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Developing a Partnership of Indigenous Peoples, Conservationists, and Land Use Planners in Latin America

Peter Poole

Recommendations for working in partnership with indigenous peoples, recognizing their land rights, incorporating their environmental knowledge into wildlands and native area planning, and paying more serious attention to the economics and resource implications of local activities to harvest wild resources — especially in environmentally delicate areas such as tropical rainforests.

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Illustrating from a rich body of case material from Canada, Latin America, and other regions, Poole suggests certain principles for incorporating indigenous peoples and their environmental knowledge into wildlands and native area planning.

His report reflects a shift away from the traditional view — represented by certain national parks and similar protected areas — that indigenous peoples be allowed to occupy and use an area's resources following rules set by conservationists. Under the new paradigm that is developing, indigenous peoples are seen as an integral part of protected area planning through agreements worked out in *partnership* with conservation authorities. An example of this new approach is the role of indigenous peoples are playing in the design biosphere reserves.

Poole argues that recognizing the land rights of indigenous peoples, far from hindering the rational occupation and development of these lands, allows better use of their environmental knowledge. His findings apply only in areas where resident indigenous populations and protected wildlands areas overlap.

He recommends that nongovernment organizations (NGOs) be given more responsibility for reconciling the often conflicting interests of national land-use planners and indigenous communities — because native groups are more likely to trust NGOs than large public sector organizations.

The Bank should pay close attention to these collaborations with NGOs, he contends — especially those in threatened rainforest areas —

and where conditions merit integrate them into Bank policy discussions and project planning.

Poole suggests that the Bank and other development organizations pay more attention to “vernacular economies” — economies based on local resources, used either for subsistence or as a source of revenue. These mixed subsistence-cash economies — many of them based on the management and extraction of wild resources — do not easily conform to prevalent models for either development financing or ecosystem management. They demand an approach that allows for experimentation and recognizes local needs and capacities.

Vernacular economies correspond to the “third option” for economic evolution that may emerge when indigenous and industrial economies come into contact. Mixed cash-subsistence economies that often result from such contact are seen by some as a transitional phase in an inevitable process of assimilation — and by others as an evolutionary process in which features of indigenous and industrial economies are combined in an assimilative system that eludes conventional economic analysis.

Poole recommends more research into the economics and resource implications of these local activities to harvest wild resources, especially in environmentally delicate areas such as tropical rainforests.

Drawing on a rich pool of case studies — illustrating clashes between animal protectionists and indigenous hunting societies, for example — Poole concludes by identifying 10 areas of recommended action.

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PREFACE

The past several years have witnessed an increasing convergence between the interests of conservationists and indigenous peoples,¹ especially in the protection and management of fragile and threatened ecosystems. The World Bank has played some role in this convergence through the dissemination of its publication Tribal Peoples and Economic Development: Human Ecological Consideration (1982), and the formulation of its tribal peoples (OMS 2.34, "Tribal Peoples in Bank-financed Projects") and wildlands management policies (OPN 11.02, "Wildlands: Their Protection and Management in Economic Development").

Like other development institutions, the Bank faces a major issue in successfully implementing its tribal peoples and wildlands management policies. Sometimes development interests-- the building of a large dam, the siting of a highway or mine, the implementation of a land settlement scheme-- run counter to the interests of indigenous peoples and the protection of wildlands and other natural habitats. At other times, areas are set aside for native populations or wildlands protection in order to mitigate or compensate for the more adverse effects of development. What, though, happens when indigenous peoples and wildlands or biodiversity interests exist in the same area? Can their sometimes conflicting interests be reconciled in order to achieve the more common goals of natural resource conservation and habitat protection?

These questions form the basis of the following study commissioned by the Bank's Latin America and Caribbean Environment Division (LATEN) and carried out by Peter Poole, a Canadian land use and natural resources planner. Mr. Poole was assisted in the study through the preparation of four background papers by Dennis Glick and Brian Houseal of the World Wildlife Fund and The Nature Conservancy and Kim Hill and Jorge Uquillas, two anthropologists with research and practical experiences among indigenous populations who inhabit protected wildlands areas in South America.

Originally, we had hoped that the study would result in the production of a manual; a sort of "how to" book which would draw upon the experiences of native peoples in the Canadian North (where the chief consultant had prior experience), Latin America and other parts of the world and provide policy makers and project planners with a guide to

1/ The term indigenous peoples refers to land-based peoples who speak distinct languages; have strong attachments (usually of a spiritual nature) to their ancestral territories; practise sustainable forms of land use and resource extraction; and maintain cultures and ethnic identities which are distinct from those of national societies. There are an estimated 40 million indigenous peoples in the Western Hemisphere, including the approximately 2 million indigenous peoples of Canada and the United States. About 1 million of these peoples live in the tropical forest areas of lowland South America.

how to design areas which combined traditional land-use practices and conservation objectives. As research proceeded, however, it became clear that the production of a manual was somewhat premature, as many projects--especially in Latin America-- are still at an experimental stage and not ready to be generalized as universal models. The final research report, therefore, took the shape of a descriptive essay, rather than a "how to" manual; a report which draws upon numerous case materials (both positive and negative) from Canada, Latin America and other regions of the world and suggests certain principles for more adequately incorporating indigenous peoples and their environmental knowledge into wildlands and native area planning.

The major finding of the report is that a fundamental shift (a "paradigm shift" in the language of the historian of science Thomas Kuhn) has started in the way in which the international conservation community has come to view the issue of planning in areas which are occupied and used by indigenous peoples. Under the traditional paradigm, represented by several National Parks, wildlife reserves and other types of protected areas where indigenous peoples have aboriginal claims, indigenous peoples are allowed to continue to occupy and use the resources of these areas but only so long as they use the natural resources sustainably. This use, agreed with the park authorities, should reconcile the needs of both the indigenous peoples and the conservationists. Experience has found that these needs can be reconciled and made compatible, although this is far from being routine. Clearly major deforestation or firearm hunting for commerce by indigenous peoples are not compatible with wildlands protection. Where indigenous people and park authorities do not agree, then either the park or the people are encouraged to move.

Under the new paradigm, which is represented by the contemporary concept of the biosphere reserve, it is not a set of rules or a theory of native acculturation which governs the behavior of indigenous peoples who reside inside conservation units,² or who live in the buffer zones contiguous to protected areas, but a partnership; an agreement worked out through dialogue and negotiation between indigenous peoples and conservation authorities for the mutual protection of threatened wilderness areas and endangered habitats. A major purpose of the research project described in this report is to show the difficulties and challenges inherent in creating such a partnership between conservationists and indigenous peoples.

Aside from indicating this paradigm shift, especially as it manifests itself in several ongoing projects in Latin America, there are three other important findings of the research project. The first is the assertion that the recognition and protection of indigenous land rights is the basis of possible convergencies of interest among indigenous peoples, conservationists and land-use planners.

2/ The term conservation units refers to habitats which have been legally set aside mainly for the protection of their biological diversity. They include national parks, wildlife reserves, ecological stations, etc. A detailed classification of such areas has been developed by the International Union for the Conservation of Nature and Natural Resources (IUCN).

Because so much of their culture and identity is rooted in an intimate relationship to their traditional territories and lands, indigenous peoples have made strong claims upon the governments of which they are citizens to recognize, demarcate and protect their land rights. Speaking at the 1985 meeting of the U.N. Working Group on Indigenous Populations, Jose Uranavi, the head of the Central Organization of Indigenous Peoples and Communities of Eastern Bolivia (CIDOB), stated:

Our defense of the land and natural resources is for the cultural and human survival of our children, and is the foundation of a moral security for peoples who have different languages and customs.... We indigenous people think and plan in terms of the territory, not only the individual plot; In this way, we assure the access of the community to the diverse resources of the forest (wood, soil appropriate for agriculture and cattle, and wild fauna).... For us, the first thing is to secure our land which belongs to us by right, because we are the true owners of the land and natural resources. We indigenous peoples know that without land there can be no education, there can be no health and there can be no life (Cited in, IWGIA Newsletter, International Work Group for Indigenous Affairs, Copenhagen, 1985, page 20).

The World Bank's experience in Latin America and other parts of the world indicates that the recognition, demarcation and protection of indigenous land claims would not hinder the rational occupation and development of the wider regions where most indigenous peoples live. To the contrary, the recognition of indigenous land claims and the incorporation of indigenous environmental knowledge into regional planning efforts are major steps towards sustainable management and conservation of these areas.

A second important finding of Mr. Poole's research report is the recommendation that local, national, and international non-governmental organizations (NGOs) should be given more responsibility for mediating and reconciling the often conflicting interests between national land-use planners and indigenous communities. The reasons for this are not because these NGOs possess superior moral force, intellectual knowledge or planning skills than national planners or policy makers. Rather, the reasons rest in the fact that indigenous communities are characterized by intimate and daily personal relations and are more likely to trust NGOs, who respect their values and lifestyles, than large public sector organizations-- such as park bureaus or Indian agencies-- which are often impersonal, distant and do not understand native preferences and realities.

In 1988, the Bank formulated a policy whereby NGOs, under specific circumstances, can be incorporated into Bank-financed development projects (OMS 5.30, "Collaboration with Nongovernmental Organizations"). The following report describes several projects in Latin America where there is a mutually beneficial relationship between conservation NGOs and indigenous communities. The evolution of these projects, especially those which are in threatened rainforest areas, should be followed closely by the Bank and, where conditions merit, be integrated into the Bank's policy discussions and project planning with its Borrowers.

Finally, the research report suggests that more attention should be paid by the Bank and other development institutions to what the author labels "vernacular economies" or the so-called "third option" in development. The basic argument here, which is especially developed in Sections 5.4, 7.5, and 8.2.4 of this report, is that there are local ways of doing things in terms of economic production and resource use which combine both traditional subsistence and modern commercial activities. These mixed subsistence-cash economies, many of them based upon the management and extraction of wild resources, are well-documented in the anthropological and ecological literature and are of growing interest to both local indigenous and peasant organizations in Latin America. As informal economies, however, these types of productive activities do not easily conform to prevalent models for either development financing or ecosystem management. Further, they demand an approach, especially in terms of planning and extension, which allows for experimentation and recognizes local needs and capacities. The report recommends that there be more research into the economics and resource implications of these local extractive activities, especially in environmentally delicate areas such as tropical rainforests.

To conclude, it is important to note that the following report only deals with situations where there is an overlap between protected areas and indigenous populations, and mainly in a Latin American and Western Hemisphere context. The report does not deal, for example, with the broader issue of how to protect wildlands areas where there is no resident indigenous population, but a surrounding (and often land hungry) settler population. Nor does the report deal with how to organize economic development projects in areas which are occupied by indigenous populations (so-called indigenous reserves or native areas), but which are not conservation units. Similarly, the report does not evaluate the extent to which Bank tribal people and wildlands conservation policies have been implemented. The author was instructed to steer clear of such issues. Nevertheless, some of the findings of the report, such as the recommendation that wildlands planning and management be based upon a partnership with surrounding communities and incorporate so-called vernacular economies into buffer zone activities, have implications for conservation unit and land-use planning under these other conditions and perhaps also in Africa, Asia and the Pacific, as well as in Latin America.

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SUMMARY

CHAPTER ONE (Introduction)

The original study proposal contemplated field work in the Latin American, African and Asian regions. The objective was to produce an operating manual designed to assist indigenous groups by identifying areas where their interests overlapped with those of the international conservation community and by outlining ways in which they could mobilize the resources of that community. This area of mutual interest has led to collaborative projects between conservationists and indigenous peoples in such areas as North America and Australia and it was felt that useful parallels could be drawn between these cases and certain situations in the developing world.

The area for field work was later limited to Latin America but this would be preceded by documentary research of world-wide cases where indigenous groups had become involved in conservation projects. Once the research commenced, it became clear that changes were taking place that might alter the complexion of conservation in Latin America and make such a manual, based upon older paradigms, premature. It was therefore decided to make these changes themselves the focus of study as they in many cases exemplify a new set of options for indigenous groups in dealing with changes to their environment.

A major change is that the new approach takes account of social and economic needs of local people in planning and managing conservation areas, whereas the older approach tended to exclude human activity, or accept it only under certain conditions. The older approach is exemplified by national parks, which by definition circumscribe many forms of resource exploitation. The newer approach is exemplified by biosphere reserves, which are typically complexes of conservation units that include fully protected areas such as national parks as core areas but surround these with buffer zones in which varying intensities of resource exploitation are permitted as long as they sustain both the local economies and the biodiversity of the core areas.

Two significant ingredients typify this new approach. (a) Conservation initiatives by indigenous groups. (b) The key role of conservation NGO's in Latin American countries - notably in managing specific conservation projects.

These changes conform to the notion of "convergence" between the interests of indigenous peoples and conservationists that has been receiving much attention in recent years. But, in practice this idea has certain limitations, reflecting the assumptions, expectations and ultimate objectives of both sides.

For indigenous societies, security of tenure or settlement of land claims is a crucial precondition for the pursuit of self-determined social and economic development, which may include a conservation-type project. But such projects are likely to be seen in this context rather than as an example of global ecosystem conservation. For this reason, such conservation projects must make local sense in social and economic terms.

The Introduction concludes by looking at examples outside Latin America where indigenous groups have, in the course of resisting proposed industrial development programs, used conservation as a vehicle for securing their objectives.

CHAPTER TWO looks at the international conservation community for evidence of the "convergence" between the interests of indigenous peoples and conservationists that in the view of some authors provides grounds for mutually beneficial cooperation.

Attitudes towards indigenous resource utilization vary widely across the spectrum of conservation organizations. At both extremes are groups opposed, though for different reasons: sportsmens' organizations object to the principles of aboriginal hunting rights; some preservationist groups object to animal utilization under any circumstances

But the pragmatic centre has come to terms with indigenous practice and has endorsed it in the World Conservation Strategy (WCS). The WCS recognizes that the survival of national parks as protected areas may ultimately be jeopardized by the activities pursued in the surrounding areas however effective the protective measures themselves may be. If the productivity of these surrounding areas is reduced through unsustainable exploitation, this may reduce park biodiversity through ecological isolation and also cause the residents of the depleted zones to infringe on the conservation unit.

As a result, the WCS strategy encourages the development of methods of resource utilization in areas outside conservation unit which tend to conserve rather than reduce biodiversity. There is obviously considerable room for debate over the kinds of activities which are compatible with wildland conservation in this respect, but the WCS recognizes that some societies with a tradition of wild resource utilization have declared an interest in maintaining the wild character of their resource base even if their methods of resource harvesting have changed. The UNESCO-MAB Biosphere Reserve Program has evolved as a planning framework capable of accommodating both protected areas and those with compatible forms or resource use and several cases are described later in this paper.

An indigenous organization which came into being to combat animal protectionist campaigns, Indigenous Survival International (ISI), has responded positively to the WCS and in fact has proposed an amendment authoritatively defining indigenous practice. In addition the Inuit Circumpolar Conference is working upon a regional conservation strategy designed to fit the framework of the WCS. Both of these derive from the northern experience but resonate with circumstances in Latin America.

In Latin America, NGO's have played a vital catalytic role in promoting projects which effectively implement the WCS. International NGO's, mainly based in Washington mobilize and channel funds and technical support for local projects in Latin America. National NGO's in the countries concerned administer the projects and ensure the involvement of local communities and the appropriate government agencies.

Developing country NGO's are active elsewhere but those in Latin America seem to be in the vanguard in initiatives which couple the interests of conservationists and indigenous peoples. NGO's representing indigenous societies have also assumed critical responsibilities in supporting such projects.

CHAPTER THREE reviews cases where conservation measures and campaigns continue to exert an adverse effect upon indigenous peoples. Indigenous hunting societies were often excluded from game reserves in Africa, though colonials were allowed to hunt under quota. With some reserves redefined as national parks, these restrictions have remained in place.

In other areas, indigenous communities may be allowed to remain in protected areas as long as their practices and technology are compatible with wildlands conservation.

Two types of conservationists have objected to the exercise of aboriginal hunting rights. Sporting conservationists, who claim that animals are a common property resource. Conservationists from the centre who feel that the exercise of hunting rights should be curtailed where they affect endangered species.

The ISI amendment to the WCS responds to this second concern by recognizing the limitations posed by depleted species. It addresses the first by insisting upon priority of use by indigenous people, with others assured of access to any surplus. Here, there is an implied trade-off between the unrestricted exercise of aboriginal rights in return for priority of use under a sustained management regime.

CHAPTER FOUR looks at examples of convergence between indigenous peoples and conservationists, in two areas: management & research, protected areas.

Several examples of management regimes have emerged from crises. In two of these, the Alaska Eskimo Whaling Commission (AEWC) and the Eskimo Walrus Commission, Inuit set up rival regimes (initially to the International Whaling Commission) to represent their interests. As a direct result of the formation of the AEWC, Inuit whaling has continued under a quota system and bowhead whale knowledge and management have improved considerably. In Canada, Joint Caribou Management Boards (hunters/scientists/agencies) have now assumed responsibilities for three of the five major herds.

The Makivik Research Laboratory, an Inuit initiative that flowed from the James Bay Land Claims Settlement, has been uniquely successful in developing an Inuit capability to conduct environmental and renewable resource studies which serve indigenous interests.

Studies from the Pacific region suggest that the model of convergence between conservation and indigenous peoples is complex and should be qualified in terms of the extent to which traditional resource management systems are compatible with western-style conservation. These studies suggest as much variation amongst traditional systems as amongst western conservationists.

Reports from Papua New Guinea reveal how some conservation area categories match traditional systems of land tenure better than others. In Australia, an innovative arrangement has been operative in Kakadu and Coburg National Parks, but the aboriginal communities still have to contend with the prospect of massive tourist developments and conflicting expectations about the character of national parks.

CHAPTER FIVE looks at the recent history of conservation in Latin America in terms of two phases. (1) The national parks and Indian reservations in which conditions were imposed upon the methods by which resident indigenous communities exploited their resources. (2) Recent conservation projects which have adopted a significantly different approach, signified by deliberate attempts to involve local communities in the planning process.

This is followed by a review of examples of small-scale community-based sustainable development in Latin America in terms of the extent to which they would be compatible with wildland conservation.

CHAPTER SIX presents nine case studies from Latin America where indigenous people have become involved in a conservation project. The two most successful cases resulted from initiatives by the Kuna in Panama and the Awa in Ecuador. The Mbaracayu case in Paraguay is still in the proposal stage but holds similar promise. Other cases, such as Cuyabeno and Yasuni, in Eastern Ecuador, are less successful in that both areas have been subjected to development since receiving protected area status.

Many of the areas have been designated, or have applied for status as biosphere reserves. Generally, the project proponents appear to consider the MAB biosphere reserve approach to be the conservation category which most closely matches their objectives.

CHAPTER SEVEN reviews the case studies and preceding examples in terms of ten areas of activity, seven of which are conventional conservation area planning topics and three are added for their relevance to World Bank project planning: organization, compatible resource development, impact management.

With a minimal amount of external assistance, Awa and Kuna have evolved imaginative methods for area protection that could well be applicable in other cases and moreover have the potential to be highly cost-effective. The use of pre-emptive agricultural belts is useful also as a source of income.

La Planada, in Colombia, has applied innovative methods of education that could also be adapted to other cases. The curricula, for adults and children, includes practical instruction on community-scale development and a mobile environmental educational unit and is focused both upon Amerindians and colonists - recognizing that area protection is ultimately dependent upon general consent.

There were no significant examples of recreational development in the interests of indigenous communities. Instead, there was conspicuous resistance to intensive resort-type development by outside interests. There were a few signs of some interest in ecological and activity tourism but these would require directed assistance in market access.

When the Latin American case studies are taken as a whole, they suggest a clear departure from the protective formulas of the past. Much of this is due to the efficient linkages that stretch between isolated Amerindian groups and sources of support at the international level. National and international NGO's have played significant roles in the evolution over the last decade of an informal but effective network.

CHAPTER EIGHT (AFTERWORD) contains a summary account of a seminar that was held at the World Bank and was based upon reaction to a draft version of this working paper. That draft was circulated to staff within the Bank and to interested outside organizations. The day-long seminar was attended by about fifty people, half of them Bank staff and half from indigenous support groups, conservation organizations and development agencies

This chapter closes with four suggestions for further research, based upon the findings of the study and upon the comments and discussions aired during the seminar. These were:

- (a) Conservation Unit Management, including the methods developed for some of the case studies.
- (b) Indigenous Environmental Research and Management, along the lines of the examples reviewed throughout the report.
- (c) Economics of Conservations Units, taking into account both the potential contribution of local indigenous communities and their dependence upon the conserved resources.
- (d) Vernacular Economy: an investigation of the mixed cash-subsistence economies which have often evolved locally where indigenous and industrial economies have come into contact and which may present a viable "third option" in economic terms while at the same time contributing towards wildland conservation.

1. INTRODUCTION

1.1 STUDY OBJECTIVE:

In its original conception, this study was worldwide in scope, with the focus upon the relationship between indigenous societies and the conservation community. In this context, the significance of the recent experiences of certain northern indigenous groups would lead to the compilation of an operating manual of use to indigenous groups interested in initiating conservation projects. The manual would describe the potential for mobilizing the resources of the international conservation community and would be illustrated by field analysis of current issues and cases throughout the developing world.

Before the study commenced, the research plan was revised and field work limited to Latin America only. Once that research commenced, it revealed a number of significant changes taking place in Latin America. At present, these are isolated events, but when considered collectively, suggest that a new paradigm for conservation is emerging which may well expand the goals and methods of environmental conservation. This would not replace those existing methods based largely upon systems of conservation units, but it would add a dimension which accomodates a range of resource utilization methods which are compatible with wildland conservation, and which would be appropriate to areas occupied by indigenous people, either adjacent to or separate from conservation units such as national parks. Some of the resource utilization and management methodologies examined in this paper are suitable for application in buffer zones surrounding - hence enhancing - similar conservation units.

In the light of these observed trends, it was decided that an operating manual would be premature until the emerging picture achieves sharper resolution. Such a manual would unavoidably be based upon the conservation precepts which currently appear to be undergoing revision. Accordingly, the study focus was shifted to a description of this emerging process and an assessment of its significance for the relationship between indigenous societies and the international conservation community.

There are four main ingredients in this emerging process.

1. Initiatives from indigenous groups which have radically altered the role previously assigned to tribal people in the context of conservation and development.
2. A change in attitude by the mainstream international conservation community, signified by the World Conservation Strategy.
3. A recent increase in Latin American conservation NGO's and their assumption of planning and management responsibilities in conservation area projects.

4. An essential funding and technical advisory role played by a group of conservation and indigenous support organisations, mostly based in the United States.

This loose system has evolved informally over the last decade and has yielded a number of interesting proposals - covered in more detail in chapters 5 & 6.

In this process, conservation units, are no longer the sole objective of environmental conservation efforts. Instead they are treated as an integral element within a complex of areas of different status and purpose. These areas reflect the needs and ambitions of a variety of different interest groups. This in turn increases the number of variables in the conservation process and increases the need for flexible and dynamic planning and management methods.

This is in contrast to the steady state exemplified by national parks in North America and raises the question of how well the orthodox, blueprint mode of conservation unit master planning can cope with situations so replete with uncertainties. Instead, an iterative process is perhaps more suitable to this fresh approach to conservation in Latin America - one that is not unlike the contingent approach to daily life typical of people dependent for livelihood upon hunting and fishing.

1.2. THE CONVERGENCE PROSPECTUS

One or two Latin American examples of this approach have been attracting considerable attention as concrete expressions of an idea that has been gaining currency within the international conservation community: that there is a convergence between the interests of indigenous societies and conservationists that could be exploited to their mutual benefit. This idea has its attractions and its liabilities and chapters 3 & 4 provide examples of both. Here, its theoretical foundations are reviewed.

Clad (1985) suggests that, however appealing this idea appears in principle, there are several obstacles to its realization in practice. Conservationists may assume an indigenous enthusiasm for resuming obsolete practices and technology; indigenous groups may make assumptions about the kinds of resource utilisation practices they can pursue with the support of conservation managers. So far, convergence has been rather one-sided with most of the speculation about this potential issuing from the conservationist side.

To adduce convincing reasons to conserve wildlands is part of the condition of being a conservationist. Global stewardship, instrumental and intrinsic values, tourist revenues, wildlife husbandry, economic biology, genetic heritage, world heritage, eco-development, all have their place and continue to be useful in specific circumstances. Convergence implies an eventual identity of interest, which seems an unlikely prospect, but the idea is currently in vogue within the conservation community and at least marks a departure from the authoritarian or paternalistic attitudes of the past.

The convergence notion also signifies a general acceptance within the conservation community of the need for a new approach to conservation in the developing world. The conservation unit system which works reasonably well in wealthy countries has been less successful in those countries which can less afford either conserving part of their resource base or of using those resources for recreational purposes. Clearly, conservation making economic sense to the people living in the lands adjoining conservation units such as national parks, is more likely to succeed.

Two points emerge where such adjoining lands are occupied by indigenous communities. First, their economies have historically been based upon the sustainable use of wild resources and in this sense are compatible with wildland conservation. Second, strong arguments have been developed for the conservation of wildlands because of their potential as genetic reservoirs. Advocates of this view recognize the value of indigenous capabilities in both identifying and realizing this potential and consider such knowledge an intellectual resource on its own account.

But there are certain obstacles to realizing these potentials in the form of recognized conservation measures. For example, indigenous and environmental groups may join forces to forestall or modify a specific industrial resource development, but they may have quite different ideas about what to do once this had been achieved. What kind of conservation unit or regime could represent "convergence"? In this respect, some conservationists are hamstrung by older paradigms for their relationships with indigenous peoples. In one of these, indigenous people have been excluded from conservation units such as national parks. In another, they have been allowed to remain under conditions which have sometimes served to become a source of friction rather than an expression of mutual interest.

The outcome of certain issues involving indigenous peoples and conservationists in North America suggests that national parks are not the most suitable vehicle for reconciling these interests. At issue have been the effects upon animal populations of the use of industrial weaponry and vehicles for hunting and fishing (see sect. 4.2). Such issues were resolved by the establishment of joint management regimes which limited the impacts of such technology through quotas and other regulations whilst ensuring that the indigenous group continued to have prior access to the resources. Such arrangements are likely to be most effective in areas not already committed to full protection.

However, not all groups that consider themselves to be conservationists have shown an interest in such convergence. On the one extreme, organizations representing sports hunters and fishermen are sometimes in direct competition with indigenous hunting societies. On the other hand some protectionist groups object to all taking of wild animals, whether legitimized by tradition or not.

One of the realities behind the convergence prospectus is the steadily shrinking area of global wildlands which has so far escaped transformation for one purpose or another. This has attracted the attentions of conservationists anxious to pre-empt further development and settlement. Within that diminishing area, they are likely to encounter indigenous societies in active residence.

Over the last twenty years, several of these indigenous peoples have managed to negotiate land claim settlements with national governments which have enabled them to retrieve a limited measure of the political self-determination that pre-dated colonialism. Thus empowered, they have been able to turn their attention to matters of self-determined social and economic development.

Specifically, some groups have managed to assert their priorities regarding environmental conservation over those of the conservation institutions which, to some degree, are themselves a product of colonialism. Conspicuous advances of this kind have been made in Canada and the United States (Davis 1988) and there is evidence of parallel trends in the different political and environmental circumstances of Latin America. This amounts to a radical revision of the passive role previously assigned to indigenous societies, as part of the natural scene, to an active and demanding position, but one which does not contest the basic principles of environmental conservation.

This connection with aboriginal land claims is crucial to these changes but has sometimes escaped the notice of conservation agencies preoccupied with issues of endangered species and disappearing habitat. For indigenous societies, similarly preoccupied with the defence of their traditional lands and economies, conservation measures are often seen as means rather than ends and their willingness to form alliances with environmental organisations in campaigning against industrial development should not be taken as a guaranty that they also share the same views upon the most appropriate follow-up to successful campaigns.

Instead, what has occasionally issued from such alliances of convenience is a version of conservation which is more pragmatic than protective and is centered around an attempt to find ways of adapting traditional practice while conserving the resource base. The following section briefly reviews examples where environmental organisations have allied themselves with indigenous groups, or when campaigns against industrial development have themselves precipitated a search for such alternatives. These examples are an indication of the indigenous view on the prospects for convergence.

1.3. CONSERVATION AS AN INDIGENOUS STRATEGY.

Confronting pressures from the dominant society, indigenous minorities have in the past responded mainly with legal actions or political pressure, often with the assistance of indigenous support or advocacy groups. Such issues have usually revolved around questions of aboriginal rights and political self-determination and environmental organizations have had little to contribute to this process.

In recent years, however, environmental and indigenous organizations have increasingly found common cause in protesting large-scale development projects which threaten both the environment and traditional ways of life. In some cases, successful campaigns have prompted the emergence of indigenous versions of western conservation organizations.

In Malaysia, conservation organisations have joined campaigns initiated by tribal communities confronted with development projects which threatened their resource base. In 1983, The Malaysian Government announced the plan for the Bakun Dam, a hydroelectric project in Sarawak which would inundate 700 sq km of intact forest and displace 5,000 Kenyah and Kayan people (IWGIA 1986). Having observed the inadequate compensatory measures provided for some communities already re-settled below the proposed dam site, the remaining communities formed a Residents Action Committee and sent a petition to the Prime Minister requesting that the project be withdrawn.

At this point, they obtained the support of Sahabat Alam Malaysia (SAM - Friends of the Earth Malaysia), the Environmental Protection Society of Malaysia and Survival International - a London-based indigenous rights group. A 1986 press statement by SAM contained a list of objections to the project: environmental, technical, economic, social. The original \$8-10 billion cost estimate had risen to \$20 billion. In the absence of support from external sources, the project has been quietly shelved.

SAM has also been active in campaigns to limit logging in Sarawak. In 1984, the Penan, a tribe that relies heavily upon hunting and gathering, petitioned first the state and then the federal government to restrain the timber companies. This had little effect and in March 1987 the Penan began a campaign of barricading roads and rivers. A number of international organisations lent their support to the campaign. Survival International and the International Union for the Conservation of Nature (IUCN) intervened with the Malaysian government (Chartier 1987). This cooperation enabled the Penan to extend the reach of their campaign. In 1987, the SAM coordinator and 42 people manning barricades were arrested and environmental groups picketed the Malaysian embassy in Washington (Apin 1987).

The Chipko movement of Northern India is also of interest here because it is one which commenced as a nonviolent protest but, once successful, was transformed into a campaign dedicated to finding alternative routes to economic development. The manner of protest was distinctively Indian, though its antecedents were local rather than national: it was adumbrated by the Bishnois protest of 1730, in which several hundred women sacrificed themselves in an attempt to prevent their trees being cut down for fuel wood.

Chipko, the modern version, originated in 1973 in the Indian state of Himachal Pradesh. Indigenous subsistence farming communities had endured years of forest depletion at the hands of external timber and mining interests, while they themselves were forbidden by forestry regulations from practising traditions of subsistence utilisation. Chipko (to embrace) was triggered in Chamoli district after a sporting goods producer was licensed to take the ash trees then prohibited to the farmers who had formerly used them to make agricultural tools. Alerted by a network of watchers, people embraced the trees marked by the loggers (Berreman 1979).

The movement caught the nation's attention and rapidly grew into an regional organisation committed to the conservation of the Himalayan region, as well as a measure of political self-determination in the form of statehood. Gadgil (1985) outlines the principles guiding Chipko:

The most important role for forests for India is in meeting the minimum basic needs for fuel, fodder, fertilizer, fruit and fibre for the country's rural masses.

When the local inhabitants begin to derive genuine benefits from the tree cover they will once again have a stake in its preservation.

The tree cover can be preserved only under these conditions when those who benefit from it have a genuine concern for its sustainable utilization.

Gadgil 1985

Baines (1984b) points out that, though there is widespread public concern about environmental issues in the South Pacific, this is rarely represented by environmental NGO's as such groups do not fit well with traditional authority systems. Seed (1986) describes an issue in the Solomon Islands similar to Chipko, in that an environmental conflict between indigenous people and industrial development, once concluded, generated an effort at self-determined economic development.

Seed encountered a familiar situation: customary landowners selling timber for royalties from entrenched corporate interests as one of the only means of obtaining cash. After experiencing the consequence of forest clearance for some years, the Koroga people launched a campaign to prevent logging. This culminated in one group being jailed for two years, but the logging company withdrew from the forest in question. To consolidate their presence and pre-empt a resumption of logging, the Koroga returned and planted gardens and orchards. In addition, the islanders, in collaboration with the Australia-based Rainforest Information Centre and government agencies, set about devising an alternative economic strategy. This has two elements: public education and the promotion of more appropriate economic opportunities.

In these examples, the perceived alternatives to destructive resource exploitation are various forms of utilization which provide lower but sustainable revenues - for the benefit of local communities rather than outside interests. But some form of revenue is essential; Eaton (1985) describes how customary land owners in Papua New Guinea also treat the prospect of conservation units pragmatically and compare the benefits promised by conservation with those projected for intensive resource exploitation.

Economic necessity has also impelled indigenous groups to strike a different attitude towards industrial development once a degree of political self-determination has been obtained. With their land claim settled, the Inuvialuit of the Mackenzie Delta have embarked upon joint ventures with oil companies whose intentions were vigorously opposed before that settlement was reached. In Alaska, native regional corporations have surprised environmentalists by contemplating participation in oil exploration in the Arctic Wildlife Refuge. After extended and adamant

opposition to Canadian proposals to ship hydrocarbons through ice-infested waters, the new Greenland Home Rule government entered into an exploration program with the Atlantic Richfield oil company which, if successful, will inevitably require similar transport. In these cases, the issue has not been what is decided as much as: who decides?

1.4. REPORT STRUCTURE

This report is organised into three parts. The three chapters in the first part deal on a global level with the relationship between indigenous peoples and the environmental conservation movement. This is examined in both its negative and positive aspects.

The three chapters in the second part are concerned specifically with Latin America. First, the case is presented for a new approach to conservation, by comparing the established system of protected areas with a recent set of innovative areas and proposals. Then nine cases studies are looked at in more detail and subsequently reviewed.

Finally, a series of proposals are presented for further research by the World Bank, Latin American governments and international and Latin American NGO's.

PART ONE: WORLD VIEW

2. THE INTERNATIONAL CONSERVATION MOVEMENT

2.1. INTRODUCTION: INEVITABLE POLARITIES

Indigenous society does not fit neatly into the tension between utilitarian and preservationist that has braced the modern conservation movement since its inception a century ago. At both ends of this spectrum there are groups who, though bitterly opposed to each other, will also claim affiliation in spirit with indigenous peoples, particularly those specialising in hunting and fishing.

At the utilitarian pole, organisations such as the United States and Canadian National Wildlife Federation (NWF), primarily representing the sports hunting and fishing community, have taken up the cause of the trapping community, now exposed to attack by the movement against the fur trade. This provides utilitarian factions with a blunt instrument for use against their habitual opponents, the preservationist organisations, on the grounds that they are contributing to the destruction of indigenous economies in North America.

At the other pole, some preservationist groups have elaborated an ideology and agenda for action around the notion of the Indian as ecological hero. The danger in this is not so much that members of such groups may entertain themselves with illusions, but that these are often used to set a standard for approved indigenous hunting behaviour against which to assess the realities. When such criteria are employed by, for example, the International Whaling Commission (IWC) they become a tactical device for refusing exemptions to indigenous whalers on the grounds that they use modern weaponry.

At both these extremes, conservation tends to be more about human behaviour than the state of the environment. Occupying the centre ground is a group of conservation organisations guided by more disinterested and pragmatic principles. Two current trends in conservation have brought the agendas of these organisations closer to the indigenous interest. One is the recognition that traditional land use practices are not necessarily antithetical to conservation and that the accumulated knowledge and expertise of practitioners could usefully be added to that of professional conservationists. The other is that sustainable development is a desirable conservationist objective in itself. This begs certain questions about the compatibility of certain forms of sustainable development and wildland conservation, but these will be taken up later.

2.2. THE WORLD CONSERVATION STRATEGY (WCS) PROPONENTS.

The World Conservation Strategy (IUCN 1980) is a joint effort of the International Union for the Conservation of Nature (IUCN) the World

Wildlife Fund (WWF) and the United Nations Environment Program (UNEP), World Health Organization (WHO) and UNESCO. These five influential organizations represent the private, collective national and international interest in conservation. The strategy was regarded as the authorised version for world environmental conservation. Although now, a decade later, the WCS shows its age, it still provides a useful reference point for this study.

In the WCS, conservation concepts have been extended to include a wide range of compatible forms of resource utilisation. The strategy recognises the crucial need to improve rural economies in a sustainable manner, as a means of reducing pressure for short-term gains from the exhaustion of renewable resources. Central to the strategy is the idea that the maintenance of genetic diversity in special conservation areas is ultimately dependent upon the cooperation of local communities and this in turn will depend upon the extent to which local people perceive the value and receive the benefits flowing from conservation.

In 1986, an international conference on the implementation of the WCS was held in Ottawa. A case study of the Dene community of Old Crow was jointly produced by its residents and the Yukon Govt. (Old Crow 1986). Old Crow is one of the most isolated communities in the Canadian Arctic and though the settlement itself may not be exposed to the impacts of industrial development, the migratory species which provide food, caribou and salmon, are certainly at risk during certain seasons. But, environmental threats apart, the people of Old Crow are also sensitive to the more subtle effects of collision between the cash and the subsistence economies:

Old Crow for many years has relied upon it's renewable resources for survival. Therefore, the idea that our resources are sustainable is not a new one. The problem arises when we must relate or exchange our traditional subsistence economy with that of the capitalist economy. For years, and as recently as 8 to 10 years ago, our people never had a dependence upon the almighty dollar. This is still evident in our life style.

Howard Linklater, Band Manager (Old Crow 1986)

The Commission on Ecology of the IUCN has established a working group on Tradition, Conservation and Development which, in its opening newsletter presented the following for consideration by its members:

A need to explain in practical terms just how traditional knowledge can lead to greater insights into ecology and resource management.

The fact that different aspects of traditional conservation are retained and applied by men and women.

The fact that certain traditional knowledge (e.g. that relating to traditional medical practices, or to fishing) is crucial to the roles and status of certain individuals; thus the revelation of this knowledge may undermine the social status of those individuals.

The need to proceed quickly beyond statements about the importance of traditional knowledge and to find practical ways of applying principles learnt from such knowledge to ecological science, to the application of technology, to planning and to decision making.

Baines 1984a

The (WWF), with the support of the United States Agency for International Development (US-AID) has in train a Wildlife and Human Needs Program. Its projects, several of which are reviewed later are focused :

...on management of native forests and biological diversity, wildlife utilisation, fisheries and watershed protection. The model projects seek to benefit local people through income generation, land titling, enhanced access to and improved management of wildland resources and a variety of small scale community development projects.

WWF 1988

2.3. THE INDIGENOUS PERSPECTIVE

At a recent McGill University symposium on the Canadian seal hunt controversy, an Inuit delegate reacted to an argument that broke out between animal protectionists and sealers by remarking that Inuit viewed the whole thing as a white man's quarrel. In defending their interests, indigenous groups have on occasion formed alliances of convenience with conservation groups of various tendencies but so far have managed to elude absorption into any single faction.

During the Mackenzie Valley Pipeline hearings in northern Canada, indigenous groups found themselves, despite their trapping habit, provided with the support of preservationist organisations. With the current offensive against the fur trade in full swing, such organisations have withdrawn behind discrete statements of support in principle and the indigenous trapping community has found itself showered with offers of support from the utilitarian persuasion, amongst them the National Wildlife Federation, an organisation whose state and provincial chapters have elsewhere been consistent in their opposition to the exercise of aboriginal hunting rights.

Campaigners against the fur trade have pointed out, quite accurately, that most wild fur is trapped by non-indigenous residents of the United States and that the fur trade is deliberately using the indigenous peoples of northern Canada to exert moral leverage. The anti-fur trade organisations, however, are being equally selective of reality; France, for example, produces more wild fur than all of Canada (but they are only rabbits).

Indigenous Survival International (ISI), the Canadian/Alaskan/Greenlandic organisation that was created to deal with campaigns

against sealing and the fur trade, is fully aware of the delicacy of its position. While maintaining essential operational linkages, ISI has made a smart move towards the centre of the conservation spectrum, signified two years ago by the submission to IUCN of a proposed revision of the World Conservation Strategy designed to accommodate the indigenous interest.

This proposal contains definitions of aboriginal subsistence, conservation and development which will be quoted in full here as a reference for this study - if only to test it against Latin American realities.

2.3.1. Indigenous Survival International Amendment to the World Conservation Strategy.

ABORIGINAL SUBSISTENCE is defined here as a way of life that is closely tied to the harvest of renewable resources. Activities such as hunting, fishing, trapping, gathering and cultivation continue to make a substantial contribution to the economies of indigenous peoples, providing them with food, raw materials and income. Moreover, subsistence activities provide native communities with a perception of themselves as distinct peoples, confirming continuity with their past and unity of the natural world. They reinforce spiritual values not necessarily shared by the larger societies. Subsistence emphasizes an ethic of sharing and mutual support, community cohesion, and a commitment to stewardship of the land and its resources, based upon a perspective of many generations, both past and future. Adoption of modern technologies does not change their status as indigenous peoples and does not diminish the economic and cultural importance of cultivation, hunting, trapping gathering and fishing. Aboriginal subsistence is characterized neither by the technologies employed nor by whether the resources obtained are consumed directly, traded or bartered, but by its roots in tradition and its crucial role in expressing and strengthening cultural identity.

CONSERVATION has always been integral to the survival of indigenous peoples. Without renewable resources to harvest, they lose both livelihood and way of life. Aboriginal communities have everything to gain from conservation - and much to offer: a profound and detailed knowledge of species and ecosystems; ways of sharing and managing resources that have stood the test of time; and ethics that reconcile subsistence and coexistence; recognising that people are an integral part of nature, and express spiritual bonds with other species, including those they harvest.

CONSERVATION AND DEVELOPMENT policy making and planning often seem to assume that native peoples have only two options for the future: either to return to their ancient way of life; or to abandon subsistence altogether and become assimilated into the dominant society. Neither option is reasonable. Indigenous people should have a third option: to modify their subsistence way of life, combining the old and the new in ways that maintain and enhance their identity while allowing their economy and society to evolve. As original conservationists, they aim to combine development and conservation, and put into practice the concept of equitable, culturally appropriate, sustainable development. As such, the goal of the World Conservation Strategy is their goal, too.

ISI 1986

ISI and the Dene of Old Crow have been joined by the Inuit Circumpolar Conference (ICC) in working within the framework of the WCS. The ICC is currently developing a regional strategy applying to Inuit lands in Greenland, Canada, Alaska and Russia. This strategy recognises the main principles of the WCS but interprets them from the Inuit perspective. The Inuit Regional Conservation Strategy focuses on a number of priorities:

Actions to secure Inuit aboriginal rights to traditional lands and waters, subsistence and self-government.

Actions to improve Inuit management of lands, waters and harvested resources under Inuit jurisdiction, and environmental protection in the Inuit homeland.

Actions to conserve migratory and other shared resources, protect the Inuit homeland and harvested resources from harmful environmental impacts, and develop and protect export markets.

Prescott-Allen 1986

2.4. UNESCO MAN AND THE BIOSPHERE PROGRAM.

The Man and the Biosphere Program, launched in 1970, was conceived at a 1968 UNESCO conference on the Rational Use and Conservation of the Resources of the Biosphere. Its "major objective is to provide the scientific knowledge and trained personnel needed for sound and sustainable management of land resources" (Batisse 1986). The notion of Biosphere Reserves emerged in 1974, in response to:

The need for reinforcing the conservation of genetic resources and ecosystems and the maintenance of biological diversity (CONSERVATION ROLE).

The need for setting up a well identified and international network of areas directly related to MAB field research and monitoring activities, including the accompanying training and information exchange (LOGISTIC ROLE).

The need to associate concretely environmental protection and land resources development as a governing principle for research and education activities of the new program (DEVELOPMENT ROLE).

Batisse 1986

These intentions were expressed in a simple zoning system which combined a protected core area (conservation objective) with one or two surrounding buffer zones in which problem-oriented research (developmental objective) would take place for example on sustainable development and habitat restoration, a process which would involve demonstration and training (logistic objective).

The first batch of 57 biosphere reserves was declared in 1976; a second batch of 67 followed in 1977. Between then and 1986, a further 137 were added. In the early selection process, Batisse (1986) reports a certain bias towards the conservation objective. He also notes that the research on the new MAB reserves tended to be "of a rather academic character, not clearly related to ecosystem and resource management, and not addressing explicitly the relationship between environment and development."

Such bias was not surprising. National MAB committees included a heavy component of academic and institutional environmental scientists, some of whom had gravitated there from the antecedent UNESCO International Biological Program (IBP). The IBP had proved strong on inventory but less so in obtaining protection for sensitive ecological sites identified by that inventory. For example, of 150 sites that were listed for northern Canada, only one has since received qualified protection.

MAB was perceived by some early participants as a more pragmatic program that would accomplish the more practical goals signified by the inclusive MAB criteria. This was certainly the case in Canada, where the National MAB Committee enthusiastically sat down to nominate areas which qualified. But it later learned that only established conservation units would be considered for biosphere reserve status.

Since existing areas were established for the purposes of environmental protection, the bias towards the conservation objective is not surprising. Reviewing progress in 1986, Batisse (1986) observes that "there are serious weaknesses in the present list of biosphere reserves and that very few of them, if any, fully meet this combination of criteria" - the conservation, logistics and development roles listed above.

In principle, the MAB biosphere reserve approach matches the objectives of rural and indigenous communities needing developmental assistance, training and a measure of protection for their lands. But this UNESCO program does not provide protection itself. Instead it has strengthened existing national conservation units by endorsing them and listing them in an international context.

Many of these are national parks and typically a biosphere reserve will include a park as the protected core area surrounded by buffer zones. Over the years, national parks have understandably acquired a solid public image as "sanctuaries" or "refuges". Park agencies take this role seriously and the notion that parks should service the needs of surrounding communities, beyond the provision of environmental services such as watershed protection and facilities for certain kinds of recreation and scientific investigation, has never found a solid place in their scheme of things.

Biosphere reserves have been assigned a quite different role: to service the economic needs of those living in the environment represented by the reserve. Such services could take the form of experimentation with

various forms of sustainable resource utilization, followed by programs of demonstration and technology transfer - the "development objective" cited above. But too often this process has been neglected and biosphere reserves have been used simply as a means of reinforcing the protection of core area parks.

There is a yawning information gap between the actual state of many conservation units in developing countries and the images of these that are projected to the supporting constituencies in western countries - just as there is a discrepancy between the actual conditions of many indigenous peoples and the public images that find their way into their media representation. By taking the soft route to environmental conservation and avoiding the political complexities and frustrations entailed in setting up conservation units, the Man and the Biosphere Program gives the impression that it has gone for image over substance.

But, in the Latin American context, the biosphere reserve approach to conservation has been revived in recent years because it makes sense in a region where most surviving wildlands are occupied by indigenous peoples and also one where national parks and other conservation areas have frequently been exposed to colonisation and industrial development (Glick 1988, Houseal 1988). Several of the cases to be reviewed later are biosphere reserves, some of which were developed from scratch (Chapters 5 & 6).

In 1976, the MAB Programme was succeeded by another UNESCO program, the World Heritage Convention. The object is to "identify and support the world's most outstanding cultural and natural properties" and 69 natural areas had been endorsed as World Heritage Sites by 1987. This program does have the resources to provide funds to help protect such sites and it is hoped that elevation to world status will also provide a measure of protection.

2.5. NON-GOVERNMENTAL ORGANISATIONS

2.5.1. International Conservation Organisations

Private conservation organisations are assuming an increasingly active role in specific projects in developing countries. The most prominent is perhaps the group of Washington-based organisations that have become involved in the conservation of tropical forests. The details of specific cases will be elaborated in Chapter 7.

The World Wildlife Fund-US Wildlands and Human Needs Program currently has 21 projects running. Of the 15 located in the Caribbean and Latin America, 13 are focused on conservation areas - including five biosphere reserves (WWF 1988).

Similar projects are being pursued by other conservation organisations. Earth Island Institute has become involved in the planning of an international peace park stretching across the Nicaraguan-Costa Rican border and including Miskito Indian territory. Conservation International is actively involved in the management planning for

biosphere reserves in Costa Rica and Bolivia. The Nature Conservancy is involved in an effort to develop a conservation unit for the Ache of Paraguay and is also working on a system of Conservation Data Centres (CDC's) in Latin America.

Collectively, this effort complements the more activist campaigns against rainforest destruction that are being run by other conservation organisations. Both are essential, the one defines the problems and allocates responsibilities; the other proposes solutions and alternatives.

2.5.2. Indigenous Support Organisations

Three of the major international support organisations: Cultural Survival (CS - Boston) Survival International (SI - London) and the International Work Group for Indigenous Affairs (IWGIA - Copenhagen) have for some time been documenting situations involving indigenous peoples and development; much less with conservationists. The usually negative outcome of past encounters has induced a circumspect attitude towards the institutions for conservation, even when these are parks dedicated to the protection of indigenous groups.

There are signs that this may be changing in response to the changes in conservation policies towards indigenous peoples and economic development. In this respect, CS has assumed a consultative role in the WWF Wildlands and Human Needs Program, as well as independently supporting indigenous projects in sustainable development and conservation.

2.5.3. Conservation NGOs in Developing Countries

These are playing an increasingly active role in developing country conservation, more so in Latin America than in other regions (Glick 1988). They have fast reaction times, low overhead and fewer political constraints than government conservation agencies. NGOs are often well placed to communicate directly with the clusters of organisations usually contributing to conservation projects: national indigenous organisations, local communities, government agencies, international support organisations.

Developing country conservation NGOs are most active in Latin America and the Caribbean. In Africa, such organisations tend to be dominated by expatriates and incline more towards exclusive notions of conservation area management. Baines (1984b) has suggested that NGO development in the South Pacific has been inhibited by a general reliance upon traditional political structures.

For various political and administrative reasons, NGOs are better placed than government agencies to handle funds that are raised abroad for domestic conservation projects. In addition, some NGOs have received core funding through debt-swap arrangements which enable them to provide support for independent projects.

Some organizations, such as the Caribbean Conservation Association, active in WWF sponsored projects in Dominica and St Lucia,

have been in existence for some time, but have lacked the financial resources that Washington-based groups are able to mobilise. Others, such as the Amigos de Sian Ka'an Biosphere Reserve have been established to assume management responsibilities (WWF 1988).

Amongst the many conservation NGOs active in Peru are the Peruvian Association for Conservation (APECO), involved in the management of the Lake Titicaca National Reserve and the Peruvian Foundation for Nature Conservation (FPCN) is, with the WWF-US, planning an America-wide conference on native peoples and resource management.

There are other points of origin for developing country NGO's. Chipko, in Himachal Pradesh originated in a specific movement to protest deforestation and has since expanded into grassroots development generally.

In Malaysia, the regional chapter of FOF, Sahabat Alam Malaysia (SAM) has assumed an activist and effective role in defending the interests of indigenous peoples affected by deforestation.

2.5.4. The Animal Welfare/Protectionist Movement

Within this spectrum of organisations, there is a polarity between the traditional, reformist animal welfare societies and the radical animal rights and liberation organisations. Over the last ten years or so a strong radicalising trend within the movement has been expressed in a number of organizational take-over efforts. There have been two motives for these: to redefine the goals of animal protection; to gain access to the considerable endowments that have been accumulated by the established humane societies.

These trends are becoming increasingly important to indigenous peoples because there has been a general broadening of agendas to add wild animals to the domesticated animals which have been the traditional preoccupation of humane societies. This has had two effects. One is to introduce the animal rights perspective into conservation issues. The other is to cause some of the reformist organisations to gravitate towards the centrist conservation standpoint which accepts animal utilisation provided the methods are as "as humane as possible."

While the radical animal protection organisations are opposed to all animal utilisation, the reformist groups tend to make exceptions. One of these is for indigenous people - "as long as it is for subsistence". The other is for systems of sustained utilisation which employ the most humane methods of killing possible and which are regarded as the lesser of two evils; the worse being the unregulated and wasteful killing of animals regarded as pests.

With good reason, many animal protectionists hold to the axiom that commercial trade endangers animal populations and this has led to an increasing participation in the deliberations of the Convention on Trade in Endangered Species (CITES), by which trade is regulated according to the estimated endangerment status of an animal or plant population.

During the last three CITES meetings, animal protection groups have escalated their attacks upon certain kinds of wild animal re-stocking or husbandry projects which are arousing widespread interest in Latin America, the Caribbean and Africa. These projects combine economic development with attempts to restore depleted populations and typically apply to species such as turtles and crocodiles that have suffered from excessive exploitation. Typically, eggs will be collected freshly-laid, or from pregnant females, incubated under protective conditions, and the young later released.

Since such species are frequently listed as endangered, the proponents of these projects have applied for exemptions for the specimens they wish to trade in order to support or justify the program. Such applications have been vigorously attacked on the grounds that they provide an opportunity for the illicit substitution of wild specimens for those bred in captivity. In Chile, the Aymara who contributed to the vicuna restoration project were deprived of promised benefits and the rehabilitated population was culled by government agents because trade was prohibited under CITES (See 5.2.4.).

The position of animal protectionists on indigenous peoples has been precisely articulated by Best (1986). The basic tactic, to argue against distinctions in favour of native peoples, coincides closely with the arguments that sports hunters in Alaska have deployed against the exercise of aboriginal hunting rights. The ends of course are quite different, though perhaps not from the indigenous perspective:

The viewpoint of the animal rights movement towards Native peoples and their exploitation of animal-based resources is not uniform across all animal rights organizations. There is, as in most people, a genuine sympathy for native peoples and what they are trying to accomplish under very difficult conditions and social circumstances. This does not distract, however, from the clear understanding that, in terms of wildlife and animals, the Indian has demonstrated that he is no better or worse than other groups of people or individuals. What the Native community poses for the political activists in the animal rights movement is just one more political problem. Only time will tell how difficult that problem will be to surmount. A residue of the '60's view of the Indian as an ecological hero still exists. As well, there is a fear that any criticism of Native peoples will result in one's being accused of racism -- a common charge leveled by Native leaders. But there is a trend.

Best 1986

A trend towards a more objective understanding of the situation of Indians in the contemporary world may not necessarily work in favour of the activists in the animals rights movement. Some of the examples in the following chapter suggest that the notion of the Indian as an ecological hero can be as much of a liability as an asset: "only time will tell" which side will benefit more from the shedding of this specific illusion.

3. CONSERVATION AND INDIGENOUS PEOPLE: DIVERGENCE

We admire Indians so long as they appear to remain what we imagine and desire them to be: ecologically noble savages symbolizing a better way of life than we ourselves find it practical to live. We respect their traditions so long as they fit our preconceived notions of what those traditions should be. Let their ways cross purposes with ours, however, and we not only cease to admire them (which in some cases might be justifiable) but begin actively to resent them for not living up to our ideals.

Schwarz (1987)

3.1. INTRODUCTION

Conservationists have for long been uncomfortable about indigenous people. Schwarz (1987) inspects a drift away from the 1960's idealization of Indians by environmentalists signified by several attacks on the notion of the Indian as ecological hero - itself a construct of the environmental movement and one that has done good service in its time.

Schwarz suggests two reasons for this trend. One is dismay, and some cynicism, at the evidence of division within Indian communities over proposals to develop industrial resources on reservation lands. The other is the exercise of aboriginal rights in the hunting of endangered species. The cases cited include the bald eagle and the Florida panther, both hunted and used for religious reasons. These actions have been attacked not only because the species are endangered but because traditional weapons were not used. Schwarz suggests that environmentalists feel "betrayed" at Indians not conforming to the image of moral purity that has been assigned to them.

This image has been put to peculiar uses. Volkman (1986) argues that there has been a "shift from economic to ideological exploitation" of Bushman societies in southern Africa and that a "distorted, paralyzing myth of Bushman hunting and gathering culture" informs government policies that effectively stifle efforts of Bushman societies to survive by evolving mixed economies.

This myth has been deployed, naively or cynically, in various ways against the interests of indigenous peoples. Some can be reduced quite simply to the pursuit of rival claims to the resources, for example on the part of sports hunters. Others involve more subtle forms of "control by definition" which work to circumscribe indigenous practice or pre-empt the possibility of adapting this tradition to changing circumstances.

3.2. EXCLUSIONS FROM CONSERVATION UNITS.

There are two reasons why indigenous peoples have on occasion been excluded from certain conservation units. One is that it is a hunting preserve, for the use of non-native sports hunters only. The other is that all hunting is prohibited, regardless of any prior practices.

Turnbull (1972) describes the complete social breakdown that was caused by the exclusion of the Ik from their hunting grounds in Kidepo National Park, Uganda. The tribe was told to take up farming and provided with land that was not only entirely unsuitable but overlooked the park land - allowing the Ik a prospect of their lost animals as they slowly starved.

In Kenya, the Liangulu were redefined as poachers overnight when Tsavo National Park was established. For some time, they had already been subjected to regulations on elephant hunting, which they had ignored. When the ivory trade boomed during the 1950's, many of the Liangulu were jailed. But, when the ecological crisis reversed itself and there was a danger of over-population, 400 were released to participate in the Galana elephant cropping scheme (Poole 1968). Gomm (1974) has suggested that the banning of Liangulu hunting itself contributed to the elephant population explosion.

Exclusions of indigenous people from parks and reserves appears to have been more common throughout the former British colonies than, for example, South America. Maasai were initially excluded from six parks and reserves in East Africa (Deihl 1985). San were removed from the Gemsbok National Park, Botswana (Hitchcock 1985) and it has quite recently been proposed that the Central Kalahari Game Reserve be redefined as a national park as a step towards evicting the San now living there (Volkman 1986).

A cooperative project between the Indian Government and the WWF/IUCN to preserve the tiger population has had serious effects upon tribal communities. A 1972 census yielded a national estimate of only 2,000 tigers. Project Tiger was launched in 1973 with the establishment of eight tiger reserves. Each consisted of a buffer surrounding a core zone in which all human activity was banned.

In the Kanha reserve, 40,000 people living in 20 communities were relocated from the core zone. Villagers in the Betla reserve have lost much of their livelihood while the area now attracts 20,000 tourists each year (Earthscan 1981). The 40,000 ha Chenchu Reserve had been established in 1940 but its Chenchu inhabitants had remained undisturbed until 1979, when the reserve was re-designated a Tiger Sanctuary and people were prohibited from using the resources of the core area (Survival International 1987a).

Marshall (1984) describes a proposal to set up a nature reserve of about 6,000 sq km in Bushmanland. Once this happens, the Ju/Wasi living there will no longer be able to keep their small herds of cattle which combine with gardening, hunting and some wage-earning to provide a self-supporting local economy. The Ju/Wasi will be obliged to move from the natural water holes in their present lands to expensive boreholes in the arid lands to the west. Writing about the same proposal, Volkman (1986) refers to the plans for eco-tourism in the reserve, which will include Ju/Wasi on the agenda. Local objections, once the reserve plan was made public, led to a qualified modification: Ju/Wasi would be allowed to keep a limited amount of cattle, use some of their waterholes and hunt in the traditional manner (Marshall 1984).

In the Yukon, the Kluane Game Sanctuary was declared in 1942 as an emergency measure precipitated by the onslaught on the game populations by the construction crews and military personnel building the Alaska Highway. The ban was absolute, affecting indigenous hunters also and a later study by the Yukon Council of Indians reported that "People were forced to abandon hundreds of snares and traps and the equipment at their hunting camps" (Council for Yukon Indians 1978). Ironically after the Kluane Game Sanctuary received national park reserve status in 1973, the Kluane people were not allowed to resume hunting on the grounds that they had not traditionally used the area (Hunt 1978) - another application of the "generation lapse."

3.3. CONDITIONAL OCCUPANCY OF PARKS AND RESERVES

Faced with the fact of prior indigenous occupancy of proposed parks and reserves, conservation agencies have on occasion imposed restrictions on the manner, appearance, technology, and methods to be allowed in the park. At best, these are well-intentioned efforts to create space for the continuance of traditional practice. At worst, they are versions of the "control by definition" tactic that has been put to various uses by interests opposed to indigenous practice.

The Central Kalahari Game reserve in Botswana was originally established to protect sufficient territory to enable the resident population of San to continue their traditional hunting and gathering practices. For this reason, other than traditional practices are outlawed. But changes within San society, combined with changing pressures at the margins of the reserve have shown how difficult it is to isolate an area from change. Outmigration has caused the San to decline from 5,000 in 1960 to 1,000 in 1984 (Hitchcock, 1985).

The stock from cattle-ranches at the periphery compete for San seasonal food resources. A critical wildlife situation has resulted from the spread of ranching and fences and depletion of water supply. With declining access to land, the diminishing San population has become more sedentary, has begun to employ horses for hunting and has requested various social services. These trends no longer conform to earlier visions and amongst the proposals under review by the government is a change of status to a national park, which would automatically disqualify indigenous occupancy.

The United States National Park Service in Alaska has defined in advance the subsistence practices that would be allowed in new parks so as to pre-empt the emergence of new methods of resource use: "Subsistence is comprised of the taking of customary or traditional wild foods and other renewable biological resources from the lands and waters for personal or family consumption, but not solely for trade or commercial enterprise." (Belous 1976)

Following the Mackenzie Valley Pipeline Inquiry proposal for a "Wilderness park" on the Arctic slope of the Yukon Territory (see Section

1.2.1.), Parks Canada produced a policy discussion paper which included the definition of a new category of conservation area "national wilderness parks" which would accommodate indigenous occupancy:

Native people would be guaranteed the right to continue traditional resource uses within parts of national wilderness parks where they have traditionally done so on a subsistence basis.

Parks Canada (1978)

The discussions included much debate over the meanings of "tradition" and "subsistence" but nothing satisfactory emerged and the final policy scrapped the wilderness park idea and equivocated on the tricky subject of subsistence:

Guarantees will be provided so that certain traditional resource uses by local people will be permitted to continue in parts of national parks for one or more generations when such uses are an essential part of the local way of life and when no alternative exists outside the park boundaries.

Parks Canada 1979

This, well-hedged policy can be selectively applied to exclude inconvenient technology such as rifles and snowmobiles. Objections to such technology are often explained on the grounds that it enables indigenous people to take more animals than traditional technologies.

An alternative explanation is that it does not conform to the visual expectations of park visitors. A comment from the new policy suggests the second:

Selected activities which are of cultural value in portraying to visitors traditional relationships between men and the land in the park area as part of the park experience may be permitted

Parks Canada 1979

On the one hand, the insistence that tradition must have continuity; on the other, the pre-emption of the possibility of the change that is vital to the evolution of tradition. Regulation of this kind has two, linked motivations: one to provide an appropriately romantic spectacle; the other to progressively exclude indigenous land use as it evolves beyond the approved traditional form or as other social and economic pressures induce members of a community to leave a park area.

In Alaska, a variant of the control by definition tactic has been put to service in what has become known as the Subsistence Issue. This is essentially a competition between Native and non-native society for the animal resources.

3.4. COMPETITION FROM SPORTSMEN: THE SUBSISTENCE ISSUE

The strategy that the sports hunting interest has put into effect in Alaska consists of a denial of rival claims to the animal on the basis of aboriginal hunting rights. Although the Alaska Native Claims Settlement Act (ANCSA) encouraged the idea of private property in its explicit promotion of private corporations, sportsmen have advanced the idea of common property resource ownership, as well as their violated civil rights, in pursuit of their interests. Thus, "urban sportsmen say the game belongs to everyone and that division along racial lines is unconstitutional" (Tundra Times, January 1978). A government planning commission commented that "a pure native culture probably does not exist in Alaska. Thus, we are not talking about perpetuation of a culture; we're talking about perpetuation of a life style." (in, Reardon 1978). The aim here is to enlarge non-native access to game animals by assigning priorities on the basis of "life style": thus State Senator Gavel:

I think subsistence must be defined on the basis of economic dependence, place of residence, and traditional lifestyle of the user. I don't think definitions of preference based on race or ethnic origin are necessary.

Tundra Times, January 1978

The subsistence issue has been accompanied by a subtle process of redefinition of the aboriginal hunting rights, once self-evident but later enshrined in Indian treaties as part of the compensation package. These rights are gradually becoming "privileges" and their exercise contingent upon certain qualifications. This process is evident in the provisions for new national parks to be established under ANCSA:

An important distinction is made by the Secretary between right and privilege based on the provision of ANCSA that all aboriginal claims of hunting and fishing rights are extinguished. Neither natives nor non-natives have a legal basis for claiming a right to pursue subsistence activities on parklands. However, qualified local residents will be given the privilege of pursuing established practices on new parklands created pursuant to ANCSA.

Belous 1976

The subsistence issue is essentially about access to resources, rather than the impact of hunting. The effect is to reduce indigenous use by generalising access. The aim of some animal preservation campaigns, by contrast is to eliminate all use, even though the organisations conducting such campaigns may declare that "genuine subsistence" use is exempt from their intentions.

3.5. ANIMAL PRESERVATION CAMPAIGNS: WHALES, SEALS, FUR-BEARERS.

Historically the animal protection movement has been preoccupied with behaviour towards animals used for agriculture, research and recreation, but lately, its reach has been extended to certain wild animal populations, especially those whose products are traded to industrialised countries. This is an area in which animal preservationist groups, who would not consider themselves advocates of animal rights, are also active.

This convergence of interests has accounted for several changes in objectives and strategies over the last few years, the most significant of these being the change in the main goal, from controlling animal exploitation to eliminating it altogether. Successes in the campaigns against whaling and sealing have persuaded some groups that history is with them.

The leading organisations in the campaign against whaling and sealing, Greenpeace and Sea Shepherds, have succeeded where the established conservation organisations had not only failed, but had claimed that success was not politically feasible. And this had been achieved by altering public attitudes towards the killing of whales and seals and in using this change in sensibility to eliminate the market.

The general shift of strategy away from controlled hunting to no hunting has gained momentum with the successes of the whale and seal campaigns. Endangerment is no longer the main issue, for it contemplates the resumption of hunting once the population has recovered. The recent history of the International Whaling Commission (IWC), exactly reflects these trends.

The IWC was originally established to allocate quotas amongst the major whaling nations, to settle disputes and to enforce protective measures where a whale species or populations may be considered endangered. As successive species of whales have become endangered since the 1960's the organisation has had to modify its focus from solely management to include protection.

This has been achieved by public campaigning and organisational modification including the admission of non-whaling nations to voting status within the IWC. By 1982, the protectionist focus within the IWC was strong enough to introduce a complete ban on commercial whaling which, with temporary deviations from some indignant members, seems likely to remain in force indefinitely.

As this victory became a tangible prospect, the IWC began to focus its attention upon what is defined as "indigenous whaling" which previously had enjoyed an exemption from the campaigns directed against commercial whaling. The main focus was the bowhead whaling by Inuit in Alaska. The ensuing controversy is of great interest, not only because of its exposure of the various interests and motivations but also because the controversy itself precipitated the emergence of a collaboration between hunters and managers which appears more likely to ensure the prolongation of Inuit whaling than its termination (see 4.2.1.).

An intensified campaign against the fur trade has been stimulated by the success of the international sealing protest. The previous campaign sought to prohibit leg-hold trapping only in the belief that it would be politically impossible to stop trapping entirely. But this limitation is no longer recognised and the goals have been generalised to include the entire fur trade. The effect upon Inuit hunters of the seal market collapse, coupled with the announcement that a similar fate was being prepared for the fur market, were directly responsible for the formation of Indigenous Survival International (ISI) which in turn led eventually to ISI becoming directly involved in the World Conservation Strategy.

3.6. CONCLUDING COMMENTS

To varying degrees throughout the world, there are three principal causes of divergence between the interests of indigenous peoples and certain conservation interests:

1. Competition from non-native sports hunters, once expressed in expulsions from game (hunting) reserves; now also by attacks on the principle and exercise of aboriginal hunting rights.
2. Uneasiness on the part of wildlife management agencies that indigenous people will exercise aboriginal hunting rights without respect for the effects upon animal populations.
3. The need to sustain the powerful and symbolic image the national parks have acquired as the antithesis to the commercial exploitation of natural resources and which cannot accommodate any deviations from a primitive image of indigenous societies.

When an indigenous delegation presented its case to the international conservation community at the Botswana CITES meeting of 1983, potentially sympathetic conservationists were alarmed by the vigour with which the delegates asserted their aboriginal hunting rights. Over the following five years, this tactic has been quietly superceded by an insistence upon priority of access to an acknowledged sustainable yield. This adaptation is expressed in the ISI proposal for an amendment to the WCS which qualifies the exercise of rights in terms of species conservation, as well as allowing for other users to share the resources, once indigenous needs have been met:

Resources that are shared with non-aboriginal user groups should be allocated on a priority user basis, with highest priority given to subsistence uses. A guaranteed level of harvest should be established by and for native subsistence groups, sufficient to meet basic needs as long as permitted by the size and recruitment rate of the harvested population. Allocation among native users should be left to the indigenous community. If the sustainable harvest is high enough to provide a surplus above the fixed allocation to subsistence users, the surplus can be shared among

the native groups and other users for commercial recreational purposes. If the population is so depleted that no sustainable harvest is possible then of course there should be no harvest at all.

ISI (1986)

4. INDIGENOUS PEOPLE AND CONSERVATION; CONVERGENCE

4.1. INTRODUCTION

This chapter covers several recent examples outside Latin America where indigenous people and conservationists have arrived at some form of accomodation, manifest, for example, in a conservation area or research and management regime. The more successful of these have one feature in common: the pre-condition of some measure of self-determination, in the form of legal title, a land claim settlement or customary ownership.

This is not an exhaustive list. There are other examples of various forms of rapprochement between conservationists and indigenous societies. In 1889, for example, the Maori elders of Ngati Tuwharetoa donated land towards New Zealand's first national park, Tongariro. This set a precedent for the gifting of lands for parks and reserves together with informal understandings over continuing indigenous use of some protected area resources. Currently, the government and Maori groups are working on the establishment of "tribal reserves" on unoccupied Maori land where resource utilisation will be conducted under an appropriate conservation regime (Clad 1985).

National parks in European countries frequently include areas of traditional agriculture, setting a precedent for the inclusion of Sami reindeer husbandry, combined with a limited amount of hunting and fishing. The Linnansaari National Park in Finland has plans to recreate a subsistence farm, modelled on those of a century ago, dedicated among other things to the preservation of the relict domesticated animals and plants of the time.

Kovacs (1985) describes the effect that successive land claims have had upon Parks Canada's position on indigenous peoples as the institution deriving from the settlements have strengthened their negotiating position. The Inuvialuit land claim settlement paved the way for a strong indigenous role in the North Yukon park, the area originally proposed by the Mackenzie Valley Pipeline Inquiry Report

Parks Canada is about to announce an agreement to create South Moresbye National Park Reserve in an area of the Queen Charlotte Islands which has been the subject of major controversy over logging for several years. As a park reserve, it is subject to the outcome of current land claims by the Haida. The minister for parks has stated:

that when a national park is established as a reserve, all of the legitimate interests of the Haida people will be reflected in the very fabric of the park itself. I have indicated that I see a direct role for the Haida in the management of the park, and not just as lowly paid assistant wardens or trail keepers or guides, but as leaders themselves in the protection and in the articulation of the values of the park.

Hansard, May 14, 1987, 6092

4.2. INDIGENOUS ENVIRONMENTAL RESEARCH AND MANAGEMENT

4.2.1. Alaska Eskimo Whaling Commission

In 1976, the International Whaling Commission learnt from the United States delegation that the current estimate for the north Pacific bowhead whale population was 1,200 and that the numbers of whales struck with explosive harpoons and lost had suddenly increased. Two factors were suggested: higher incomes from oil development financing more crews; a decline in a major food alternative, the Northwest Arctic Caribou Herd. (Langdon 1984)

While the US delegation abstained, the IWC revoked the standard exemption for indigenous bowhead whaling and imposed a complete ban to take effect in 1977. The Alaskan Eskimo whaling community responded with court actions asserting their aboriginal rights to subsistence whaling and to self-regulation of the hunt. Over the next few months, the whaling community took a series of initiatives which led eventually to a resolution of the crisis. The Alaska Eskimo Whaling Commission (AEWC) was formed and charged with three missions (ibid):

To ensure that whaling was conducted in a traditional, non-wasteful manner.

To communicate to the outside world the cultural and nutritional importance of bowhead whaling.

To promote scientific research designed to ensure the continued existence of the bowhead whale without unnecessary disturbance to Eskimo society.

The AEWC formed a Scientific Advisory Board which, upon discovering that the US government had no regime in place for bowhead whales, proceeded to formulate one and submit it to the IWC. The AEWC regime proposed a quota, measures for registering whaling captains and regulations regarding weaponry and the conduct of the hunt. Debate continued over the size of the quota but it was in principle accepted and there was no absolute ban.

Since 1980, the Science Advisory Board has organised a series of four international conferences on the bowhead whale and administered an annual research program costing about \$1 million, with over half the funding from native sources. The board has also worked with outside biologists on improved census methods. The results have validated the claims by Inuit whalers that there are more bowhead than the 1,200 estimate that in part precipitated the controversy. Successive surveys have arrived at increased figures: 2,250 in 1979, 3,900 in 1983, 4,417 in 1985.

Earlier census methodology had relied upon counting bowhead from the edge of the land fast ice as they moved along open leads. Inuit whalers, from observing breathing cracks and hearing the breathing itself, maintained that bowhead continued to move after new ice had formed. They

also held that some migration routes passed out to sea, beyond sight of the flow edge. Aerial surveys confirmed both claims and found whales were moving as far as 300 km from land (Freeman 1988).

4.2.2. The Eskimo Walrus Commission

The bowhead whaling controversy was soon followed by another, involving Inuit hunting of walrus, only this was complicated by a commercial element in the form of an escalating demand for walrus ivory.

The Marine Mammal Protection Act (MMPA) of 1972 prohibited trade in marine mammal products but permitted native use for subsistence, barter and the fabrication of craft objects as long as this did not endanger the population. By 1976, the black market price of walrus ivory had tripled, but the walrus population was widely considered to be healthy and increasing. Despite this, the State of Alaska argued that federal authorities had done nothing to prevent this illicit trade, assumed management responsibilities under the MMPA and imposed quotas upon walrus-hunting communities.

In 1978, these communities followed the example of the AEWG and set up the Eskimo Walrus Commission (EWC). Its objectives were to develop management plans which represented the native interest and integrated subsistence with other forms of utilisation and to deal with the problem of illicit ivory hunting and trade within the native community. A technical committee was formed to conduct education on the issue and on traditional practice.

In 1981, federal agents seized over half a million dollars worth of ivory and arrested 20 persons in five states. The EWC claimed that the abnormally high prices offered in this sting operation had entrapped hunters who had not offended before.

In 1984, the EWC submitted a walrus management plan which proposed methods for limiting pollution, over-hunting and harassment. It also allowed for sports hunting, once subsistence requirements had been met. In dealing with default, the plan relied upon education and compliance.

The absence of enforcement measures reflects controversy within the walrus-hunting community. Some of the older hunters were worried about non-subsistence hunting while support for a sports hunt was stronger among the younger hunters. Some hunters objected to the EWC as much as to government agencies. But above all, the reliance upon compliance rather than coercion, remained a distinctive approach to securing good conservational practice.

4.2.3. Caribou Management Boards

In the Canadian Arctic, a controversy over caribou emerged about the same time as the Alaskan issues over bowhead and walrus. Until quite recently the relationship between hunters and biologists was marked by a form of rivalry about who possessed authority over wild animals. Interestingly, it was by treating the issue primarily as a problem in perception and communication that a resolution became attainable. Government biologists described the situation as follows:

Embedded in the rhetoric of northern politics is a description of the Inuit and Indian as natural conservationists who are proper custodians of their own wildlife resources. According to this scenario, the southern-trained wildlife manager is an unnecessary and frequently unwanted obstacle. The wildlife manager on the other hand frequently sketches the northern native as the myopic, selfish cause of wildlife population declines. This clash of viewpoints is symptomatic of the fact that our conservation ethic, founded in Europe in the 16th. century, is relatively new to the barren-ground caribou hunter.

Simmons et al 1979

The focus of the controversy was the decline in numbers of the Kaminuriak caribou herd, as indicated by intermittent aerial census. The estimates were: 150,000 in 1955, 63,000 in 1963, 44,000 in 1977, 39,000 in 1981. Based on this trend, biologists predicted 27,000 for 1982.

As the controversy deepened, a consultant was called in to treat the issue simply as a communication problem. He did so using video techniques to expose the rival parties to each others' perspectives. This effort led to the formulation of Joint Management Board for the Kaminuriak herd.

This board was established just before the 1982 census results were analysed. These revealed that the calving ground, the focus of caribou censuses, had shifted to the west and the 1982 estimates were 134,000 instead of the predicted 27,000. This survey pioneered new methods of counting from aerial photographs which have since yielded even higher figures. In 1983 the photographic estimate was 230,000, a figure that appears to have remained fairly stable since then.

These results relieved tensions just as the caribou management board started its business. It formulates policy, proposes research and conducts education in the form of a bilingual newspaper circulated to all households. This example has been followed by other boards covering major caribou herds in Canada, the Beverly and Porcupine.

An inter-governmental attempt is now underway to internationalize the board for the Porcupine herd, which is hunted by the Indian community of Old Crow in Canada (see 2.2.) and related Kutchin communities in Alaska, where the herd's winter range is part of the Arctic Wildlife Refuge. This is not a new idea. In 1978 the Yukon and Alaskan communities met in Old Crow to develop a proposal for such an international management regime (Gwitcha-Gwitchen-Ginkhye 1978) but neither government responded with interest. Now, Canadian authorities are ready to move but the prospect of oil exploration being extended into the Arctic Wildlife Refuge has caused the Alaskan side to continue procrastinating.

4.2.4. Makivik Research Centre

The Makivik Research Centre originated from the Inuit Land Claim Settlement (the James Bay Agreement of 1975) but it was not until 1982 that

the research facility itself was established in Kuujjuac, Arctic Quebec. Its objectives are:

To develop an indigenous scientific and research capacity. To identify, initiate and conduct wildlife research/management projects which respond to Inuit needs and concerns and incorporate traditional and local environmental knowledge.

To collect, analyse and disseminate scientific and technical information to Inuit that result from the ongoing research in Northern Quebec.

To provide a base of operations for training and educating Quebec Inuit in wildlife research and management.

To act as an information/documentation centre on environmental and wildlife research/management issues.

Kuujjuac Research Centre (1987)

Current research projects include the monitoring of subsistence and commercial fisheries, community harvest studies that record the take of individual hunters, evaluation of salmon stocks, beluga whale census, caribou physiology and studies of eider duck populations. A bilingual (Inuktitut and English) management manual "Mitiq" has been produced for the common eider, a traditional source of down throughout Northern Quebec (Kuujjuac Research Centre, no date).

The Centre has also pioneered methodologies for community-based harvest studies, by which data on all animals taken are recorded on a long term basis. This has yielded valuable information on seasonal changes in patterns of resource utilisation and enabled Inuit in northern Quebec to map and codify their relationship with the land. They are thus in a position to respond to development proposals with immediate hard data on existing practice. These methodologies have been adapted by Inuit in the Baffin region for their harvest studies

Permanent staff include two non-Inuit scientific/training instructors and three Inuit manager/technicians. The laboratory has trained young Inuit to assume responsibilities for field work, laboratory analysis and cartography. The centre has plans for expansion under a new name, Kuujjuac Research Centre (1987)

4.2.5. Arctic Research Center (ARC), Pond Inlet

This private research unit was not started by Inuit but by an enterprising scientist who decided to develop a locally based capability that would train and employ Inuit to gather and process environmental data. The language of instruction and operation is Inuktitut. The work concentrates upon marine studies in Lancaster Sound.

Economically and operationally, the ARC has been a success, collecting and delivering environmental data to government agencies and to hydrocarbon exploration companies. The majority of the field work is done

by a small Inuit staff and the unit has demonstrated not only that such a capability can be developed in the setting of a remote Arctic community but that this can be a flourishing economic enterprise. During one recent period of 40 months, the ARC obtained over thirty data collection contracts worth over \$400,000 in total (Poole 1982).

4.2.6. Indigenous Conservation in the Pacific Region

Chapman (1985,1987) presents an interesting analysis of the factors affecting the evolution of traditional resource management systems and their implications for integrating such systems with the western scientific approach. Environmental influences are examined in terms of resource availability, environmental predictability and "extremeness". The influence of such factors is mediated by the way in which society perceives its environment as much as their sensible reality.

Chapman also draws a distinction between intentional and inadvertent methods of traditional resource conservation and challenges the assumption that indigenous management systems are invariably conservational. Some taboo systems are designed to reinforce political authority and their conservational affect is incidental. In Polynesian or Micronesian societies where political leadership is hereditary, the chief or the priest may exert authority by placing taboos on certain food sources. He thus has a vested interest in not utilising a certain resource - an attribute much admired in western conservational circles.

Chapman contrasts this "stewardship" role with that which has emerged from the "Big Man" leadership system of Melanesia, where leaders prove themselves through demonstrating and continually defending personal prowess. Since this demonstration depends in part upon the accumulation and distribution of resources, the Big Man has no incentive to leave resources unexploited. Chapman suggests that this second system is more conducive to the entrepreneurial development of natural resources than their conservation.

Polunin (1985) has investigated traditional controls over marine resource utilization in Indonesia which may have had a conservational effect. He elucidated three general categories of restriction: complete prohibition for a specific period, utilization restricted to an individual or a group, utilization open to those willing to pay. In some areas, he describes a tradition of resource concessions.

Obviously, there are other motives than conservation for limiting resource exploitation by other individuals or communities. But Polunin points out that very little is known about the origin and purpose of such regulations and indeed the extent to which they are still operative. With over-fishing becoming a serious problem in the region and with tensions increasing between traditional and mechanized fishermen, he suggests that systems for local self-regulation should be investigated before imposing restrictions from a distance.

Klee (1985) reviewed a wide range of resource exploitation practices amongst South Pacific Islands in terms of whether their conservational effect could be construed as deliberate or incidental:

Marine resources were conserved by using such clearly recognized practices as using an overseer of fisheries resources, restricting the harvesting of specific species, restricting the number of fishermen on a reef at any one time, conserving sea foods through traps and fish ponds, preserving sea foods through sun-drying, smoking, salting, and using a system of taboos for restricting purposes, and using a system of fines and punishment for offenders

Clearly inadvertent practices that conserved aquatic resources were those such as restricting the eating of certain foods to certain social classes, sexes or clans, prohibiting fishing on the death of an important individual and prohibiting women from particular types of fishing.

ibid.

4.3. INDIGENOUS INVOLVEMENT IN CONSERVATION AREA MANAGEMENT

4.3.1. Papua New Guinea

Eaton (1985) compares the degree of correspondence between various categories of conservation area and the system of customary land tenure that applies over 97% of Papua new Guinea. Two categories stand out in this respect: wildlife management areas, national parks.

As a wildlife management area (WMA), the land remains under customary ownership and the landowners may appoint their own management committee and make rules to control hunting. This has obvious resonance with the South Pacific systems mentioned above and the regulations promulgated for the first WMA, Tonda, restricted and laid down a fee schedule for hunting by outsiders.

Thirteen WMA's have been established to date. This has been accomplished with comparative ease, as there are no tenure transfer problems. Moreover, the flexible management approach allows regulations to be drawn up to suit individual cases. But Eaton points out that though these have proved very effective at controlling the activities of outsiders, this is not always the case amongst the landowning group itself.

With the establishment of national parks, the government faces a choice between the complex and expensive process of outright purchase and the equally complex but less expensive process of negotiating leases from the customary landowners. Leasing is regarded as the more practical alternative as the land would not be altogether alienated from its traditional owners. But the owners are concerned about the form of income they would derive and how a park would affect their traditional resource uses.

Eaton remarks that the customary owners strike a very practical attitude towards conservation areas and will compare the potential returns from those promised by more drastic forms of resource utilisation. This

raises the question of the extent to which they should receive compensation for the revenues they forego by allowing their lands to be designated as a park or reserve.

4.3.2. Kakadu and Coburg National Parks, Australia

Both these parks have emerged from land claims negotiations between the Aboriginal population of the Northern Territory and the government. These negotiations were urgently sought by an Aboriginal population feeling the pressures for uranium development and mass tourism (Hill 1983). Under the settlement, the lands first passed to Aboriginal ownership and were then leased back as park land. Weaver (1984) considers that this lease back arrangement was a condition for a land claims settlement.

The agreements spelled out procedures for Aboriginal participation in the policy and planning of the parks, as well as training and employment for local people. In addition, the Aboriginal population living outside the park would be encouraged to return. Fox (1983) reports that when Kakadu was declared in 1979, only 20% of its Aboriginal owners lived there; in three years, this proportion rose to 75%.

Coburg is the more remote and smaller park, 220,700 ha. Of the staff of 8 persons, 4 are Aboriginal. Altogether 43 Aboriginal people live inside the park, in three outstations. Salaries are a major source of cash income. Subsistence activities include the hunting of dugong and turtles.

Kakadu is far larger, 614,400 ha, and there are plans to add "Stage III" lands, not entirely owned by Aboriginal people, which will increase the total to 1,300,000 ha. Of the staff of 29, 8 are Aboriginal.

Kakadu is far more intensively used than Coburg, 150,000 visitor days in 1983, and there are plans to invest \$70 million in further recreational development to prepare for an annual increase of 20% in visitation. This increase in tourism is causing concern to the Aboriginal residents. They are also apprehensive over the prospects for uranium development, especially on the lands destined to be included in Stage III.

From an operational point of view, the park appears to be fulfilling the purposes of reinforcing the protection of aboriginal lands while providing for indigenous participation in management and employment. Weaver (1984) describes a committed staff aware that they are engaged in an experiment and maintaining a flexible approach. In spite of the development problems, progress has been encouraging enough for Kakadu to be adopted as a model for three similar conservation areas currently at the proposal stage.

But at the level of state government, there appear to be obstacles to the general application of these models. Despite the support of the Australian Parks and Wildlife Service, the Northern Territory Government has attempted to diminish the power of the Local Management Committees, set up to represent the Aboriginal interest, to that of advisory status (Land Rights News, 1987). In Western Australia, the enormous Rudall National

Park, 1,569,400 ha, has failed to provide security for two, alcohol-free outstations occupied by 250 Aboriginal people. Western Australia opened Rudall for mining shortly after it was gazetted (Graham 1987).

4.3.3. The Annapurna Conservation Project: Nepal.

Nepal relies upon wood for 87% of its fuel supply. At current rates of deforestation, it has been estimated that the country's forests will be exhausted by the late 1990's (Chaudhary 1985). Uncontrolled development for agriculture and hydro-electricity are major causes of forest clearance but in some areas these are superseded by the impacts of the tourist industry, specifically trekking and mountaineering.

Tourism has been increasing at an annual rate of 17% and is now serviced by over 200 tourist lodges and three new settlements along the major trekking corridors, where there were hardly any 20 years ago. There is a direct relationship between this growth and the clearance of rhododendrum forest to service this industry (Sherpa 1987). Major mountaineering expeditions alone may each account for 30,000 kg of fuelwood (Clad 1985). Although tourism is a leading source of foreign exchange, only 7% of its revenues reaches the village level.

The Annapurna Conservation Area Project is designed as a model for an alternative approach. The area of 260,000 ha is inhabited by 40,000 people, most of them belonging to four main ethnic groups: Gurungs, Magars, Thakalis, Managis. The project is managed by a local NGO, the King Mahendra Trust for Nature Conservation with support from WWF-US, the United Kingdom and New Zealand.

The strategy of the project is to relieve pressure upon the environment by exploring alternative sources of energy and income. One source of income will be admission fees. To conserve fuel wood a kerosene depot has been set up and experiments are underway with a prototype solar water heater, micro-hydro technology and a wood-fired combination cooker and water-heater. Other project components include improvements to health and community services, improvements to tourist facilities, reforestation and environmental studies of a core area of relatively undisturbed habitat supporting snow leopard and blue sheep.

The project managers recognise that it can only succeed if it can be integrated with established practice, and gains the acceptance and cooperation of the resident population and therefore a large part of the initial expenditure is committed to education and propaganda. Though the project has a strong conservation element, and includes a protected core zone, its authors have taken care not to suggest that it has national park potential. Sherpa (1987) reports that Annapurna "villagers when surveyed did not respond encouragingly to this prospect." The mountain national parks of Nepal have gained a poor reputation amongst the indigenous communities for their exclusive position on traditional resource use.

ACAP has capitalized upon a traditional rotational system of grazing and wood-cutting that was in place before the Forest Nationalization Act of 1957. This system regulated and enforced utilisation

with guards and penalties. After a public meeting, the forest management committee was revived and its regulations reformulated.

Clad (1985) reports a similar revival of traditional forest management in the new Sagarmatha National Park, where half the forest cover has been eliminated. The plan for this park resembles ACAP more than the conventional national park. The 2,500 indigenous occupants will be involved in a scheme of combined communal and environmental conservation.

4.3.4. Amboseli National Park, Kenya.

Masai pastoralists were expelled from several East African game reserves when these were upgraded to national parks (Deihl 1985). The conflict precipitated by the expulsion from Serengeti National Park led in 1969 to the declaration of a segment of the park as the Ngorongoro Conservation Area in which it was hoped that the conflicting interests of indigenous users and conservationists could be resolved. Events since then have demonstrated that pastoralism and wildlife can co-exist (Mascarenhas 1983), and that the controversy is as much over the way in which resources are defined as the manner in which they are used. This political dimension also coloured the controversy that arose from the elevation of part of Masai-Amboseli Game Reserve to the status of Amboseli National Park. Masai have always regarded wild animals as a supplementary resource, for use when their cattle suffered from drought. Western (1976) observes that the Masai saw the change as a redefinition of wild ungulates their "second cattle" as "government cattle" which could be withdrawn into government land - the national park.

Western (1984) used this perception as the basis for a search for a workable solution. He put it to the Masai: "If wildlife is of value, if it does substitute for cattle in your economy, would you accept a solution that gave you more access to wildlife as the number of cattle decline?" The reply: "That is how it used to be, wildlife has always been our second cattle - until you people came along and took away the wildlife. What you are doing is suggesting that you put things back they way they were."

Western had more problems convincing the government than the Masai that this could be the basis for a solution. It took several years to work out that solution, by which a core area was designated a national park and the surrounding lands titled to the Masai as ranches. They received piped water to compensate for lost sources in the park and seasonal access to essential grazing areas within the park.

A formula was devised for an annual fee to compensate for lost grazing opportunities when park animals migrated across the ranch lands. The park educational and medical facilities were moved so that Masai could have access to them as well as to revenues from campsites and lodges. Western considers that the redirection of revenues to local communities was of crucial importance in integrating conservation and rural development.

4.4. CONCLUDING COMMENTS

Both the Makivik Research Centre and the AEWC have demonstrated that a community-based research and management unit can function

effectively in ensuring that environmental research serves local needs. Local communities and hunters are involved in the framing of research objectives and interested persons have been trained to execute the studies independently.

The Kaminuriak Caribou Management Board, the Alaska Eskimo Whaling Commission and Kakadu National Park have proved the importance of setting operational precedents. All of these models have been adapted to fit conditions elsewhere.

Experience from East Africa and Papua new Guinea has shown the crucial importance of taking the indigenous perspective upon resources into account by working out mechanisms for compensating communities for the withdrawal of lands for conservation purposes.

Those management mechanisms which emerged from situations of conflict between indigenous people and wildlife agencies have revealed the importance of taking resource perceptions into account. The way in which a resource is defined often assumes more significance in such conflict than its actual, ecological status.

Accounts from the Pacific region reveal that indigenous resource management systems are as varied as the western factions identifying themselves as conservationist. This further impresses the need for open and detailed discussions before assuming that conservation interests automatically converge with those of traditional societies.

Debates over whether traditional indigenous resource management and utilisation systems are intentionally or inadvertently conservationist are interesting in themselves but also seem to mark a resumption of the argument over who is the authentic conservationist, and as such are likely to impede cooperative effort rather than encourage it.

In getting people to observe hunting regulations, the Eskimo Walrus Commission has focused upon compliance rather than enforcement. This approach is more likely to work in a communal setting, but fits the case where resource users also serve as managers. Arguably, Yellowstone National Park in the United States has survived because of general public compliance.

PART TWO: LATIN AMERICA

CHAPTER 5

CONSERVATION AND SUSTAINABLE DEVELOPMENT IN LATIN AMERICA

5.1. INTRODUCTION

While the number of all types of conservation units has increased in Latin America over the past two decades, most governments in the region lack the resources and capability to manage adequately such units (Houseal, 1988, and Glick, 1988).

In Latin America, as elsewhere, the integrity of conservation units has proved to be contingent upon the economic status of their industrial resources and both status and boundaries have been altered to accommodate their exploration or development. Occupation of such areas by indigenous groups has only had a slight effect upon this general impetus towards industrial development.

National parks occupied by indigenous communities frequently impose conditions on methods of resource utilisation, for example Manu National Park in Peru permits only what is defined as traditional technology. But indigenous occupants are not always aware that they are dwelling in a national park. The Huaorani living in Yasuni National Park, Ecuador, were not aware of its designation for several years after this happened (James Yost, p.c.) and remain largely unfamiliar with its conservation function, which is probably just as well given the present level of oil exploration within its borders.

Indigenous communities and organisations realize that in some cases park authorities have been far more diligent in regulating the practice of indigenous residents, than the activities of resource corporations. In one sense, this merely reveals the relative impotence of park agencies, but it also reflects a view of what is considered appropriate behaviour in national parks.

The examples reviewed in this and the following chapter indicate what happens after indigenous people have been living in a national park or other reserve for a long period. The condition for their remaining is they place themselves in evolutionary self-arrest. What happens? Do people leave or stay in place? Do they contentedly co-exist with the park regime or is there friction? And the park authorities: how do they regard the park's indigenous residents and do they find their experiences consistent with initial expectations?

Given the increasing interest by conservationists in the integration of conservation with traditional resource utilization systems, Latin America is a region where that potential is most likely to be

realised. A large number of the surviving wildland regions are also occupied by indigenous societies which have done so for a considerable period without depleting these resources. This is the basis for a powerful argument in favour of integration -- reconciling the interests of indigenous people and conservation, and ensuring the two become more compatible.

This argument is frequently coupled with fascinating inventories of the practical and economic value of wild resources, most of which remain unexplored let alone unexploited. And much of the data for this has been drawn from the practice and knowledge of indigenous peoples, itself so valuable that the IUCN has established a working group directed to capture the store before the inventory becomes redundant (Baines 1984a).

This suggests an equally fascinating range of opportunities for indigenous societies to adapt their traditional methods of resource gathering to meet the implied demand from industrial societies. This could be achieved through a system of resource exploitation which is in fact an analog of traditional harvesting in so far as the habitat is not manipulated.

The endorsement by environmentalists of sustainable development as a concomitant of wildland conservation also requires certain standards for classifying various kinds of sustainable development according to their degree of compatibility with the conservation of biodiversity in reserved wildlands. The zoning procedures adopted for biosphere reserves suggest such varied categories of compatible activity. Between the two extremes, of a fully protected core area and a outer buffer zone of "multiple use", are three zones: traditional use, experimental research, rehabilitation. All three provide various opportunities for applied research, experimentation and demonstration.

These promise an active character which is absent from earlier forms of reserved area in Latin America. Parks were reserved either to conserve natural areas or indigenous societies - with their essential function that of insulating the area from surrounding impacts. This has not been confined to people: the control, or setting, of "natural" fires in national parks has been the frequent focus of controversy in parks throughout the world.

In theory, biosphere reserves acknowledge the inevitability of impact but mediate this by attempting to reverse the effect, using the human and natural resources of the reserves to influence activities and attitudes in the surrounding region.

The following two sections illustrate these two approaches to conservation with brief reference to a number of recent and current examples (more detailed case studies are presented in Chapter 6). The concluding section reviews the variety of sustainable development activities which conform to the biosphere reserve concept.

5.2. NATIONAL PARKS AND INDIAN PARKS

5.2.1. Xingu National Park, Brazil

Xingu National Park, Brazil, was established in 1961 with two purposes. To ensure the survival of the 1,500 Indians living within it and to preserve its natural systems for scientific research (Junqueira 1973). But, as Junqueira observes:

...the implementation of a protectionist policy entails a deliberate interference in the Indian's life. Although the aims of such a policy are to preserve the Indian's culture, it can only be implemented by disciplining relations among indigenous communities and between them and civilized man.

This discipline entailed the provision by the park authorities of knives, hoes, axes and other utensils considered essential for survival. These were at first distributed automatically but the administration later decided only to respond to requests. Gradually, the list of articles provided increased to include such items as fishing equipment and dyes, but requests for gunpowder and ammunition were refused. To obtain such commodities, some Indians undertook illicit trading visits to the air force base located within the park.

The controlled increase in access to industrial articles conformed to an intended function of the park: "to give them the opportunity of being integrated gradually, that is naturally, into the dominant society" (ibid). In this and other respects, the park was considered to have performed well during its early years. These other respects included a vaccination program by which a medical unit managed to contain the spread of infectious diseases. Junqueira, however, does not mention the form that eventual integration might take or how it would affect the status of park residents.

But parts of the park have become increasingly exposed to development pressures. In 1971, a road was driven through the northern end, cutting off the lands of several hundred Kayapo. In compensation, the southern boundaries were extended, but into lands of no use to the Kayapo. A community of Txukarramae, a group that had already been relocated into the park, decided to remain in the severed northern section. This led to years of increasing hostility with colonists, and to the deaths of thirteen agricultural workers. In 1984, the Txukarramae took the park director and five employees of the National Indian Foundation (FUNAI) hostage in order to force the agency to honour its commitment to demarcate their lands (Gray 1987).

5.2.2. Aripuana Indian Park, Brazil

Xingu was not the only park with adjustable boundaries. The Aripuana Indian Park, which is within the Bank-financed Northwest Amazon (Polonoroeste) Project area, was established in 1969. Under Brazilian

statutes, national parks are primarily for environmental purposes, while Indian reserves serve social purposes (Junqueira and Mindlin 1987). In 1974, the park area was reduced from 3,600,000 ha to 1,700,000 when a road was built to serve the mining industry (Chiappino 1975).

A recent account of Aripuana reveals problems of park demarcation and patrolling (Junqueira and Mindlin 1987). Although FUNAI recommended a clearcut boundary of ten metres in width, only 3 metres were cut and the path was overgrown within a few months. Many of the boundary markers were wrongly placed and park administrators received no assistance in patrolling or advice on how to evict squatters.

In 1985 and 1986, groups made up of the Indians themselves, Poloronoeste planners and anthropologists evicted several lumber companies and confiscated the wood they had taken. Earlier, in 1984, the Suruí had acted alone in locating and evicting colonists who had invaded their lands (ibid).

5.2.3. The Yanomami Park proposal, Brazil

The example of Xingu has been followed by a long and frustrating attempt to obtain a similar reserved area for the Yanomami Indians of Brazil. The Commission for the Creation of a Yanomami National Park (CCPY) has been active since 1979. In 1982, FUNAI made a slight move in this direction by withdrawing 7,700,000 ha of Yanomami land from commercial exploitation, but this had an equally slight effect. One area, from which 180 gold prospectors had been evacuated, was subsequently reoccupied by 600 miners, who were then supplied by air (Andujar 1986).

In 1987, the President announced that 9,000,000 ha were to become a Yanomami Indian Park (not a National Park) but that has still to become law and is encountering considerable resistance in the region (Survival International 1987b). A more recent government proposal substitutes a continuous Yanomami territory for a series of nineteen Yanomami Indian colonies, surrounded by a National Park and two National Forests. Apparently, the Indians would have traditional use rights in the surrounding protected areas.

The Xingu, Aripuana and Yanomami examples are cases where the primary objective is to protect indigenous societies and lands. There are other cases where the main purpose has been environmental conservation and the occupancy of indigenous people has been largely incidental. In such cases, provisions have been made to ensure that indigenous practices conform to the park's objectives and public image.

5.2.4. Lauca National Park, Chile

This has happened in the Lauca National Park, Chile, where pastoral Aymara communities had some of their traditional practices curtailed. Hunting and pasture burning have been completely prohibited; the gathering of materials for fuel and building has been restricted. The park

agency is now committed to replacing sheep with alpaca. On several grounds, the Aymara were reluctant to accept this change. The number of animals will be halved. Sheep can lamb twice a year instead of once. Alpaca require a more humid regime and would require access to bofedal pastures (Bernhardson 1986) which, unlike upland pastures, are privately owned.

Bofedales are upland bog pastures which Aymara pastoralists have elaborated with canal networks in order to increase both forage plant coverage and water retention during the dry season. Such extended systems are under private ownership, as opposed to sheep pastures, which would place the poorer alpaca shepherds at a disadvantage. Moreover, lowland irrigation and hydroelectric schemes have diverted water from the altiplano and reduced the volume of running water available for bofedal maintenance, causing the abandonment of some of these upland pastures. With their subsistence practices restricted in the interests of preserving natural processes, while industry is allowed to disrupt these, the Aymara understandably feel themselves victimised by a double standard.

5.2.5. Manu National Park - Peru

When Manu National Park was proclaimed in 1973 , it covered 1,533,000 ha of remote highland and lowland rainforest in the upper Amazon basin. These forest are occupied by 6-7 contacted populations of Machiguenga, Yaminahua and Mashco-Piro people as well as several uncontacted groups (Hill 1988).

Over the last few years, Manu National Park has been subjected to pressures from industrial development. A road has been proposed through the park and the adjacent areas have been subjected to oil exploration (Moore 1984). Moreover, the indigenous residents are experiencing pressure from other indigenous groups that have been displaced by this development.

The indigenous inhabitants are allowed to hunt solely for subsistence and only with traditional technology. Jungius (1976) reports that the Summer Institute of Linguistics (SIL) objected to these regulations, provided Machiguenga hunters with firearms and encouraged them to hunt animals for the skin trade. Friction with the park authorities led the SIL to withdraw to a new station just outside the park taking with them some members of the Machiguenga community of Tayakome. Jungius reports that SIL staff continued to smuggle ammunition into the park and animal skins out.

On the grounds that the increasing population of Tayakome has intensified local hunting and agricultural pressure, Jungius recommended that their hunting be restricted to a certain area and that it exclude species of cat, otter and crocodile "upon which their livelihood and culture does not depend". Jungius further recommended that an area outside the park be reserved for the Machiguenga, who should then be persuaded to relocate there. But even there, they should still be asked to cease hunting these species.

An anthropological team that worked in Manu National Park in 1983 and 1986 found that a guard station located in one of the main communities was the source of considerable tension between park staff and the indigenous residents. They reported that their movements were restricted, as well as those of relatives living outside the park. The scope of hunting and the size of agricultural plots were limited in what they regarded as an arbitrary fashion. There had been no attempt to replace the educational and medical services that the missionaries had been providing. They observed park staff using the firearms, chain saws and motors that were prohibited to them (Hill 1988).

5.2.6. Parks vs Biosphere Reserves

With such a limited sample, it is difficult to generalise on the differences between Indian reservations and national parks as far as indigenous society is concerned. The Aripuana Indian Park has seemed to offer little if any more protection than that afforded by Indian reserves. National Parks may have more protective power but it is questionable whether this compensates for the conditions imposed upon indigenous residents. Moreover, the examples cited above prompt the question of whether the direction taken by national park policy is a realistic one, when indigenous populations exist within their boundaries.

Indigenous residents cannot be denied access to health care as they are to modern weaponry. The resident indigenous population is likely to increase, which would lead to either an enlarged hunting area or a change to other food sources, which in turn will lead to more intensive agriculture or reliance upon donated food. The occupants of parks cannot be insulated from contact with other Indian groups and may increasingly become aware of themselves as being in a state of constrained development. As tourism increases, so will the likelihood of the community being included as part of the scenic agenda.

Even if the five parks mentioned above have in a sense succeeded in implementing their policies on indigenous residents, they are failing to prevent industrial developments on park lands. It is arguable that these policies can only be justified if the park can be kept intact: otherwise, by preventing park residents from exposure to such threats, they will eventually be as vulnerable as any group when first contacted.

It is uncertain whether national parks agencies have yet come to grips with these problems. Hill (1988) refers to the recent establishment of the 600,000 ha Capanaparo-Cinaruco National Park in Venezuela. This park contains 23 Pume and Hiwi communities, none of which were consulted by government agencies before the park was proclaimed. The exception was Bioma, the NGO chosen to manage the park, which visited several communities and consulted with anthropologists familiar with the area.

There are strong similarities in the views and policies of national parks agencies throughout the world. This is not surprising since they interact frequently through such institutions as the IUCN and the World Conferences on National Parks. Over the years, the national park

concept has acquired a powerful symbolic tone in western culture, one which has proved its effectiveness in the conservation of natural areas.

The essence of the national park concept is: no major human modifications, only a benign and unobtrusive presence. The first parks were a reaction to the widespread destruction of natural systems of the nineteenth century. This symbolic force is conveyed in the notion of the national park as an act of propitiation - not unlike that of indigenous hunters. The idea that indigenous people should be accommodated within parks only as the "part of the natural order" flows directly from the idea of the park as pre-human nature.

So strong is this idea that the matter of fire control in national parks has frequently been converted into a bitter public controversy over whether fires approaching a park should be controlled or not. Similar debate arises over the deliberate ignition of "natural" fires of the kind that were more frequent before the general application of preventative fire control. Measures to control exploding animal populations in national parks also evoke acrimonious moral debate over human conduct with respect to nature.

Given the role assigned to national parks in western society, and the problems that have arisen when indigenous people reside in them, the question arises of whether parks should even attempt to accommodate people in any role but those of visitor, researcher or manager. By contrast, such accommodation is not only appropriate for such conservation units as biosphere reserves, but part of their essential purpose.

Biosphere reserves were conceived as agents of regional influence. Instead of an area insulated from its surroundings, the idea proposes a concentration of effort and energy in changing the circumstances that once produced the need for national parks. This does not exclude the possibility of such reserves encompassing preserved cores, such as national parks, but it places these in a different, pragmatic, perspective -- a perspective which is vital when the region is inhabited by indigenous groups and surrounded or coveted by expanding settler population.

Recently, in Latin America, new conservation units are emerging that have a fundamentally different orientation from those of the parks reviewed above. These do not exclude parks so much as place them in a different context. The conservation units are either in the proposal stage or early development; several are shaped around biosphere reserves. Five examples are discussed collectively below and nine case studies are reviewed in more detail in the following chapter.

5.3. NEW CONSERVATION UNIT PROJECTS IN LATIN AMERICA.

These current projects are all two or three years old. They differ from those discussed above in several critical respects. They are conceived not as enclaves to be protected but as catalysts for diffusing change in the surrounding regions, with the essential instrument for change being information in the form of experiment, demonstration, persuasion and education. Some, but not all, include a core zone that is completely protected. The projects are:

Lake Titicaca National Reserve, Peru: 35,000 ha
Sierra de Manantlan Biosphere Reserve, Mexico: 100,000 ha
Beni Biosphere Reserve, Bolivia: 135,000 ha
Sian Ka'an Biosphere Reserve, Mexico: 500,000 ha
Pacaya Samiria National Reserve, Peru: 2,080,000 ha

People affected by these areas include residents, communities at the periphery and transients. Lake Titicaca, for example, includes Uros Indians living on floating islands within the reserve, as well as an annual stream of 40,000 tourists. Pacaya Samiria, originally designated as a fisheries reserve in 1940, contains a large human population of 40,000. Numbers living in the other areas are in the thousand range, comprising a mixture of Indian and mestizo communities: Maya in Sian Ka'an, Chimane in Beni.

Planning and management groups typically comprise three elements: inter-agency task forces, an international NGO mobilising required financial and technical resources, a local or national NGO assuming a direct coordinating role. Most plans envision the eventual phasing out of international support. For Sian Ka'an, an NGO, Amigos de Sian Ka'an was established specifically to manage the budget. The Peruvian Conservation Association acts in a consulting role on the Lake Titicaca Reserve. Management has proceeded with a mixture of short term operational plans and longer term scenarios. This recognises that, with so many external variables and internal interest groups, a process of frequent reappraisal and redirection is crucial in maintaining focus and momentum.

All five areas have a distinct regional role. Sierra de Manantlan has a global role, as the site of what has been described as the "botanical find of the century" (Prescott Allen 1983) a wild strain of perennial maize that can readily be crossed with domesticated varieties and which produces immunity to four serious maize diseases, three of which have no other source of immunity. It is hoped that the Lake Titicaca Reserve will influence practices in both the Peruvian and Bolivian sectors of the lake and will at some time qualify as an international biosphere reserve.

Sian Ka'an has already attracted the attention of government planners in the Yucatan Peninsula as a possible model for activities elsewhere. The Beni Biosphere Reserve is but one area in a complex including a park, a protected watershed and a managed forest area, which altogether add over 1,000,000 ha as a zone of potential influence. At over 2,000,000 ha, the Pacaya Samira reserve qualifies as a region in its own right.

A wide range of sustainable development projects are contemplated in the various plans. For Sian Ka'an, a coastal complex of marshes, mangroves, lagoons and reefs, these include lobster management, crocodile and butterfly propagation programs and ecotourism. In Lake Titicaca, much of the early emphasis will be upon rehabilitation of heavily used waterfowl and fisheries resources as well as improvements in water quality. A major objective in the Beni project will be the integration of the Chimane hunting economy with wildlands management and the development of sustainable forest production regimes.

For the Beni project, Conservation International has organised an ingenious "debt-for-nature" swap which has potent implications for conservation in certain developing countries. A grant from the Frank Weeden Foundation facilitated the arrangement under which Conservation International purchased \$650,000 of Bolivia's debt and Bolivia undertakes to create the three conservation and sustainable use areas adjacent to the Beni Biosphere Reserve.

5.4. COMPATIBLE ECONOMIC DEVELOPMENT PROJECTS

This section reviews several current economic development projects that are being pursued because they promise sustainable alternatives to the combination of systematic monoculture, logging and colonization that contribute to deforestation. They represent the kind of resource development projects suitable for the buffer zones of biosphere reserves. In economic terms they have the potential for long term returns; in ecological terms they are less likely to isolate the protected cores of such reserves. Such alternative development schemes have several dimensions.

These include the introduction of methodologies and technologies for adding value locally through secondary processing, or the support of methods that already exist through market development and product development. Another is import substitution: the retention of resources for local use which has the economic effect, in typical remote community economies, of reducing the need for cash. Though both of these are essential elements of small-scale economic development, they do not have a direct conservation value and will not be treated in detail.

The emphasis here is placed upon those alternative development projects which do have strong conservation values. These values range from the stabilising of soils and slopes through the practice of adaptive agroforestry to the production of persuasive arguments for wildland conservation on the basis of the unrealized economic potential. Of major importance are the various attempts at environmental rehabilitation, which may take the general form of habitat restoration or the more particular effort to reintroduce certain species. When these species possess economic value, the project may aim at semi-domestication through some type of aquaculture or wildlife husbandry.

Such projects typically have two elements: coming upon the idea and putting it into effect. The first is the easier. Chapin (1988) describes the problems encountered in attempting to transfer Aztec Chinampa agriculture into a contemporary Mexican setting. He has this general comment to offer:

In a quest for small-scale alternatives that are affordable, productive and ecologically sound, development specialists and environmentalists have formed a somewhat uneasy alliance, in the process bringing forth a new field known as "ecodevelopment" and the more specialized subdisciplines of "sustainable agriculture"

and "agroecology"...Yet despite a few scattered, often endlessly recycled, success stories, the truth of the matter is that no one has thus far devised much in the way of workable models.

Chapin (1988)

Ironically this alternative development project suffered from the same kind of local unsuitability as those mega-projects that stimulated the search for "appropriate technology" in the 1960's. The attempt to introduce Chinampas courted failure by proceeding on too many assumptions and with insufficient advance preparation.

Based upon considerable experience in Latin America, Smith (1987) has posed four questions that should be asked of development projects directed at indigenous communities before assuming the suitability of concepts that may in their own right have considerable economic and ecological merit:

1. Is the indigenous community in control of the conceptualization, planning and implementation of their development?
2. Does the indigenous community exercise control over its territory and over all the resources found within the limits of that territory?
3. Does the program for development promote self-sufficiency and economic independence of the indigenous community?
4. Does the development process strengthen the social and cultural bonds of the community and affirm the sense of historical identity and cultural dignity of the community members?

Smith (1987).

The groups and communities able to respond in the affirmative have often reached that point through intensive organization. Annis (1987) suggests that, over the last twenty years or so, there has been an unprecedented growth in organizations amongst the poor in Latin America. These have often emerged to attain a certain goal or resist a certain pressure and may evaporate once the issue is resolved, but the propensity and capability to organize amongst the poor has steadily increased and the intrinsic power and value of organization may outlast the issue:

The need for affordable housing draws people together; yet in the long run, the construction of organization itself may well turn out to be far more significant than the construction of houses.

ibid

The remainder of this section outlines some of the opportunities that are suggested by current projects in Latin America that involve indigenous people and their resources.

5.4.1. Ethnoecology

"Preliminary results show that indigenous agricultural soils actually improve in pH and major nutrients over the 20-year management cycle for fields. This is a major discovery and is the first time that such exhaustive soils data have been collected from indigenous fields. When fertility data from Kayapo fields are compared with those in the surrounding area, the success of indigenous soils management is shockingly impressive."

Posey (1987)

Over five years, a team of 23 scientists have been studying Kayapo methodologies for resource utilisation. Their results confirm in fascinating detail the reach and complexity of indigenous management systems and suggest that western scientists may have to reassess their views about the extent to which "virgin" rain forest is really virginal.

Posey suggests opposing tendencies that prevent western scientists from taking folk science seriously. One is an idealization of tribal peoples as "natural conservationists" that ignores the trial and error experimentation that is the foundation of indigenous practices. Another, a dismissal of knowledge systems that are expressed in symbolic or mythical terms, also ignores their empirical merits.

As an example, Posey refers to the Amazon practice of felling large trees, apparently to obtain honey from arboreal hives. This is often cited as evidence of ecologically unsound practice. But Posey's investigation showed that the Kayapo do this deliberately, with the intention of creating an open space which will be colonised by useful edible and medicinal plants. The Kayapo even plant species that will attract birds and animals and produce a concentrated hunting and gathering site.

The team discovered in addition a sophisticated methodology for ecological manipulation, using companion plants and techniques for pest control which employ such techniques as trap species, alternative hosts and predatory insects. After four years of field work, the team has concluded that the results of such work have clear applications in reforestation, agricultural and wildlife management.

Martin (1988) describes an ethnobotanical project, conducted by the Society for the Study of the Biotic Resources of Oaxaca, Mexico, which demonstrates the nutritional and economic importance of wild plants. The continuing economic significance of collection and trade was indicated by the more than 400 species of food, medicinal and ornamental plants were collected from markets in the Oaxaca region.

The project was organized so as to actively involve local indigenous villagers. Plants were collected and recorded by teams of old and young; older people who knew the plants; younger people who were more adept at translation and recording. The collectors' responsibilities went beyond field work to include the explanations of the project and its general relevance to other villagers.

5.4.2. Forestry and Agriculture

The Kayapo honey/tree example cited above employs what is referred to by western scientists as "gap theory" the process by which tropical forest regenerates spaces opened by windfalls. This theory has been applied in an interesting forest utilisation/management project in Peru, run by the Tropical Science Centre of Costa Rica.

This experiment consists of the progressive clear-cutting, in three stages, of a swathe of forest, 30m x 2000m. In the first stage, the best timber is high-graded. In the second, pulpwood is removed. In the third, the remaining wood is converted to charcoal. To date, about three hectares have been cut and measured. On this basis, it has been estimated that the yield per hectare may reach \$7,000. After thirty years, the clearcut areas will have regenerated to the extent that the process can be repeated. It is a labour-intensive activity; it has been estimated that an average family would be able to process one hectare per year.

During the field work, an agroforestry project was visited in the Ecuadorean Oriente, the Proyecto Agroforestal of the Direccion Nacional Forestal (DINAF). This demonstration project has been in operation for three years. In that time over 200 single family and communal farms, a total of over 1,500 families, have become actively involved by starting their own pilot plots. These plots total 500 ha.

Three basic combinations of trees, crops and pasture are adapted for each participating farm. In their basic structures these combinations resemble the systems that have evolved in indigenous communities but they are not restricted to endemics. In some sites, exotic species such as African hair sheep have been suggested as a more suitable alternative to existing livestock. Although the project has barely started, it has been successful to the point where individual farmers have developed their own variations and some of these have been fed back into the general system. For example, the project commenced with seven tree species that would be recommended to farmers: now there over thirty.

5.4.3. Wildlife Husbandry and Aquaculture

Wildlife husbandry has frequently been advocated as a more appropriate and sustainable economic activity on marginal habitats where indigenous species are considered more suitable than introduced domestic stock. But such practices may also become the focus of controversy. The species in question may have been depleted and re-stocking programs may be approved only as long as they are not regarded as preparation for eventual economic utilisation. Some proponents of re-stocking are not above using the promise of eventual economic utilisation as leverage when seeking funds. And entrepreneurs mainly interested in profit are not above using the promise of restoring wild populations as similar leverage.

This may have occurred to the Peruvian Indian communities that cooperated with government efforts to restore the Andean vicuna population,

which by the 1950's was considered to have fallen to about 10,000 - from an estimated 2,000,000 at the time of the Spanish conquest.

The Peruvian vicuna project is located in the Pampa Galera National Reserve. The community of Lucanas ceded 6,500 ha to this reserve on the understanding that it would eventually obtain benefits from utilising the vicuna. Since the start of the project, the vicuna population has increased from 5,000 in the early 1960's to 71,742 in 1983. Since domestic animals belonging to Lucanas had been removed to make way for vicuna, the community felt justified in claiming that the government was revoking its promises when the expected benefits failed to materialise.

The community was incensed in 1979 to witness the culling of 4,800 vicuna on the grounds of over-population indicated by over-grazing in the ceded area. But the position of the government is that the vicuna cannot be economically exploited as it is listed on CITES Appendix I - which automatically prohibits all international trade (Bernhardson 1986).

Similar projects, involving crocodiles and turtles, which combine economic promise with the promise of controversy, are also under consideration in Latin America. Both of these projects have come under attack by animal protection organisations at recent CITES conventions on the grounds that they provide cover for the illegal harvest of species on CITES appendices I and II.

A project that may avoid less such controversy is designed to restore depleted populations of the green iguana. Supported by the Smithsonian Tropical Research Institute, the project is located in Soberania National Park, close to Panama City. Pregnant females are collected as a source of eggs. These are incubated and the young returned to the wild.

Both in the collection and reintroduction, the project staff have enlisted the help of campesino communities. Incubation and early feeding required detailed and systematic experiment. Release and follow-up has been equally demanding and could not have been done successfully without the cooperation of the villagers (Chapin 1986). This project has attracted widespread interest from other areas, including two of the case study sites: La Amistad and PEMASKY.

These fresh approaches to conservation and sustainable development are of recent vintage in Latin America but are widespread enough to suggest a general shift from entrenched park-based conventions towards one which does not threaten park status but may in the long run reinforce the conservation status of parks. But the proponents of this new approach still have to contend with numerous problems arising from the environmental damage caused by accelerating industrial-scale resource development, frontier colonisation and the national development policies which endorse such activities. These problems will be illustrated in the case studies covered in the following chapter.

6. LATIN AMERICAN CASE STUDIES

6.1. INTRODUCTION

As far as possible, case studies were selected to illustrate the following criteria

- * Importance of organisation in the indigenous community
- * Cooperation amongst indigenous groups, conservation organizations and government agencies
- * Processes for community and public information and education
- * Mechanisms for indigenous participation in planning and management
- * Indigenous participation in operations: employment
- * Actions taken on problems of colonisation
- * Actions taken on industrial development
- * Integration of conservation and sustainable development
- * Rehabilitation of damaged landscapes

6.2. PEMASKY - PANAMA

This was formerly known as either the Udirbi Park or Kuna Yala Project. The acronym stands for Proyecto de Estudio del Manejo de Areas Silvestres de Kuna Yala.

Chapin's (1984) account of the evolution of PEMASKY clearly illustrates the importance of political organisation and social solidarity in resisting assimilative pressures from the national society. In 1925, the government of Panama's attempt to extend control through the prohibition of traditional dress and ritual provoked a fierce rebellion which ended with the Kuna's acquisition of a measure of regional self-government (Howe 1982). That this remains in place has amply demonstrated that indigenous self-government is not necessarily inconsistent with national authority.

The Comarca of San Blas that emerged from the 1925 conflict covers a coastal belt, 20 km by 250 km, stretching from the continental divide to the Caribbean coast where it includes about 350 coral islands. This region has only been occupied by Kuna for 150 years; before, they had endured several centuries of colonial pressure that forced them from their lands along the Pacific coast. It is the contemporary version of these pressures which has precipitated PEMASKY.

The supreme political authority is the Kuna General Congress. In addition, there are three elected chiefs (caciques), three representatives to the national legislative council and an intendente appointed by the government of Panama.

By the 1960's, the 30,000 Kuna had become settled in 12 coastal villages and 50 islands. Their mixed economy includes subsistence fishing, agriculture and the harvesting of coconuts as a cash crop. The zone used for agriculture stretches only a few kilometres inland where it merges into a forest belt which is less intensively used but has served as an effective barrier to the intensive colonisation which has radically altered the landscape to the west of the continental divide.

Obligated to travel between the Comarca and Panama City by air, the Kuna were frequently in a position to monitor the gradual eastward progress of deforestation and its direct association with the expanding road network. A government proposal in 1970 to build a road from the Pan-American Highway to the coast of the San Blas Comarca prompted considerable debate amongst the Kuna. It was accepted that a two hour road connection to Panama City would reduce transport costs considerably and stimulate growth in the cash side of the Kuna economy. Set against this advantage were misgivings about the consequences of facilitating access for colonists. Already, a few families had illegally settled within the Comarca and the Kuna were without the legal means, or government cooperation, needed to evict them.

By 1970, tourism had become the subject of similar debate within Kuna communities. Their seashore and coral island archipelago is one of the few remaining stretches of Caribbean coastline to escape intensive recreational development. In the mid-1960's, an American entrepreneur obtained approval from the government and the three caciques to build a Polynesian-style resort. The Kuna General Congress was furious at this attempt to circumvent its authority and to divide the Kuna amongst themselves. The ensuing controversy led to the hotel being burnt down in 1969, rebuilt in 1970 and burnt down again in 1974 (Howe 1982).

This did not dispose the Kuna to oppose tourism altogether; only to be more selective. The economic advantages of brief, controlled cruise ship visits had been established. But in the early 1970's, a project supported by the Panamanian Institute of Tourism was unveiled. It included a 686 room resort/airport complex, to be constructed upon an artificial reef - so as to avoid conflict with Kuna landowners. But there was conflict, much of it within the Kuna community, and several years of bitter controversy passed before the government finally abandoned the project in 1977. This was not the last confrontation with the North American tourist industry, a similar conflict led to assault and a fatal encounter with Kuna national guardsmen in 1981 (ibid).

The defeat of these proposals both exercised Kuna political muscle and enabled them to retain control over the tourist industry (Chapin 1984). The proposed road was perceived also as a source of unregulated tourism.

The Kuna reaction to the road proposal passed through two phases. The first was an attempt to pre-empt colonisation by establishing a Kuna agricultural project at the point where the road would enter the Comarca. This effort commenced in 1975 and was led by Guillermo Archibald, a young Kuna who had obtained a basic training in agronomy. Gradually, the project accumulated support amongst the Kuna but, by 1980, it became clear that the terrain was quite unsuitable for conventional agriculture - though this would not necessarily have deterred colonists.

In 1981, an impact study brought the situation to the attention of US-AID, which was lending money for the road. After meeting with the Kuna, AID officials asked the Costa Rican institute, CATIE (Centro Agronomico Tropical de Investigacion y Ensenanza) to make a survey. The results confirmed the Kunas' experience and led to CATIE suggesting that the area be developed into a forest park and wildlife refuge catering to ecological tourism. The Kuna subsequently asked the Smithsonian Tropical Research Institute (STRI) in Panama City for assistance. This led to funding support from US-AID and the Inter-American Foundation (IAF) for three Kuna to take conservation training at CATIE and make preliminary studies.

Chapin (ibid) suggests several reasons why the Kuna so readily adopted the idea of protecting rather than exploiting the resources of the area. The agricultural experiment had failed. Their own agricultural zone was sufficient. They were not being deprived of land. Finally, there is a tradition within Kuna society of reserving "spirit sanctuaries", even in good agricultural land. These would be used for the collection of medicinal plants - as ethnobotanical reserves.

With support from a labour organisation of Kuna working in the general economy, the Union de Trabajadores Kunas (UTK), the Kuna submitted in 1983 a three-year program to start PEMASKY. Support was gained from the Smithsonian Tropical Research Institute (STRI), US-AID, IAF, CATIE, WWF, the Tropical Science Centre (TSC) in Costa Rica, the Panamanian Agency of Renewable Natural Resources (RENARE) and the US Armed Forces Bases in the Canal Zone. The total cost approximated \$1 million, with 57% provided by the IAF.

This preliminary work included location and demarcation of the boundaries, ecological mapping and inventory and construction of facilities for personnel and visiting scientists. The Kuna have maintained a strong controlling presence in the project. Ten people went to visit the park and reserve system of Costa Rica before deciding upon the general development scheme. The delivery of technical assistance is preferred under a counterpart system.

In 1987, an IAF consultant visited Panama to make a progress report on PEMASKY (Butler 1987). He found an active project team of about 20 persons, administrators, technical staff and guards. Most of the technical team had university degrees, including an architect, 2 topographers, an environmental educator, a forester, a biologist and an agronomist. The team worked well as a unit and was often assisted by other Kuna as volunteers.

The PEMASKY team had cleared about 120 km of a planned total of 200 km of border trail. The forest park boundary was first surveyed and traced with a rough trail. Later, these trails were cleared to 4 metres in width and concrete markers were erected at 1 km intervals. These markers bear notices warning of the penalties for hunting and land clearance on Kuna territory. The trails require clearance at 2-6 months intervals. The park guards spend 20 days on patrol and then 10 with their families. Three guards make up a patrol, which takes several days. Sensitive areas are visited twice a month; others less frequently.

About 80 colonist families are living inside the Comarca at present but further colonisation has been prevented. PEMASKY team members have made friends with some of the colonists, though there have been a few cases where border markers have been broken. Recognising that ultimately they do not possess the means to completely enforce regulations against hunting and clearance, the Kuna would eventually prefer to educate colonists about the benefits of ecological protection. Such reliance on compliance over coercion also distinguishes other indigenous approaches to resource management.

The original idea has been expanded to include an agroforestry component in which PEMASKY would cooperate with the Ministry of Agriculture (MIDA). This program aims at conserving traditional Kuna forestry and agricultural practice and providing extension services for farmers. The IAF was told that MIDA had done little to help the extension service but the Kuna themselves were working on one or two demonstration plots.

The IAF report noted that much of the food consumed at the PEMASKY HQ, where the new road enters the Comarca, was coming from Panama City rather than from the Kuna farms on the coast. This was partly due to transportation problems and partly to a reduction in food production within the Comarca. The report concluded that the main cause of this was a "lack of Kuna willing or able to work the land" (Butler 1987). The PEMASKY team intends to concentrate more on the agroforestry program in future. One member will soon spend 6 months in training with the green iguana management project near Panama City (see 5.4.3.)

The PEMASKY team has targeted both Kuna and outside groups for education and information. The WWF and the MacArthur Foundation have supported the production of Sapi Garda, a six-monthly magazine on the project. Growth in ecological tourism has been slow, partly because of Kuna concern over visitor pressure and partly because the access road to the Pan-American Highway is in need of repair.

6.3. DARIEN - PANAMA

A combination of three indigenous reserve/conservation areas covers much of the last extensive stretch of rainforest in Central America. Darien National Park (575,000 ha) was established in 1980, endorsed as a world heritage site in 1981 and as a MAB biosphere reserve in 1983. The Embera-Drua Comarca (300,000 ha) was also established in 1983 - as two separate areas, parts of which overlap with the National Park.

Living within the park are 1,500 Embera, 500 Wainan, 200 Kuna and about 500 black Colombian immigrants and Panamanian mestizos (Houseal et al, 1985). This population is dispersed along the rivers either in single-households or in 8 small villages. The indigenous population inhabiting the Comarca is more concentrated; about 8,000 people in 31 villages (Herlihy 1986). In general, 80% of the indigenous population of Darien lives in villages and the remaining 20% are dispersed households.

Herlihy (1985) has traced recent changes in settlement patterns and suggests that this amounts to a reversal of the dominant form of the 1960's. Throughout most of this century, the people of Darien had drawn gradually closer to the cash/trading economy but had retained a dispersed pattern, relying largely upon subsistence production to provide trading commodities.

This economic trend was accelerated in 1966 by the declaration of a 40 km wide inspection zone for hoof and mouth disease along the Colombian border. This was accompanied by a prohibition on cloven-hoofed animals, which meant that the Embera immediately lost their pigs, a major source of both protein and cash income for trade. This had several serious consequences. Hunting was intensified as an alternative source of meat. A switch to canned meat increased the need for cash. Some Embera took up lumbering as an alternative source of cash (Houseal et al 1985).

The hunting pressure on wild game was further intensified by the gradual concentration of the indigenous inhabitants of Darien in settlements. Herlihy (1985) states that this relocation was an initiative by those parents who felt that their children needed an education in Spanish in order to avoid being overwhelmed by outsiders. By 1960, the first 6 villages were clustered around either schools or missions.

The government of Omar Torrijos vigorously supported this trend and in 1968 Torrijos himself appointed a Kuna leader to advise the people of Darien how to organise along the lines of the Kuna Comarca. Over the following 20 years, 80% of the indigenous population relocated to villages with communal political structures replacing the former authority of family heads. Though this process led eventually to the declaration of the Embera-Drua Comarca, it has had less fortunate side-effects in terms of a breakdown of social structure and an abandonment by the young of traditional language and practice in favour of Spanish and the national curriculum (Houseal et al 1985).

It has also precipitated changes in resource use patterns. Herlihy (1986) points out that a major factor in the relocation of the earlier dispersed household-based settlements was local game depletion. This is no longer possible because of the sheer size of the settlements and the medical and educational installations that are now a fixed feature of village life. Animal populations within walking range of these communities have been depleted and in any event the remote areas which do still support game animals are generally unsuitable for agriculture.

Houseal et al (1985) suggest that some degree of paternalism informed the declaration and early planning of the Darien National Park

without serious consultation with indigenous communities. The management plan called for the prohibition of hunting and fishing and the relocation of some villages away from a strictly protected area.

These recommendations have been eliminated under the present biosphere reserve scheme. Instead, attempts are being made to involve communities and leaders in forest management and in the various employment opportunities signified by the park and a growing tourist trade. The WWF has provided support for almost 10 years and expects to continue to do so. Other support issues from US-AID, UNESCO and RENARE. Darien will continue to be exposed to the attentions of the mining and logging industries and the colonisation that may be precipitated by the extension of the Pan-American Highway (WWF 1988a).

6.4. RIO PLATANO - HONDURAS

The Rio Platano Biosphere Reserve was established in 1979 and became a world heritage site in 1980. It covers almost all the watershed of the Rio Platano: 525,000 ha on the Caribbean coast of Honduras. At the time of its creation there were 4,450 inhabitants, mostly Miskito Indians but with a few small Payas and Ladino villages. At that time, Rio Platano was inaccessible by road (Glick & Betancourt 1983).

The reserve is divided into a core area (319,000 ha) to be used for research, education and limited tourism, and a buffer zone (207,000 ha) to be used for sustained use experimentation. Later, a cultural zone will be inserted in the core area, covering the settled areas and archeological sites.

Since establishment, the costs of reserve planning and operations have been supported by the Honduran Renewable Natural Resources Directorate (RENARE), the Honduran Ecological Association (AHE), WWF-US, UNESCO and CATIE. Accomplishments include:

- * Infrastructure, administration and guards in the northern area: the main centre of population.
- * Gathering of support from reserve inhabitants through adult and child education.
- * Resource protection in the northern sector.
- * Training in management methodologies.
- * Involvement of residents in planning and management.
- * Preparation of a long term management plan.
- * Census and studies of established populations and methods of resource utilisation

(Honduran Ecological Association 1987)

But despite these advances in the northern, coastal sector, the staff have been unable to prevent the encroachment, over the last 5 years, of 6,500 colonists into the southern, interior sector, 2,800 of whom have already reached the core zone. A further 9,000 colonists have occupied the area immediately outside the reserve. The colonists have been termed "ecological refugees" (ibid) and have migrated from exhausted lands in western Honduras. The basic method is slash and burn clearance followed by 2-4 years of cultivation before moving to new forest.

Though there are still no conventional roads into the reserve, access has been facilitated by widespread and illegal logging and gold-mining. In addition several hundred Nicaraguan Miskito Indians have settled within the reserve (WWF 1988).

In 1987 an intensive three-week planning workshop in the area was given the objective of developing an emergency plan. It was attended by 35 persons, representing the local residents, NGO's and government agencies. The authors of the resulting plan recognised the impossibility of removing all the colonists, but those in the core zone would be relocated outside the reserve. Other major elements included, protective measures, sustainable development research, extension programs and environmental education.

Protective measures include the formation of a special guard corps, loaned by the military but under control of the reserve administration. Boundaries of both the buffer and core zone will be clearly marked and posted. Radio broadcasts and posters warning of the consequences of colonisation within the reserve will be issued both in the immediate area and the regions that are a source of colonists. On the ground patrolling will be coupled with regular aerial surveillance.

Education and propaganda are to be aimed at several targets: children in reserve and adjacent schools, their parents and other adults, political, military and ecclesiastical authorities at the regional and national levels.

The colonists community that has become established in the buffer zone will become the target of an intensive agricultural and forestry demonstration and extension program covering alternative cropping systems, small animal alternatives to cattle-ranching, soil and water conservation and sustained-yield forestry practice.

6.5. LA AMISTAD - COSTA RICA (PANAMA)

The Biosphere Reserve, designated in 1982, includes an aggregate of 14 established protected areas: national parks, ecological reserves, protected zones, indian reserves, a botanical garden and a hydroelectric reserve. A major component, La Amistad International Park was created by a Panama-Costa Rica treaty in 1979, but the status of the lands on the Panamanian side remains unclear and the biosphere reserve has not yet acquired international status, though La Amistad Park itself was designated a world heritage site in 1983. If the full international biosphere reserve becomes established as planned, it would total 1,700,000 ha.

In 1987, Conservation International entered into an agreement to advise the Costa Rican government on planning and management of the reserve. The various agencies involved are at present working on a strategy for integrated development. This includes zones for traditional use, multiple use, cooperative ecodevelopment projects, habitat rehabilitation and total protection.

The major initial problem is one of land tenure. The lands are currently divided between Indian communities, colonists, national parks and other protected areas. Overlying these is a complex of resource development interests. The hydroelectric reserve includes 50% of Costa Rica's future hydroelectric potential. Of the total theoretical area of 1,700,000 ha, 1,000,000 are considered to be under dispute.

There are a myriad of local problems to be solved. United Fruit purchased land outside the biosphere reserve area for development as a pineapple plantation. The late owners then proceeded to move into a nearby Indian reserve. Atlantic Timbers, one of several United States companies with interests in the area owns the timber rights of lands which are too steep to log. The US Congress has been pressured into warning Costa Rica that import restrictions may be imposed unless US interests obtain adequate compensation (Conservation International per. comm.). Nevertheless, a logging moratorium was imposed in the area early in 1988.

On the Costa Rican side, five Indian reserves cover 30% of the La Amistad Biosphere Reserve and are zoned collectively as a Traditional Use Zone (Conservation International 1988a) in the integrated management plan. Most of the remaining indigenous communities in Costa Rica, of Cabecar and Bribri Indians, live in these reserves. About 30,000 Teribe and Guaymi Indians live on the Panamanian side. According to Houseal et al (1985), not only are most of the Costa Rican Indian reserves either occupied by or owned by non-Indians, but Indian settlement or hunting may actually be prohibited. Torres et al (1987) do not comment upon the condition of the Cabecar and Bribri Indians save to remark that their population ranges between 8 and 12 thousand.

Consultation with indigenous groups has proved difficult, partly because their communities are scattered and remote. There are indications that the Cabecar Indians, who tend to move into remoter regions ahead of the frontier, are less interested in such contacts than the Bribri, who have declared some interest in the economic opportunities signified by the reserve and may want to be involved in its management. Conservation International has recommended that the National Indian Federation be invited to join the Biosphere Reserve Commission.

Luis Hurtado de Mendoza of CATIE outlined a project designed to determine the extent to which current variations in Indian resource uses in the La Amistad area are consistent with environmental conservation. Material would be gathered by student field workers who would spend long periods within Indian communities observing and inquiring about current practices. The proposal for this project is still under consideration.

6.6. AWA ETHNIC FOREST RESERVE - ECUADOR

In some respects, the Awa project is similar to PEMASKY in Panama. The assistance of international organisations has been enlisted in securing the indigenous land base, and simultaneously accomplishing the goal of environmental protection. It is interesting to note that both these projects, which nicely fit the notion of "convergence" between indigenous peoples and conservationists, emerged from the indigenous side of the equation.

The Awa Ethnic Forest Reserve covers 120,000 ha along the border with Colombia. Preliminary studies have suggested that the reserve lands, together with similar habitat across the border, are a Pleistocene refugium - an area which escaped glaciation and served as a genetic reservoir for the region. The Awa reserve itself is also the largest area of Pacific rainforest surviving in Ecuador.

Until the late 1970's even the national Indian organisations were hardly aware of the Awas' existence. But in 1980, the prospect of a road through Awa territory was discussed with potential lenders, including the World Bank. In the same year, Cultural Survival assisted the Awa in a preliminary demarcation study (Macdonald 1986). In 1983, an inter-governmental commission was formed to study development issues along the Colombian border. The Confederation of Indigenous Nationalities of Ecuador (CONAIE) became a member of the commission, which adopted as one of its first projects the demarcation of an Awa-Coaiquer Indian Reserve. Having had negative experiences elsewhere with Forest Reserves, CONAIE urged the Awa to demand a unique category: Awa Ethnic Forest Reserve.

Cultural Survival provided further support for this process which was completed by 1986. CONAIE represented the Awa interest at the national level and assisted with the formation of the Awa Federation. The Awa obtained citizenship and therefore the right to own land. The actual process of demarcation required the settlement of numerous disputes with the timber companies and colonists who had been active in the area.

Having secured the legal basis of ownership, the Awa then proceeded to the next stage of territorial defence: contending with the perception of their land as "idle" and therefore a justifiable candidate for colonisation. First, a 12-15 metre strip was cleared around the entire perimeter of the reserve. The Awa then commenced planting this with a mixture of fruit and hardwood trees: cacao, coconut, coffee, citrus. Four tree nurseries have been installed at potential entry points and six more are slated for 1988 (Levy 1988).

The main concentration is at the western perimeter of the reserve which is exposed to a front of loggers and colonists advancing from the Pacific coast. From the east, the road through the reserve is still a prospect. This road is seen as the ultimate extension of an ambitious Brazilian project to link the Atlantic and Pacific Oceans. The initial surveying was recently completed and the Awa expect that construction will start in five years or so. The response has already been determined; the Awa plan to colonise the road first (Levy p.c.).

6.7. LA PLANADA - COLOMBIA

La Planada, 1,667 ha, is a small wildlife refuge located directly across the border from the Awa Reserve. The two projects have evolved from different sets of circumstances but both now appear to be heading towards the objective of an international biosphere reserve (Glick & Orejuela 1986).

La Planada is the product of a collaborative effort between WWF and the Colombian NGO, Fundacion para la Educacion Superior (FES). When first noticed by a Colombian biologist, Jorge Orejuela, it was nominally a ranch, though it had not been cleared. It had remained as relatively undisturbed tropical forest and appeared to be rich in endemic species. It was also slated for logging but up for sale. Orejuela managed to secure joint support of FES and WWF for the purchase of La Planada as a wildlife refuge.

FES had not been so directly involved in a conservation project before but their organisation proved to be a distinct asset. The survival of La Planada as a wildlife refuge will depend directly upon what happens in the surrounding territory. At present, much of those lands remain relatively undisturbed but the attentions of loggers and colonists can be predicted with certainty unless a directed effort is made to evolve an alternative. This effort has two elements: community education and securing land for conservation and sustainable development.

FES has become active in Colombia's Escuela Nueva (New School) Program, designed to improve education levels for rural children without their having to attend urban schools. The guiding principle of this program is that education should have a strong practical element and equip both children and adults to make the most of their local circumstances, for example through instruction on health and nutrition, school gardens and sustainable agricultural practices.

FES has been using the resources of La Planada for training local teachers and, since 1985, 40 rural schools/communities have been reached by the Escuela Nueva program - many of them in the Awa-Coaiquer territory on the Colombian side (Glick & Orejuela 1986). In addition to teacher training, the La Planada Environmental Education Centre has developed a mobile conservation education unit that visits schools and communities (WWF 1986)

The conservation element aims at ensuring the long term survival of La Planada by promoting environmentally sound land use in the surrounding area. One instrument for this is a proposal for the delimitation of 3-400,000 ha of forest and the communal titling of this land to Awa in Columbia. Another is a proposal for encompassing the entire area, in both countries within an international biosphere reserve (WWF 1988b). Agencies from Ecuador and Colombia have been discussing this prospect since 1986 and a binational technical meeting produced terms of reference for a "Colombian-Ecuadorian Plan for Resource Management and Development in the Awa Area" (ibid).

An eventual international biosphere reserve could cover between 1 and 1.5 million ha. The areas of direct interest to Awa cover 300,000 ha in Ecuador and 800,000 in Colombia. The Awa population in Colombia is considerably higher: 6-8,000 compared to 1,800 in Ecuador. In Ecuador, the Awa have already turned their attention to the degraded lands immediately outside their reserve and have proposed that their rehabilitation be included in a long-term management prospectus (Levy 1988).

6.8. CUYABENO - ECUADOR

In Ecuador, a wildlife production reserve is a conservation area in which the sustained yield hunting of wild animals is allowed, even encouraged. Such reserves fall under the jurisdiction of the national parks authorities and the prohibitions against industrial resource development are theoretically as stringent as they are in national parks.

Cuyabeno was established in 1979 with an area of 256,000 ha. Near its centre is an Indian Reserve of 744 ha titled to the Siona-Secoya. In 1980 there were thought to be 50 people living in this reserve; there are now 75 people, in 12 families (Uquillas 1988).

The Siona-Secoya maintain a mixed economy typical of Amazonia. The houses are built close to the rivers and surrounded by gardens of plantain, yucca, papaya and citrus. Most households keep a few free-ranging pigs and poultry; a few raise a couple of heads of cattle on enclosed pastures and stalls. For more than half their food, they rely upon fishing and hunting; the forest is also used as a source of materials and medicines. The pattern of settlement is at present dispersed. Until a few years ago, there had been a general drifting together of the community. But this had precipitated social tensions, serious enough for the community to decide to reverse this trend and spread outwards again.

The Cuyabeno lakes are well regarded for their scenic qualities and, since the establishment of the reserve, one or two members of the community have elected to guide visitors through the river system. This is a dramatic journey, particularly at the start, where the watercourse is almost invisible to the uninitiated. This apparent impenetrability is deliberately kept so by the Siona-Secoya as a defence mechanism against incursions by colonists.

The Catholic University of Quito has installed an accommodation for research scientists at the Cuyabeno lakes. This is looked after by Victoriano Criollo, the father of several of the families. With three members of the community serving as wardens of the reserve, the Siona-Secoya have, altogether, been able to gain modest economic benefit from the status of the reserve as a conservation unit.

However, while appreciating these advantages, the Siona-Secoya are not entirely happy with two other aspects of the Cuyabeno reserve. One is that it has failed to forestall the spread of colonisation. The other is that, as long as the laws remain ignored, the Siona-Secoya end up with less effective access to resources than the colonists.

The Ecuadorian state oil company, CEPE, and Texaco were exploring in the area before the reserve was established and construction of a road towards Cuyabeno had commenced in 1970. Upon establishment, there was no attempt to draw up a development plan and no effective measures were taken to deter colonists from moving in along the oil road. The responsible agencies have stated that there simply was not enough money to enforce the regulations against colonisation. This is still the case: the wardens stationed along the access road are not even provided with the transport needed to fulfill their duties (they finally obtained a truck, but it broke down and they have been waiting four months for the repair to be authorised). The current estimate is that the Cuyabeno reserve has lost 59,000 ha to about 1,000 colonist families.

While the colonists have been able to clear the Cuyabeno forest with impunity, obtain title to 50 ha lots, sell these, and then move on to clear new forest lots, the Siona-Secoya have found that the same set of disregarded rules are applied strictly to their activities. The 744 ha which have been titled to them in their Indian Reserve are equivalent to 62 ha for each family, barely more than the 50 ha accessible to colonists and certainly not enough to provide for the children when they raise families. The Siona-Secoya can hunt in the larger reserve and gather certain subsistence materials. They would be content with this arrangement if it was generally observed. But, witnessing the colonists getting away with it, some Siona-Secoya have declared that they too would like to engage in logging.

Confronted with this problem of colonisation in Cuyabeno, the National Parks Service has decided to accept the current situation as a fait accompli and change the western boundary of the reserve so that the colonised area is excluded and an equivalent tract added to the eastern margins. This does not address the problem of how to prevent colonisation along roads, but that is one that the parks service may soon have to tackle again in the case of Yasuni National Park.

6.9. YASUNI - ECUADOR

At 680,000 ha, Yasuni is the largest national park in Ecuador. An expansion, presently under consideration, will enlarge this to about 1,000,000 ha.

The park is at present occupied by over 100 Huaorani. Approximately 60 km to the west is a Huaorani Protectorate, decreed in 1968 and inhabited by about 700 people. Connecting the two areas is an east-west corridor which was proposed for Indian Reserve status at the same time but did not receive this.

The corridor is significant for two reasons: one is that it is frequently used by Huaorani travelling between the park and the protectorate, the other is that it has been occupied for some time, but not continuously, by an uncontacted group of Huaorani, the Tagaira.

The Tagaira were at one time associated with the Huaorani now living in Yasuni Park. They split off almost 20 years ago and are thought to have been moving in the western park and corridor area ever since. Apparently they at one point in the 1970's attempted to rejoin a different group of Huaorani but, after an initial welcome, the envoys were tracked back to the main camp, which was then attacked. (James Yost pers. comm.).

During Texaco's first period of intensive exploration in the region, 1971-73, a clash occurred near an oil camp in which a cook was killed on one side; the number on the other was not reported. It was during this time that the Huaorani living in what was to become the park were first contacted (ibid). In 1977, 3 oil workers were killed on one side as they crossed a river, and in 1984 another group was attacked and badly wounded (again on one side the number killed on the other side was not reported). In July, 1987, the Bishop of Napo Province and a nun were killed (again on one side) shortly after they attempted to contact the Tagairi. The two missionaries were experienced in the region and spoke Huaorani. It has been suggested that they were either paid by the oil companies operating in the area or formally representing them. But it is more likely, as the bishop himself stated, that they went independently, convinced that if the Tagairi were not contacted, they would eventually be killed on sight. These killings caused the oil companies exploring in the area to suspend their activities.

The Huaorani are linked to two separate issues in the Yasuni area. One is a new road that is driving southwards and will eventually cut across the corridor and isolate the two Huaorani groups from each other. The other is a road that may soon be constructed within the park itself contravening the regulations of practically all world national parks. In both cases, the issue turns upon whether or not colonisation can be controlled. In that sense, the north-south road currently under construction can be regarded as a stalking horse for the road that may later be built inside the park.

It has been suggested that colonisation be prohibited along a twenty kilometre stretch of the north-south road, and that this stretch be patrolled by Huaorani from the protectorate. This group has already developed techniques for dealing with colonists. The occupants of a new house built inside the Indian Reserve will awake to find it encircled by Huaorani, who then explain the regulations. This is invariably effective; the family usually leaves before any escalation. the house is then burnt. Apparently the Huaorani have been approached on the matter of road patrol and have responded seriously enough to discuss work rotations: one month on, two weeks off - identical to the Kuna patrol rotation.

It would be to the advantage of the oil companies active in Yasuni park if such a system were to work. Conoco, the main player, has taken the position that a road could be built and colonisation prevented, although they have stated that such prevention could not be their responsibility. Opponents of the road, referring to Cuyabeno, point out that this has never happened and therefore they can hardly be expected to be satisfied with statements of intent. Without a credible proposal for prevention of logging and colonisation, their position is that Conoco should build the pipeline

by air, thus partially dispensing with the need for a road. There are precedents for this elsewhere in South America, but Conoco questions their application to the Yasuni case. The company argues that the clearcut trail required for the pipe-laying equipment would still provide access for colonists.

Under the contractual arrangement covering exploration and exploitation, CEPE rather than Conoco would ultimately bear the extra costs of an air-built pipeline.

6.10. MBARACAYU WILDLANDS AREA - PARAGUAY

(The main source for this section is Hill, 1988)

Mbaracayu is a cooperative project that originated in the continuing attempt by a group of Ache Indians to retrieve lands from which they were removed during the 1970's. The area, a territory traditionally occupied and used by the Ache, is a 58,000 ha tract of forest that was purchased by an Argentinian lumber company and developed with the help of a loan from the International Finance Corporation (IFC), the private sector equity arm of the World Bank group.

In 1979, the lumber company defaulted and the equity reverted to the IFC which has since then engaged a local security company to prevent logging. A team of anthropologists studying the Ache estimated that there were Indian habitation sites in the area and 350 Indians who used it frequently. This larger group was based at a 1,500 ha Catholic mission, 15 km from Mbaracayu.

After consultation with the Ache, in 1986, anthropologist Hill began to explore the prospect of converting Mbaracayu into a conservation unit. The Nature Conservancy and the Paraguayan Centro de Datos de Conservación (CDC) were supportive and on this basis, Hill undertook to outline the various possibilities to the Ache, with the focus upon a possible national park.

The Ache were unfamiliar with the concept of a national park and were most concerned about a loss of hunting rights if its main purpose was to protect animals. But they were interested in the possibilities of employment and were willing to refrain from hunting certain species in exchange for such economic benefits. Past studies revealed that none of the 4-5 main species taken by Ache hunters were listed as rare or endangered; in fact, such species comprised less than 1% of the Ache diet.

But the Ache insisted on gaining title to a tract of land near to the park which they could use for their own purposes. They asked for 5,000 ha. but eventually agreed to accept 3,000 ha. The CDC could not guarantee this but agreed to convey the request to the Nature Conservancy, which was funding the planning work.

After a survey by CDC staff, in which Ache were contracted for guiding and logistics, the community presented their position and ideas on the project in the form of a five year plan (Hill 1987a). Its three major provisions are:

Ache would hunt with traditional weapons in certain areas of the park and refrain from hunting in others specified zones.

3,000 ha. adjacent or close to the park will be titled to the Ache. This would be used for a number of innovative development projects.

Qualified Ache would have prior claim to any job opportunities arising in connection with the park. These would entail, demarcation, trail-cutting, patrolling and construction at first, and later such positions as guards, guides, research assistants as well as suppliers of food and handicrafts.

Early in 1988, a Paraguayan conservation NGO, the Fundacion Moises Bertoni, was established to oversee the early planning and management of the project, which is now called the Mbaracayu Wildlands Management Area. With strong support from Paraguayan conservation agencies, the project has moved to another phase of activity guided by the following:

To obtain higher level support in Paraguay.

To gradually bring in other interested parties: local Guarani, businesses, peasant organisations, missions.

To ensure a prominent role for Ache as more players appear.

To directly involve Ache in planning and implementation. (Nature Conservancy International, 1988).

While the conservation plans are proceeding, the Ache have commenced working on an economic development plan that is based partly upon the opportunities represented by Mbaracayu and partly upon the use of the 3,000 ha. for which they will receive title (the reference for the following is Hill 1987b, unless otherwise noted).

The development strategy is based upon three initial imperatives: to eradicate malaria, to improve nutrition, to improve shelter and bedding. Previous attempts at conventional agriculture had failed for a variety of reasons: lack of capital, education, experience, and access to transport systems and markets that Paraguayan agriculturalists take for granted. Instead of resuming this unequal competition, the Ache decided to work their comparative advantages and on that basis have devised an interesting project agenda of four elements: raising ducks and fish, breeding rabbits, bee-keeping, captive breeding.

The Ache have access to a variety of wetland and river habitat suitable for raising ducks and fish, both in natural and artificial waters. There is Paraguayan experience in aquaculture, local sources of fish stock, and indications of a strong market. This activity would improve Ache nutrition and provide a surplus for sale.

There are confirmed markets for rabbit fur in Brazil and Argentina

but little Paraguayan effort to serve them. There are established sources of advice and stock and the Ache have already succeeded with a small pilot project.

Ache are experienced at the location and collection of wild honey. The Mbaracayu proposal commences with the more systematic collection of wild honey while at the same time capturing wild queens as the basis for gradually building up an artificial hive industry.

The captive breeding proposal is the favorite one that the Ache feel gives them the most competitive edge. They can apply their intimate knowledge of wild animal behaviour. They keep a wide range of pets and have considerable experience in capturing and handling wild animals. Familiar with the animals' habits, the Ache can harvest the needed wild food.

Candidate species have been divided into three market-oriented groups: meat, skins, live specimens. For meat, they have in view three rodents: paca, agouti, capybara. The capybara, the largest rodent, has been successfully raised in Venezuela. For both meat and skin, the teju lizard is in high demand in Paraguay and has also been raised successfully elsewhere. The caiman is considered to have the same potential as the North American Alligator, which is also regularly farmed.

The captive breeding program has two objectives. One is the provision of animals for zoos and as pets. The other is the provision of animals for re-stocking habitats where the same species have become depleted.

There would be two sources for capturing breeding stock. One is Paraguayan habitat where a species is relatively common but scarce elsewhere. The other is habitat which is slated for clearance for agriculture or ranching; in eastern Paraguay this could amount to 80% of the present area under forest. This would entail monitoring the process of deforestation throughout the region. Ache would enter these forests and capture endangered species for later transfer to a park or reserve or for use in the captive breeding program.

The Ache recognise that the whole question of wild animal trade and captive breeding has been complicated by poaching and smuggling and the maze of regulations that have evolved in an attempt to control the trade. But breeding programs, in association with legitimate scientific institutions have largely managed to escape clandestine associations and the Ache have set a precedent for this in their current collaboration with conservation NGOs. Moreover the goal of capturing animals from habitat about to be destroyed in order to rehabilitate depleted populations could bring conservation benefits.

Among the species of interest to the Ache are the rare and endangered giant armadillo and giant otter, which would only be captured from habitat destined for destruction. Tayra and bush dogs are common in eastern Paraguay but often rare in other areas of South America and would be suitable candidates for reintroduction to such locations. Other species of interest for captive breeding include anteaters, peccaries, howler monkeys and tapirs.

7. CASE STUDY REVIEW

7.1. INTRODUCTION: TEN AREAS OF ACTION

This chapter reviews the Latin American case studies, as well as examples cited elsewhere, in terms of ten areas of activity. Seven of these are drawn from conventional conservation planning practice, but three are added: organization, compatible resource utilization, impact management. They are added because they are either significant for World Bank project planning or for the lessons they teach in cases where indigenous people become involved in conservation.

Organization is stressed because so often most of the groups and agencies involved in conservation already have the advantage of a dedicated organization while the indigenous people may not. Compatible resource development still plays a minor role in conservation planning; to reflect local interests, it is elevated to equivalent status. Impact management is in theory of only occasional significance to protected area management but in planning studies related to Bank-supported development projects it would assume greater significance.

The intention, in adding these three subjects, is to define an area of planning in which conventional conservation practice is adapted to the special case in which large-scale development projects affect areas utilized by indigenous peoples. This planning process may contemplate several categories of reserved area: indigenous areas, protected areas such as national parks, biosphere reserves or management regimes that are not tied to a reserved area.

The ten areas of activity are placed into three general categories: protection, economics, operations.

In the absence of either adequate laws or their adequate enforcement, protection has become the overwhelming goal of the managers of conservation areas in Latin America. In Canada and the United States, general public sentiment prevents the more overt violation of protected areas which is commonplace in Latin America. Conservation agencies recognize that such support can only be generated over time with a focused effort at public education and propaganda and education is therefore subsumed under protection.

Latin American conservation agencies invariably lack financial resources, even though governments may concede that conservation areas need not be self-sufficient and should be maintained from the public purse. In this regard, the ten case studies are looked at in terms of their typical operating costs and the scope for recovering part of these in the form of revenues from appropriate recreational and resource development.

Since most of the case studies are still in the proposal or early implementation stage, fewer conclusions can be drawn about the four topics listed under operations. But it is clear from this limited experience that if indigenous peoples, as well as other interest groups, are to be continuously represented, then quite different methods of area management and operations will be required. The kind of conservation units implied by the initiatives of the Kuna, Awa and Ache are quite distinct from those reviewed in the previous chapter.

The ten topics to be dealt with below are:

PROTECTION

1. Physical protection
2. Public education
3. Impact Management

ECONOMIC

4. Resource utilization
5. Recreational Development
6. Operational costs

OPERATIONS

7. Organization
8. Area research
9. Training
10. Planning and management

7.2 PHYSICAL PROTECTION

In none of the case studies has the legal establishment of indigenous or conservation reserves led to the provision of adequate protective services by government agencies, and only Costa Rica is in a position to argue that it lacks the military force to deploy for these purposes. Two Ecuadorean army generals present at the Quito conference on Yasuni National Park proposed a paramilitary force of "forest police" formed from conscripts in the Amazon region. This force would work "with" rather than "for" the park warden service. But this proposition was linked with a second: that part of Yasuni park might be converted for use as an anti-guerrilla training school. As a result, the generals' offer was not taken seriously by the parks service.

In the absence of enforcement from state authorities, some communities living in reserved areas have assumed these responsibilities themselves. Lacking the authority to enforce protective legislation directly, such groups have been obliged to resort to measures ranging from mild intimidation to hopeful notices. Intimidation has worked in those limited cases where, for example, a single family of colonists has been threatened but it is doubtful whether this informal approach could work on such an enlarged scale that it would challenge the power of authorized forces, however neglectful they may be of their responsibilities.

The Kuna, Awa and Huaorani have all adopted informal methods of protecting their reserves which suit their local conditions, and perhaps their temperaments. A clearly marked boundary is an obvious first step, coupled with patrols for the surveillance and warning off of colonists. For Rio Platano, regular aerial monitoring has also been suggested. The effort that these groups have invested in protective measures, in performing the duties of weak enforcement agencies, suggests that, with a certain degree of support, they could discharge these duties far more efficiently if provided with enforcement authority. Whether they would wish to be invested with such authority is another matter.

These informal methods have advantage over conventional warden forces. They avoid the situation where individuals elect to enforce regulations against other members of the community outside of traditional authority systems, an arrangement which has proved unworkable in other cases (Amaru IV 1980). Clearly, there are grounds for a distinction here, between enforcing laws against intrusions by outsiders and regulations affecting the behavior of residents.

The other dimension to informal protection of reserves is the provision of conspicuous evidence of conventional land use with the purpose of contradicting the justification frequently employed for dispossession by colonists: that the land is idle and therefore available. This was the original motive of the Kuna Indians for attempting to start an agricultural project at the point where a new road would enter their Comarca. The Awa have elaborated this principle by working towards surrounding their entire reserve with a swathe of fruit, nut and useful hardwood trees 250 km. long and 20-30 m. wide, thus neatly achieving economic development and territorial security at the same time. It is perhaps the only protective measure that provides rather than consumes revenues.

This approach is innovative as far as reserved area protection is concerned and though it has yet to be proved over time, it offers an appealing, and probably cost-effective, alternative to either token protection or a concentration of armed force.

7.3. PUBLIC EDUCATION

Successful public education and propaganda can also in the long run decrease reliance upon physical protection. To achieve that, changes in attitudes may be needed at three levels: within the reserved area, amongst adjacent communities, at the national government level.

The proposal for support for the La Planada Education project, Colombia, submitted to the WWF by the Fundacion para la Educacion Superior (FES) elucidates in detail the objectives and scope of a program which is operating successfully at the local level (WWF 1986). Located in the La Planada Nature Reserve, the program has two main elements: the introduction of the Colombia Escuela Nueva (New School) Program to isolated communities; the development of an Environmental Education Centre.

The purpose of the Escuela Nueva Program is to raise the level of rural instruction through teacher training and also to equip teachers to become leaders in community development. At La Planada, the teachers not only receive training in classroom instruction but also in the practicalities of home gardening and the raising of small animals and poultry. In its first year, the program reached 31 teachers in 24 Awa-Coaiquer schools (ibid).

The Environmental Education Centre commenced operations in 1986. A set of environmental education materials has been developed for incorporation within regional curricula. A mobile environmental education unit has been put together for extension to remote communities.

A currently active campaign concerns the spectacled bear, the only Latin American bear. This campaign will be directed at rural campesino communities and urban hunting clubs, both of which are exerting considerable pressure on this species and its forest habitat.

Linkages with the international conservation community can have an impact at the national level which in turn may lead to more support for a reserved area. Endorsement as a biosphere reserve or world heritage site has value in this respect, besides improving the value of such sites as tourist attractions, if that is desired and compatible. In Ecuador, the Galapagos Islands provide concrete evidence of this effect.

7.4. IMPACT MANAGEMENT

This refers to the assessment, monitoring and mitigation of the environmental and socio-economic effects of industrial development. Though none of the case studies contained any examples of indigenous peoples' involvement with the management of environmental impacts, this could well be the case with World Bank-supported projects.

Geisler et al (1982) describe several examples where Indians in North America have managed to force an entry into the environmental impact assessment process. They were able to accomplish this partly because mineral or energy reserves lay under Indian land and partly because of the new environmental legal regimes governing resource exploitation that had emerged since the 1960's. They were able to oblige corporations and government agencies to take account of the Indian perspective on industrial development rather than conducting token consultations while excluding the tribes from the crucial process of impact evaluation. Though Indians were not able to bring development to a general halt on reservation lands, they were able to exert a significant effect upon its conduct.

There appear to be parallels with Latin America; it seems that mineral and energy development on reserved lands cannot be completely prevented, but can be moderated. To the extent that there are also parallels with certain Bank-supported projects, these North American Indian cases could serve as useful models. The research capabilities developed by the Alaska Eskimo Whaling Commission have on occasion been focused upon environmental impact management studies, and have used these as vehicles for on-the-job training programs.

Resource development interests have often displayed anxiety about admitting communities that are the subject of environmental and socio-economic impact into the process of evaluating and managing these same effects. Instead they have sometimes attempted to solicit the support of pro-development elements within the community. This becomes self-defeating when the community reacts by containing this attempt at division and closing ranks against development. The experience in the Arctic indicates that, when indigenous communities are empowered to play an equitable role in the planning of industrial development, the same divergent tendencies within the community are expressed in a more moderate reaction to development.

7.5. COMPATIBLE RESOURCE UTILIZATION

"Compatibility" is used here in the sense illustrated by the examples in section 5.4.; that is, forms of resource utilization which have a conservation effect and are applicable to various degrees within biosphere reserves. The conditions set down for indigenous communities residing within national parks suggest that park authorities consider certain traditional practices to be acceptable for such core areas. More manipulative methods are limited to buffer zones.

This suggests a continuum according to the degree of compatibility with environmental conservation. The most compatible activities are traditional hunting and gathering and perhaps certain adaptations of these contemplated by current research into ethnoecology. The Ache proposal for captive breeding and species translocation may also fall into this category.

Slightly less compatible are various aquacultural, maricultural and wildlife husbandry projects which involve the manipulation of wild animal populations but not their habitats. But such compatibility should also be qualified. Reindeer husbandry and caribou are highly compatible; so much so that there is frequent inter-mixing of wild and domestic herds of this species. But some forms of aquaculture are highly industrialized, needing only frequent genetic refreshment from wild sources as a means of compensating for population stresses induced by the same methodologies.

The imaginative forest management and agroforestry regimes now being demonstrated in Peru and Ecuador mark a transition between such sophistications of traditional harvesting and more conventional agriculture. But, if agroforestry came to enjoy universal application amongst colonists, this would not act as a disincentive to forest clearance, in fact it could have the opposite effect.

An uncritical pursuit of sustainable development in the service of environmental conservation could eventually lead to conflicts which could in turn lead to the withdrawal of support from conservationists, when that support is contingent upon a segment of a reserved area remaining undisturbed. With some Siona-Secoya in Cuyabeno announcing an interest in limited logging, this issue may soon be addressed in practice.

The Kuna case suggests an interesting reversal of the conventional biosphere zoning system, where cultivated or multiple use areas are used as buffer zones for protected non-use zones. The wildland element, though valued as such is also regarded as a buffer protecting the agricultural lands along the coast. This, combined with the Awa example, suggests an alternative pattern. Intensively settled and utilized core areas surrounded by wildland areas, with further cultivated zones strategically placed at the perimeter.

7.6. RECREATIONAL DEVELOPMENT

Those indigenous communities with a history of being treated either as a tourist spectacle or a source of cheap labour, have understandably developed an aversion to tourism. The Aboriginal residents of Kakadu National Park in Australia see mass tourism as potentially damaging as industrial development. A possible exception is the handling by the Kuna of cruise ships under brief, controlled circumstances. But by and large, indigenous people have not done well by tourism.

There are three exceptions to this, all of them intrinsically small-scale and high-paying: ecological tourism, activity tourism, sports hunting and fishing. The popularity of the Galapagos Islands has indicated how profitable ecological tourism can be, but this is run largely by regular tourist companies. Amongst the case studies, the Kuna and Siona-Secoya have shown an interest in combining tour guiding with other activities.

Activity tourism, for example, river rafting, diving, climbing, trekking also has the potential to be integrated into the existing round of activities. But even trekking, as in the case of Nepal, can be so intensive as to contribute to deforestation. In the Arctic, sports hunting and fishing often provide substantial returns to Indian and Inuit outfitters and guides. For example, an Inuit hunter who elects to pass his polar bear tag to a hunter, and who must then guide the hunter with a dog-team, can earn 3-4 times the amount he would obtain by hunting the bear himself and selling the skin. Nevertheless not all Inuit approve of this way of using a tag and the majority of those lucky enough to obtain one still use it themselves.

7.7. ECONOMICS/FINANCES

Complete financial data for all of the case studies was not available but enough was obtained to show a pattern of funding which seems to be characteristic of conservation area development in Latin America. Much of the funding derives from foreign sources, amongst which US-AID, the WWF and the Inter-American Foundation featured prominently. Sites endorsed as world heritage sites qualified for certain support but designation as biosphere reserves does not provide any such direct access to funds.

Conservation organizations that have taken on specific projects in turn obtain funds for those projects from a variety of sources, mainly

foundations. Cultural Survival operates in a similar way, and in addition is frequently consulted by the active conservation organizations when a project involves indigenous people.

The budgets of national conservation agencies are invariably committed to operations and they rarely possess a surplus for special projects. Though their contribution is usually delivered in kind, it can account for a significant part of the total cost, for example in the Awa Project.

At the local level, even less cash is available, though both PEMASKY and La Planada have made a point of confirming local commitment through contributions and fund-raising efforts. In the Kuna case a considerable contribution is made in kind through volunteer assistance in the construction of boundary trails, reserve buildings etc.

National conservation NGO's are beginning to assume more financial responsibilities. Debt-swap arrangements have provided quite large sums to organizations such as Fundacion Natura in Ecuador, providing them with the means to select and support national projects at their own discretion. In other cases, national NGO's may disburse the funds provided by international organisations for specific projects, for example, the Audubon Society in Belize or ANCON in Panama.

In isolated cases, financial or in-kind support has been provided by resource development corporations active in a reserved area. Conoco has given \$50,000 for the completion of a management plan for Yasuni National Park, has sponsored an ecological team which is conducting surveys where forest is disturbed and is also training Ecuadorean students in this work.

The debt swap arranged by Conservation International towards the costs of developing the Beni Biosphere Reserve contains an allocation for an endowment that will provide for the future management of the reserve.

7.8. ORGANIZATION

In the Awa case, the early participation of the Ecuadorean national Indian organization, CONAIE, was crucial in ensuring that the Awa community's interests were adequately represented amongst those of the other groups involved in the process. With a longer experience in national politics, the Kuna community was able to represent itself, but still owed much to the support of the UTK, the Union of Kuna Workers in the national economy.

The outcome of conflicts over external tourist development in the Kuna Comarca demonstrated the resilience of Kuna organisation: the capability to tolerate and resolve internal differences. But these examples also demonstrated the importance of presenting a unified front to outside interests intent on capitalizing on these differences.

The case studies also indicate the significance of a further level of organisation: the interest groups that assemble to advance a specific

project. It is at this level that the indigenous groups that are unified over their agenda have been able to ensure that they maintain control over the process.

This second level is the product of about ten years of informal evolution, which has yielded a highly effective system of conservation project support, with environmental organisations in Washington assuming responsibilities for specific projects, providing technical assistance when needed and tapping other sources for funds. Though cost-benefit calculations for conservation are notoriously difficult to make, this system appears to match the NGO delivery of more conventional development aid in its cost-effectiveness and its capability to handle small projects.

The national conservation and indigenous peoples' NGOs are playing a new and critical role in this linkage. To foreign funding and support agencies they can represent both the national agency and local community interest. They are under greater pressure to produce results in order to remain in existence. In most cases they carry light overheads and flexible operating methods. Moreover, their own members often have useful access to the business, professional and political elites of the country.

The informal action network that has evolved over the last decade could be of great use to World Bank planners charged with implementing their own indigenous people, wildland and other environmental policies in future development projects. They have a proven and cost-effective capability in place. And it is conceivable that national conservation NGOs and indigenous people's federations, would elicit a wider range of response than is normally received by planning missions.

7.9. AREA RESEARCH

In the case studies, with most energies absorbed by securing tenure or conservation status, enlisting support and implementing protective measures, research has received low priority. But a review of the limited amount encountered in this study suggests three main areas of research, applied to reserve development.

Ecological: for planning and management.

Social: regarding residents' perceptions and needs.

Resource: on new methodologies.

The management plans that have been produced for several of the areas follow conventional conservation area practice in using basic land use and habitat classification techniques, from aerial or satellite imagery for example, to provide sufficient information for zoning the areas. The management plans usually specify the areas in which more detailed and long-term studies are required. Both PEMASKY and Cuyabeno maintain minimal logistical facilities for field research. In addition, PEMASKY has commenced publication of a wildlands management journal dealing with field research and its local applications.

A certain amount of social research preceded the establishment of some of the case study reserves, but this was not necessarily about the

prospect of a conservation unit. The organisations involved in these projects have acknowledged frequent problems in this kind of inquiry. In the cases of the Awa or Kuna, where the group is propelled by its own objectives, this is less of a problem. But where the society is dispersed in remote family groupings, as in La Amistad or parts of Darien, effective social research is faced with serious logistical obstacles. Cultural Survival, in collaboration with the regional Indian association, has commenced an inquiry/information project amongst reasonably accessible Indian communities in eastern Ecuador and expects that it will take several years for the survey to yield concrete results - but the alternative would be to proceed upon the kinds of assumption and misunderstandings that have created so many problems in the past.

Resource utilization research is an area of significant overlap with the programs of development agencies. It has two general strategic objectives: one is to expand the range of economic opportunities for people living within a reserved area. The other is to improve and stabilize the economies and settlement patterns of those living outside, as an incentive to relinquish the cycle of forest clearance and abandonment in favour of stationary and sustainable practices. In Ecuador, an agroforestry project supported by US-AID and managed by Fundagro (a rural development NGO), has achieved promise over the last three years by enlisting the active participation of over 1,500 colonist families in an experimental/demonstration project for a range of agroforestry methods that are influenced by traditional swidden techniques as well as new crops, although three years is too soon for final conclusions. In northern Ecuador, the Awa plan includes a component to restore the cleared forest outside the reserve. There are also a number of interesting projects aimed at either farming or re-stocking wild habitat with animal populations that have become locally depleted. The Ache proposal is an outstanding example of this.

7.10. TRAINING

This refers to training people living in and near conservation areas to take up work on management and operations. Training, like research, has lagged behind establishment and preliminary planning and, amongst the case studies, has only started seriously with PEMASKY. Several Kuna had attended courses at CATIE.

Institutional education is certainly necessary in certain cases, but the experience of some Inuit groups has demonstrated that it is not an essential prerequisite for starting in on useful field research. The adoption of on-the-job training in field research techniques has admitted young Inuit to the exclusive preserve of Arctic wildlife biology, while maintaining an option on taking up advanced institutional training later.

The Makivik Research Laboratory has covered considerable ground, by not only equipping Inuit to conduct independent field surveys of eider duck, beluga and char, but, as a unit, becoming a leading environmental research agency in Arctic Quebec. The Arctic Research Establishment, though owned by a non-Inuit, has qualified young Inuit to gather environmental data independently, including the solitary operation of a radar station

participating in advanced regional experiments. From its inception, the Alaska Eskimo Whaling Commission ensured that acoustical scientists conducting sophisticated underwater research on bowhead whale communication trained young Inupiat on their field missions. One acoustical scientist remarked that they could not have found the optimum locations for their hydrophones without the guidance of these young men (Tom Ellison p.c.).

For at least ten years, members of the Arctic scientific establishment have regularly called for Arctic-based research units as an alternative to the annual northward migration of the community for the summer months. But it has remained for Inuit to put this proposal into effect.

The field scientists who have undertaken cooperative or training research parties have invariably benefitted professionally from their working association with an intimate knowledge of the territory. This approach is being used in Latin America, particularly by botanists and ethnoecologists.

7.11. MANAGEMENT AND PLANNING.

The primary goal of management in most of the case studies has been limited to protection and even full protection has been beyond the resources of some administrations. The small management group in Rio Platano was quite capable of operating at the northern, populated part of the reserve, but could not be expected to prevent the incursion of 6,500 colonists into the southern parts.

A great deal of effort has gone into planning some of these areas, using established procedures of inventory, sensitivity analysis and zoning. But the planners were obliged to assume that the resources would be available to put the plans into effect. In his contributory paper to this study, Glick (1988) comments upon this tendency and suggests that greater emphasis should be placed upon the management process rather than treating this as a self-propelling mechanism that only needs to be activated by a master plan.

In reality, circumstances change with bewildering rapidity. Even in the Kuna case, with a fairly unified group and a limited objective, the initial concept has undergone radical readjustment during the establishment phase itself. There is no reason to suppose that a plan will of itself stabilize this situation. There are simply too many external modifiers beyond the control of the reserve management, and this situation is complicated even further in the case of a very large, multiple use biosphere reserve.

The presence of residents adds a further complicating dimension, not encountered in a conventional national park. The only certain thing that can be said about the reserves under study is that they will need to continually adjust and this requires a flexible and responsive management structure. One reason why the Kuna have progressed this far is that they already had in place a tradition of nightly meetings when communal decisions are made.

PART THREE

8. AFTERWORD

8.1. WORLD BANK SEMINAR

On August 11, 1988 a seminar was conducted at the Bank to discuss the findings of this study. A draft of this working paper was circulated to participants before the seminar and their comments have been summarized below. The seminar was attended by about fifty persons; half of them Bank staff and the other half from indigenous support organizations, conservation groups and development agencies. The following summarizes the major topics that were discussed throughout the seminar.

It was pointed out that, though the Bank policy towards indigenous peoples is exceptional amongst development agencies, it is not matched by progress in implementation. There is too much emphasis upon top-down planning and not enough effort directed towards actively involving indigenous communities in the planning process. It was suggested that indigenous and conservation organisations in Latin America could play an essential role in accomplishing such participation.

It was remarked that outsiders frequently, and wrongly, assume that indigenous communities share a uniform attitude on industrial development issues, whereas there may be as much internal division of opinion on this subject as there is in industrial societies. This assumption may derive from the occasional need for communities affected by development projects to present a unified front on the issue - one which does not provide opportunities for development proponents to take advantage of apparent tensions. This is also a question that calls for more active local consultation.

Another assumption raised for discussion was that the ultimate effect of industrial development at the frontier will be the abandonment of traditional ways of life in favour of varying degrees of assimilation and that the mixed cash-subsistence economies that are often precipitated by contact are but transitional phases in this inevitable process. An alternative view was proposed in which such mixed economies may represent a synthesis that should be regarded as a viable "third option" - the result of deliberate choices by indigenous groups over what to retain and what to adopt. Such economies may include non-material values and in consequence elude conventional economic appraisal.

Several participants also raised the question of defining what is "indigenous", especially in cases where an indigenous community may share the environmental and economic circumstances of neighbouring non-indigenous communities. In such cases, development policies directed towards alleviating project impacts upon the indigenous communities may be perceived by the others as discriminatory. It was suggested that an "area planning" approach is one means of circumventing such problems as this would take all communities into account regardless of their ethnic status.

Another recurring topic was the potential economic value of wild genetic resources. And also the value to science and the world economy of the indigenous knowledge base of the properties of wild plants and animals. It was suggested that the present level of effort is inadequate to protect these genetic resources. This is a further argument in favour of inviting the participation of indigenous peoples in the mechanisms that have evolved for the global conservation of resources.

This issue also begs certain other questions. For example, that the potential value of genetic resources is invariably defined in terms suitable to the markets of the industrial world rather than the communities in which they grow. There is also the question of how could, or should, such potentials be realized - in order that the benefits are optimal and sustainable.

During discussions with Bank staff after the seminar, one point was emphatically reiterated. That, despite national, environmental and cultural differences throughout the world, parallels can be drawn in terms of the specific approach that development planners should adopt when implementing policies which call for local participation. This approach should be flexible, without preconceptions and should aim at joint problem-solving rather than solution-imposing.

8.2. RESEARCH TOPICS

On the basis of the case studies, three areas for further research are suggested. Potentially, these could be useful for agency planners, conservation NGOs and organisers at the community level.

8.2.1. Conservation Unit Protection

Protection is defined to include a spectrum of activities ranging from uniformed enforcement to those designed to obtain compliance through education and propaganda, both at the regional and international levels.

In Latin America, novel protective measures have been devised by indigenous groups where there is a communal investment in the protection of a reserved area. Are there comparable examples of local area protection elsewhere and are there limits to the efficacy of such informal methods?

The research would entail examining established and new protective measures; the skills, costs, technology and their applicability beyond their area of origin. The case studies suggest four general areas of research.

ENFORCEMENT: Three methods have been applied in varying proportions. Uniform enforcement of statutory regulations. Traditional methods pre-dating industrialization. Informal methods that have evolved locally to deal with immediate pressures.

PERCEPTION OF UTILITY: Conspicuous evidence of conventional resource exploitation has been used to dissuade potential

colonists from concluding that wildlands are "unused" at the time of inspection and therefore legitimate targets for clearance. Has this principle been expressed elsewhere in different forms?

LOCAL EDUCATION: This is an essential concomitant of the two topics listed above. The case studies included one successful example employing conventional educational techniques. What other approaches have been approved effective at this level?

INTERNATIONAL RECOGNITION: Endorsement as a conservation area such as a national park, biosphere reserve or world heritage site enhances protection by opening a channel for appealing for international pressure. Care should be taken to avoid redefining a local resource as an international resource which may dilute the impact of efforts at local education. There are many cases where such international endorsement has proved effective.

8.2.2. Indigenous Environmental Research and Management

A great deal of attention has been directed at the value of traditional ecological knowledge and to traditional systems of resource management, intentional or incidental. But there has been less attention to active examples of indigenous resource management and research in the modern context and the adjustments that may be required to traditional methods.

Suggested is a comparative analysis of several examples of active indigenous environmental research and management operations and the factors accounting for their relative success or failure. This could be done in terms of four areas of application:

ENVIRONMENTAL MONITORING: The progressive collection of environmental data, its processing to the level of information, analysis and application for the routine tracking of the ecological status of a reserved area. Increasingly, remote sensing techniques are being substituted for methods relying upon field observations but such changes may be as much a function of the location of the monitoring agency as the quality of the results.

RESOURCE EXPLOITATION: In campaigning for environmental conservation, much has been said about the presumed but unrealized potential of the plant and animal resources. Implied by these arguments is a scientifically-based system of exploration and utilisation which may be regarded as an analog of traditional methods but serves wider global markets. There have been some successful examples of this transition. What has been the role played by indigenous people and what is the scope for expanding this as a significant form of resource exploitation in reserved areas? This could include collection, captive breeding and cross-breeding.

HABITAT RESTORATION: Forest restoration is an element of several of the case studies, with the objective either the restoration of

pre-existing habitat or the discovering of techniques appropriate for habitat that is incapable of such regeneration. Both procedures require long term attention at the local level. Have comparable efforts been made in other habitats?

IMPACT MANAGEMENT: Protected area managers in Latin America have to deal with the prospect of mineral and hydrocarbon extraction. Managing the socio-economic and environmental impacts requires evaluation and monitoring. To what extent have indigenous groups subject to such impacts been involved in this process?

8.2.3. The Economics of Protected Areas

Conservation areas have traditionally been managed by local offices of centralized conservation agencies and their operating budgets and revenues have been related to those of the central agency rather than local economic conditions.

The involvement of resident or local communities in conservation management should entail adjustments to this arrangement, particularly if the conservation area itself is supposed to assume an economic role. Such a revision would raise questions that could be addressed by the following research topics:

OPERATIONS AND MAINTENANCE: Limited evidence from the cases studies suggest that the participation of indigenous residents in area management could, besides providing employment, be more cost-effective than established remote management systems. There are obvious savings in facilities and overhead. Protection may become a part-time rather than full-time occupation and such techniques as the utilisation of crop and orchard belts as protective measures has the potential to produce revenues rather than consume them.

LOW INTENSITY RECREATIONAL DEVELOPMENT: What type and scale of investment is needed for the kind of tourism that could be adapted to local capabilities and interests? In some communities there is a declared interest in providing opportunities for ecological or activity tourism, but it usually travel agencies in the market areas that derive the greater revenues. Market access is a critical factor preventing those interested from receiving fair benefits.

CONSERVATION AREA REVENUES: On the face of it, diverting revenues from such sources as entry fees, camping and lodges to local communities should be a simple matter. But there are recurrent obstacles, some at the institutional level; other at the communal. The research should be directed at uncovering methods that work and explaining why they do so.

RESOURCE REVENUE COMPENSATION: This is another issue, simple in theory but difficult in practice. It is one requiring attention whenever a group is asked to relinquish a predictable source of

revenue in favour of the more uncertain returns signified by conservation. The research should look at the few examples that have been devised and assess their applicability.

8.2.4. Vernacular Economy

This term is borrowed from architectural history, in which the expression "vernacular architecture" signifies building that is specific to a place and which relies upon local materials. In this context, it refers to economies based directly upon local resources, used either for subsistence or as a source of revenue. Vernacular economy corresponds to the "third option" - proposed during the Bank seminar - for economic evolution which may emerge when indigenous and industrial economies come into contact. The mixed cash- subsistence economies that often result from such contact are interpreted by some as merely a transitional phase in an inevitable process of assimilation. But others take this as evidence of an evolutionary process by which certain features of the indigenous economy are retained and combined with useful features of the industrial economy. The result is a changeable, but not necessarily, assimilative system - and one that eludes conventional economic analysis.

Vernacular economies may include agriculture but, to the extent that they rely upon wild resources, they may be compatible with wildland conservation. There will be thresholds of domestication or habitat manipulation beyond which this consonance begins to fade but the focus of this research would be upon the harvesting a wild resources. As such, it addresses the question of the economic potential of wild genetic material that was raised during the seminar.

Though indigenous economies may frequently adopt a mixed cash-subsistence aspect, and thus conform to this notion of vernacular economies, this is not intended as an exclusive category. Like the term "area planning" this perspective short-circuits the problem of defining "indigenous" by looking directly at a relatively neutral practice and its associated economic and social relationships.

The research would focus upon a wide range of case studies in different regions. The object would be to isolate the common features and indicators which distinguish this form of remote community economy and to examine the mechanisms by which the economic potential of wild genetic resources may be realized so as to obtain the maximum local benefit. This would be useful to development planners when assessing the impacts of development projects upon remote communities and to conservation planners when developing appropriate activities for conservation areas and for buffer zones surrounding protected areas. Four main research areas are listed below.

HARVESTING AND PRODUCTION: Methods for taking wild plant and animal resources. For increasing production in situ or for intensive production methods such as captive breeding and aquaculture. Contribution of new methods in relation to traditional techniques.

LINKAGE WITH ENVIRONMENTAL CONSERVATION: Estimating and observing sustainable yield. Degree of habitat manipulation consistent with wildland conservation. Taking account of regulatory systems such as CITES. Relationship to other wildland uses.

ECONOMIC ISSUES: How to localize benefits. How to recognise and realize economic potential through appropriate market access. Scope for adding value locally through processing, preserving etc.

SOCIAL ISSUES: Ownership and authority over economic process: communal, private, cooperative etc. Regulation of harvesting through compliance or coercion?

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