traditional ecological knowledge with useful external technologies. Such a capacity will:

- Express and complement land and resource rights with a research and management capability
- Act as a vehicle for conserving and adapting traditional ecological knowledge
- Enable indigenous communities and organizations to monitor the environmental impacts of various resource development activities
- Qualify as an economic activity in its own right.

### **Indigenous environmental research management and the GEF**

The projects cited in this paper are evidence of an interest among indigenous communities and organizations towards assuming direct responsibilities for biodiversity protection. Recent statements by such organizations as the Coordinating Body of Amazonian Indian Organizations, the Inuit Circumpolar Conference, and Indigenous Survival International reflect this interest and provide an active foundation for a work program focused upon supporting such activities through the continued evolution of biodiversity protection founded upon indigenous community-based research and management.

The focus of such a work program would be upon environmental planning, research, and management. It would build upon indigenous projects that are in progress or proposed, be organized to utilize and adapt accumulated global indigenous experience, and disseminate the results to interested indigenous and local communities, government agencies, and conservation organizations.

While the details of such a program would have to be worked out with the indigenous communities and organizations themselves, its central design features could be:

- A series of pilot projects to explore and expand roles for indigenous communities, and applica-

tions of traditional knowledge, in environmental research and management. Projects could be derived from proposals already under review by the GEF for countries such as Bolivia, Colombia, Ecuador, Peru, Paraguay, and Venezuela in Latin America. These projects could explore, in areas of high biodiversity, community-based research and management aspects of the expressions of vernacular conservation discussed in this paper: subsistence, indigenous protected areas, applications of traditional knowledge, extractivism, ecotourism, and wildlife husbandry.

- An innovative element of this program could be the collaborative adaptation of suitable models developed by indigenous groups in countries such as Canada to Latin America and other indigenous contexts. Canadian Indian groups, for example, could serve as technical assistance specialists, working closely with Latin American indigenous and conservation NGOs in providing training and capacity-building services to local communities. Canadian development or other bilateral agencies could be approached to support the technical services delivery component of the projects.
- Finally, pilot projects could be monitored and evaluated and the results disseminated to other indigenous groups, as well as to the scientific and conservation communities, and government and donor agencies. The experience gained in this collaborative adaptation of the Canadian and other indigenous environmental research and management models would equip Latin American indigenous groups to follow up this dissemination process by themselves, and by undertaking further assistance, to transfer it to other indigenous communities. Efforts could also be made to disseminate the lessons and findings of the program to other countries where vernacular conservation strategies may be the only means of protecting areas of globally important biodiversity.

### 3

## Adapting Social Impact Assessment to Protected Area Development

Charles C. Geisler

*“The impact assessments should continue for the life of the project, be comprehensively scoped, and audited for professional credibility” Ellis (1989:14)*

This paper considers a number of issues central to the use of social impact assessment (SIA) in protected area development. In the 1980s, the World Bank formalized guidelines for social analysis and supplemented them with additional commentary.<sup>12</sup> Not until the World Bank issued its 1986 operational policy on the place of wildlands in development, however, did it provide a conceptual compass for social analysis applied to protected areas.<sup>13</sup> The mandate for doing this is stated in the World Bank’s Operational Directive for Environmental Assessment (OD 4.01), its *Environmental Assessment Sourcebook* (1991), and the biodiversity protection guidelines of the Global Environment Facility (GEF). SIA has high potential for being a formally recognized means of “putting people first” (Cernea 1985) in protected area projects supported by the World Bank in the 1990s and beyond.

Though welcome, protected area social impact assessment (PASIA) by development institutions must contend with several basic problems. First, there is the

definitional question of what constitutes SIA. This is addressed in the body of this paper. Second, there is only partial consensus on the operational meaning of “protected area.” The International Union for the Conservation of Nature and Natural Resources (IUCN) has identified 140 common names used to describe protected areas (Clay 1985), and usage ranges from national parks, ecological reserves and protected forests (World Bank 1991) to World Heritage Sites, biosphere reserves and internationally recognized wetlands (Ledec and Goodland 1988). Needless to say, the protected area in question (for example, cultural park versus sacred grove) has important implications for the range, type, and scale of social impacts observed.

A third impediment to PASIA is the partially inaccurate view that protected areas are the antithesis of development. It is a view nurtured by many first-hand observations by conservationists and by researchers focusing on development threats to parks (for example, Searle 1987). Increasingly, however, large-scale efforts at conservation, restoration and/or protection must be viewed as developments in and of themselves—developments customized to regions of the world with a comparative advantage in biodiversity, scenic grandeur, and unique habitats or ecosystems.<sup>14</sup>

<sup>12</sup> Until the 1980s, the World Bank operated under the general guideline of minimal social costs in relation to projects it supported (World Bank 1979). The guidelines which emerged in 1981 are summarized by Ingersoll (1990) along with an explanation of why they occurred at the time. In 1982, Goodland drew together relevant Bank policy with respect to tribal peoples (see also the Bank’s Operational Directive 4.20, issued in September 1991, on this subject). In 1985, Cernea contributed indirectly to social impact assessment thinking within the World Bank by assembling a broad rationale for social analysis in World Bank development projects. In 1991, the World Bank issued its *Environmental Assessment Sourcebook*, several sections of which featured social-institutional issues or “core concerns.” Thus, the longer tradition of environmental assessment within the World Bank (see Temple 1978) merged officially with social assessment only very recently.

<sup>13</sup> This is amplified in Goodland (1987) and Ledec and Goodland (1988).

<sup>14</sup> There is now a growing interest in wildlife as explicitly a development commodity as opposed to strictly a conservation concern (Jeffrey 1991; Murphree 1991).

Moreover, protected area development by both government and non-government agencies typically entails loans and capital mobilization, macro planning and new infrastructure, and expectations of revenues and/or non-market benefits for present and future generations. Such development may appear less dynamic than regional development yielding hydroelectric dams, new highways, or industrial parks. But its potential to disrupt culture, relocate people, and alter property values and ownership patterns certainly warrants innovative SIA work (Rao and Geisler 1990; Hough 1991).

The present paper advocates SIA while cautioning that, in its present form, such assessment may be insufficient to safeguard social interests in conservation projects. It begins with a brief overview of SIA in general and summarizes literature which contributes to PASIA, both formal and informal. Attention then shifts to a matter of fundamental importance in future PASIA activities. This is its temporal scope and potential for protracted use. Until now, SIA has had a pre-project or *ex ante* bias intended to enhance information before project decisions are made. Numerous examples of impacts, for which no pre-project information is available, are provided, suggesting the urgency of adapting PASIA to long-term conservation initiatives. An adaptive management PASIA strategy is proposed and illustrated with implications for biodiversity conservation projects financed under the GEF.

### **SIA, development and conservation**

SIA is the evaluation of the effects, good and bad, of a proposed development activity in a comparative framework. By this is meant a framework which investigates with equal rigor alternative solutions to a development challenge, including the status quo (no development). SIA practitioners, like many who perform environmental impacts assessment, pride themselves on *ex ante* as opposed to *post facto* research. Thus, in a SIA triggered by the permit application for a hydroelectric dam, participating social scientists identify alternative approaches for

generating power (typically with public input) and evaluate the social impacts of each in advance of the project's implementation phase. Such *ex ante* analyses have many advantages over the hindsight analyses popular in previous decades.<sup>15</sup>

The works of Wolf (1977, 1983) and Finsterbusch (1985) are widely regarded as definitive guides to SIA operations (see Appendix I), and Freudenburg (1986) has synthesized key findings across a spectrum of SIA applications. Many have embellished and extended the general SIA framework (for example, Bowles 1980; Branch et al. 1984; Leistriz and Ekstrom 1986), and government agencies have periodically developed SIA protocols directly relevant to protected area development (for example, Gale 1975; Branch et al. 1984) or used variants of SIA to maximize a park's relevance to visitors as well as local residents (Lee and Brown 1990). Others have extended SIA to developing country settings (Derman and Whiteford 1985; Rickson, Burdge and Armour 1990; Rickson et al. 1990; Finsterbusch, Ingersoll and Llewellyn 1990). Of increasing interest to SIA practitioners (some would say an imperative concern) is public involvement and participation (Daneke, Garcia and Priscoli 1985; Hyman and Stiftel 1988; Burdge and Robertson 1990).<sup>16</sup>

It is useful to recall in applying SIA to protected area development that parks and reserves are land-use planning exercises on a macro scale. Land-use planning is, in its myriad forms, an effort to impose regulations believed to serve larger societal interests on local owners or users of the landscape. Here, the public interest often overrides local interests or, as Hough (1991:275) observes, protecting environmental values for mankind often interferes with the realization of local values. That there are social impacts associated with most definitions of protected area development is above dispute,<sup>17</sup> just as are the impacts of the great majority of land-use planning initiatives. Just what these impacts are is less clear; in large part, because of a lack of an established PASIA research tradition.

<sup>15</sup> The benefits of *ex ante* research include the establishment of baseline measures against which later information can be compared; discrimination of natural variation in key variables from change due to project execution (true impacts); and unbiased comparison of alternatives, including the status quo, before vested interests become hardened. See Ellis (1989) for further discussion.

<sup>16</sup> See the many contributing views on this matter in McNeely and Miller (1984), and West and Brechin (1991).

<sup>17</sup> This holds true even where protected areas are initiated by local people (for example, Hill 1983) or those protected areas tolerant of human activities ranging from historic preservation to diversified extraction and use, or the "working landscape" approach to protection (Burrell 1987).

To date, most PASIA has had an *ad hoc* character. Where impact assessment has been done at all, economic, engineering, and environmental concerns have dominated, leaving human impacts on the sidelines. There are, however, a growing number of *post facto* narrative accounts on the fate of local people in or near protected areas. Examples include Turnbull's (1972) and Calhoun's (1991) studies of the Ik in Uganda's Kidepo National Park; Olwig's (1980) account of native inhabitants of St. John's National Park in the U.S. Virgin Islands; the Central Land Council's (1987) report of tourism impacts at Uluru (Ayers Rock) on the Pitjantjatjara and Mutitjula of Australia; Veliz, Bright and Barborak's (1984) summary of Copan World Heritage Site effects on the Mayan peasants in Honduras; Place's (1988) research on the social effects of Costa Rica's Tortugero National Park; and McDonald and Muldowny's (1982) social overview of the largest public works project in U.S. history: the Tennessee Valley Authority. Numerous cases of indigenous peoples coping with protected area development are found in *Cultural Survival Quarterly* (for example, Clay 1985), consultancy research (for example, MacDonald 1989), NGO reports (for example, ANAI 1988; Banskota and Upadhyay 1990; Ramble and Chapagain 1990), and in the findings of special commissions (for example, Burrell 1987).

Finally, there are actual working instances of *ex ante* PASIA. They vary considerably in their scope, thoroughness and geographical focus. Notable among these are Gordon's (1985) report on social side effects of a game reserve in South Africa; Croft's (1991) modified SIA of the Lake Malawi National Park; Agrawal, Reddy and Suchakar's (1981) and Kothari et al.'s (1989) treatment of human activities and impacts in India's protected areas; Bunting, Sherpa and Wright's (1991) study of the Annapurna Conservation Area in Nepal; Ross's (1990) initial work on experiences of the Warmun Aboriginal community near Purnululu (Bungle) National Park of Australia; Schoepf's (1983) critique of a biosphere reserve in Zaire; Wisner's (1985) recounting of African colonial conservation efforts; Tsai's (1987) socioeconomic impact analysis of Taiwan's Takoko National Park; Freeman and Frey's (1986) methodological treatment of U.S. Forest Service management activities in

Colorado; Payne et al.'s (1992) framework for PASIA in Northern Canada; and Schelhas's (1991) dissertation on the Braulio Carillo National Park of Costa Rica.

The PASIA literature indicates that impacts vary dramatically across cases. Indeed, experience to date cautions against the use of preconceived impact lists intended for universal one-size-fits-all application. Given the variability in cultures, ecosystems, conservation objectives, and development contingencies across nations, most checklist approaches to the subject will prove procrustean and an ultimate discredit to SIA. Yet it may prove helpful, exercising caution and viewing past cases heuristically, to illustrate certain focal issues of PASIA. This is done in Appendix II; the focal issues are drawn from Rao and Geisler (1990), Hough (1991), and the social analysis categories advanced by the World Bank (Ingersoll 1990). The cases are selected for their diversity. They are not inclusive of all previous PASIA accomplishments.

### **Classic SIA: a critique**

Despite growing sophistication, SIA has been faulted for limitations on a number of fronts, ranging from theoretical underdevelopment and inattention to power and politics, to sundry concerns for accuracy of measurement, appropriateness of field design, and the richness of alternatives receiving study. Important as such issues are, SIA has a more fundamental limitation, one that overshadows most others with respect to protected areas and which, ironically, is viewed as an unqualified strength by most SIA practitioners. This is its adherence to *ex ante* research and its faith in prediction in highly unpredictable circumstances.

Notwithstanding occasional claims that SIA should extend to project monitoring and *post facto* research (for example, Wolf 1983; Finsterbusch 1985), SIA in practice clings to the design stage and largely ignores the opportunity to establish an extended, multi-stage process approach to impact assessment. The longer the life of a project—and here protected area development is notably different from more traditional infrastructure development—the greater the need to supplement *ex ante* assessment with in-stream and post-project review assessments (Ellis 1989).

There are several reasons why some social impacts are not discernable in the design stage of a protected area. First, ecosystems are surprisingly dynamic, erratic, and unpredictable (Holling 1986). Furthermore, human efforts to manage complex ecosystems are often fraught with difficulties and occasional folly (MacPhee 1989). In many such cases, SIA is problematic because of what Ehrenfeld (1991) calls the conservation paradox. Herein, species diversity subject to human control actually declines, triggering ecosystem setbacks unforeseen by rational, well-trained managers. There is also irrational human behavior to contend with. This may be blatant or assume a form (such as technology) not perceived as irrational or counterproductive until a major time lapse. In recognition of this, Freudenburg (1986) has called for SIA which goes beyond the frequently invoked *ceteris paribus* assumptions and comes to terms with the profound turbulence and disorder in society.

Finally, *ex ante* SIA is highly vulnerable when it comes to cumulative effects—those incremental events which grow over time and space into an unforeseen cluster of impacts exceeding the sum of its parts. Cumulative impacts take on increasing importance as the life of a project increases. Most SIAs have short time frames and assume that current societal conditions or trends will continue unchanged (Rees 1988). Mindful of this and the consequent need for a cumulative impact assessment perspective in SIA, Finsterbusch (1985: 217) notes:

*We never would have landed on the moon if we tried to develop the ability to aim perfectly from the launching pad. We achieved this spectacular achievement through reasonably good original aim and many adjustments. In social futures, the adjustments are more important than the original aim.*

There are, in sum, unintended consequences of development which are not knowable in the short run. Protected areas, expected to continue in perpetuity (Ledec and Goodland 1988), have a high occurrence of such impacts.

### **Examples of unpredictable social impacts**

To illustrate these limitations in *ex ante* SIA, a number of examples are offered below. Even when optimally performed, single-stage social assessment is likely to

overlook surprise, accident, or cumulative effects under a variety of circumstances:

- Federal policy towards protected areas can change in abrupt and unexpected ways. Uganda's national parks, the country's second largest foreign exchange earner, were decimated by the 1972 military coup which led to poaching by well-armed military personnel and extensive social disorganization (Kayanja and Douglas-Hamilton 1984). The prospect of hydrocarbon extraction from the Arctic National Wildlife Refuge, a vast wilderness refuge in northern Alaska, was greatly accelerated by unforeseen events in the Middle East, threatening U.S. oil supplies (Speer 1991). Venezuela's 80,000-square kilometer Orinoco-Casiquiare Biosphere Reserve is the result of a surprise presidential decree in 1991, with many surprises yet to unfold (Arvelo-Jimenez and Cousins 1992).
- Regarding human populations, one normally expects the protected status of a region to be associated, almost by definition, with lower densities. But the relationship between protected areas and human fertility, mortality, and migration is complex and becomes more so if protection is nested in regional planning with its own population dynamics (Burrell 1987). In some countries such as Costa Rica (Schelhas 1991), there is a time-honored tradition of legal squatting on public lands, meaning that protected status may draw rather than repel rural people (as in Braulio Carillo or Corcovado National Parks). In other countries, protected areas are magnets for illegal aliens (Los Haitises National Park in the Dominican Republic). Elsewhere, as extraction is permitted in protected areas within poorer countries, immigration by rural poor may overwhelm conservation facilities and induce delayed population dispersal. Finally, a resident population may decline while tourists and other nonresident visitors may multiply, yielding a net increase in "population" with notably different values and life chances.
- Landownership, another key impact variable, has traditionally changed from private or community to public or crown ownership with the establishment of parks and reserves (Murphree 1991). Some protected areas protect aboriginal rights (for example, Ayers Rock or Kuna Yala Reserve in Panama) while others extinguish them, particularly those of

pastoralists and seasonal users of a protected zone. Public ownership and the negative social impacts often ascribed to it are rendered increasingly problematic by the ascendance of a socially integrated conservation paradigm reflected in the World Conservation Strategy (Lucas 1984), the 1987 Brundtland Report, the efforts of the IUCN to change the international definition of "national park" to include indigenous people and culture (Eidsvik 1987), and recent developments in the Man and the Biosphere program of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). As cultural parks, extractive reserves, regional parks, and "working landscapes" gain acceptance, multiple-tiered ownership and use rights will evoke novel social consequences. Recent work by Wells, Brandon and Hanna (1992) confirms, *inter alia*, that the interaction between land use and land ownership in Integrated Conservation and Development Projects (ICDPs) is exceedingly hard to predict with accuracy in their early stages of development.

- Land values, potentially a major social impact, are highly unpredictable in and around protected areas. The working assumption is that large-scale conservation will require use restrictions on such lands and reduce their market value (as in Cevennes National Park in France) and tax assessments where such exist. Many exceptions occur, however. In the United States, the fastest growing counties are those adjacent to federally designated wilderness areas (Rudzitis and Johansen 1989), suggesting that the lure of high amenity areas can overcome reluctance to invest in remote places with extensive federal ownership. Land values often escalate as parks and reserves superimpose tourist economies on subsistence or pastoral counterparts. Examples include the Saguaro National Monument in Arizona (Shaw et al. 1992), the Makalu-Barun Conservation Area of Nepal (Shrestha and Campbell 1990), the Talamanca Coast of Costa Rica (Wells, Brandon and Hannah 1992), and the Copan World Heritage Site of Honduras (Veliz, Bright and Barborak 1984).
- Human values, like land values, may also be erratic in the face of protected area developments and defy easy forecasting (Machlis and Burch 1983). Consider several scenarios. In one, social analysts in an *ex ante* assessment

complete a comprehensive survey of local resident beliefs and values, only to discover that those who inhabit the area before project completion differ markedly in these respects from those who come later (Burrell 1987). In another, a similar assessment is completed and a prognosis made, only to have the young migrate from the area for lack of jobs and livelihood, thus truncating the former spectrum of values. In a third, co-management strategies are planned with indigenous people based on their apparent commitment to a stable ecosystem, only to find, as with the Lapps of Sweden, that assimilation was underestimated and native lifestyles are changing much faster than predicted (Burrell 1987). It may be presumptuous to characterize values of area residents and users of protected areas for more than a few years; a recent history of resident attitudes regarding Japan's Shireto-ko National Park revealed how near absolute local support for conservation gave way to partial support for logging of old growth timber within park boundaries (Mitsuda and Geisler 1992). By the same token, it seems unimaginable that in the Kahuzie-Biega National Park of Zaire, former gorilla poachers are now paid to take tourists to see their erstwhile prey (Ledec and Goodland 1988).

- Another way in which *ex ante* predictability is undermined is through the interaction between changing regional developments surrounding protected areas and the areas themselves. Mexico's Monarch Butterfly Reserve is vulnerable to tree loss due to off-reserve logging concessions, the driving forces of which have little to do with the reserve itself (Wells, Brandon and Hannah 1992). The same can be said for copper mining and pesticide-intensive rice farming upstream of Spain's Donana Biosphere Reserve; the new highway through England's Dartmoor National Park (Burrell 1987); oil pipeline ruptures which have spilled more oil in Ecuador's Amazon (some in National Parks and Indian Reserves) than was released from the Exxon Valdez accident in Alaska (Kennedy 1991); gold and uranium mining and related urbanization pressures within the Kakadu National Park (Fox 1983); the thousands of construction workers expected to settle near the Arun III Hydroelectric Project adjacent to the Makalu-

Barun Park of Nepal (Banskota and Upadhyay 1991); or tsetse fly eradication leading to unforeseen recovery of African wildlife populations (Kayanja and Douglas-Hamilton 1984). Even a casual review of the park threats documented by Machlis and Tichnell (1985) suggests that protected area management exhibits bounded rationality in all but the very short term—a temporal span having little in common with the expected life of most protected areas.

To summarize, protected areas are dynamic in subtle ways. Early impact assessment presumes a great deal when faced with long-term development and ever-changing circumstances (Fuggle 1989). Even a first-class SIA of Yellowstone National Park over 125 years ago, when hunting and other consumptive uses of wildlife were permitted in the park (Hales 1988), could not have anticipated the social and cultural impacts of later prohibitions of such activities, nor those associated with the more recent Greater Yellowstone Ecosystem concept. Unless SIA is amended, most such assessments will be conducted on a reactive, project-by-project, short-term basis of limited value to sustainable development (Rees 1988). The problem at hand is structural (design stage limited) rather than conceptual. The remainder of this paper outlines a structural revision in SIA intended to benefit over time protected areas as well as the human communities they interact with.

### **An adaptive management approach to PASIA**

Seasoned SIA practitioners argue about the need for a contingency-oriented impact assessment model with a long-term perspective. In addition to Finsterbusch (1985) and Freudenberg (1986) already cited, Partridge (1984) and Cernea (1985) urge that social analysis be present early in a project as well as in later phases. Taylor and Bryan (1990) propose an “issues oriented approach” to SIA which provides an ongoing assessment process over multiple project phases. These phases are roughly equivalent to those proposed by Wolf (1983) (see Appendix I), but place added emphasis on “*ex post facto* evaluation of effects of the project, including critical review of SIA work, estab-

lishment of data-bases for comparative purposes or use in later phases of SIA” (Taylor and Bryan 1990:44). This approach combines the advantages of anticipatory research with those of in-stream and post-project analysis.<sup>18</sup> As a process-oriented approach, it conforms well with the full project-cycle orientation of the World Bank and other development institutions.

There is little doubt that this comprehensive strategy bears much in common with adaptive management theory and can be applied to PASIA. Adaptive management is an institutional learning technique developed by the International Institute for Applied Systems Analysis (IIASA 1979), Holling (1978, 1986), Walters (1986), and others to help natural resource managers cope with unexpected environmental change. Referring to protected area SIA, Hough (1991:281) states:

*Post-project monitoring within a SIA framework can reveal delayed or unanticipated impacts, knowledge of which can then be used to improve both protected area planning and other SIA studies elsewhere.*

Marshall Murphree, Director of the Center for Applied Social Sciences at the University of Zimbabwe, takes a similar position. He advocates an adaptive management approach because policies and practices “on wildlife utilization in Africa are rapidly evolving and the research target is a moving one” (Murphree 1991:1).

Adaptive management should be used circumspectly. As originally conceived, adaptive environmental assessment (AEA) occurred in a series of workshops intended to improve systems modeling through continued feedback, revision, and revaluation of management alternatives. A reaction to cookbook environmental management based on static models, AEA was premised on expectations of continuous system flux, surprise, and preliminary failure. These became the basic information inputs for subsequent model refinement and contingency-based management.<sup>19</sup>

In practice, despite the interactive nature of AEA and what appears to be an ongoing process easily tailored

<sup>18</sup> For an excellent overview of problems common to monitoring and post-project evaluation techniques, see Binnendijk (1989).

<sup>19</sup> AEA is summarized and compared with other management strategies in Hyman and Stiffler (1988).

to project life cycles, the workshop sequence itself often occurred in the early planning stages of a project. Furthermore, perhaps because its initial focus was environmental rather than social, AEA workshops have been dominated by managers, modelers, and interdisciplinary experts. Local and national government officials were also participants. The results of the workshop process reflected this expert composition and were heavily oriented toward numerical management solutions (Hyman and Stiftel 1988).

Several changes are warranted for application of adaptive management to PASIA. Most important, the process should be extended to entire project cycles, thus providing adequate time to check the validity of assumptions basic to the model. In the case of semi-permanent projects such as parks, impact assessment should be an ongoing feature of the evolving effort. Secondly, while the notion of a central model is useful, its objective in PASIA should be primarily management learning and discovery rather than management consensus (as, in theory, is also true of AEA). Given the improbability of quantifying the key human concerns and impacts of a protected area development, the PASIA model should offer state of the art qualitative methods. Finally, the workshops or their equivalent should make every effort to define expertise broadly to stay abreast of emergent sociocultural impacts, resisting the temptation to correlate expertise with literacy, numeracy, or professionalism *per se*.

The challenge for resource managers worldwide is no longer to protect nature *en vacuo* but in the context of multifaceted development objectives. If, according to Rees (1988:283), environmental (and social) assessment are to have a viable role in sustainable development, they must accomplish four things. These are (with minor modifications to fit PASIA):

- The extension of the scope of assessment-like activities to cover the full range of public and private protected areas and actions.
- The creation of a variety of institutional frameworks for these assessment techniques adapted to the increased diversity of protected area initiatives. These mechanisms should be equitable, reduce conflict of interest, and promote political accountability.
- The development of assessment methods that reflect the discontinuous temporal and spatial dynamics of

ecosystems and social systems, and the interactions between them. This requires a balance between predicting the known and adapting management to the uncertain and unknown in the natural world.

- The implementation of the foregoing as part of a broader planning and decision-making framework (such as community development planning or regional planning) that effectively recognizes both human and natural functions as limiting factors in successful development.

### **Adaptive management PASIA and the World Bank's environmental review process**

The World Bank's social assessment procedures, embedded in its procedures for environmental assessment (see Operational Directive 4.01, 1991), have a structural mandate to proceed well beyond the feasibility and early design stages of a project and therefore to incorporate an adaptive management approach to PASIA. The World Bank's *Environmental Assessment Sourcebook* (1991:2) states that environmental review is intimately linked to the project cycle, with provisions for monitoring a project's environmental performance and compliance; for a Project Completion Report by the borrowing country covering both the actual impacts and the effectiveness of mitigation measures; and for additional auditing by an independent department of the World Bank, the Operations Evaluation Department (OED).

Occasionally the World Bank also performs an Impact Evaluation Report (IER) five or more years after the previous auditing is completed, and emphasizes general social and economic effects of the project. Kottak (1985) reviewed sixty-eight of these evaluation reports and concluded that Bank projects are least likely to achieve their social objectives when, as revealed in these follow-up evaluations, they are not socially informed and culturally appropriate. Formally linking SIA and evaluations of this kind, or repeating SIAs periodically through the life of a project in an adaptive management fashion, is an excellent way of overcoming the challenges posed by socially dynamic projects.

In summary, SIA must be redesigned to cover the full life of a development project rather than only those

impacts forecast at its inception. Protected areas, if successful, will not terminate like traditional forms of development; they require Project Completion Reports and audits to provide in-stream feedback for subsequent SIA efforts. The wisdom of a trans-project SIA approach to protected areas (and to more conventional development) lies in its planning realism. It recognizes that the part/whole relationship between biodiversity and sustainable development is emergent and indeterminate. Activating PASIA at five-year intervals in a protected area's development increases the probability of staying abreast of new social impacts which "experts," local and non-local, decide are worth investigating.

Such a proposal redefines the temporal responsibilities of SIA and appears to shift emphasis away from the much valued comparison of alternatives to a proposed course of action. The latter need not be so. Inherent in the nature of good management is the ongoing consideration of new options for project enhancement. Evaluation of impacts at periodic intervals is as important as at the design stage. Review of state of the art alternatives maximizes project fitness by importing management experiences from other fields of conservation (for example, the culling of wildlife, chemical prospecting, and new linkages between cultural and biological diversity) or by anticipating new impacts associated with proposed design modifications (such as the connecting of many parks and preserves throughout the Central American isthmus into a continuous conservation corridor).

Finally, there is the important question of what social impacts should be researched in a PASIA and whether, once one set of indicators has been selected and used to establish baseline data, these should be repeated in all later phases of the inquiry. In keeping with Taylor and Bryan's (1990) issues-oriented approach and Murphree's (1991) strong endorsement of adaptive management applied to SIA, it is prudent to inventory project needs and impacts intermittently using sampling or rapid rural appraisal techniques (Schelhas 1991), and then to seek a compromise between new concerns and those for which data have already been gathered. Several useful lists of potential impact areas should be consulted (for example, United States Agency for International Development (USAID) 1989; Finsterbusch and Partridge 1990) in

addition to those in Appendix II. Mechanical use of any of these inventories should be avoided, being counter to the fundamental principles of adaptive management and participation of local communities in the vicinity of a protected area.

### **Implications for the GEF**

The GEF provides an excellent opportunity for experimentation with adaptive management PASIA. Protected area and other biodiversity conservation proposals from many parts of the world open the door to socially sophisticated SIA pending such experimentation. Rather than dictate the specifics of what adaptive management PASIA should be, the GEF should elicit creative SIA action plans both from consultants and its clients, tailored to their circumstances. This process is most likely to succeed if assisted by training workshops on adaptive PASIA and follow-up activities. The GEF is strongly encouraged to:

- Host a workshop on adaptive management applications to SIA with emphasis on the formal linkage between design stage assessment, project monitoring, and evaluation.
- Solicit reactions from social impact analysts to the adaptive, multi-stage PASIA model herein proposed to refine its scope, methods, indicators, and participation strategy to different cultural contexts and protected area types.
- Provide incentives and training for PASIA utilization in current and future GEF biodiversity proposals.
- Select three proposed protected areas in diverse settings for GEF assistance and include a multi-stage PASIA to accompany them. These pilot PASIAs should be monitored by the GEF and subjected to IERs at periodic (for example, five-year) intervals.

There is a growing consensus, recognized in many GEF proposals, that the support of local people will ultimately make or break protected areas. PASIA, as described in this paper, is an excellent vehicle for mobilizing such support. To ignore PASIA, on the other hand, is to increase the trauma that can accompany protected area development and reduce its potential benefits. The future relevance of SIA to protected areas hinges on the input of local people just as their welfare is closely associated with the quality of PASIA. This quality, in turn, hinges on

SIA responsiveness to the philosophy and structure of adaptive management. By funding biodiversity initiatives, the GEF can provide the beacon for such adaptive management PASIA development.

## Appendix I

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### Social Impact Assessment: general methodology

#### Assessment Steps

##### Scoping:

How big a problem is it?

How much is enough?

##### Problem identification:

What is the problem?

What is causing it?

##### Formulation of alternatives:

What are the alternatives?

##### Profiling:

Who is being affected?

##### Projection:

What is it causing?

##### Assessment:

What difference does it make?

#### Analytic Operations

Set level/s of assessment

(policy/program/project).

Determine impact area boundaries.

Establish time horizons.

Develop study design.

Formulate policy goals, planning objectives.

Identify public and concerns.

Perform needs assessment.

Determine evaluative criteria.

Define set of "reasonable" alternatives  
(corresponding to identified concerns).

Determine change agents, instruments.

Characterize and describe technical systems;  
analyze for social (institutional/behavioral)  
components and correlates.

Analyze economic and environmental  
impacts for secondary social impacts.

Set dimensions for impact categories.

Select impact categories.

Assign impact indicators.

Perform indicator measurements.

Compile social profile.

Explicate "state of society" assumptions.

Perform trend impact analysis.

Construct dynamic systems models.

Estimate impact indicator values for alternative  
plans ("with and without" implementation).

Perform sensitivity analysis for alternative  
outcomes of alternative plans.

Perform cross-impact analysis.

Describe and display "significant" impacts.

**Evaluation:**

How do you like it?

Re-identify public and concerns.  
Reformulate evaluative criteria.  
Rank and weight preferences for alternatives.  
Perform trade-off analysis.  
Identify preferred alternatives.

**Mitigation:**

What can you do about it if you do not like it?

Review unavoidable adverse impacts.  
Identify possible mitigation measures.  
Perform sensitivity analysis of possible measures.

**Monitoring:**

How good are your guesses?

Measure actual versus predicted impacts.  
Provide feedback of measurements to policy-makers and public.

**Management:**

Who is in charge here?

Devise management plan.  
Adjust planning objectives, operating procedures, design specifications.

**Bottom Line:**

Who benefits and who loses?

All of the above.

*Source: Wolf (1983)*

## Appendix II

### Social Impact Assessment: focal issues<sup>20</sup> for protected area development and illustrative applications

<b>Focal Issues</b>	<b>Illustrative Cases</b>
A. Sociocultural character	(Tsai 1987; Kayanja and Douglas-Hamilton 1984; Kothari et al. 1989; USAID 1989)
B. Demographic character	(Tsai 1987; Cernea 1988; Kothari et al. 1989)
C. Economic organization and resource base	(Schelhas 1991; Tsai 1987; Place 1988; Sharman 1991; Banskota and Upadhyay 1991; Payne et al. 1992)
D. Public health (mental & physical) and nutrition	(Turnbull 1972; Kayanja and Douglas-Hamilton 1984; Dewey 1985)
E. Cultural cohesion/identity	(Croft 1991; Turnbull 1972; Kutay 1991; Ramble and Chapagain 1990)
F. Local conservation knowledge system	(Fox 1983; Ledec and Goodland 1988; Clay 1985; USAID 1989)
G. Local poverty system/s and knowledge system	(ANAI 1988; USAID 1989; Searle 1987; World Bank Environmental Assessment Sourcebook 1991a)
H. Equity and human rights	(MacDonald 1989; Olwig 1980; Harmon 1987; Banskota and Upadhyay 1991; Shrestha and Campbell 1990)
I. Other	

<sup>20</sup> Composite of Ingersoll (1990), Rao and Geisler (1990), and Hough (1991).

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P. O. Box 107 Kathmandu, Nepal	Strada Aural Vlaicu nr. 16 Sectorul 2, P. O. Box 1-701 79362 Bucharest, Romania	Palais des Nations CH-1211 Geneva 10	2 Phung Kheo Khoan Ho Chi Minh Socialist Republic of Viet Nam	B o l i v i a , Cuba Czechoslovakia D e n m a r k E g y p t F i n l a n d F r e n c h P o l y n e s i a G e r m a n y G r e e k R e p u b l i c H o l a n d I n d o n e s i a I t a l y J a p a n K o r e a L a t v i a L i t h u a n i a M a l d i v e s M e x i c o M o n g o l i a M o r o c c o M u s o n i N e w Z e a l a n d N i g e r N o r w a y P a k i s t a n P e r u P o l a n d P o r t u g a l R o m a n i a R u s s i a S a u d i A r a b i a S e n e g a l S i e r r a L e o n e S o m a l i S o v i e t U n i o n S w e d e n S w i t z e r l a n d T a i w a n T a n z a n i a T h a i T h a i l a n d T o g o T r i n i d a d a n d T o b a g o U g a n d a U n i t e d A r a b E m i r a t e s U n i t e d K i n g d o m U n i t e d S t a t e s o f A m e r i c a U r u g u a y Y u g o s l a v i a Z a i r e
Apartado Postal 3260 Managua, Nicaragua			1889 F Street, N.W.	B o l i v i a , Cuba Czechoslovakia D e n m a r k E g y p t F i n l a n d F r e n c h P o l y n e s i a G e r m a n y G r e e k R e p u b l i c H o l a n d I n d o n e s i a I t a l y J a p a n K o r e a L a t v i a L i t h u a n i a M a l d i v e s M e x i c o M o n g o l i a M o r o c c o M u s o n i N e w Z e a l a n d N i g e r N o r w a y P a k i s t a n P e r u P o l a n d P o r t u g a l R o m a n i a R u s s i a S a u d i A r a b i a S e n e g a l S i e r r a L e o n e S o m a l i S o v i e t U n i o n S w e d e n S w i t z e r l a n d T a i w a n T a n z a n i a T h a i T h a i l a n d T o g o T r i n i d a d a n d T o b a g o U g a n d a U n i t e d A r a b E m i r a t e s U n i t e d K i n g d o m U n i t e d S t a t e s o f A m e r i c a U r u g u a y Y u g o s l a v i a Z a i r e
Boite postale 11207				B o l i v i a , Cuba Czechoslovakia D e n m a r k E g y p t F i n l a n d F r e n c h P o l y n e s i a G e r m a n y G r e e k R e p u b l i c H o l a n d I n d o n e s i a I t a l y J a p a n K o r e a L a t v i a L i t h u a n i a M a l d i v e s M e x i c o M o n g o l i a M o r o c c o M u s o n i N e w Z e a l a n d N i g e r N o r w a y P a k i s t a n P e r u P o l a n d P o r t u g a l R o m a n i a R u s s i a S a u d i A r a b i a S e n e g a l S i e r r a L e o n e S o m a l i S o v i e t U n i o n S w e d e n S w i t z e r l a n d T a i w a n T a n z a n i a T h a i T h a i l a n d T o g o T r i n i d a d a n d T o b a g o U g a n d a U n i t e d A r a b E m i r a t e s U n i t e d K i n g d o m U n i t e d S t a t e s o f A m e r i c a U r u g u a y Y u g o s l a v i a Z a i r e



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